INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Grand Estates Residential Subdivision Project

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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
ADT	average daily trips
amsl	above mean sea level
ANF	Angeles National Forest
APE	area of potential effects
APN	Assessor Parcel Number
AQMP	Air Quality Management Plan
BMP	best management practice
BRTR	Biological Resources Technical Report
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
cfs	cubic feet per second
CHRIS	California Historical Resources Information System
City	City of Glendora
CNEL	Community Noise Equivalent Level
County	County of Los Angeles
CRP	Conceptual Restoration Plan
dBA	A-weighted decibel
dbh	diameter at breast height
DOC	California Department of Conservation
DWR	California Department of Water Resources
EIR	Environmental Impact Report
EO	Executive Order
FAR	Floor Area Ratio
GHG	greenhouse gas
gpm	gallons per minute
GWP	global warming potential
HMMP	Habitat Mitigation and Monitoring Plan
HVAC	heating, ventilation, and air conditioning
I	Interstate
IS/MND	Initial Study/Mitigated Negative Declaration
LACDPW	Los Angeles County Department of Public Works
LACFCD	Los Angeles County Flood Control District
LACFD	Los Angeles County Fire Department
LACM	Natural History Museum of Los Angeles County
LACSD	Sanitation Districts of Los Angeles County
LARWQCB	Los Angeles Regional Water Quality Control Board
L_{eq}	equivalent continuous sound level
LID	Low Impact Development
LOS	level of service

Acronym/Abbreviation	Definition
LST	localized significance threshold
mgd	million gallons per day
MHFP	Multi-Hazard Functional Plan
MLD	Most Likely Descendant
MM	mitigation measure
MT	metric ton
MWD	Metropolitan Water District of Southern California
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
PPV	Peak Particle Velocity
PRIMP	Paleontological Resources Impact Mitigation Program
proposed Project	Grand Estates Project
RCNM	Roadway Construction Noise Model
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SR	State Route
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
TCR	tribal cultural resource
UWMP	Urban Water Management Plan
VMT	vehicle miles traveled
VOC	volatile organic gas
WRP	Water Reclamation Plant

1 Introduction

1.1 Project Overview

The Grand Estates Project (proposed Project) involves the subdivision of a hillside property in the City of Glendora (City) for the development of a gated-community consisting of 13 new single-family residential lots, one with an existing residence, and one lot for two Private Streets for a total of 14 lots and one designated remainder parcel. It is expected that the 12 new single-family residential lots within the new gated community will be developed in the future, with custom homes, constructed by the individual lot owners, as the market will bear. The existing home, driveway, garages, landscaping, etc. currently located on the westerly end of the property will remain in place and will be located entirely within the newly created lot #1. The Project site is approximately 27 acres in size and is located at 950 North Silent Ranch Drive, at the northern terminus of Grand Avenue in the City of Glendora. The Project site is currently undeveloped, with the exception of a single-family residence, remnant structures from previous uses on the site, and three flood control/debris check dam structures. The three existing flood control structures would be removed and redeveloped under current standards to provide effective protection from potential debris flows and flooding from the hillside areas to the north. One flood control access road would also be constructed and connected to the main proposed Private Street.

The Project site's assessor parcel number (APN) is 8684-045-004 and the existing zoning is E7-20,000 within the Single-Family Residential land use designation within the City's General Plan, also known as the Glendora Community Plan 2025. The property currently contains easements of the Metropolitan Water District of Southern California (MWD), Southern California Edison Company (SCE), Southern California Gas Company, General Telephone Company of California, and the Los Angeles County Flood Control District (LACFCD).

1.2 California Environmental Quality Act

The California Environmental Quality Act (CEQA) applies to projects initiated by, funded by, or requiring discretionary approvals from state or local government agencies. The proposed Project constitutes a project as defined by CEQA (California Public Resources Code Section 21000 et seq.). CEQA Guidelines Section 15367 states that a "Lead Agency" is "the public agency which has the principal responsibility for carrying out or approving a project." Therefore, the City of Glendora (City) is the lead agency responsible for compliance with CEQA for the proposed Project.

As the lead agency, the City must complete an environmental review to determine if implementation of the proposed Project would result in significant adverse environmental impacts. To fulfill the purpose of CEQA, an Initial Study has been prepared to assist in making that determination. Pursuant to CEQA Guidelines Section 15063(d), an Initial Study must contain the following:

(1) A description of the project including the location of the project;

(2) An identification of the environmental setting;

(3) An identification of environmental effects by use of a checklist, matrix, or other method, provided that entries on a checklist or other form are briefly explained to indicate that there is some evidence to support the entries. The brief explanation may be either through a narrative or a reference to another information source such as an attached map, photographs, or an earlier EIR or negative declaration. A reference to another document should include, where appropriate, a citation to the page or pages where the information is found.

(4) A discussion of the ways to mitigate the significant effects identified, if any;

(5) An examination of whether the project would be consistent with existing zoning, plans, and other applicable land use controls; and,

(6) The name of the person or persons who prepared or participated in the Initial Study.

Based on the nature and scope of the proposed Project and the evaluation contained in the Initial Study environmental checklist (contained herein), the City, as the lead agency, concluded that a Mitigated Negative Declaration (MND) is the proper level of environmental documentation for this proposed Project. The Initial Study shows that impacts caused by the proposed Project are either less than significant or significant but mitigable with incorporation of appropriate mitigation measures as defined herein. This conclusion is supported by CEQA Guidelines Section 15070, which states that a MND can be prepared when "(a) the initial study shows that there is not substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or (b) the initial study identifies potentially significant effects, but (1) revisions in the project plans or proposals made by, or agreed to by the applicant, before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur; and (2) there is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment."

This Initial Study/Mitigated Negative Declaration (IS/MND) is composed of four sections. Section 1 provides a general overview of the proposed Project, CEQA requirements related to the Project, the public review process, and a summary of the mitigation measures required. Section 2 provides a description of the environmental setting and the proposed Project components, anticipated construction schedule, and operational characteristics. Section 3 includes the CEQA Initial Study checklist, which provides an assessment of potential environmental impacts and identifies mitigation measures to reduce potentially significant impacts to less than significant. Section 4 provides a list of staff and consultants involved in preparing the IS/MND. The IS/MND also includes Appendices that contain technical memoranda, reports, and/or data files related to and referenced in the impact analyses.

1.3 Public Review Process

In accordance with CEQA and the CEQA Guidelines, a 30-day public review period for this IS/MND commenced on June 30, 2022, and will conclude on July 29, 2022. The IS/MND has been distributed for review to interested and involved public agencies, responsible/trustee agencies, organizations, and private individuals that have requested in writing to be informed of the proposed Project. A hardcopy of the IS/MND is also available for public review during regular business hours at:

City of Glendora Planning Division
116 East Foothill Boulevard
Glendora, California 91741

and

Glendora Public Library
140 S. Glendora Avenue
Glendora, California 91741

An electronic copy of the IS/MND can be viewed at: https://www.cityofglendora.org/businesses/public-notices

During the 30-day public review period, the public will have the opportunity to provide written comments on the information contained within this IS/MND. The City's discretionary approval/refusal of the proposed Project will also be based on the information contained in this document.

In reviewing the IS/MND, interested members of the public should focus on the sufficiency of the document in identifying and analyzing potential Project impacts on the environment, as well as the sufficiency of any mitigation measures proposed to reduce potential impacts to a less-than-significant level. Comments on the IS/MND should be submitted by the end of the 30-day public review period and must be postmarked by July 29, 2022. Please submit written comments by mail, fax, or via email with the subject line "Grand Estates Project" to the following address:

Mark Carnahan
City of Glendora Community Development Department
116 East Foothill Boulevard
Glendora, California 91741-3380
Fax: 626-914-8221
mcarnahan@ci.glendora.ca.us

1.4 Conditions of Approval

The following conditions of approval, mandated by the City, would be implemented as part of the proposed Project:

- Proper notification and coordination with adjacent property owners shall be implemented prior to the start of construction activities.

- Fencing shall be installed between the proposed construction areas and adjacent residences. Off-site temporary construction easements may also be requested.

- Off-site improvements and construction within existing sidewalks shall include reconstruction of these sidewalks, once storm drain improvements are completed.

- The Homeowner's Association (HOA) will be established upon the occupancy of the first custom home. The covenants, conditions, and restrictions (CCRs) of the HOA must be approved prior to issuance of a grading permit so that all hydroseeding, watering, maintenance of the HOA areas and the habitat restoration areas; additional mitigation requirements; and other conditions or approvals would be established prior to construction of the proposed Project.

- The TTM must include a note for Lots 2 and 3, which would be served by the hydro-pneumatic tank system, that these lots cannot be occupied prior to completion of the City-sponsored infrastructure improvement to the water tank.

1.5 Mitigation Measures

Prior to mitigation, Project implementation would result in potentially significant impacts to certain thresholds within the CEQA Checklist topics of Aesthetics, Agriculture and Forestry Resources, Biological Resources, Cultural Resources, Geology and Soils, Noise, Transportation, Tribal Cultural Resources, Utilities and Service Systems, and Mandatory Findings of Significance. However, mitigation measures (MMs) have been developed to avoid or reduce these impacts to levels considered less than significant. These MMs would be included in

the Contractor Specifications and bid documents, as appropriate, and verified as part of the Mitigation Monitoring and Reporting Program. These MMs must be implemented to the satisfaction of the City and are listed below in Table 1.5-1, Mitigation Measures.

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure
Aesthetics	
The Project has the potential to create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.	MM-AES-1. Prior to approval of any residential development applications on Lots 1 through 3 and Lots 5 through 14, the Applicant shall provide a lighting plan to the City for their review and approval to ensure compliance with the following standards: • All outdoor lighting fixtures shall be installed and operated in conformance with applicable Glendora standards, Title 24 of the California Code of Regulations, Part 6 (and any successor regulations), and the Uniform Building and Electrical Codes. • All outdoor lights shall be directed, oriented, and shielded to prevent light trespass or glare onto adjacent properties and onto public rights-of-way. • The candlepower of all outdoor lights shall be the minimum required to accomplish the purpose of the light, but shall not exceed 0.3 foot-candles of illumination at the residential property lines. • The height of lighting fixtures/poles shall not exceed the maximum permitted building height of the residential zone, and if attached to a single-family residence the lighting shall not exceed the height of the roof eave. • All outdoor lighting fixtures shall complement the overall architecture and design of the typical residential Glendora neighborhood in terms of scale, color, and style.
Biological Resources	
The Project has the potential to result in direct Impacts to Terrestrial Special-Status Wildlife.	MM-BIO-1 Special-Status Wildlife Relocation Plan. The applicant shall contract with a qualified biologist, whom shall be selected subject to the City's approval, to prepare a Relocation Plan for Terrestrial Reptiles (Southern California legless lizard and coastal whiptail). The Plan shall at minimum include: identification of potentially occupied habitat, the timing and locations where surveys should be conducted; the habitat and conditions in the proposed relocation site(s); the methods that would be used for trapping and relocating the individual species; and requirements to provide the documentation/recordation of the species and number of animals relocated. The Plan shall be submitted to CDFW for review and must be approved by CDFW prior to commencement of any vegetation clearing or earthwork activities on the Project site. Pre-Construction Surveys. Prior commencement of any vegetation clearing or earthwork activities on the Project site, a qualified biologist shall conduct a preconstruction survey within areas of suitable habitat identified in the Relocation Plan for Terrestrial Reptiles for special-status species wildlife (Southern California legless lizard and coastal whiptail). The biologist shall look for special-status species that may be located within or immediately adjacent to (within 100 feet) of the Project work areas, as permitted by access. Any individual special-status wildlife species observed within the Project work areas during the pre-construction survey shall be flushed and moved out of harm's way to avoid direct impacts to these species (with special-status reptiles documented and relocated as per the approved Relocation Plan). Monitoring. A qualified biologist shall be present during initial ground-disturbing activities within the Project site. The qualified biologist shall possess an appropriate California scientific collecting permit to handle special-status species likely to occur in the Project area. If special-status species reptiles are

Table 1.5-1
Mitigation Measures

<table>
<tr><th>Potential Impact</th><th>Mitigation Measure</th></tr>
<tr><td></td><td>detected in the work area during the surveys, the authorized biologist will capture and relocate individuals to nearby undisturbed areas with suitable habitat outside of the construction area, but as close to their origin as possible (consistent with the approved Relocation Plan). All wildlife moved or flushed during Project activities shall be documented by the biologist and CDFW shall be notified.</td></tr>
<tr><td>The Project has the potential to result in direct and indirect impacts to special-status and nesting birds.</td><td>MM-BIO-2

Nesting Bird Avoidance. Initiation of construction activities, including initial vegetation clearing, should avoid the migratory bird nesting season (February 1 through August 31) in order to avoid any potential significant impact to birds that may be nesting on the Project site. If construction activities must be initiated during the migratory bird-nesting season, an avian nesting survey of the Project site and contiguous habitat within 500 feet of all Project-related impact areas shall be conducted for protected migratory birds and active nests. The avian nesting survey shall be performed by a qualified wildlife biologist, subject to the City's approval, within 72 hours prior to the start of construction-related activity in accordance with the Migratory Bird Treaty Act (16 USC 703–712) and California Fish and Game Code Sections 3503, 3503.5, and 3513.

If an active bird nest is found, the nest shall be flagged and mapped on the construction plans along with an appropriate no disturbance buffer, which shall be determined by the qualified wildlife biologist based on the species' sensitivity to disturbance (minimum of 50 feet for common, urban-adapted species, 300 feet for other passerine species, and 500 feet for raptors and special-status species). The "no disturbance buffer" area shall be demarcated in the field with flagging and stakes or construction fencing and shall be avoided until the nest is vacated and the juveniles have fledged. The qualified biologist shall have the authority to stop work on the Project site and shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests occur.</td></tr>
<tr><td>The Project has the potential to result in direct and indirect impacts to special-status bats.</td><td>MM-BIO-3

Bat Roost Avoidance. Initiation of construction activities, including initial vegetation clearing, should avoid the maternity roosting season (March through August), in order to avoid any potential significant impact to bat maternity roosts. If construction activities must be initiated during the maternity roosting season, a roost survey must be conducted by a qualified biologist, subject to the City's approval. The roost survey for roosting bats shall be conducted on the Project site, including all trees and structures within 300 feet of Project-related impact areas, and shall be conducted no less than 30 days prior to commencement of construction activities. If maternity roosting is identified, those trees and/or occupied structures shall not be removed during the bat maternity roost season (March to August) and a minimum 300-foot buffer shall be established. The "no disturbance buffer" area shall be demarcated in the field with flagging and stakes and the roost shall be monitored by a qualified biologist until roost is vacated and juveniles have fledged.</td></tr>
<tr><td>The Project has the potential to result in direct impacts to sensitive upland vegetation communities.</td><td>MM-BIO-4

Mitigation for direct impacts to sensitive upland vegetation communities shall be implemented through on-site creation/enhancement of remaining sensitive upland vegetation communities and/or off-site acquisition, program funding, and/or mitigation bank credits. Mitigation acreages shall be implemented as shown in Table 3.4-2 Mitigation for Direct Impacts to Sensitive Vegetation Communities.
<table>
<tr><th>Sensitive Vegetation Community</th><th>Direct Impacts (acres)</th><th>Mitigation Ratio</th><th>Mitigation (acres)</th></tr>
<tr><td>Coast Live Oak Woodland Alliance*</td><td>7.71</td><td>3:1</td><td>23.13</td></tr>
</table></td></tr>
</table>

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure

California Walnut Grove	0.01	3:1	0.03
Disturbed California Sagebrush Scrub	0.91	1:1	0.91
Totals	8.63	—	23.33

*Excludes 1.78 acres of coast live oak woodland associated with jurisdictional waters

Prior to the issuance of a grading permit or any earthwork on the Project site, a qualified biologist, subject to the City's approval, shall prepare a Conceptual Restoration Plan (CRP) that sets forth the requirements for mitigating permanent and temporary impacts to sensitive upland vegetation communities (i.e. coast live oak woodland, California walnut grove woodland, and disturbed California sagebrush scrub) that is outside all jurisdictional water limits. Mitigation for sensitive vegetation communities associated with potential jurisdictional waters is identified in MM BIO-6. Areas of temporarily impacted sensitive vegetation communities on site shall be returned to similar conditions that existed prior to grading and/or ground-disturbing activities. Additional unimpacted areas on the Project site that support California annual non-native grassland may be enhanced to support existing sensitive native vegetation communities. The CRP shall include restoration of the following habitats:

Upland Woodlands. Impacted areas of upland woodland (i.e. coast live oak woodland and California walnut grove woodland) shall be created/restored within and adjacent to the same on-site areas that the woodland currently existed prior to Project implementation, as well as other areas deemed to have appropriate soils and topography for successful establishment. Prior to vegetation removal activities, native acorns/nuts shall be collected. Understory areas shall be revegetated with a diversity of locally-collected seeds. Temporary irrigation shall be established and maintained, with irrigation suspensions in times of rainfall. Successful establishment of the woodland shall be determined only after removal of irrigation system and confirmed ability of the woodland to survive in the absence of irrigation. Mitigation for impacts to woodlands shall be implemented at a ratio of no less than 3:1 and shall be accomplished through a combination of on-site replacement and enhancement, on-site preservation, and off-site acquisition and/or mitigation bank credits. If feasible, woodlands would be created/restored at a minimum of 1:1 on-site, with the goal of increasing on-site restoration beyond 1:1.

Sagebrush Scrub. Impacted areas of California sagebrush scrub shall be created within and adjacent to the same on-site areas that the scrub currently exist, as well as other areas deemed to have appropriate soils and topography for successful establishment. Prior to grading activities, native and locally collected seeds shall be collected be planted on site within the mitigation areas. Irrigation shall be provided, as necessary, to assure establishment of the scrub. Based upon the disturbed, low quality nature of the existing California sagebrush scrub on site, mitigation of scrub shall be implemented at a ratio of no less than 1:1 and shall be accomplished through a combination of on-site replacement and enhancement, on-site preservation, and off-site acquisition and/or mitigation bank credits.

The CRP shall include a monitoring schedule, minimum performance standard of success, estimated costs, and identification of responsible entities. At a minimum, the CRP shall require a one-time restoration effort followed by monitoring and invasive weed removal for a minimum of 5 years following ground-disturbing activities to compensate the direct temporary impacts. The monitoring program shall ensure successful establishment of the mitigation land, and if establishment is not realized within five years, restoration activities and monitoring may continue until minimum ratios as outlined above are established. The CRP shall be submitted to the City for review and shall revised to the satisfaction of the City.

Table 1.5-1
Mitigation Measures

<table>
<tr><th>Potential Impact</th><th>Mitigation Measure</th></tr>
<tr><td>The Project has the potential to result indirect impacts to sensitive vegetation communities.</td><td>MM-BIO-5

Flagging Limits. To prevent inadvertent disturbance to sensitive vegetation communities, including jurisdictional waters, outside the limits of work, the construction limits shall be clearly demarcated (e.g., installation of flagging or temporary high visibility construction fence) prior to ground disturbance activities. All construction activities including equipment staging and maintenance shall be conducted within the marked disturbance limits.

Monitoring. A qualified biologist, subject to the City's approval, shall be present during initial ground-disturbing activities within the Project site to ensure that Project activities stay within the demarcated limits.</td></tr>
<tr><td>The Project has the potential to result direct and indirect impacts to jurisdictional waters.</td><td>MM-BIO-6

Mitigation for direct impacts to jurisdictional waters shall be implemented through on-site enhancement of remaining jurisdictional waters and/or off-site acquisition, program funding, and/or mitigation bank credits. Mitigation ratios for each type of jurisdictional waters is shown in Table 3.4-4, Mitigation for Direct Impacts to Potential Jurisdictional Waters.

<table>
<tr><th>Jurisdictional Waters Type</th><th>Direct Impacts (acres)</th><th>Mitigation Ratio</th><th>Mitigation (acres)</th></tr>
<tr><td>USACE waters of the United States</td><td>0.38</td><td>1:1</td><td>0.38</td></tr>
<tr><td>RWQCB waters of the state</td><td>0.50</td><td>1:1</td><td>0.50</td></tr>
<tr><td>CDFW streambed and bank, with coast live oak woodland</td><td>1.77</td><td>3:1</td><td>5.31</td></tr>
<tr><td>CDFW streambed and bank, with non-riparian habitat*</td><td>0.28</td><td>1:1</td><td>0.28</td></tr>
</table>
*Parks and ornamental plantings, disturbed habitat, and developed-concrete channel

On-site Mitigation. Prior to the issuance of a grading permit or any earthwork on the Project site, the Project Applicant shall prepare a Habitat Mitigation and Monitoring Plan (HMMP) for on-site mitigation for temporary and permanent impacts to jurisdictional resources (including coast live oak woodlands associated with the drainages), which shall include habitat enhancement and creation activities. The HMMP shall at a minimum include a feasible implementation structure, salvage/seeding details, invasive species eradication methods, irrigation system and schedule, a monitoring schedule, performance standard of success, estimated costs, and identification of responsible entities. The HMMP shall include restoration of the following habitats associated with the potential CDFW jurisdictional limits:

Riparian Coast Live Oak Woodland. Impacted areas of coast live oak woodland within the CDFW jurisdictional limits shall be created/restored within and adjacent to the same on-site areas that the woodland currently existed prior to Project implementation, as well as other areas deemed to have appropriate soils and topography for successful establishment. Prior to vegetation removal activities, native acorns/nuts shall be collected. Understory areas shall be revegetated with a diversity of locally-collected seeds. Temporary irrigation shall be established and maintained, with irrigation suspensions in times of rainfall. Successful establishment of the woodland shall be determined only after removal of irrigation system and confirmed ability of the woodland to survive in the absence of irrigation. If feasible,</td></tr>
</table>

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure
	woodlands would be created/restored at a minimum of 1:1 on-site, with the goal of increasing on-site restoration beyond 1:1. At a minimum, the HMMP shall require a one-time restoration effort followed by monitoring and invasive weed removal for a minimum of 5 years following ground-disturbing activities to compensate the direct temporary impacts. The monitoring program shall ensure successful establishment of the mitigation land, and if establishment is not realized within five years, restoration activities and monitoring may continue until minimum ratios as outlined above are established. On-site land shall be preserved in perpetuity through a deed restriction or conservation easement, and the HMMP shall identify an approach for funding assurance for the long-term management of the conserved land. The HMMP shall be submitted to CDFW, USACE, and RWQCB for review and comment, and revised to the satisfaction of the City and the three agencies for their approval. Off-site Mitigation. If mitigation is implemented off-site, the Project Applicant shall work with the CDFW, USACE, and RWQCB to ensure the purchase of land acquisition, mitigation program funding, and/or mitigation bank credits are appropriate to offset permanent impacts. Mitigation lands shall be comprised of similar or higher quality riparian woodland and preferably located in the vicinity of the site or watershed. Any off-site land acquisition shall be preserved in perpetuity through a deed restriction or conservation easement, and an HMMP shall be prepared that identifies an approach for funding assurance for the long-term management of the purchased land.
Project has the potential to result in direct impacts to trees resulting from conflicts with the tree preservation policy or ordinance.	MM-BIO-7 On-site Mitigation. Mitigation for City protected trees shall consider and overlap with any on-site compensation for special-status vegetation communities (MM-BIO-4 and MM-BIO-5) and jurisdictional waters (MM-BIO-6). Prior to the issuance of a grading permit or any earthwork on the Project site, a qualified arborist shall conduct a tree survey to confirm previous tree inventory data points and finalize the tree count for the purposes of replacement and shall prepare a protected Tree Planting And Maintenance Plan. The Plan shall be developed by a qualified arborist or landscape architect, subject to the City's approval, and it shall identify tree planting locations, planting stock requirements, planting techniques, maintenance standards, tree protection standards, tree survival criteria, monitoring protocols, and reporting standards. Minimum tree replacement to removal ratios shall be no less than the following for each trees diameter at breast height (dbh) in accordance with the City's 2018 Urban Forestry Manual: Native 8"-15" dbh — 2:1 replacement Native 16"-36" dbh — 3:1 replacement Native 37"-48" dbh — 5:1 replacement Native 49"-60" dbh — 6:1 replacement Native 61" dbh and up — 7:1 replacement Other 10"-15" dbh — 1:1 replacement Other 16"-36" dbh — 1:1 replacement Other 37"-48" dbh — 2:1 replacement Other 49"-60" dbh — 3:1 replacement Other 61" dbh and up — 5:1 replacement The plan shall be approved by the City prior to implementation.

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure
	Off-site Mitigation. For protected trees that are not replaced on-site, an in-lieu fee for future tree replacement shall be collected and deposited into a tree replacement fund. The in-lieu fee is based on the City's cost to replant and set by City resolution.
Project has the potential to result in indirect impacts to trees resulting from conflicts with the tree preservation policy or ordinance.	MM-BIO-8 During Construction. Prior to issuance of the Project's grading permit, the Applicant shall coordinate with LACFCD to assess the feasibility of oak tree preservation within the minimal grading/grooming areas and determine whether select trees could be preserved in place while maintaining the health and safety requirements of the LACFCD debris/flood control facility functions. Trees identified as being feasibly preserved and trees within approximately 15 feet of proposed construction activity shall be temporarily fenced with chain link or other material satisfactory to City planning staff throughout grading and construction activities. The fencing shall be installed three feet outside of the dripline of each tree (or edge of canopy for cluster of trees), be four-foot-tall, and staked every 6 feet. The fenced area shall be considered the tree protection zone (TPZ) unless proximate construction required temporary removal. An International Society of Arboriculture Certified arborist shall monitor any construction activity taking place within or near to the TPZ and shall submit a Construction Observation letter to the City for approval, prior to final inspection, summarizing the results of the monitoring activity and resulting health of trees designated for preservation on-site. Post-Construction. For a period of no less than 5 years from the date of final inspection, an International Society of Arboriculture Certified arborist shall submit to the City a monitoring report annually. The report shall show compliance with the tree protection conditions of approval and verification that all trees are in good health. Further, all trees that have been substantially root pruned (30% or more of their root zone) during construction within the TPZ shall be monitored by an International Society of Arboriculture Certified arborist for the first five years after construction completion. The arborist shall submit an annual report, photograph each tree and compare tree health and condition to the original, pre-construction baseline.
Cultural Resources	
Archaeological resources could potentially be discovered/unearthed during Project construction.	MM-CUL-1. In the event that archaeological resources are unearthed during ground-disturbing activities, the construction contractor shall immediately cease all earth-disturbing activities within 100 feet of the discovery and shall retain a qualified archaeologist that meets the Secretary of the Interior's Professional Qualification Standards. Construction activities may continue in other areas outside of the designated protection zone, which shall be delineated with cones, flagging, or fencing. The archaeologist shall evaluate the significance of the find and determine whether the resource uncovered is a "Tribal Cultural Resources" pursuant to Section 21074 of the California Public Resources Code, or a "unique archaeological resource" pursuant to Section 21083.2(g) of the California Public Resources Code or a "historical resource" pursuant to Section 15064.5(a) of the State CEQA Guidelines. If the archaeological find is determined to be a resource, the archaeologist shall formulate a Mitigation Plan in consultation with the City of Glendora that satisfy the requirements of the above-listed Code Sections. Upon approval of the Mitigation Plan by the City, the Project shall be implemented in compliance with the Plan. If the Archaeologist determines that the resource is not significant, s/he shall record the evaluation and submit the recordation form to the California Historical Resources Information System (CHRIS) at the South Central Coastal Information Center (SCCIC). The archaeologist shall prepare a report of the results of any study prepared as part of a testing or Mitigation Plan, following accepted professional practice. The report shall follow guidelines of the California Office of Historic Preservation although format will be dependent on the nature of the archaeological investigation required. Copies of the report shall be submitted to the City and to the CHRIS at the SCCIC.
Human remains, including those interred outside of dedicated	MM-CUL-2. In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the Los Angeles County Coroner shall be notified within 24 hours of the discovery.

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure
cemeteries, could potentially be discovered/unearthed during Project construction.	No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, s/he shall notify the Native American Heritage Commission (NAHC) in Sacramento within 48 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.
Geology and Soils	
The Project has the potential to directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving seismic ground shaking.	MM-GEO-1. At the time of submittal of the first plan check, the Project Applicant shall provide an additional, detailed site-specific geologic evaluation of the Project site, supporting the proposed grading design to the City for review. The recommendations of the Project-specific Preliminary Reports of Geotechnical Investigation prepared by G.A. Nicoll and Associates, Inc. 2013 and 2016 shall be applied to the final Project designs, as applicable, and shall be refined, as necessary. In summary, preliminary recommendations to be incorporated into the Project design may include, but are not limited to: (1) removal of loose younger alluvium, existing fill, colluvium, and soil slumps and over-excavation in areas of transition to bedrock and of large trees to be removed; (2) re-use of rock materials scattered in the fill materials, as appropriate; (3) reworking/compaction of the soils to achieve 85-90% relative compaction; (4) protections of concrete and metal pipes from any high-sulphate bedrock, as appropriate; (5) buttressing of cut slopes and removal of any slump areas, finished with the sufficient added fill to buttress the remaining material; (6) slope stabilization fills and/or keys near the Metropolitan Water District of Southern California (MWD) pipeline, cut slopes, and small landslide area; (7) addition of fines to the fill mixture and/or geofabric stabilization for fill slopes and buttress fills; (8) a system of subdrains and outlets to address accumulations of subsurface water from rainfall and irrigation; and (9) positive surface gradients and other drainage provisions to replace the natural flow of surface water through the canyons, with mid-slope drain and down drains for slopes of 25 feet or higher.
The Project has the potential to be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in collapse.	MM-GEO-2. Prior to the approval of the Final Plans for the proposed Project, the Project Applicant shall provide the Metropolitan Water District of Southern California (MWD) with the following documents: the Tentative Tract Map; soils report and settlement analysis; laboratory testing results; detailed designs of the required secondary containment system for non-potable utilities landscaping plans; and any other supporting documents related to development within the MWD easement, including details of the retaining wall, foundations, and supporting calculations, shall be stamped and signed and submitted for MWD's review and written approval. The Tentative Tract Map shall identify the following features and requirements: • Gates or removable bollards, capable of accommodating MWD's locks, shall be installed at the location of the driveway approach to the Upper Feeder to prevent unauthorized entry to MWD's right-of-way; • Bollards shall be placed on the south side of City of Glendora / LA County Flood Control's maintenance road to protect MWD's 10-foot-inside-diameter air vent shaft (at Station 2280+51) from damage; • Building structures of any kind and trees are prohibited within the limits of the MWD easement. • Any intrusion, modification, or destruction of any aspect of this Monrovia No. 1 tunnel segment of the MWD Upper Feeder pipeline or the hatch are prohibited.

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure
	The Covenants, Conditions & Restrictions (CCRs) of the Homeowner's Association shall require the written notification of the property owners of Lots 7, 8, and 9 that are located immediately northeast of the Upper Feeder pipeline and right-of-way, that access to the lots may become unavailable at any time, for a period of time, in the event that excavation of the pipeline becomes necessary for maintenance, repair, replacement, or the addition of another pipeline. The CCRs of the Homeowner's Association shall also require that all property owners of land with the MWD easement shall be notified that structures of any kind and trees are prohibited within the limits of the MWD easement.
Paleontological resources could potentially be discovered/unearthed during Project construction.	MM-GEO-3. Prior to commencement of any grading activity on-site, the Project Applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) (2010) guidelines, subject to the review and approval of the City's Building Official, or designee. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed Project. The PRIMP shall be consistent with the guidelines of the SVP and should outline requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the Project area based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the preconstruction meeting and a paleontological monitor shall be on-site during all rough grading and other significant ground-disturbing activities in previously undisturbed, fine-grained older Quaternary alluvial fan deposits. These deposits may be encountered at depths as shallow as 5-10 feet below ground surface. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find.
Noise	
The Project could result in a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance.	MM-NOI-1. Prior to the issuance of a grading or building permit, the Property Owner/Developer shall submit construction plans and/or specifications to the City of Glendora Planning Division demonstrating compliance with the following: • The location and design of a temporary noise barrier between the construction area and the adjacent residences. Given that a retaining wall is proposed between the project access road and the adjoining residential properties, said retaining wall, constructed as part of the proposed Project, shall be erected immediately as the first component of construction, to function as a noise barrier. As necessary, temporary height extensions to the retaining wall to achieve a minimum height of 12 feet from the wall base on the project side to the top of the barrier, shall be added and maintained for the duration of construction. If immediate installation of the boundary retaining wall is not feasible for construction progression, then a temporary barrier shall be installed in the eventual location of the retaining wall. The temporary noise barrier or temporary height extension of the retaining wall to achieve a 12-foot-high noise control barrier shall be constructed with plywood that is at least ½ inch thick or with another material that creates a noise transmission loss of at least 20 dBA. • All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. Enforcement shall be accomplished by random field inspections by applicant personnel during construction activities, to the satisfaction of the City. • Construction noise reduction methods such as shutting off idling equipment, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible.

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure
	• During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors. • Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event the City of Glendora receives a complaint, appropriate corrective actions shall be implemented and a report of the action provided to the reporting party.
Transportation	
The Project could substantially increase hazards due to a geometric design feature or incompatible uses.	MM-TRAF-1. Prior to the start of any Project-related construction, the Applicant shall develop and implement a Project-specific Traffic Control Plan (TCP). At a minimum, the TCP shall require the use of a flagman at the intersection of Grand Avenue and Palm Drive throughout all phases of construction activity that require heavy truck traffic through the intersection. The TCP shall be stamped and signed by a licensed Traffic Engineer or Civil Engineer in the State of California. The TCP shall be prepared in accordance with applicable regulations and standards, including the California Manual on Uniform Traffic Control Devices (CA MUTCD), and approved by all regulatory agencies having jurisdiction over the work locations shown in the TCP, including the City of Glendora.
The Project could substantially increase hazards due to a geometric design feature or incompatible uses.	MM-TRAF-2. Prior to issuance of a occupancy permit for any habitable structures on any Project site, the Applicant shall complete the following improvements to the Grand Avenue and Palm Drive intersection and immediate vicinity, as provided by the City of Glendora in the 2020 Grand Avenue/Palm Drive Intersection Safety Assessment, to the satisfaction of the City: (1) Relocate existing stop sign and street name sign onto a new taller post. The bottom section of the stop sign is currently 5.5 feet above sidewalk grade. Per the California Manual on Uniform Traffic Control Devices, the vertical clearance of all signs should be 7 feet minimum. (2) Repaint red curb on the west side of Grand Avenue where the street narrows to 18 feet in width. (3) Upgrade the existing wood pole streetlight at the intersection to LED. (4) Relocate 25 mph speed limit sign onto the existing streetlight. Currently, the speed limit sign is obscured behind the street light pole. Remove signpost. (5) Ensure sidewalk fronting the development are cleared from trees/debris. Include curb ramps on the north and south sides of the intersection. (6) Add a 50-foot red curb on the south side of Palm Drive starting at (7) Repaint stop legend and stop bar.
Tribal Cultural Resources	
Tribal Cultural Resources could potentially be discovered/unearthed during Project construction.	MM-TCR-1. Retain a Native American Monitor/Consultant. The Project Applicant shall be required to retain and compensate for the services of a Tribal monitor/consultant who is both approved by the Gabrieleño Band of Mission Indians-Kizh Nation Tribal Government and is listed under the NAHC's Tribal Contact list for the area of the project location. This list is provided by the NAHC. The monitor/consultant will only be present on-site during the construction phases that involve ground disturbing activities. Ground disturbing activities are defined by the Gabrieleño Band of Mission Indians-Kizh Nation as activities that may include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching, within the project area. The Tribal Monitor/consultant will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor/consultant have indicated that the site has a low potential for impacting Tribal Cultural Resources.

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure
Tribal Cultural Resources could potentially be discovered/unearthed during Project construction.	MM-TRC-2. Unanticipated Discovery of Tribal Cultural and Archaeological Resources. Upon discovery of any archaeological resources, cease construction activities in the immediate vicinity of the find until the find can be assessed. All archaeological resources unearthed by project construction activities shall be evaluated by the qualified archaeologist and tribal monitor/consultant approved by the Gabrieleño Band of Mission Indians-Kizh Nation. If the resources are Native American in origin, the Gabrieleño Band of Mission Indians-Kizh Nation shall coordinate with the landowner regarding treatment and curation of these resources. Typically, the Tribe will request reburial or preservation for educational purposes. Work may continue on other parts of the project while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section15064.5 [f]). If a resource is determined by the qualified archaeologist to constitute a "historical resource" or "unique archaeological resource", time allotment and funding sufficient to allow for implementation of avoidance measures, or appropriate mitigation, must be available. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and unique archaeological resources.
Tribal Cultural Resources could potentially be discovered/unearthed during Project construction.	MM-TRC-3. Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, they shall be offered to a local school or historical society in the area for educational purposes.
Native American Human Remains and Associated Funerary Objects could potentially be discovered/unearthed during Project construction.	MM-TCR-4. Unanticipated Discovery of Human Remains and Associated Funerary Objects. Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in PRC 5097.98, are also to be treated according to this statute. Health and Safety Code 7050.5 dictates that any discoveries of human skeletal material shall be immediately reported to the County Coroner and excavation halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) and PRC 5097.98 shall be followed.
Native American Human Remains and Associated Funerary Objects could potentially be discovered/unearthed during Project construction.	MM-TCR-5. Resource Assessment & Continuation of Work Protocol. Upon discovery of human remains and associated funerary objects, the tribal and/or archaeological monitor/consultant(s) will immediately divert work within a minimum of 150 feet and place an exclusion zone around the burial. The monitor/consultant(s) will then notify the Tribe, the qualified lead archaeologist, and the construction manager who will call the coroner. Work will continue to be diverted while the coroner determines whether the remains are Native American. The discovery is to be kept confidential and secure to prevent any further disturbance. If the finds are determined to be Native American, the coroner will notify the NAHC as mandated by state law who will then appoint a Most Likely Descendant (MLD).
Native American Human Remains and Associated Funerary Objects could potentially be discovered/unearthed during Project construction.	MM-TCR-6. Kizh-Gabrieleño Procedures for Burials and Funerary Remains. If the Gabrieleño Band of Mission Indians – Kizh Nation is designated MLD, the following treatment measures shall be implemented. To the Tribe, the term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the burial of funerary objects with the deceased, and the ceremonial burning of human remains. These remains are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects.

Table 1.5-1
Mitigation Measures

Potential Impact	Mitigation Measure
Native American Human Remains and Associated Funerary Objects could potentially be discovered/unearthed during Project construction.	MM-TCR-7. Treatment Measures. Prior to the continuation of ground disturbing activities, the landowner shall arrange a designated site location within the footprint of the Project for the respectful reburial of the human remains and/or ceremonial objects. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the Project and keeping the remains in situ and protected. If the Project cannot be diverted, it may be determined that burials will be removed. The Tribe will work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe for data recovery purposes. Cremations will either be removed in bulk or by means as necessary to ensure complete recovery of all material. If the discovery of human remains includes four or more burials, the location is considered a cemetery and a separate treatment plan shall be created. Once complete, a final report of all activities shall be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive diagnostics on human remains. Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects, and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within 6 months of recovery. The site of reburial/repatriation shall be on the Project site but at a location agreed upon between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.
Native American Human Remains and Associated Funerary Objects could potentially be discovered/unearthed during Project construction.	MM-TCR-8. Professional Standards. Archaeological and Native American monitoring and excavation during construction projects will be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of human remains and associated funerary objects shall be taken. Principal personnel must meet the Secretary of Interior standards for archaeology and have a minimum of 10 years of experience as a principal investigator working with Native American archaeological sites in Southern California. The Qualified Archaeologist shall ensure that all other personnel are appropriately trained and qualified.
Utilities and Service Systems	
The project would require the construction of new water facilities, the construction or relocation of which could cause significant environmental effects.	MM-UTL-1. Prior to the issuance of an occupancy permit, the Project Applicant shall provide the City with payment of the Project's fair-share contribution to the replacement of the Zone 11 hydro-pneumatic system (pumps, tank, and controls) to provide a reliable water delivery system for Zone 11 homes. The replacement facilities shall be fully operational and all required access easements for the construction and long-term maintenance of the off-site water lines shall be in place prior to the occupancy of the Lots 2 and 3.
	MM-UTL-2. Prior to the issuance of a grading permit, the Project Applicant shall provide the City with documentation that confirms the review and approval of the Project's fire flow requirements and the locations of new fire hydrants by Los Angeles County Fire Department.

Environmental Checklist Form

1. Project Title:	Grand Estates Residential Subdivision Project
2. Lead agency name and address:	City of Glendora Planning Division 116 East Foothill Boulevard Glendora, California 91741
3. Contact person and phone number:	Mark Carnahan, City Planner 626.914.8253
4. Project location:	950 North Silent Ranch Drive Glendora, California 91741
5. Project sponsor's name and address:	Dreamland Investments, LLC 21491 Ferrero Parkway City of Industry CA 91789
6. General plan designation:	Low Density and Conservation Open Space
7. Zoning:	Single-family estate (E7-20,000) and open space – natural (OSN)
8. Description of project:	The 11-acre southern section of the Project site would be developed with residential uses and the 16-acre northern section of the site would remain as open space, with the exception of reconstructed flood control facilities. On the southern section, the Project involves development of 13 new single-family residential lots, one with an existing single-family residence and one lot for the Private Streets, for a total of 14 lots. The project's new gated community would include 12 single-family custom homes constructed on the new residential lots. Lots 1 through 3 and Lots 5 through 14 would be single-family residential lots, and Lot 4 would be the Private Streets. The existing single-family residence would remain in place on Lot 1. Site includes APN 8684-045-004.
9. Surrounding land uses and setting:	To the north of the Project site are mountainous, undeveloped areas within the northern portion of the City and the Angeles National Forest. To the east are hillside areas that are sparsely developed with rural residences. The areas south and southwest are developed with single-family residential neighborhoods. To the west are single-family residences, undeveloped hillside areas, and utility and flood control infrastructure, consisting of a concrete drainage system that leads out of the San Gabriel Mountains.
10. Other public agencies whose approval is required:	U.S. Army Corps of Engineers; Metropolitan Water District; Los Angeles County Flood Control District; State Water Resources Control Board; California Department of Fish and Wildlife; Los Angeles Regional Water Quality Control Board, Los Angeles County Fire Department.
11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1?	Tribes have been consulted. See Section 3.18.

Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

☒	Aesthetics	☐	Agriculture and Forestry Resources	☐	Air Quality
☒	Biological Resources	☒	Cultural Resources	☐	Energy
☒	Geology and Soils	☐	Greenhouse Gas Emissions	☒	Hazards and Hazardous Materials
☐	Hydrology and Water Quality	☐	Land Use and Planning	☐	Mineral Resources
☒	Noise	☐	Population and Housing	☐	Public Services
☐	Recreation	☐	Transportation	☒	Tribal Cultural Resources
☒	Utilities and Service Systems	☐	Wildfire	☒	Mandatory Findings of Significance

Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed Project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.

Mark Carlson — Signature

6/30/22 — Date

Evaluation of Environmental Impacts

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3. Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an Environmental Impact Report (EIR) is required.
4. "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
5. Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
    a. Earlier Analysis Used. Identify and state where they are available for review.
    b. Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c. Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
6. Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7. Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8. This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9. The explanation of each issue should identify:
    a. The significance criteria or threshold, if any, used to evaluate each question; and
    b. The mitigation measure identified, if any, to reduce the impact to less than significant.

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2 Project Setting and Description

2.1 Project Location

As shown in Figure 2-1, Regional Location and Project Vicinity, the Project site is located in the City of Glendora (City), within the County of Los Angeles (County). The Project site is Assessor Parcel Number (APN) 8684-045-004 in the northern, hillside portion of the City, within the foothills of the San Gabriel Mountains and just south of the Angeles National Forest (ANF) boundaries. At a regional context, the site is located north of Interstate 210 (I-210), east of State Route (SR) 39, and west of SR-57. At a local context, the site is located in the northern section of the City, near the northern terminus of Grand Avenue, north of Palm Drive, east of North Silent Ranch Drive, and west of Rainbow Drive. Regional access to the Project site is via I-210, exiting Grand Avenue.

2.2 Existing Conditions and Setting

2.2.1 On-Site Conditions

The Project site is located approximately 35 miles from the Pacific Ocean. On-site elevations range from 960 feet above mean sea level (amsl) to 1,170 feet amsl. The southern approximately 11 acres of the site, which would be developed with residential land uses, is slightly south sloping and has a moderate to flat grade. Elevations across the southern portion of the site range from 960 to 1,025 amsl. The northern approximately 16 acres, which are designated as preserved open space, contain moderate to steep slopes with elevations ranging from 1,026 feet to 1,170 feet amsl.

The proposed Project site is designated in the City's General Plan as Low Density and Conservation Open Space and the zoning for the Project site is Single-family estate (E7-20,000) and open space – natural (OSN). Access to the Project site is provided via one unpaved driveway/ingress road that stems from the terminus of Grand Avenue. Access to the existing residence is provided via the off-site Silent Ranch Drive cul-de-sac adjacent to the southwestern edge of the Project site boundary. Figure 2-2, Aerial View and Existing On-Site Features, shows an aerial view of the Project site and immediately surrounding areas.

As shown on Figure 2-2, the Project site is generally undeveloped and vegetated, with the exception of a single-family residence located in the southwestern portion of the site, remnant structures from previous uses on the site, and three flood control/debris check dam structures. Development has previously occurred on the Project site, which was associated with the former Rancho Los Alisos and the Camp Aventura uses. Around 1907, Charles Silent (lawyer, judge, and a real estate speculator in Los Angeles) began to develop the Rancho Los Alisos property as a landscaped park, with orchards, rancho-style housing with thatched roofing, fountains, and rock-lined paths. A portion of the Monrovia Tunnel No. 1 section of the 30-mile Upper Feeder Aqueduct, which is owned and operated by MWD, was developed through the property in 1936. In 1968 and 1969, a fire and mudslide prompted the construction of LACFCD crib dams in the Project site to control debris flows. Also on the Project site, the Camp Aventura Girl Scout Camp was opened in 1955. The area was cleared of orchards and four buildings and 12 tent pads were constructed, as well as planted trees and other vegetation around the camp. The original Rancho Los Alisos-era ranch house and outbuildings were all removed by 1968. The Girl Scout Camp was demolished beginning in 1974 and a new residence was built at the former Ranch Los Alisos house site in 1976, with construction completed in 1980. All constructed features, including the general locations of remnant structures (e.g., rock pool, drinking fountain, concrete stairs, rock retaining walls and steps, concrete hatch for MWD Upper Feeder Pipeline, and a restroom building) are identified on Figure 2-2.

The Biological Resources Technical Report (BRTR) prepared for this Project (Appendix B-1) found that the approximately 27-acre Project site is comprised of annual non-native grasslands (6.42 acres), coast live oak woodland (10.87 acres), disturbed sagebrush scrub (2.24 acres), ornamental/landscape areas (2.41 acres), urban/developed areas (0.28-acre), and California walnut groves (1.4-acre). The non-native grassland and disturbed California sagebrush scrub habitat occurs generally along the ridges of the mountains. Three main drainages are located within the Project site, which are currently intercepted by three flood control/debris check dam structures. However, due to accumulated sediment and lack of maintenance, these structures are not functioning to retain debris or flood flows. Also, a total of 835 trees were surveyed and mapped within the Project site. According to the August 2020 tree survey conducted by a certified arborist, approximately 173 trees surveyed were in extremely poor health (see Grand Estates Tree Information Matrix within Appendix B-1 for further details regarding the health of existing trees surveyed). As stated in the BRTR, of the 835 trees surveyed, 639 were determined by a certified arborist and the City's Department of Public Works to have "protected" status per the City's Urban Forestry Manual (i.e., living, on-site, trees with trunk diameters greater than or equal to 8 inches) (City of Glendora 2018; 2022a; Appendix B-1; Appendix B-2). Of the 639 protected status trees, 437 were identified as being native to the region, including 28 California black walnut, 10 California sycamore, 398 coast live oak, and 1 toyon City (CNPS 2022; Appendix B-1). An additional 202 non-native or non-natural native species (native to California but planted for ornamental landscaping) were identified (CNPS 2022; Appendix B-1).

2.2.2 Surrounding Land Uses

The City is generally surrounded by unincorporated County to the north and the cities of San Dimas to the east, Covina to the south, and Azusa to the west. The City is primarily developed with residential uses, as well as some commercial/industrial uses. The northern and northeastern portions of the City encompass hillside areas at the foothills of the San Gabriel Mountains, which are generally developed with rural/low-density residences, and steeper areas remain open space.

To the north of the Project site are mountainous, undeveloped areas within the northern portion of the City. The Project site is approximately 0.31-mile southeast of the ANF boundary. To the east of the Project site are hillside areas that are sparsely developed with rural residences designated as "Hillside Very Low Density" in the City's General Plan. The areas south and southwest of the Project site are developed with single-family residential neighborhoods. Approximately 0.15-mile southwest of the Project site is St. Lucy's Priory High School. To the southwest of the Project site is also a small unincorporated area of the County, which is surrounded by the City. This area is primarily developed with single-family residences. To the west of the Project site are single-family residences, undeveloped hillside areas within the City, and utility and flood control infrastructure, consisting of a concrete drainage system that leads out of the San Gabriel Mountains. To the west of the Project site is the Church of the Open Door, located approximately 0.15-mile west of the Project site.

Several County-designated Significant Ecological Areas (SEAs) are located within proximity to the Project site. The San Gabriel Canyon SEA is located approximately 0.35-mile northwest of the Project site. The East San Gabriel Valley SEA, which includes South Hills Park and surrounding undeveloped lands within the City, is located approximately 2 miles southeast of the Project site. The County-designated SEAs are not applicable to the Project site or any required entitlements for the development of the property.

2.2.3 Flood Control Facility Improvements

The northern 16 acres of the Project site are zoned open space and would be designated as a "building restriction area." No habitable structures would be constructed within the northern section of the Project site,

except for the proposed flood/debris control facilities, which includes the West Basin (elevated inlet "B"), Middle Basin (elevated inlet "C"), and East Basin (debris basin "D"). The LACFCD determined that with implementation of the proposed Project, potential debris flows during rain events from the undeveloped hillside areas to the north of the site could not be adequately captured by the existing debris control structures, which are filled to capacity and no longer function as intended. Therefore, with implementation of the proposed Project, the existing three flood control/debris check dam structures would be removed, and larger flood/debris control facilities would be constructed within generally the same location. This would protect the new residential development as well as other homes downslope from safety hazards associated with flooding and debris flow.

Figure 2-4a, Tentative Tract Map No. 72413, includes an overview of the engineering design of the debris basin spillways. Figure 2-4b, Cross-Sections of TTM No. 72413, includes a cross-section view of the debris basin spillways to be constructed in the West Basin, Middle Basin, and East Basin. Each spillway inlet would be approximately 5 feet tall, include a debris barrier rack to filter out large woody debris, and connect to a 36-inch reinforced concrete pipeline that would connect to the storm drain system in the residential area below. As depicted on Figures 2-4a and 2-4b, an asphalt maintenance access road would be constructed to the north of the residential development and to the south of the inlets and the debris basin, to allow maintenance vehicles to access the drainage facilities. The access road would be paved and would be 20 feet wide with 40-foot diameter turn-arounds to allow for vehicular and maintenance equipment site ingress/egress and connect to the proposed Private Streets. Ramps would be constructed from the access roads to the top of the earthen debris basins to allow for vehicle access.

2.3 Project Description

2.3.1 Residential Lots and Private Streets

The proposed Project would develop 12 new graded pads and two Private Streets in the southern section of the Project site. Each residential lot would accommodate custom home development at a future date. One existing home and its associated new residential lot are also included within the Project site boundaries. Although the ultimate timing and design of each residential home would occur at an unknown future date subject to economic market conditions and the buyer's preferences, for the purposes of the impact evaluation within this IS/MND, the construction and long-term occupancy of the Project site is assumed and analyzed. The existing single-family residence in the southwestern corner of the Project site would remain in place. As such, upon buildout, the Project site is expected to support a total of 13 residences, all of which would be located within the 11-acre southern section of the Project site, which is zoned for single-family residential use.

The approximately 11-acre southern section of the Project site would be developed with residential uses and the approximately 16-acre northern section of the site would remain as open space, with the exception of flood control improvements (see Section 2.3.2 below). Figure 2-3, Site Plan, depicts the locations of Lots 1 through 3 and Lots 5 through 14, which would be single-family residential lots, and two Private Streets (Lot 4). The new lots would range in size from approximately 20,000 square feet to 32,000 square feet. The existing single-family residence is on an 86,010 square foot lot.

As shown on Figure 2-3, the Project site currently contains easements of MWD, SCE, Southern California Gas Company, General Telephone Company of California, and LACFCD. These easements are summarized as follows:

- The MWD easement is shown as Easement "A" and traverses from north to south through the Project site and would remain as-is with Project implementation. This easement contains a portion of the MWD Upper Feeder water supply system and consists of a 10-foot diameter pre-cast reinforced concrete pipe that crosses beneath (subterranean) the Project site, ultimately connecting to the Monrovia No. 1 tunnel approximately 60 feet to the north of the Project site. The tunnel and pipeline are a part of the Colorado River Aqueduct System. No habitable structures would be constructed on the MWD easement.
- The three future LACFCD easements identified as Proposed Easements to the City of Glendora for Flood Control Purposes. "*" encompass three flood control/debris check dam structures, and the concrete drainage channel that traverses southerly through the eastern portion of the site. The boundaries of the existing easements would be abandoned and a new LAFCFD easement (Easement "2") would be created to encompass the proposed expanded debris/flood control structures and associated maintenance access road.
- The SCE easements are shown as Easements "B", "C", and "G", which would remain as-is with Project implementation.
- The General Telephone Company of California easement is shown as Easement "D", which would remain as-is with Project implementation.
- The Southern California Gas Company easement is shown as Easement "E", which would remain as-is with Project implementation.
- The proposed Easement "1" includes Lot 4, which would be created for Private Street use, and access would be granted to the City and MWD.

Figure 2-4a, Tentative Tract Map No. 72413, shows the proposed site development, including grading contour lines, easements, and proposed utility infrastructure. All utility infrastructure would be placed underground. Figure 2.4b, Cross-Sections of TTM No. 72413, shows the existing and proposed elevation changes associated with each cross-section on Figure 2-4a, including the following:

- Section A-A crosses west to east through Lots 2, 3, 4, 5, and 6. As shown, Lots 3, 4, and 5 would require between approximately 10 to 30 feet of fill material to establish the finished grade elevations.
- Section B-B crosses northwest to southeast through the West Basin and Lots 1, 2, and 4. As shown, between the debris basin maintenance access road and Lot 2, a maximum 6-foot-tall retaining wall would be required. The difference in elevation between the edge of the Private Street and the existing Lot 1 driveway would be approximately 17 feet.
- Section C-C crosses north to south through the Middle Basin and Lots 4 and 5. As shown, between the debris basin crest slope and Lot 5, a maximum 6-foot-tall retaining wall would be required. Additionally, a maximum 6-foot-tall retaining wall would be required between the Private Street and the Tentative Tract Map (TTM) boundary. The Middle Basin would require up to 30 feet of overexcavation and recompaction to establish the finished grade elevations.
- Section D-D crosses northwest to southeast through Lots 4, 6, 10, 11, 12, and 13. As shown, between the hillside slope and Lot 6, a maximum 6-foot-tall retaining wall would be required.
- Section E-E crosses north to south through the East Basin and Lots 8, 9, 11, 12, 13 and 14. As shown, between the hillside slope and Lot 8, a maximum 6-foot-tall retaining wall would be required. Additionally, a maximum 6-foot-tall retaining wall would be required between Lot 14 and the Tract

boundary. The East Basin would require up to 35 feet of overexcavation and recompaction to establish the finished grade elevations.

- Sections F-F and G-G cross north to south through the Private Street (Lot 4) and the proposed 6-foot-tall adjacent retaining wall. As shown a maximum 6-foot-tall retaining wall is required adjacent to the Private Street.
- Sections H-H crosses northwest to southeast through the MWD easement and Lots 4, 6, 7, 10, 11, and 12. This cross-section shows the alignment of the subterranean MWD pipeline and its depth below the existing surface as well as the proposed ground surface. As shown, between the hillside slope and Lot 6, a maximum 6-foot-tall retaining wall would be required and would have a natural appearance
- Sections I-I, J-J, and K-K cross west to east through the MWD easement and Lots 6 & 7, 9 & 10, and 11, respectively. These cross-sections show the amount of additional fill material would be required over the MWD easement at the residential lots.

As shown on Figures 2-4a and 2-4b and described above, the main Private Street would be constructed along the southeastern edge of the Project site with an additional smaller street splitting off to the northeast midway, providing access to each residential lot. The streets would be privately held by the HOA, which would be established prior to occupancy of the first new custom home. More specifically, the CCRs of the HOA would be approved prior to grading so that all hydroseeding, watering, maintenance of the HOA areas and the habitat restoration areas; additional mitigation requirements; and other conditions or approvals would be established prior to construction of the proposed Project. The City would impose this as a condition of approval of the TTM. Entrance to the Project site would be gated, with a gate controller and turn-around located within the Private Street adjacent to Lots 13 and 14.

The new custom homes would be constructed in accordance with the City's zoning requirements for the single-family estate (E-7) zone. The maximum floor-area-ratio (FAR) for the E-7 zone is 35% FAR (The allowable FAR does not include a detached garage, up to 400 square feet in size). Table 2.3-1, Maximum Allowable Home Sizes, shows the maximum allowable home size for each proposed lot, with an additional 400 square feet to account for a garage. Based on zoning requirements, each home could be a maximum of two stories in height and would not be allowed to exceed 25 feet in height.

Table 2.3-1
Maximum Allowable Home Sizes

Lot Number	Lot size (square feet)	Maximum allowable home size plus a 400-square foot garage (square feet)*
1	86,010	Existing home to remain in place
2	31,195	11,318
3	21,552	7,943
4	88,923	Private streets
5	24,461	8,961
6	32,005	11,602
7	21,948	8,082
8	29,121	10,592
9	20,000	7,400
10	20,898	7,714
11	31,291	11,352
12	24,645	9,026
13	20,010	7,404

Table 2.3-1
Maximum Allowable Home Sizes

Lot Number	Lot size (square feet)	Maximum allowable home size plus a 400-square foot garage (square feet)*
14	20,014	7,405
Total new home construction		108,799

Notes: *Home sizes have been rounded to the nearest whole number.
Source: Project Site Plans (Bledsoe Giron 2021)

2.3.2 Landscape and Fuel Modification Improvements

Figure 2-5, Preliminary Fuel Modification Plan, which has been reviewed and stamped in November 2021 by the Los Angeles County Fire Department's (LACFD) Fuel Modification Unit,[1] and Appendix B-2, Draft Architectural Landscape Plans and Tree Removals, provide an overview of the anticipated landscaping along the Private Streets and within each residential lot. As shown, retaining walls would be screened by shrubbery. Anticipated landscape trees include canyon live oak, black walnut, Brisbane box, hollyleaf cherry, and Chinese pistache. All on-site lots would be equipped with landscaping irrigation. As depicted on Figure 2-4a, Tentative Tract Map No. 72413, a 6-foot masonry screen wall would be constructed on the eastern edge of the TTM, which would serve as aesthetic fencing but also as wildfire protection between the Project site and the adjacent residential uses to the east.

Figure 2-4a also depicts areas adjacent to the proposed debris basins that would be subject to minimal grading/grooming to remove loose surface materials and reduce loose debris from running off into the debris basin facilities, as required by the LACFCD. Upon completion of the proposed Project, the affected slopes would be hydroseeded with native seeds to facilitate the reestablishment of vegetative cover.

A total of 835 trees were identified within the Project site, approximately 651 trees of which would be removed to allow for site development.[2] As set forth in the City's Urban Forestry Manual and Section 20.08.130 (6), Preservation of Existing Trees, of the City's Municipal Code, the Project would be required to plant (or submit payment of in-lieu fees for) a minimum of 879 replacement trees to mitigate for the proposed tree removals (City of Glendora 2018).

1 The Fuel Modification Unit is a special unit within the Forestry Division of the Los Angeles County Fire Department responsible for the approval of a fuel modification plan for structures located in Fire Hazard Severity Zones.

2 Per the City's Urban Forestry Manual (City of Glendora 2018), only removals of protected status trees require replacement (i.e., living trees with a trunk diameter of 8 or more inches). As such, to show the total number of replacement trees required, Appendix B-2, Draft Architectural Landscape Plans and Tree Removals, Sheet L-2, shows that the Project would remove 455 protected status trees. However, in total, the August 2020 tree survey conducted by a certified Dudek arborist observed a total of 835 trees within the survey area (see to the 2020 Grand Estates Tree Information Matrix provided within Appendix B-1 of this IS/MND for a list of all trees surveyed). Of these 835 existing trees, 639 were determined by the City to have protected status. As shown in Appendix B-2, Sheet L-2.2, of the 639 protected trees, the Project would preserve 184. The Project would not preserve any unprotected status trees (i.e., trees that are not listed on Sheets L-2.1 or L-2.2 of the Draft Architectural Landscape Plans and Tree Removals). As the total number of trees surveyed was 835, the total number of trees removed would be approximately 651651 (835 Total Trees – 184 Trees Preserved = 651651 Trees Removed). Approximately 173 of the trees likely to be removed are noted as dead, mostly dead, or in otherwise poor health per the 2020 Grand Estates Tree Information Matrix (see Appendix B-1).

2.3.3 Utilities

Water. The Project would include a 10-inch diameter pipeline looped potable water system feeding the new lots, which would connect from the existing 10-inch pipeline in Palm Drive and from the existing 12-inch pipeline adjacent to the existing off-site hydro pneumatic site. The proposed 10-inch diameter pipeline would have sufficient pressure to also serve the domestic water demands of lots 5 through 14. In Section 3.19, Utilities and Services Systems, Figure 3.19-1, Proposed Water Pipeline System, depicts a proposed alignment for the new water infrastructure, including the required off-site connection to the existing hydro-pneumatic system. The proposed 10-inch diameter pipeline would not provide the desired pressure for domestic water service to lots 1, 2, and 3; therefore, the existing hydro-pneumatic tank system would provide the desired pressure to these lots, requiring an off-site extension of the water line. The off-site portion of the proposed water pipe extension would be beneath existing paved driveways and would not involve the disturbance of native vegetation. However, the hydro-pneumatic tank system would be replaced by the City. This replacement would occur separate of the proposed Project. In order to ensure adequate water supply to Lots 1, 2, and 3, the City will impose a Condition of Approval on the TTM that these lots, which would be served by the hydro-pneumatic tank system, cannot be occupied prior to completion of this City-sponsored infrastructure improvement.

Sewer. As shown on Figure 2-4a, the proposed Project would construct an 8-inch sewer line beneath the Private Street to serve the new residential lots. The wastewater flow originating from the proposed lots would discharge into an 8-inch existing local sewer line in Palm Drive for conveyance beneath Grand Avenue to the Sanitation Districts of Los Angeles County (LACSD) Baseline Trunk Sewer. The proposed Project's Lot 1 has an existing home, which is connected to the local sewer line in Silent Ranch Drive.

Storm Drain. As shown on Figure 3.10-2, Post-Development Drainage Conditions in Section 3.10, Hydrology and Water Quality, a new storm drain system would convey only off-site flows through the Project site from the West Basin, Middle Basin, and East Basin. As shown in Figure 3.10-2, flows in the storm drain would be split with a portion conveyed into the public storm drain system, and the other off-site flows would be conveyed along the historic drainage path by means of a flow return structure. All of the on-site flows would be conveyed by the proposed surface streets along the historical path. Under proposed conditions, the overall outflow from the Project site would be reduced. The split of the storm drain flow into the main storm drain system flow and to the return flow structure would be accomplished utilizing different pipe sizes implemented within a manhole to be located near the property line at Palm Drive.

Off-site Components: The subterranean water, sewer, and storm drain infrastructure are the off-site features required for Project implementation. The trenching required for pipeline installation and connection to subterranean existing utility infrastructure would be within paved roadways/driveways. Storm drain improvements along Palm Drive would require trenching within the existing sidewalk. The sidewalk would be repaved once storm drain improvements are implemented, as a condition of approval for the Project.

2.3.4 Short-Term Construction Activities

Construction of the proposed Project is expected to commence in 2023. The first phases of construction would consist of site preparation and grading. These phases are anticipated to extend from early 2023 to late fall 2023. Figure 2-6, Hillside Slope and Areas of Cut/Fill, depict the earthwork balancing required to develop the Project site. During grading, the total cut is anticipated to be approximately 94,500 cubic yards, and the total fill is anticipated to be approximately 96,800 cubic yards, with 2,300 cubic yards of imported soils required.

This includes 73,000 cubic yards of cut materials and 32,000 cubic yards of fill materials within the debris basin infrastructure hillside area, and 21,500 cubic yards of cut materials and 64,800 cubic yards of fill materials within the residential development area. Construction activities are anticipated to occur in one phase and could take place Monday to Friday from 7:00 a.m. to 9:00 p.m., with no work allowed on Saturdays, Sundays, or federal holidays, with the exception of interior work.

While no home construction is currently planned for the site, construction of custom homes is anticipated to occur on the Project site starting after grading and as the market will bear. In practice, there may be separation between grading of the proposed pads and construction of the future residences. However, in order to study the worst-case construction scenario in terms of environmental impact, the analysis in this IS/MND assumes that home construction would commence directly after completion of the grading phase. The building construction phase would be followed by paving and architectural coating for the homes. Under these assumptions, buildout of the site would occur in late summer 2024.

For purposes of estimating Project-related emissions in Section 3.2, Air Quality and Section 3.8, Greenhouse Gas Emissions, the inputs for the California Emissions Estimator Model (CalEEMod) assumed that construction of the northern and southern portion of the Project site would commence at the same time in January 2023. Construction of the Project was input to last approximately 18 months ending June 2024.

For the purposes of the environmental analysis in this document, Project buildout is assumed to entail completion of 12 new custom homes on the Project site, completion of the drainage improvements, and occupation of the 12 new custom homes and the existing on-site residence with homeowners or tenants. Additional construction assumptions and details can be found in Appendix A, CalEEMod Modeling Data Sheets, of this IS/MND.

2.3.5 Long-Term Operational Activities

Operation of the proposed Project would include activities typical of a residential development, such as landscaping maintenance, daily vehicle trips as residents leave and return to their homes, street cleaning for the Private Streets, and maintenance of the three flood/debris control facilities. All of the areas within the proposed LACFCD easement, as shown on Figure 2-3, Site Plan, in the green hatching and identified as Easement “2”, would be subject to regular maintenance activities, including vegetation mowing within the West Basin, Middle Basin, and East Basin, anticipated to occur on an annual basis. Sediment removal from the three flood/debris control facilities is anticipated to occur on an as-needed basis, depending on annual storm flows and requirement to maintain the designed capacity of the facility. Other maintenance activities, including access road maintenance and maintenance of the flood/debris control facilities, would occur as needed by the LACFCD.

The population generated by the proposed Project relies on the conservative assumption that each household would have 4 residents (as opposed to the City-wide average of 3 residents per household). Therefore, the addition of 12 new residential lots with the proposed Project is expected to result in approximately 48 new residents within the City.

2.4 Discretionary Actions

2.4.1 City of Glendora

This IS/MND is intended to serve as the primary environmental document pursuant to CEQA for actions associated with the proposed Grand Estates Residential Subdivision Project, including discretionary approvals required to implement the Project. In addition, this IS/MND is the primary reference document for the formulation and implementation of the Mitigation Monitoring and Reporting Program for the Project, in accordance with Section 15097 of the State CEQA Guidelines. The City of Glendora may approve the IS/MND if it finds, on the basis of the whole Project record, that there is no substantial evidence that the Project would have a significant effect on the environment. Discretionary actions subject to City's review and approval before both the Planning Commission and City Council include, but are not limited to:

- Approval of Tentative Tract Map No. 72413
- Approval of Development Plan Review (required for any grading over 150 cubic yards on land with an average slope over 10%)
- Approval of Variance (required for grading into 35% steep slope areas)
- Approval of gated community through Development Plan Review
- Approval of landscape plan through Development Plan Review
- Tree removal permit
- Certification of this IS/MND

Subsequent future discretionary action may be required for a Development Plan Review for the individual custom homes, which may require that a public hearing be held at the Planning Commission. This IS/MND assumes compliance with the City's development and design standards and is intended to cover all future discretionary actions. However, if it is determined that this IS/MND does not adequately cover the potential impacts of the future residential proposals, subsequent analyses pursuant to CEQA may be required.

2.4.2 Responsible and Trustee Agencies

Table 2.4-1, Responsible and Trustee Agency Approvals, lists all the agencies that are known or expected to have permit or approval authority over the proposed Project. This IS/MND covers all federal, state, local government, and quasi-government approvals that may be needed to construct, implement, or operate the Project, whether or not they are specifically identified in Table 2.4-1 or elsewhere in this IS/MND.

Table 2.4-1
Responsible and Trustee Agency Approvals

Agency	Approved/Permit Required	Purpose
U.S. Army Corps of Engineers (USACE)	Section 404 Nationwide Permit	Allow the discharge of dredge and fill material into "waters of the United States."
Los Angeles Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification	Protect water quality within "waters of the United States."

Table 2.4-1
Responsible and Trustee Agency Approvals

Agency	Approved/Permit Required	Purpose
California Department of Fish and Wildlife (CDFW)	Section 1600 Streambed Alteration Agreement	Authorize changes to the natural flow or the bed, channel, or bank of any river, stream, or lake and associated impacts to biological resources.
Metropolitan Water District of Southern California (MWD)	Encroachment Permit	Authorize construction activities within the Easement.
Los Angeles County Flood Control District (LACFCD)	Encroachment Permit	Authorize construction activities within the Easement.
Los Angeles County Fire Department (LACFD)	Fuel Modification Plan	Responsible for the approval of a fuel modification plan for projects located within Fire Hazard Severity Zones.

3 Environmental Impact Analysis

3.1 Aesthetics

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☒	☐	☐

a) Would the project have a substantial adverse effect on a scenic vista?

Less Than Significant Impact. Scenic vistas generally refer to views of expansive open space areas or other natural features, such as mountains, undeveloped hillsides, large natural water bodies, or coastlines. Scenic vistas generally refer to views that are accessible from public vantage points, such as public roadways and parks. The City's General Plan does not show any officially designated scenic vistas in the City. However, the San Gabriel Mountains and foothills are important scenic resources in the City. The City's Conservation Open Space land use designation is intended, in part, to protect areas with high scenic value (City of Glendora 2008).

The northern section of the Project site is designated Conservation Open Space. This portion of the Project site is currently undeveloped, with the exception of three debris basin/check dam structures. Under the proposed Project, drainage improvements would occur in this portion of the Project site, including earthwork and vegetation clearing to accommodate the proposed flood/debris control facilities and maintenance access road, and to minimize future debris flows in the area. The vegetation removal and superficial grading of the hillside area would be a temporary visual impact to the lower hillsides drainage areas within the Project site; however, these areas are not readily visible from any public viewpoints.

The southern portion of the Project site, which is currently developed with one single-family home, would be developed with 12 additional single-family homes and two Private Streets upon Project buildout. The homes would be a maximum of 2 stories in height and various 6-foot-tall retaining walls would be constructed. Conversion of this portion of the Project site from undeveloped land to a residential community would alter the aesthetic of the area.

However, views of the Project site from public vantage points are very limited, as shown in Figures 3-1a, 3-1b, and 3-1c, View Simulations. As shown, views of the mountain ridgelines and the steep slopes leading up to the ridgelines are available from public vantage points in the Project area, including from Grand Avenue, Palm Drive, and Sierra Madre Avenue. However, the southern section of the Project site, which would be graded and developed as part of the proposed Project, would not be prominently visible from nearby public vantage points. Views of this area are fully obstructed or partially obstructed by existing development and landscaping.

As shown in Figure 3-1a, the new entrance to the main Private Street, a stone retaining wall, and the frontage of Lot 14 would be visible from Palm Drive near the intersection with Grand Avenue. This change in view would not hinder views of the mountains and would perhaps open a small view corridor up the Private Street and provide the most accessible view into the Project site and surrounding hillsides. An entrance gate and associated landscaping median would be located near the entrance of the Private Street. Rooftops of some of the homes would be visible, as would the graded areas for the enlarged debris basins. This change in views would be different from the existing condition but would be in line with the type of residential land uses existing currently in the immediately surrounding area. The future homes would not be tall enough to block or hinder views of the mountains and would be in an appropriate scale and character of the surrounding community.

As shown in Figure 3-1b, the graded areas required for Project implementation would not be visible from the intersection of Grand Avenue and Sierra Madre Avenue. As shown on Figure 3-1c, the graded areas required for Project implementation would not be visible from Sierra Madre Avenue near the residential homes the east of Grand Avenue. Although there may be other areas from public viewpoints that could have visual connection to the Project site, intervening distance, structures (existing homes), mature trees, and topography would minimize the visual prominence from any public views in the area. As such, development of the proposed Project would not substantially affect any existing public views of the San Gabriel Mountains and foothills. Additionally, upon completion of the debris basin construction, the hillside areas would be hydroseeded to re-establish native vegetation and understory (see MM-BIO-4 and MM-BIO-6), and mitigation trees would be planted (see MM-BIO-7), which would further reduce the visual impact to hillsides on the Project site. The Project would not result in a substantial adverse effect on a scenic vista, and impacts would be less than significant.

b) Would the project substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. SR-2, located approximately 11 miles northwest of the Project site, is the nearest Officially Designated State Scenic Highway (Caltrans 2011). Due to the intervening distance and topography, the Project site would not be prominently visible from SR- 2. Therefore, implementation of the proposed Project would not substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within a state scenic highway. No impacts would occur.

c) In non-urbanized areas, would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The proposed Project site is considered to be within a non-urbanized area as it requires the extension of new utility and roadway infrastructure and is generally surrounded by open space hillside areas to the north, east and west. Specifically, the Project site abuts an open space area that eventually leads up to the ANF. To the south, the Project site abuts a single-family residential

neighborhood that is characterized by one- to two-story homes, paved roads, and landscaping that is dominated by ornamental palm trees and shrubs. Public views of the Project site can be afforded from Palm Drive, Cloverview Drive, and limited views would be available from Grand Avenue.

As discussed above under Threshold 3.1(a), under the proposed Project, the southern portion of the Project site would be developed with 2-story single-family homes and two Private Streets. As such, the visual character and quality of the southern section of the Project site would change from open space to that of a residential neighborhood. While the visual character of the southern section of the site would change, the Project would not cause substantial degradation in visual character or quality of the site or its surroundings. After Project buildout, this portion of the site would be visually consistent with the single-family neighborhoods to the south of the Project site. As illustrated in Figure 3.1-d, View Simulation D, the undeveloped area on the Project site that extends to the east of the existing residence is a vacant, previously disturbed, and underutilized area that is designated for residential uses. The proposed Project would bring public views of this undeveloped area into visual agreement with the existing uses to the south of the site.

The northern portion of the Project site is primarily open space; however, there are three existing debris control and channel stabilization structures in this area. The proposed drainage improvements would involve replacement of these existing structures with two elevated inlets and one debris basin, as well as an access road for maintenance of the new debris containment structures. Aside from the flood/debris control improvements, the northern section of the site would remain open space. The proposed improvements would be consistent with existing flood control uses in the northern section of the Project site, as well as other flood control structures on nearby properties, as shown on Figure 2-1. Furthermore, the improvements would be located in canyons, where the steep portions of the Project site meet the flatter portions that are proposed for development. As such, the drainage improvements would not be visually intrusive. Furthermore, the proposed homes would be constructed south of the drainage improvements and would disrupt or obstruct the visibility of the improvements from the neighborhoods to the south. For these reasons, the proposed Project would not substantially degrade the existing visual character or quality of public views of the site or its surroundings. Impacts to the existing visual character or quality of public views of the site and its surroundings would be less than significant.

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant With Mitigation. With the exception of one single-family home on Lot 1, the Project site contains no artificial lighting or glare because there are no other electrified structures. Existing light sources are associated with the residence in the southwest corner of the Project site. The residential neighborhoods to the south of the Project site have streetlights. While the Project site and surrounding areas to the south include existing sources of nighttime lighting, the proposed Project would involve an increase in the development intensity on a portion of the Project site and would introduce structures where none currently exist. For example, the new residences would likely have exterior lighting at driveway entrances, lit windows at night, and landscaping lighting. As such, the proposed Project's lighting would introduce new sources of light where such sources do not currently exist or are very limited.

Lighting is of most concern when it may potentially spill over or trespass from a Project site onto properties. Although there are no architectural designs for the future homes, the lighting design for the proposed Project is expected to be similar to the existing lighting in the residential neighborhoods to the south of the Project site. Furthermore, future homes and associated lighting would be required to be in compliance with the California Building Code, and specifically, Title 24, Part 6, Subchapter 7,

Low-Rise Residential Buildings, Mandatory Features and Devices, which requires for single-family residences, all lighting attached to the residence or to other buildings on the same lot must be high efficacy and controlled by a motion sensor and photocell or an astronomical time clock.

Additionally, the residences will be subject to the City's involve design review from the City's Development Plan Review process, which is anticipated to preclude any lighting designs that would lead to substantial light spillover on the residential properties to the south of the site and/or other adjacent properties.

Glare can be produced during the daytime and is usually associated with reflective building materials, such as glass, stainless steel, and aluminum. While the specific design and materials of the future residences on the Project site are unknown at this time, it is not expected that they would be constructed with highly reflective materials. Materials used for the existing residences to the south of the Project site consist of stucco, earth-tone paints, and wood, with tile or shingle roofs. Most walls and roofs are characterized by earth-tone colors. Glass windows on most existing nearby residences are standard in size and are not especially prominent relative to the rest of the structure. It is anticipated that future homes within the proposed Project site would be held to similar design standards as the nearby developments, through the City's Development Plan Review process. Therefore, are not expected to be constructed with highly reflective materials that would potentially create significant sources of daytime glare.

However, in the absence of lighting designs specific to the future homes on the Project site that can be reviewed and confirmed to ensure there would not be substantial light or glare that would adversely affect day or nighttime views in the area, MM-AES-1 requires that the homes meet performance standards to eliminate the potential for significant impacts. With implementation of MM-AES-1, impacts associated with a new source of substantial light or glare which would adversely affect day or nighttime views in the area would be less than significant.

MM-AES-1 Prior to approval of any residential development applications on Lots 1 through 3 and Lots 5 through 14, the Applicant shall provide a lighting plan to the City for their review and approval to ensure compliance with the following standards:

- All outdoor lighting fixtures shall be installed and operated in conformance with applicable Glendora standards, Title 24 of the California Code of Regulations, Part 6 (and any successor regulations), and the Uniform Building and Electrical Codes.
- All outdoor lights shall be directed, oriented, and shielded to prevent light trespass or glare onto adjacent properties and onto public rights-of-way.
- The candlepower of all outdoor lights shall be the minimum required to accomplish the purpose of the light but shall not exceed 0.3 foot-candles of illumination at the residential property lines.
- The height of lighting fixtures/poles shall not exceed the maximum permitted building height of the residential zone, and if attached to a single-family residence the lighting shall not exceed the height of the roof eave.
- All outdoor lighting fixtures shall complement the overall architecture and design of the typical residential Glendora neighborhood in terms of scale, color, and style.

3.2 Agriculture and Forestry Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☒	☐	☐
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a) Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

No Impact. The California Department of Conservation (DOC) Division of Land Resource Protection (DLRP) works with landowners, local governments, and researchers to conserve California's farmlands and open spaces (DOC 2022a). The Agricultural Land Mitigation Program, California Farmland Conservancy Program, Williamson Act Contracts, and Farmland Mapping and Monitoring Program are all farmland conservations programs currently in effect and administered by the DLRP (DOC 2022a). The Project site is not located on designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP 2017). Also, there are no existing or ongoing agricultural activities on the Project site. As such, the Project would not result in the conversion of any farmland to non-agricultural use. There would be no impact regarding Project conversion of Primate Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Project site is currently zoned for single-family estate (E-7) and open space (OSN), and the Project site is not under a Williamson Act contract (DOC 2022b). Agricultural uses are not listed as a permitted use or a conditionally permitted use in the City's single-family residential zones (including single-family estate) or in the City's open space zone. As such, the proposed Project would not conflict with existing zoning for agricultural uses or a Williamson Act contract, and no impact would occur.

c) Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. A described under Threshold 3.2(b), the Project site is zoned for residential and open space uses. The proposed Project does not require a zone change and would not alter the single-family estate (E-7) or open space (OSN) zones. The portion of the Project site that is currently designated as open space would not be developed with residences and would remain open space. Therefore, the proposed Project would not conflict with existing zoning, or cause the rezoning of forest land, timberland, or timberland production land, and no impact would occur.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Less Than Significant With Mitigation. As discussed above in Section 2.3.3, Landscape and Fuel Modification Improvements, and further in Section 3.4, Biological Resources of this IS/MND, implementation of the proposed Project would require the removal of trees, as identified in the 2020 Grand Estates Tree Information Matrix located in Appendix B-1. Forest land is defined as land that can support 10% native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits (PRC 12220(g)).

The BRTR found that the approximately 27-acre Project site is comprised of annual non-native grasslands (6.42 acres), coast live oak woodland (10.87 acres), disturbed sagebrush scrub (2.24 acres), ornamental/landscape areas (2.41 acres), urban/developed areas (0.28-acre), and California walnut groves (1.4-acre). As such, approximately 12.27 acres of the Project site consists of coast live oak woodlands and walnut groves, which is approximately 45% of the Project site. Approximately 7.54 acres of this native tree cover is located within the 11-acre portion of the Project site zoned for residential development, which does not allow for the management of forest resources and therefore does not meet the definition of forest land. However, 4.72 acres, is within the 16-acre open space portion of the Project site, which requires land to be left in its natural, wilderness state except for the following uses: riding and hiking trails, picnic and playground areas, flood control structures and facilities, and utility substations and related equipment and structures. The 4.72 acres of woodland area within the OSN zone would be impacted to accommodate the debris/flood control facilities, grooming/grading in the hillside debris production areas, and maintenance road, which constitutes 29.5% of the 16-acre northern portion of the Project site.

However, these impacts would not result in the loss of forest land or the conversion of forest land to non-forest use with implementation of MM-BIO-7, which requires the replacement mitigation for impacted trees on site and MM-BIO-8, which requires assessment of the feasibility of oak tree preservation within the minimal grading/grooming areas.

With incorporation of MM-BIO-7 and MM-BIO-8, the proposed Project would not result in the permanent loss of forest land or conversion of forest land to non-forest use, and no additional mitigation is required.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. As stated above in Section 3.2(c) the Project would not result in the conversion of any farmland to non-agricultural use. The Project site is currently zoned for single-family estate (E-7) and open space (OSN) (City of Glendora 2019). Agricultural uses are not listed as a permitted use or a conditionally permitted use in the City's single-family residential zones (including E-7) or in the OSN zone (City of Glendora 2022). As discussed in Section 3.2(d), without mitigation, the Project would result in conversation of forestland to non-forest use. However, permitted uses in this area also include flood control structures and facilities, as well as utility substations and related uses. Development of the residential uses within the existing E-7 zone would not directly or indirectly convert farmland to non-agricultural uses or forest land to non-forest use because no zone changes are required for Project implementation. In summary, no impacts would result from the proposed Project due to its location or nature, and would not result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest

3.3 Air Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact. The Project site is located within the South Coast Air Basin (SCAB), which includes the non-desert portions of Los Angeles, Riverside and San Bernardino Counties, and all of Orange Country, and is within the jurisdictional boundaries of the South Coast Air Quality Management District (SCAQMD). The SCAQMD administers the Air Quality Management Plan (AQMP) for the SCAB, which is a comprehensive document outlining an air pollution control program for attaining all

California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS). The most recent adopted AQMP is the 2016 AQMP (SCAQMD 2017), which was adopted by the SCAQMD Governing Board in March 2017. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies while seeking to achieve multiple goals in partnership with other entities promoting reductions in greenhouse gases (GHGs) and toxic risk, as well as efficiencies in energy use, transportation, and goods movement (SCAQMD 2017).

The purpose of a consistency finding is to determine if a project is inconsistent with the assumptions and objectives of the regional air quality plans, and, thus, if it would interfere with the region's ability to comply with federal and state air quality standards. The SCAQMD has established criteria for determining consistency with the currently applicable AQMP in Chapter 12, Sections 12.2 and 12.3, in the SCAQMD CEQA Air Quality Handbook. The criteria are as follows (SCAQMD 1993):

Consistency Criterion No. 1: Whether the project would result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP.

Consistency Criterion No. 2: Whether the project would exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

To address the first criterion regarding the Project's potential to result in an increase in the frequency or severity of existing air quality violations, cause or contribute to new violations, or delay timely attainment of the ambient air quality standards or interim emission reductions in the AQMP, Project-generated criteria air pollutant emissions were estimated and analyzed for significance and are addressed under Section 3.3(b), below. Detailed results of this analysis are included in Appendix A, CalEEMod Modeling Data Sheets. As presented in Section 3.3(b), Project construction and operations would not generate criteria air pollutant emissions that would exceed the respective SCAQMD thresholds. Therefore, the Project would be consistent with Consistency Criterion No. 1.

The second criterion regarding the Project's potential to exceed the assumptions in the AQMP or increments based on the year of Project buildout and phase is primarily assessed by determining consistency between the Project's land use designation and potential to generate population growth. In general, projects are considered consistent with and would not conflict with or obstruct the implementation of the AQMP if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the AQMP. The SCAQMD primarily uses demographic growth forecasts for various socioeconomic categories (e.g., population growth, housing, employment by industry) developed by the Southern California Association of Governments (SCAG) for its Regional Transportation Management Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2016). The forecasts are based on general plans for cities and counties in the SCAB, for the development of the AQMP emissions inventory (SCAQMD 2017). The SCAG 2016 RTP/SCS, and associated Regional Growth Forecast, are generally consistent with local government plans. As discussed in Section 2.0 of this IS/MND, the Project is designated as Low Density and Conservation Open Space under the City's General Plan. The proposed development and subdivision associated with the Project is all within the low residential portion of the property. The site is zoned as Single-family Estate (E7-20,000) and Open Space – Natural (OSN). The proposed Project is consistent with the existing land use designations and no changes to the land use designations or zoning would be required. Accordingly, the Project is consistent with the SCAG RTP/SCS forecasts used in the SCAQMD AQMP development, and therefore consistent with Consistency Criterion No. 2. In summary, based on the considerations presented for the two criteria, impacts relating to the Project's potential to conflict with or obstruct implementation of the applicable AQMP would be less than significant.

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Less Than Significant Impact. Air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SCAQMD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are used in the determination of whether a project's individual emissions would have a cumulatively considerable contribution on air quality. If a project's emissions would exceed the SCAQMD significance thresholds, it would be considered to have a cumulatively considerable contribution. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant (SCAQMD 2003).

A quantitative analysis was conducted to determine whether the proposed Project would result in emissions of criteria air pollutants that may cause exceedances of the NAAQS or CAAQS, or contribute to existing nonattainment area of ambient air quality standards. Criteria air pollutants include Ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 2.5 microns ($PM_{2.5}$), and lead. Pollutants that are evaluated herein include volatile organic compounds (VOCs) and oxides of nitrogen (NO_x), which are important because they are precursors to O_3, as well as CO, sulfur oxide (SO_x), $PM_{10,}$ and $PM_{2.5}$.

Regarding NAAQS and CAAQS attainment status, the SCAB is designated as a nonattainment area for both the federal and state O_3 standards as well as the federal and state $PM_{2.5}$ standards (CARB 2020; EPA 2020). The SCAB is designated as a nonattainment area for State PM_{10} standards; however, it is designated as an attainment area for the federal PM_{10} standards. The SCAB is designated as an attainment area for both the federal and State standards for CO, NO_2, and SO_x. Although the SCAB has been designated as nonattainment area for the federal rolling 3-month average of lead standard, it is designated attainment for the State lead standard.

Appendix G of the CEQA Guidelines indicates that, where available, the significance criteria established by the applicable air districts may be relied upon to determine whether a project would have a significant impact on air quality. The SCAQMD has established Air Quality Significance Thresholds, as revised in April 2019, which set forth quantitative emissions significance thresholds below which a project would not have a significant impact on ambient air quality under project-level and cumulative conditions (SCAQMD 2019). The quantitative air quality analysis provided herein applies the SCAQMD thresholds to determine the potential for the proposed Project to result in a significant impact under CEQA. The SCAQMD mass daily construction thresholds are as follows: 75 pounds per day for VOC, 100 pounds per day for NO_x, 550 pounds per day for CO, 150 pounds per day for SO_x, 150 pounds per day for PM_{10}, and 55 pounds per day for $PM_{2.5}$. The following discussion quantitatively evaluates Project-generated construction and operational impacts of the proposed Project.

Construction Emissions

Proposed construction activities would result in the temporary addition of pollutants to the local air-basin caused by on-site sources (i.e., off-road construction equipment, soil disturbance, and VOC off-gassing) and off-site sources (i.e., on-road haul trucks, vendor trucks, and worker vehicle trips). Construction emissions can vary substantially from day to day, depending on the level of activity: the specific type of operation; and, for dust, the prevailing weather conditions. Therefore, such emissions levels can only be approximately estimated with a corresponding uncertainty in precise ambient air quality impacts.

The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate emissions from construction of the proposed Project. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant emissions associated with construction activities from a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the land use type used to represent the Project, size and scale of the Project, construction schedule, and anticipated construction equipment utilization, were based on information provided by the Project Applicant and default model assumptions.

For purposes of conservatively estimating Project emissions in CalEEMod and based on information provided by the Project applicant, data input assumed that construction of the northern and southern portion of the Project site would commence at the same time in January 2023 and would last approximately 18 months, ending in June 2024. It is possible that construction of the 12 residences would happen independently of each other at different times but to consider a reasonable worst-case scenario, construction of all residences was quantified to happen concurrently. The construction phasing schedule and duration, vehicle trip assumptions, and construction equipment mix used for estimating the Project-generated construction emissions are shown in Table 3.3-1, Construction Scenario Assumptions.

Table 3.3-1
Construction Scenario Assumptions

Construction Phase	Average Daily Worker Trips	Average Daily Vendor Truck Trips	Total Haul Truck Trips	Equipment	Quantity	Usage Hours	Start Date	Finish Date
Site Preparation	18	6	0	Rubber Tired Dozers	3	8	01/16/2023	01/31/2023
				Tractors/Loaders/Backhoes	4	8		
Grading	20	6	270	Excavators	2	8	02/1/2023	02/28/2023
				Graders	1	8		
				Rubber Tired Dozers	1	8		
				Scrapers	2	8		
				Tractors/Loaders/Backhoes	2	8		
Building Construction	58	22	0	Crane	1	7	05/01/2023	06/28/2024
				Forklifts	3	8		
				Generators Sets	1	8		
				Tractors/Loaders/Backhoes	3	7		
				Welders	1	8		
Paving	16	0	0	Pavers	2	8	05/01/2023	05/31/2023
				Paving Equipment	2	8		
				Rollers	2	8		
Architectural Coating	12	0	0	Air Compressor	1	6	08/01/2023	08/31/2023

Notes: See Appendix A for details.

Internal combustion engines used by construction equipment, trucks, and worker vehicles would result in emissions of VOCs, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$. PM_{10} and $PM_{2.5}$ emissions would also be generated by entrained dust, which results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil. It is anticipated that approximately 2,300 cubic yards of earth

working material would be imported during construction. The Project would be required to comply with SCAQMD Rule 403 to control dust emissions during any dust-generating activities. Standard construction practices that would be employed to reduce fugitive dust emissions include watering of the active grading areas two times per day, with additional watering depending on weather conditions. The application of asphalt pavement would also produce VOC emissions; however, the contractor is required to procure asphalt from a supplier in compliance with the requirements of SCAQMD's Rules 1108 (Cutback Asphalt) and/or 1108.1 (Emulsified Asphalt). The Project would involve application of architectural coating (e.g., paint and other finishes) for painting of the proposed buildings. The contractor is required to procure architectural coatings from a supplier in compliance with the requirements of SCAQMD's Rule 1113 (Architectural Coatings).

Estimated maximum daily construction criteria air pollutant emissions from all on-site and off-site emission sources from both facilities is provided in Table 3.3-2, Estimated Maximum Daily Construction Emissions.

Table 3.3-2
Estimated Maximum Daily Construction Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}[a]	$PM_{2.5}$[a]
	pounds per day					
2023	18.31	36.53	34.54	0.07	10.43	5.80
2024	1.72	14.52	18.96	0.04	1.66	0.86
Maximum Daily Emissions	18.31	36.53	34.54	0.07	10.43	5.80
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold exceeded?	No	No	No	No	No	No

Source: SCAQMD 2019.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
See Appendix A for detailed results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.
[a] These estimates reflect control of fugitive dust (watering two times daily) required by SCAQMD Rule 403 (SCAQMD 2005).

As shown in Table 3.3-2, daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during construction.

Operational Emissions

Operation of the Project would produce VOC, NO_x, CO, SO_x, PM_{10}, and $PM_{2.5}$, emissions associated vehicular traffic, area sources (consumer products, architectural coatings, landscaping equipment), and energy (natural gas, appliances, and space and water heating). CalEEMod was used to estimate daily emissions from all operational source categories for the proposed Project.

On-road vehicular emissions associated with the Project were modeled using default CalEEMod trip generation rates and trip distances. Emissions from energy sources using CalEEMod default values which are consistent with 2019 Title 24 standards for single family residential. CalEEMod default values for landscaping and architectural coating assumptions were also utilized for area source emissions.

Table 3.3-3, Estimated Maximum Daily Operational Emissions, summarizes the average daily mobile, energy, and area emissions of criteria pollutants that would be generated by the development of the Project and how generated emissions compare to the SCAQMD thresholds of significance. The values shown are the maximum summer or winter daily emissions (i.e., foreseeable worst case) results from CalEEMod. Details of the emissions calculations are provided in Appendix A.

Table 3.3-3
Estimated Maximum Daily Operational Emissions

Emission Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	(pounds per day)					
Area	1.27	0.18	1.07	<0.01	0.02	0.02
Energy	0.01	0.07	0.03	<0.01	0.01	0.01
Mobile	0.41	0.52	4.67	0.01	1.18	0.32
Total	*1.69*	*0.77*	*5.78*	*0.01*	*1.21*	*0.34*
SCAQMD Threshold	55	55	550	150	150	55
Threshold Exceeded?	No	No	No	No	No	No

Source: SCAQMD Air Quality Significance Thresholds, 2019.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter.
Area sources = consumer product use, architectural coatings, and landscape maintenance equipment. Energy sources = natural gas. Mobile sources = motor vehicles.
See Appendix A for detailed results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. These emissions reflect operational year 2024. No mitigation was assumed.

As shown in Table 3.3-3, the increase in emissions associated with the operation of the Project would not exceed the SCAQMD thresholds for VOC, NO_x, CO, SOx, PM_{10}, or $PM_{2.5}$. The SCAB has been designated as a federal nonattainment area for O_3 and $PM_{2.5}$ and a State nonattainment area for O_3, PM_{10}, and $PM_{2.5}$. The nonattainment status is the result of cumulative emissions from various sources of air pollutants and their precursors within the SCAB, including motor vehicles, off-road equipment, and commercial and industrial facilities. Proposed construction activities of the Project would generate VOC and NO_x emissions (which are precursors to O_3) and emissions of PM_{10} and $PM_{2.5}$. However, as indicated in Table 3.3-2, Project-generated construction emissions would not exceed the SCAQMD emission-based significance thresholds for VOC, NO_x, PM_{10}, or $PM_{2.5}$.

Cumulative localized impacts could potentially occur if the Project's construction were to occur concurrently with another nearby off-site project. To the north of the Project site are mountainous, undeveloped areas within the northern portion of the City and the ANF, which are designated as open space areas. To the east of the Project site are hillside areas that are sparsely developed with rural residences designated as "Hillside Very Low Density" in the City's General Plan. The areas south and southwest of the Project site are developed with single-family residential neighborhoods and St. Lucy's Priory High School. To the west of the Project site are single-family residences, undeveloped hillside areas within the City, a utility and flood control infrastructure, and the Church of the Open Door. In summary, surrounding land uses are already developed or are designated as open space areas. There are no other known projects with the potential for construction activity in the vicinity of the Project site and surrounding areas are fully developed or designated for open space; therefore, potential construction impacts associated with two or more simultaneous projects is very unlikely. Additionally, future projects would be subject to CEQA and would require air quality analysis and, where necessary, mitigation. Criteria air pollutant emissions associated with construction activity of future projects would be reduced through implementation of control measures required by the SCAQMD. Cumulative PM_{10} and $PM_{2.5}$ emissions would be reduced because all future projects would be subject to SCAQMD Rule 403 (Fugitive Dust), which sets forth general and specific requirements for all construction sites in the SCAQMD. Based on the previous considerations, the Project would not result in a cumulatively considerable increase in emissions of nonattainment area pollutants, and impacts would be less than significant.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Less Than Significant Impact. Localized impacts associated with construction criteria air pollutants emissions are assessed below and were determined to be less than significant.

Sensitive Receptors. Sensitive receptors are those individuals more susceptible to the effects of air pollution than the population at large. People most likely to be affected by air pollution include children, the elderly, and people with cardiovascular and chronic respiratory diseases. According to the SCAQMD, sensitive receptors include residences, schools, playgrounds, childcare centers, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes (SCAQMD 1993). The closest off-site sensitive receptor land uses are single-family residences adjacent to the Project's southern boundary. The closest on-site sensitive receptor land use is a single-family residence on the southern western portion of the Project site.

Localized Significance Thresholds. The SCAQMD recommends a localized significance thresholds (LST) analysis to evaluate localized air quality impacts to sensitive receptors in the immediate vicinity of the Project site as a result of construction activities. The impacts were analyzed using methods consistent with those in the SCAQMD's Final Localized Significance Thresholds Methodology (SCAQMD 2009). The Project is located in Source Receptor Area (SRA) 9 (East San Gabriel Valley). The Project site is approximately 27 acres. However, for the purposes of the LST analysis, a 3-acre area of maximum daily disturbance was assumed, which was estimated using the SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Threshold (SCAQMD 2018). As mentioned previously, the closest sensitive receptors are single-family homes adjacent to the south of the Project site. The shortest receptor distance available in the SCAQMD LST Methodology and what assumed for this analysis is 25 meters (82 feet).

Project construction activities would result in temporary sources of on-site criteria air pollutant emissions associated with construction equipment exhaust and dust-generating activities. Emissions from trucks and worker vehicle trips are not included in the LST analysis because they occur off site. The maximum daily on-site construction emissions generated during construction of the proposed Project is presented in Table 3.3-4, Construction Localized Significance Thresholds Analysis, and compared to the SCAQMD localized significance criteria for SRA 9 to determine whether Project-generated on-site construction emissions would result in potential LST impacts.

Table 3.3-4
Construction Localized Significance Thresholds Analysis

Year	NO_2	CO	PM10	PM2.5
	pounds per day (on-site)			
2023	34.86	31.43	8.93	5.10
2024	13.73	16.67	0.61	0.58
Maximum Daily On-Site Emissions	34.86	31.43	8.93	5.10
SCAQMD LST Criteria	*153*	*1,213*	*9*	*6*
Threshold Exceeded?	No	No	No	No

Source: SCAQMD 2009.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
See Appendix A for detailed results.
LSTs are shown for a 3-acre Project site corresponding to a distance to a sensitive receptor of 25 meters.

As shown in Table 3.3-4, proposed construction activities would not generate emissions in excess of site-specific LSTs; therefore, localized Project construction impacts would be less than significant.

CO Hotspots. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed federal and/or state

standards for CO are termed CO "hotspots." CO transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors. Typically, high CO concentrations are associated with severely congested intersections operating at unacceptable levels of service (LOS) (LOS E or worse is unacceptable). Project's contributing to adverse traffic impacts may result in the formation of a CO hotspot. Additional analysis of CO hotspot impacts would be conducted if a project would result in a significant impact or contribute to an adverse traffic impact at a signalized intersection that would potentially subject sensitive receptors to CO hotspots. As discussed in Section 3.17, Transportation and based on the low volume of estimated vehicle trips, the proposed Project would not negatively impact the existing LOS at intersections or roadways around the proposed Project. Therefore, impacts related to CO hotspots would be less than significant.

Toxic Air Contaminants. Toxic air contaminants (TACs) are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. As discussed under the LST analysis, the nearest sensitive receptors to the proposed Project are residences located adjacent to north and western Project boundaries.

Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SCAQMD recommends an incremental cancer risk threshold of 10 in 1 million. "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period will contract cancer based on the use of standard Office of Environmental Health Hazard Assessment (OEHHA) risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. The SCAQMD recommends a Hazard Index of 1 or more for acute (short-term) and chronic (long-term) non-carcinogenic effects. TACs that would potentially be emitted during construction activities associated with development of the proposed Project would be diesel particulate matter.

Diesel particulate matter emissions would be emitted from heavy equipment operations and heavy-duty trucks. Heavy-duty construction equipment is subject to a California Air Resources Board (CARB) Airborne Toxics Control Measure for in-use diesel construction equipment to reduce diesel particulate emissions. As described for the LST analysis, PM_{10} (representative of diesel particulate matter) exposure would be minimal. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 30-year exposure period for the maximally exposed individual resident; however, such assessments should be limited to the period/duration of activities associated with the Project. Thus, the duration of the proposed construction activities would only constitute a small percentage of the total 30-year exposure period. The construction period for the proposed Project would be approximately 18 months, after which construction-related TAC emissions would cease. Due to this relatively short period of exposure and minimal particulate emissions on site, TACs generated during construction would not be expected to result in concentrations causing significant health risks.

The proposed Project does not propose routine operational activities following completion of on-site construction activities that would generate TAC emissions. Operation of the proposed Project would not result in any non-permitted direct emissions (e.g., those from a point source such as diesel generators) or result in an increase in diesel vehicles (e.g., delivery trucks) over existing baseline conditions. The proposed Project would not result in substantial TAC exposure to sensitive receptors in the vicinity of the proposed Project, and impacts would be less than significant.

Health Effects of Criteria Air Pollutants. Construction of the proposed Project would generate criteria air pollutant emissions; however, the Project would not exceed the SCAQMD mass-emission thresholds.

The SCAB is designated as nonattainment for O_3 for the NAAQS and CAAQS. Thus, existing O_3 levels in the SCAB are at unhealthy levels during certain periods. The health effects associated with O_3 are generally associated with reduced lung function. Because the proposed Project would not involve construction activities that would result in O_3 precursor emissions (VOC or NOx) that would exceed the SCAQMD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

In addition to O_3, NOx emissions contribute to potential exceedances of the NAAQS and CAAQS for NO_2. Exposure to NO_2 and NOx can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections. Project construction would not exceed the SCAQMD NO_x threshold, and existing ambient NO_2 concentrations are below the NAAQS and CAAQS. Thus, proposed Project construction is not expected to exceed the NO_2 standards or contribute to associated health effects.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. CO hotspots were discussed previously as a less than significant impact. Thus, the proposed Project's CO emissions would not contribute to the health effects associated with this pollutant.

The SCAB is designated as nonattainment for PM_{10} under the CAAQS and nonattainment for $PM_{2.5}$ under the NAAQS and CAAQS. Particulate matter contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing (EPA 2016b). As with O_3 and NO_x, the proposed Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Accordingly, the proposed Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, the proposed Project would not result in a potentially significant contribution to regional concentrations of non-attainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants, and impacts would be less than significant.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less Than Significant Impact. Based on available information, the proposed Project is not anticipated to result in other emissions that have not been addressed under Thresholds 3.3(a) through 3.3(c), above. As such, this analysis focuses on the potential for the proposed Project to generate odors. The occurrence and severity of potential odor impacts depend on numerous factors. The nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receiving location each contribute to the intensity of the impact. Although offensive odors seldom cause physical harm, they can be annoying, cause distress among the public, and generate citizen complaints.

During construction, exhaust from equipment may produce discernible odors typical of most construction sites. Potential odors produced during construction would be attributable to

concentrations of unburned hydrocarbons from tailpipes of construction equipment. However, such odors would disperse rapidly from the Project site and generally occur at magnitudes that would not affect substantial numbers of people. Accordingly, impacts associated with odors during construction would be less than significant.

SCAQMD provides a list of land uses associated with odor concerns, which include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The Project includes operation of single-family residences which are not anticipated to generate odors and does not result in operation of the types of land uses listed in SCAQMD's screening criteria. Therefore, the proposed Project would result in less than significant impacts regarding other emissions (such as those leading to odors) adversely affecting a substantial number of people.

3.4 Biological Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

a) Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation. The BRTR included a review of available literature and focused surveys for rare and/or special-status plant species with a potential to occur were also conducted within the Project site in 2019. Two surveys were conducted, one in the spring and one in the summer, in order to cover the blooming period of the target species. No special-status plant species were documented in previous surveys of the Project site or observed during focused plant surveys, which were conducted during the blooming period and under conditions that would have allowed identification for species potentially present. One species, the thread-leaved brodiaea (*Brodiaea filifolia*), federally listed as threatened and State-listed as endangered, was previously recorded in the vicinity of the Project site. More specifically, critical habitat for the species has been designated approximately 1.4 miles east of the Project site. However, the soil and habitat conditions where the thread-leaved brodiaea is usually found is not expected to occur at the Project site. Further, the reference population for the species along Colby Trail, approximately 1.4 miles to the east of the Project site, was confirmed to be in bloom during the focused rare plant survey conducted in May 2019, and the species was not observed in the Project site. Therefore, impacts to special-status plants under the proposed Project would be less than significant.

As outlined in the BRTR, one special-status wildlife species, yellow warbler (*Setophaga petechia*), was observed during surveys at the Project site. Three additional species, Southern California legless lizard (*Anniella stebbinsi*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), and hoary bat (*Lasiurus cinereus*), have a moderate potential to occur within the Project site. Direct impacts to the Southern California legless lizard and coastal whiptail could potentially occur from habitat loss or potential mortality or injury if these species are struck by moving vehicles or equipment if present on-site during vegetation and ground disturbing activities. Therefore, impacts to the Southern California legless lizard and the coastal whiptail would be potentially significant. Mitigation measure MM-BIO-1 would be implemented to reduce potential direct impacts to special-status wildlife (Southern California legless lizard and coastal whiptail) to a less-than-significant level.

One special-status bird species, yellow warbler (*Setophaga petechia*) has a moderate potential to nest and forage within the open shrublands throughout the Project site. This species is a CDFW specie of special concern (SSC) and there is a potential for this species to nest and/or forage within or immediately adjacent to the proposed development footprint. If this species is determined to occur on the Project site prior to construction, direct impacts could occur, particularly if construction would result in direct impacts to nesting and foraging habitat for yellow warbler. Additionally, the trees and shrubs present within the Project site could provide suitable nesting habitat for bird species (i.e., yellow warbler and raptors) protected under the Migratory Bird Treaty Act (16 USC 703-712) and California Fish and Game Code Sections 3503.5, 3503, and 3513. Trimming, pruning, and/or removal of trees and shrubs may occur as a result of construction of the Project, and could disrupt breeding activity. Construction activities such as vegetation and tree removal during grading activities could result in direct impacts to nesting birds. Potential for direct permanent impacts to nesting birds would include direct impacts to individuals, active nests, eggs, or young, and would particularly occur during the general nesting season of February 1 through August 31. Therefore, direct permanent impacts to nesting birds, including special-status bird species and birds protected under the Migratory Bird Treaty Act, would be potentially significant. Further, indirect impacts to nesting birds could occur from noise generated by consecution activities including vegetation removal and grading, that would be conducted during the avian breeding season (February 1 through August 31), through the potential

disruption of reproductive and feeding activities. Thus, construction of the proposed Project may result in mortality to nesting birds due to the abandonment of an active nest. Therefore, potential temporary indirect impacts during construction may occur under the Project and would be considered potentially significant. Implementation of MM-BIO-2, which requires seasonal recommendations, pre-construction survey, avoidance buffers, and monitoring, would reduce potential direct impacts to nesting birds a less-than-significant level. Implementation of MM-BIO-2 would reduce these potential indirect impacts to a less-than-significant level.

Lastly, direct permanent impacts to hoary bat could occur due to habitat loss and/or mortality or injury to individual species during construction activities. Therefore, direct permanent impacts to hoary bat would be potentially significant. Nighttime construction is not expected for the Project, so indirect impacts on potentially foraging special-status bats is not expected. MM-BIO-3, which requires seasonal recommendations, pre-construction survey, avoidance buffers, and monitoring of the hoary bat, would be implemented to reduce direct permanent impacts to a less-than-significant level.

MM-BIO-1: **Special-Status Wildlife Relocation Plan.** The applicant shall contract with a qualified biologist, whom shall be selected subject to the City's approval, to prepare a Relocation Plan for Terrestrial Reptiles (Southern California legless lizard and coastal whiptail). The Plan shall at minimum include: identification of potentially occupied habitat, the timing and locations where surveys should be conducted; the habitat and conditions in the proposed relocation site(s); the methods that would be used for trapping and relocating the individual species; and requirements to provide the documentation/recordation of the species and number of animals relocated. The Plan shall be submitted to CDFW for review and must be approved by CDFW prior to commencement of any vegetation clearing or earthwork activities on the Project site.

Pre-Construction Surveys. Prior commencement of any vegetation clearing or earthwork activities on the Project site, a qualified biologist shall conduct a preconstruction survey within areas of suitable habitat identified in the Relocation Plan for Terrestrial Reptiles for special-status species wildlife (Southern California legless lizard and coastal whiptail). The biologist shall look for special-status species that may be located within or immediately adjacent to (within 100 feet) of the Project work areas, as permitted by access. Any individual special-status wildlife species observed within the Project work areas during the pre-construction survey shall be flushed and moved out of harm's way to avoid direct impacts to these species (with special-status reptiles documented and relocated as per the approved Relocation Plan).

Monitoring. A qualified biologist shall be present during initial ground-disturbing activities within the Project site. The qualified biologist shall possess an appropriate California scientific collecting permit to handle special-status species likely to occur in the Project area. If special-status species reptiles are detected in the work area during the surveys, the authorized biologist will capture and relocate individuals to nearby undisturbed areas with suitable habitat outside of the construction area, but as close to their origin as possible (consistent with the approved Relocation Plan). All wildlife moved or flushed during Project activities shall be documented by the biologist and CDFW shall be notified.

MM-BIO-2: **Nesting Bird Avoidance.** Initiation of construction activities, including initial vegetation clearing, should avoid the migratory bird nesting season (February 1

through August 31) in order to avoid any potential significant impact to birds that may be nesting on the Project site. If construction activities must be initiated during the migratory bird-nesting season, an avian nesting survey of the Project site and contiguous habitat within 500 feet of all Project-related impact areas shall be conducted for protected migratory birds and active nests. The avian nesting survey shall be performed by a qualified wildlife biologist, subject to the City's approval, within 72 hours prior to the start of construction-related activity in accordance with the Migratory Bird Treaty Act (16 USC 703–712) and California Fish and Game Code Sections 3503, 3503.5, and 3513.

If an active bird nest is found, the nest shall be flagged and mapped on the construction plans along with an appropriate no disturbance buffer, which shall be determined by the qualified wildlife biologist based on the species' sensitivity to disturbance (minimum of 50 feet for common, urban-adapted species, 300 feet for other passerine species, and 500 feet for raptors and special-status species). The "no disturbance buffer" area shall be demarcated in the field with flagging and stakes or construction fencing and shall be avoided until the nest is vacated and the juveniles have fledged. The qualified biologist shall have the authority to stop work on the Project site and shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests occur.

MM-BIO-3: **Bat Roost Avoidance.** Initiation of construction activities, including initial vegetation clearing, should avoid the maternity roosting season (March through August), in order to avoid any potential significant impact to bat maternity roosts. If construction activities must be initiated during the maternity roosting season, a roost survey must be conducted by a qualified biologist, subject to the City's approval. The roost survey for roosting bats shall be conducted on the Project site, including all trees and structures within 300 feet of Project-related impact areas, and shall be conducted no less than 30 days prior to commencement of construction activities. If maternity roosting is identified, those trees and/or occupied structures shall not be removed during the bat maternity roost season (March to August) and a minimum 300-foot buffer shall be established. The "no disturbance buffer" area shall be demarcated in the field with flagging and stakes and the roost shall be monitored by a qualified biologist until roost is vacated and juveniles have fledged.

b) Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant With Mitigation. Per the BRTR, the approximately 27-acre Project site is comprised of six vegetation communities and land covers, including annual non-native grasslands (6.42 acres), coast live oak woodland (10.87 acres), disturbed sagebrush scrub (2.24 acres), ornamental/landscape areas (2.41 acres), urban/developed areas (0.28-acre), and California walnut groves (1.4-acre). According to the BRTR, three vegetation communities were mapped within the Project site that are considered sensitive under CEQA by the California Department of Fish and Wildlife (CDFW), and/or by the City. These include California walnut groves, disturbed coastal sage scrub, and coast live oak woodlands. Species associated with the California walnut groves alliance include white alder (*Alnus rhombifolia*), California ash (*Fraxinus dipetala*), toyon (*Heteromeles arbutifolia*), coast live

oak, valley oak, arroyo willow, red willow (*Salix laevigata*), blue elderberry (*Sambucus nigra*), and California bay. California sagebrush scrub is a community dominated or co-dominated by California sagebrush (*Artemisia californica*) with a continuous or intermittent shrub canopy less than two meters (seven feet) in height with a variable ground layer. This native plant community characterized by a variety of soft, low, aromatic, drought-deciduous shrubs, such as California sagebrush (*Artemisia californica*), coyote bush (*Baccharis pilularis*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), brittlebush (*Encelia farinosa*), chaparral yucca (*Hesperoyucca whipplei*), coastal pricklypear (*Opuntia littoralis*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon. It typically develops on steep, south-facing slopes and at times, though rarely, occurs on flooded low-gradient deposits along streams in which are scattered willows (*Salix* spp.) and mulefat (*Baccharis salicifolia*), depending on the site conditions. The coast live oak woodlands community within the Project site is dominated by coast live oak, though California sycamore (*Platanus racemosa*), southern California black walnut, and Washington fan palm (*Washingtonia robusta*) are also scattered throughout this vegetation community. The understory within the coast live oak woodland mapped within the eastern perimeter of the Project site and within the areas zoned as Open Space - Natural (north of the Project site) include bromes (*Bromus* spp.), sowthistles (*Sonchus* spp.), ragweeds (*Ambrosia* spp.), Pacific poison oak, tree tobacco (*Nicotiana glauca*) annual yellow sweetclover (*Melilotus indicus*), Cucamonga manroot (*Marah macrocarpa*), Bermuda buttercup (*Oxalis pes-caprae*), Alefeld's pea (*Lathyrus vestitus* var. *alefeldii*), narrowleaf bedstraw (*Galium angustifolium*), distant phacelia (*Phacelia distans*), and wild canterbury bells (*Phacelia minor*). The understory within the coast live oak woodland mapped within the western perimeter of the Study Area is associated with non-native and landscaped species dominated by English ivy (*Hedera helix*), field bindweed (*Convolvulus arvensis*), tree tobacco, ornamental fig trees (*Ficus* sp.), and smilo grass (*Stipa miliacea*). Impacts to special-status vegetation communities are identified in Table 3.4-1.

Table 3.4-1
Permanent and Temporary Direct Impacts to Vegetation Communities and Land Covers

Vegetation Community/ Land Cover Type	Direct Permanent Impacts (acres)	Direct Temporary Impacts (acres)	Remaining within the Property Boundary (acres)
Native Vegetation Communities			
Coast Live Oak Woodland Alliance (CLOW)*	7.71	—	3.17
California Walnut Groves (CWG)*	—	0.01	1.39
Disturbed California Sagebrush Scrub (dCSS)*	0.20	0.71	0.65
Naturalized Vegetation Communities			
California Annual Non-Native Grassland (NNG)	2.02	1.47	2.93
Non-Natural Land Cover Types			
Urban/Developed (DEV)	0.47	—	2.42
Developed-Concrete Channel (DEV-CC)	0.28	—	—
Disturbed Habitat (DH)	0.87	0.10	—
Parks and Ornamental Plantings (ORN)	1.77	—	—
Total**	13.32	2.29	10.30

Source: Appendix B-1.
Notes:
* Special-status vegetation community per CDFW and/or the City of Glendora (2006).
** Total may not sum due to rounding.

Potentially significant direct permanent impacts to vegetation communities and land covers would occur as a result of earthwork and/or vegetation removal activities. Direct permanent impacts would occur within the southern section of the Project site, where development of the 12 new graded pads and private streets are proposed, and for proposed debris/flood control improvements and access road in the northern section of the Project site. Direct temporary impacts to vegetation communities and land covers would occur only within the northern section of the Project site associated with the proposed flood/debris control improvements. As part of the proposed Project design, the affected areas would be hydroseeded with native seeds to facilitate the reestablishment of vegetative cover. Additionally, container trees and shrubs will be installed in the minimal grading/grooming areas per the Project's approved landscaping plan. The proposed Project would have 7.91 acres of direct permanent impacts to two sensitive vegetation communities (City of Glendora 2006): coast live oak woodland and disturbed California sagebrush scrub. The Project would have 0.72 acres of direct temporary impacts to the two sensitive vegetation communities: California walnut woodland and disturbed California sagebrush scrub. Permanent and temporary direct impacts to coast live oak woodland, California walnut grove woodland, and disturbed California sagebrush scrub would be considered potentially significant. Implementation of MM-BIO-4, which includes preparation and implementation of a Habitat Restoration Plan, would reduce potential direct impacts to sensitive vegetation communities to a less-than-significant level.

Further, potential short-term indirect impacts to special-status vegetation communities located at the Project site would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust, and increased human activity, the introduction of pollutants from construction equipment. Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other Project-related materials) may affect special-status vegetation communities. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants. These potential short-term, construction-related indirect impacts could affect the special-status vegetation communities in the Project site. Therefore, construction-related indirect impacts to special-status vegetation communities would be potentially significant. Implementation of MM-BIO-5, which includes demarcation of disturbance limits and biological monitoring during vegetation removal, would reduce indirect impacts to sensitive vegetation communities to a less-than-significant level.

MM-BIO-4: Mitigation for direct impacts to sensitive upland vegetation communities shall be implemented through on-site creation/enhancement of remaining sensitive upland vegetation communities and/or off-site acquisition, program funding, and/or mitigation bank credits. Mitigation acreages shall be implemented as shown in Table 3.4-2 Mitigation for Direct Impacts to Sensitive Vegetation Communities.

Table MM-BIO-4
Mitigation for Direct Impacts to Sensitive
Upland Vegetation Communities

Sensitive Vegetation Community	Direct Impacts (acres)	Mitigation Ratio	Mitigation (acres)
Coast Live Oak Woodland Alliance*	7.71	3:1	23.13
California Walnut Grove	0.01	3:1	0.03
Disturbed California Sagebrush Scrub	0.91	1:1	0.91
Totals	8.63	—	23.33

* Excludes 1.78 acres of coast live oak woodland associated with jurisdictional waters

Prior to the issuance of a grading permit or any earthwork on the Project site, a qualified biologist, subject to the City's approval, shall prepare a Conceptual Restoration Plan (CRP) that sets forth the requirements for mitigating permanent and temporary impacts to sensitive upland vegetation communities (i.e. coast live oak woodland, California walnut grove woodland, and disturbed California sagebrush scrub) that is outside all jurisdictional water limits. Mitigation for sensitive vegetation communities associated with potential jurisdictional waters is identified in MM BIO-6. Areas of temporarily impacted sensitive vegetation communities on site shall be returned to similar conditions that existed prior to grading and/or ground-disturbing activities. Additional unimpacted areas in the Project site that support California annual non-native grassland may be enhanced to support existing sensitive native vegetation communities. The CRP shall include restoration of the following habitats:

- Upland Woodlands. Impacted areas of upland woodland (i.e. coast live oak woodland and California walnut grove woodland) shall be created/restored within and adjacent to the same on-site areas that the woodland currently existed prior to Project implementation, as well as other areas deemed to have appropriate soils and topography for successful establishment. Prior to vegetation removal activities, native acorns/nuts shall be collected. Understory areas shall be revegetated with a diversity of locally-collected seeds. Temporary irrigation shall be established and maintained, with irrigation suspensions in times of rainfall. Successful establishment of the woodland shall be determined only after removal of irrigation system and confirmed ability of the woodland to survive in the absence of irrigation. Mitigation for impacts to woodlands shall be implemented at a ratio of no less than 3:1 and shall be accomplished through a combination of on-site replacement and enhancement, on-site preservation, and off-site acquisition and/or mitigation bank credits. If feasible, woodlands would be created/restored at a minimum of 1:1 on-site, with the goal of increasing on-site restoration beyond 1:1.
- Sagebrush Scrub. Impacted areas of California sagebrush scrub shall be created within and adjacent to the same on-site areas that the scrub currently exist, as well as other areas deemed to have appropriate soils and topography for successful establishment. Prior to grading activities, native and locally collected seeds shall be collected be planted on site within the mitigation areas. Irrigation shall be provided, as necessary, to assure establishment of the scrub. Based upon the disturbed, low quality nature of the existing California sagebrush scrub on site, mitigation of scrub shall be implemented at a ratio of no less than 1:1 and shall be accomplished through a combination of on-site replacement and enhancement, on-site preservation, and off-site acquisition and/or mitigation bank credits.

The CRP shall include a monitoring schedule, minimum performance standard of success, estimated costs, and identification of responsible entities. At a minimum, the CRP shall require a one-time restoration effort followed by monitoring and invasive weed removal for a minimum of 5 years following ground-disturbing activities to compensate the direct temporary impacts. The monitoring program shall ensure successful establishment of the mitigation land, and if establishment is not realized within five years, restoration activities and monitoring may continue until minimum ratios as outlined above are established. The CRP shall be submitted to the City for review and shall revised to the satisfaction of the City.

MM-BIO-5: Indirect Impacts to Sensitive Vegetation Communities

Flagging Limits. To prevent inadvertent disturbance to sensitive vegetation communities, including jurisdictional waters, outside the limits of work, the construction limits shall be clearly demarcated (e.g., installation of flagging or temporary high visibility construction fence) prior to ground disturbance activities. All construction activities including equipment staging and maintenance shall be conducted within the marked disturbance limits.

Monitoring. A qualified biologist, subject to the City's approval, shall be present during initial ground-disturbing activities within the Project site to ensure that Project activities stay within the demarcated limits.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

Less Than Significant With Mitigation. A formal jurisdictional delineation of features within the Project site was first conducted at the Project site on July 22, 2014. A second formal jurisdictional delineation was conducted for the project site in 2019 following the above average rainfall in 2018-2019 rain season. The results of the jurisdictional delineation were incorporated in the BRTR. There are three main drainages and several swale/erosional features present within the Project site. Drainage A is ephemeral and flows through the Project site, from northwest to southeast. Drainages B, C and D are ephemeral drainages present within the north-central portion of the site. Drainages B and C are tributaries to Drainage D. Lastly, Drainage E is an ephemeral drainage that flows north to south through the Project site.

Per the BRTR, due to the absence of hydric soils and hydrophytic vegetation, there are no wetlands present within the Project site. Evidence of flow and presence of an Ordinary High Water Mark (OHWM) was documented in Drainages A–E. However, Drainages A-D are isolated linear features which are typically not waters of the U.S., but are waters of the State and CDFW jurisdictional resources. Based upon the data gathered during the site visit, Drainages A–E may be under the jurisdiction of the USACE, RWQCB, and/or CDFW. Per the BRTR, three potential jurisdictional waters types are present on-site. These include 0.45 acres of USACE waters of the United States; 0/47 acres of Regional Water Quality Control Board (RWQCB) waters of the state; 2.18 acres of CDFW streambed and bank, with coast live oak woodland; and 0.36 acres of streambed and bank, with non-riparian habitat.

The proposed Project would result in both permanent and temporary direct impacts to jurisdictional waters during the construction the installation of the three debris basins (i.e., west, middle, and east

basins) and the removal of the existing concrete channel, which occurs within the eastern portion of the property. The new debris basins and on site buried storm drain pipe system are proposed to be constructed to direct storm water flows south of the tract boundary where it will be released into the existing County Storm Drain system. Construction of the new buried storm drain system would eliminate the need for the concrete channel within the southern portion of Drainage E. Temporary direct impacts would occur due to grading activities associated with the installation of the new debris basins. Table 3.4-2 includes the acres of permanent and temporary impact.

Table 3.4-2
Direct Impacts to Potential Jurisdictional Waters

Jurisdictional Waters Type	Direct Permanent Impacts (acres)	Direct Temporary Impacts (acres)	Remaining within the Property Boundary (acres)
USACE waters of the United States	0.38	0.07	<0.01
RWQCB waters of the state	0.50	0.11	0.02
CDFW streambed, bank, and riparian vegetation (coast live oak woodland*)	2.05	—	0.44

Notes:
* Includes 1.77 acres of coast live oak woodland

As shown in Table 3.4-2, above, the proposed Project would result in direct temporary and/or direct permanent impacts to potentially jurisdictional waters. Direct impacts would result from discharge of fill (i.e., grading and construction/reconstruction of structures) into potentially jurisdictional waters, which would alter the size, scope, and character of these aquatic resources. Therefore, the proposed Project would result in potentially significant impacts to state or federally protected wetlands. Mitigation measures MM-BIO-5, which requires the demarcation of the disturbance limits for jurisdictional resources, and MM-BIO-6, which requires on-site restoration and/or land acquisition, mitigation program funding, and/or mitigation bank credits, would be implemented to reduce potential permanent and/or temporary impacts to jurisdictional waters to less-than-significant levels. Consultation with, and permit issuance from, USACE, RWQCB, and CDFW may result in higher mitigation ratios and specific criteria for restoration beyond the minimum standards presented in this mitigation.

Potential temporary indirect impacts to jurisdictional waters in the Project site would primarily result from construction activities and would include impacts from the generation of fugitive dust and the introduction of chemical pollutants (including herbicides). Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect wetlands/jurisdictional waters. The release of chemical pollutants can reduce the water quality downstream and degrade adjacent habitats. However, during construction, erosion-control measures would be implemented as part of the Storm Water Pollution Prevention Plan (SWPPP) for the Project. Prior to the start of construction activities, the Contractor is required to file a Permit Registration Document (PRD) with the State Water Resources Control Board (SWRCB) in order to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No 2009-009-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for earthwork that result in the disturbance of one acre or more of total land area. The required SWPPP will mandate the implementation of best management practices (BMPs) to reduce or eliminate construction-related pollutants in the runoff, including sediment. Therefore, temporary indirect impacts would be less

than significant based on compliance with regulations that would reduce the severity of potential short-term indirect impacts such that jurisdictional waters would be expected to persist and have similar function to existing conditions, in areas adjacent to development. Long-term indirect impacts to jurisdictional waters could result from Project implementation due activities associated with the residential development that includes chemical pollutants; non-native, invasive plant and animal species; increased human activity; and altered fire regime. However, the proposed Project would be subject to the City's Municipal Code, which includes requirements for stormwater runoff. Further, the Project's homeowner association (HOA) would be responsible for implementing Covenants, Conditions & Restrictions (CC&Rs) that must be reviewed by the City Attorney, which would contain restrictions on the use of chemicals that could pollute waters; ban the use of invasive species that are found on the Cal-IPC Inventory (Cal-IPC 2019); fencing between the development and preserved open space areas to limit human intrusion, and rules regarding fuel modification to limit the threat of fires. Therefore, through compliance with regulations, long-term indirect impacts to jurisdictional waters would be less than significant.

MM-BIO-6: Mitigation for direct impacts to jurisdictional waters shall be implemented through on-site enhancement of remaining jurisdictional waters and/or off-site acquisition, program funding, and/or mitigation bank credits. Mitigation ratios for each type of jurisdictional waters is shown in Table 3.4-4, Mitigation for Direct Impacts to Potential Jurisdictional Waters.

Table MM-BIO-6
Mitigation for Direct Impacts to Potential Jurisdictional Waters

Jurisdictional Waters Type	Direct Impacts (acres)	Mitigation Ratio	Mitigation (acres)
USACE waters of the United States	0.38	1:1	0.38
RWQCB waters of the state	0.50	1:1	0.50
CDFW streambed and bank, with coast live oak woodland	1.77	3:1	5.31
CDFW streambed and bank, with non-riparian habitat*	0.28	1:1	0.28

* Parks and ornamental plantings, disturbed habitat, and developed-concrete channel

On-site Mitigation. Prior to the issuance of a grading permit or any earthwork on the Project site, the Project Applicant shall prepare a Habitat Mitigation and Monitoring Plan (HMMP) for on-site mitigation for temporary and permanent impacts to jurisdictional resources (including coast live oak woodlands associated with the drainages), which shall include habitat enhancement and creation activities. The HMMP shall at a minimum include a feasible implementation structure, salvage/seeding details, invasive species eradication methods, irrigation system and schedule, a monitoring schedule, performance standard of success, estimated costs, and identification of responsible entities. The HMMP shall include restoration of the following habitats associated with the potential CDFW jurisdictional limits:

- **Riparian Coast Live Oak Woodland.** Impacted areas of coast live oak woodland within the CDFW jurisdictional limits shall be created/restored within and adjacent to the same on-site areas that the woodland currently existed prior to Project implementation, as well as other areas deemed to

have appropriate soils and topography for successful establishment. Prior to vegetation removal activities, native acorns/nuts shall be collected. Understory areas shall be revegetated with a diversity of locally-collected seeds. Temporary irrigation shall be established and maintained, with irrigation suspensions in times of rainfall. Successful establishment of the woodland shall be determined only after removal of irrigation system and confirmed ability of the woodland to survive in the absence of irrigation. If feasible, woodlands would be created/restored at a minimum of 1:1 on-site, with the goal of increasing on-site restoration beyond 1:1.

At a minimum, the HMMP shall require a one-time restoration effort followed by monitoring and invasive weed removal for a minimum of 5 years following ground-disturbing activities to compensate the direct temporary impacts. The monitoring program shall ensure successful establishment of the mitigation land, and if establishment is not realized within five years, restoration activities and monitoring may continue until minimum ratios as outlined above are established. On-site land shall be preserved in perpetuity through a deed restriction or conservation easement, and the HMMP shall identify an approach for funding assurance for the long-term management of the conserved land. The HMMP shall be submitted to CDFW, USACE, and RWQCB for review and comment, and revised to the satisfaction of the City and the three agencies for their approval.

Off-site Mitigation. If mitigation is implemented off-site, the Project Applicant shall work with the CDFW, USACE, and RWQCB to ensure the purchase of land acquisition, mitigation program funding, and/or mitigation bank credits are appropriate to offset permanent impacts. Mitigation lands shall be comprised of similar or higher quality riparian woodland and preferably located in the vicinity of the site or watershed. Any off-site land acquisition shall be preserved in perpetuity through a deed restriction or conservation easement, and an HMMP shall be prepared that identifies an approach for funding assurance for the long-term management of the purchased land.

d) Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant. Per the BRTR, no designated wildlife corridors or habitat linkages occur within the Project site. The existing canyons and proposed drainages within the designated open space areas in the northern portion of the project site may facilitate local north-south wildlife movement through the area; however, the features do not provide a connection to other large open space areas to the south that may be used by wildlife. Therefore, the Project would not result in direct temporary or permanent impacts, nor indirect impacts. Impacts would be less than significant.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

Less Than Significant With Mitigation. Per the Appendix B-2, Draft Architectural Landscape Plans and Tree Removals[3] it is anticipated that 455 protected trees present on-site would be removed as part of the Project. Section 20.08.130(6) of the City's Municipal Code requires that all existing living trees meeting the requirements in the Urban Forestry Manual (City of Glendora 2018), be preserved to the extent feasible as per recommendations provided by a certified arborist. If trees are destroyed, the applicant shall replace them with suitable trees in locations determined by the Planning Division before final occupancy is granted to any new resident. Therefore, the Project would result in direct permanent impacts to protected trees. Impacts resulting in conflicts with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, would be potentially significant. Implementation of mitigation measure MM-BIO-7, which requires tree replacement, would reduce potential direct impacts to a less-than-significant level.

Further, indirect impacts to trees could result from changes to the site that may cause tree decline, even when the tree is not directly injured. Per the BRTR, site-wide changes affecting trees include diverting runoff and stormwater, creating retention and detention ponds, relocating streams or making improvements to streams, lowering or raising water tables, altering the capacity for soil moisture recharge, removing vegetation, or damming underground water flow. Further, indirect tree impacts may potentially occur to trees that are within 25 feet of the proposed Project's limits of grading. Therefore, indirect impacts could potentially result in tree mortality adjacent to construction areas. Therefore, impacts would be potentially significant. Implementation of mitigation measure MM-BIO-8, which requires tree protection and monitoring, would be required to reduce potential indirect impacts to a less-than-significant level.

MM-BIO-7 **On-site Mitigation.** Mitigation for City protected trees shall consider and overlap with any on-site compensation for special-status vegetation communities (MM-BIO-4 and MM-BIO-5) and jurisdictional waters (MM-BIO-6). Prior to the issuance of a grading permit or any earthwork on the Project site, a qualified arborist shall conduct a tree survey to confirm previous tree inventory data points and finalize the tree count for the purposes of replacement and shall prepare a protected Tree Planting and Maintenance Plan. The Plan shall be developed by a qualified arborist or landscape architect, subject to the City's approval, and it shall identify tree planting locations, planting stock requirements, planting techniques, maintenance standards, tree protection standards, tree survival criteria, monitoring protocols, and reporting standards. Minimum tree replacement to removal ratios shall be no less than the following for each trees diameter at breast height (dbh) in accordance with the City's 2018 Urban Forestry Manual:

Native 8"-15" dbh	2:1 replacement
Native 16"-36" dbh	3:1 replacement
Native 37"-48" dbh	5:1 replacement
Native 49"-60" dbh	6:1 replacement
Native 61" dbh and up	7:1 replacement
Other 10"-15" dbh	1:1 replacement
Other 16"-36" dbh	1:1 replacement

3 Appendix B-2, Draft Architectural Landscape Plans and Tree Removals is a draft document subject to further review and final discretionary approval by the City. The discretionary approval process would include determination of species, location and quantity of trees planted.

Other 37”-48” dbh	2:1 replacement
Other 49”-60” dbh	3:1 replacement
Other 61” dbh and up	5:1 replacement

The plan shall be approved by the City prior to implementation.

Off-site Mitigation. For protected trees that are not replaced on-site, an in-lieu fee for future tree replacement shall be collected and deposited into a tree replacement fund. The in-lieu fee is based on the City’s cost to replant and set by City resolution.

MM-BIO-8 **During Construction.** Prior to issuance of the Project’s grading permit, the Applicant shall coordinate with LACFCD to assess the feasibility of oak tree preservation within the minimal grading/grooming areas and determine whether select trees could be preserved in place while maintaining the health and safety requirements of the LACFCD debris/flood control facility functions. Trees identified as being feasibly preserved and trees within approximately 15 feet of proposed construction activity shall be temporarily fenced with chain link or other material satisfactory to City planning staff throughout grading and construction activities. The fencing shall be installed three feet outside of the dripline of each tree (or edge of canopy for cluster of trees), be four-foot-tall, and staked every 6 feet. The fenced area shall be considered the tree protection zone (TPZ) unless proximate construction required temporary removal. An International Society of Arboriculture Certified arborist shall monitor any construction activity taking place within or near to the TPZ and shall submit a Construction Observation letter to the City for approval, prior to final inspection, summarizing the results of the monitoring activity and resulting health of trees designated for preservation on-site.

Post-Construction. For a period of no less than 5 years from the date of final inspection, an International Society of Arboriculture Certified arborist shall submit to the City a monitoring report annually. The report shall show compliance with the tree protection conditions of approval and verification that all trees are in good health. Further, all trees that have been substantially root pruned (30% or more of their root zone) during construction within the TPZ shall be monitored by an International Society of Arboriculture Certified arborist for the first five years after construction completion. The arborist shall submit an annual report, photograph each tree and compare tree health and condition to the original, pre-construction baseline.

As show in Appendix B-2, Sheet L-2, the Project would be required to mitigate for the proposed removal of 455 protected, on-site trees by either: (1) planting 879 replacement trees; (2) paying in-lieu fees for 879 replacement trees; or (3) a combination thereof. Appendix B-1 shows that the Project would plant a total of 443 replacement trees and submit an in-lieu fee payment in the amount of $593,890 for the remaining balance of 436 City-required replacement trees. In addition, Appendix B-2, Draft Architectural Landscape Plans and Tree Removals, outlines the Project’s protected tree maintenance plan, which includes requirements such as: installation of temporary protective fencing around any existing trees preserved on the Project site; no introduction of supplemental irrigation to the tree base; limiting soil compaction within the drip line[4]; prohibiting the placement of fill or construction material within the drip line; keeping proposed drainage flow away from the dripline; and requiring that an arborist be present on-site during any excavation taking place near preserved trees to ensure minimum damage to the root system.

4 Per the City’s Urban Forestry Manual, the drip line of a tree is the ground area at the outside edge of the tree's branches or canopy (City of Glendora 2018).

Due to (1) the Project's established tree maintenance plan, (2) mandatory compliance with the Title 20, Section 20.08.130 of the City's Municipal Code, and Section 21.03.020 of the City's zoning ordinance (i.e., Title 21, Zoning of the City's Municipal Code); and (3) with required incorporation of MM-BIO-7 and MM-BIO-8, the Project would not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. As such, Project associated impacts would be less than significant with mitigation incorporated.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. The Project site is not located within any proposed or approved Habitat Conservation Plan or Natural Community Conservations Plan (NCCP) (CDFW 2019c). Further, the site is located outside the ANF boundaries (USGS 2018). Therefore, the Project would not conflict with the provisions of an adopted Habitat Conservation Plan, NCCP, or other approved local, regional, or state habitat conservation plan. No impact would occur.

3.5 Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☒	☐	☐

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Less Than Significant With Mitigation. A historical resources technical report has been produced which provides a complete discussion of historical resources (Appendix C). On June 28, 2019, Dudek completed a search of the CHRIS at the SCCIC and found that no cultural resources overlapped the proposed Project area of potential effect (APE). A pedestrian survey of the proposed Project APE was conducted on August 1, 2019, for historic age built environment resources. During the survey, all buildings and structures within the proposed Project APE constructed over 45 years ago were surveyed and recorded. All accessible portions of properties were also intensively surveyed for archaeological resources.

The proposed Project APE encompasses approximately 27 acres, northwest of the intersection of W. Palm Drive and Grand Avenue in the City of Glendora. The survey of the proposed Project APE was positive for 9 structures associated with Rancho Los Alisos (1908-1953), one building associated with Camp Aventura (1953-1973), three USFS and LACFCD crib dams and one channel (1970), and one above ground structure and the Monrovia No. 1 tunnel which are components of a larger water

infrastructure system, the MWD Upper Feeder pipeline (c. 1936-1939). These individual components have been categorized as three resources that have been evaluated for historical significance as part of this Project.

All work for this inventory and evaluation report has been conducted as required under the Section 106 regulations (36 CFR Part 800 et seq.) and in accordance with Section 15064.5(a) (2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Resources Code. The overall finding for this study is that no historic properties listed in, or eligible for inclusion in the National Register of Historic Places (NRHP), California Register of Historic Resources (CRHR), or local Glendora Historic Resource or Landmark list will be impacted by the proposed Project.

Cultural Resources Records Search

On June 28, 2019, Dudek completed a search of the CHRIS at the SCCIC, located on the campus of California State University, Fullerton of the proposed Project APE and a half (0.5) mile buffer. This search included mapped prehistoric and historic archaeological resources and historic built-environment resources; Department of Parks and Recreation site records; technical reports; archival resources; and ethnographic references. Additional consulted sources included historical maps of the proposed Project APE, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility.

The SCCIC records indicate that seven previous cultural resources technical investigations have been conducted within 0.5-mile of the proposed Project APE between 1988 and 2019. Of these, one study overlaps a portion of the proposed Project APE: LA-00837.

LA-00837. An Archaeological Survey Conducted on a Parcel of Land North of Palm Drive in the City of Glendora, Los Angeles County, California (Cottrell 1977) was an archaeological survey report conducted on the proposed Project APE parcel in November 1977, prior to grading a portion of the site in anticipation of a residential development project. The results of the field reconnaissance and record search were both negative, owing to a lack of visible resources in the southern portion of the survey area and to the dense vegetation present on the property in the drainage basins. The report does not record any historical features, but noted their presence and association either to the Silent Ranch/Rancho Los Alisos property or to the Girl Scout camp.

The CHRIS records search did not identify any previously recorded historical resources within the proposed Project site. The SCCIC records indicate that two cultural resources have been recorded within 0.5-mile of the proposed Project APE; neither of which overlap or are located adjacent to the proposed Project APE. The two resources include the ANF and the Glendora Ridge Motorway, and are both outside the proposed Project APE.

Significance Evaluations

The following significance evaluations consider NRHP, CRHR, and City significance criteria and integrity requirements. For a property to be listed in or determined eligible for listing in the NRHP, it must be demonstrated to possess integrity and to meet at least one of four criteria. The CRHR was designed to reflect the same criteria and integrity as those identified for the NRHP. Therefore, the NRHP and CRHR significance evaluations are presented together.

Rancho Los Alisos/Camp Aventura Buildings and Structures

Rancho Los Alisos/Silent Ranch and Camp Aventura occupy the same address and parcel, and are part of the same chain of ownership. Rancho Los Alisos was purchased in 1907 by Judge Charles Silent and developed beginning in 1908. The original house for Rancho Los Alisos was demolished between 1964 and 1968. The modern house of the project site was built in 1980 by George Deukmejian, who first applied for a demolition permit for the Girl Scout Camp in 1974. Because the modern house was built in 1980, it is therefore not eligible for evaluation. Components of the Rancho Los Alisos grounds, such as the rock-lined structures, constructed rock water features, and Black Bass Pool were constructed between 1908 and 1910 and are associated with the original period of development. Camp Aventura was purchased in 1953 and developed between 1953 and 1958. The camp was abandoned in 1971 and most camp buildings were demolished when it was sold in 1974. One feature of Camp Aventura remains: a bathroom/washhouse.

Rancho Los Alisos: Rock-lined road and bench feature

This road feature is located east and southeast of the 950 Silent Ranch Avenue house, and the bench feature is located southeast of the house. The rock-lined road feature is visible in photographs dating to 1910 and was developed between 1908 and 1910. The roadbed itself is unpaved, compacted dirt, but the rock retaining wall runs the length of the "uphill" side of the road and is constructed of concrete, faced with semi-coursed, locally sourced, dark gray stone. The bench is integrated directly into the wall and is also constructed of concrete and stone. Total bench height is roughly 3 feet, level with the retaining wall height and the bench seat height roughly 2 feet above the road surface. The width of the bench appears to be 3'6"-4' with flared sides.

Rancho Los Alisos: Black Bass Pool

This pool feature is located northwest of 950 Silent ranch Drive house, long a ridgeline, immediately north of a mature lemon grove. The pool feature is visible in photographs dating to 1910, was featured in a newspaper article from 1911 describing its function and was developed between 1908 and 1910. The pool feature extends at least ten feet below the rim. The pool rim rises roughly 1'6" above ground level. The pool is circular and has an approximate diameter of 25 feet. In the center of the pool is a burned metal and wood post, capped with a metal hood. The pool is constructed of concrete reinforced with metal mesh, the face of which is badly spalling in some places. Around the rim of the pool is a wood ring, which still contains metal fixtures for the gate feature which has been lost. A metal ladder provides access to the pool interior. The entire feature has been burned and the pool is partially filled with burned debris.

Rancho Los Alisos: Constructed Rock "cave", wall, steps, and water pool features

The constructed rock cave feature, wall, steps, and pools are located immediately northwest of the black bass pool on the ridge above (northwest of) the house. The rock cave is constructed concrete faced with semi-coursed, locally sourced, dark grayish red stone. Over the arch of the entrance to the "cave" the rocks are arranged in an arch, with a keystone, and two 2- to 3-foot-tall rock walls slope away from it. The opening itself is roughly 2 feet wide by 3 feet tall. Downhill of and connected to the cave by a continuous low rock-faced wall are at least two circular shallow rock-lined concrete pools, which produce a cascade effect downhill towards the black bass pool. Uphill of the cave is a 4-foot-high rock faced concrete retaining wall. A set of 10 narrow stairs lead to the uphill area above the wall and are also constructed of concrete and local dark gray-red stone.

Rancho Los Alisos: Constructed Rock Fountain

The constructed rock fountain feature and pools is located northwest of the black bass pool on the ridge above (northwest of) the house, and southeast of the constructed rock cave. The constructed rock fountain is constructed concrete faced with semi-coursed, locally sourced, dark grayish-red stone. There is a smoothed, concrete, tool formed basin below the upper pour spout, forming the drinking fountain, which is roughly 2 feet x 1 feet 6 inches in diameter and oval shaped. The fountain basin portion is roughly 3 feet above current ground surface and is obscured by brush.

Rancho Los Alisos: Stone Stairs to Dining Pavilion

Stone stair feature is located due north of the 950 Silent Ranch Drive house. The stair feature is visible in photographs dating to 1910, and was developed between 1908 and 1910. The feature consists of a set of windowing, narrow concrete construction, stone-faced steps, approximately 8 inches high, 8 inches tread, and roughly 2 feet wide, with a rock and concrete border to each side. The stair is banked into a steep hillside just north of the house and extends downhill roughly 15 feet below the driveway north of the house.

Camp Aventura: Restroom Building

Restroom building is a one-story, Mid-Century Modern-styled building constructed in circa 1955-1956, located northeast and immediately downhill from the 950 N. Silent Ranch Drive property and driveway. The building is one-story and a simple rectangle in plan, with the east portion enclosed for a three-stall restroom and privacy screen, and the west portion an open-air wash area. The building rests on a concrete slab foundation. It features a flat roof with wide overhang and wide, angled fascia board with open eaves, and is supported by wood posts and the restroom stall enclosed space. The roof is clad with rolled composition roofing and flashed with aluminum-finish metal around the edges. The wall construction of the restroom stalls is wood stud clad with both board-and batten on the south and east elevation, and plywood on the west elevation. Along the north elevation there was a board and batten privacy wall in front of the stall doors, however, doors and privacy wall have been removed. Fixtures are still present at this building including an enameled double sink and three metal pit toilet fixtures. Along the rear (south) elevation, against the hillside, 2”x4” boards are nailed to the building exterior and support posts to provide pipe and wood board storage.

Identified Alterations

Dudek attained all available permits pertaining to the proposed Project APE through the City of Glendora Building Department’s eTRAKit online permitting system on August 14, 2019. The permits date from 1975 through present and are outlined in Section 5 of the Cultural Report (see Appendix C).

In addition to permits, observed alterations include the demolition of the original Rancho Los Alisos house, circa 1968-1974 and the construction of the crib dams and drainage channel on the property, which would not have received a building permit, for 1969-1970. Other alterations include the piercing of a section of stone-faced retaining wall along the lower road, north of the 950 Silent Ranch Drive house for an unpaved drainage channel for the crib dams.

NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The Rancho Los Alisos/Camp Aventura property has two phases: Rancho Los Alisos extending from 1907 through 1953 and Camp Aventura extending from 1953 through 1974. The Rancho Los Alisos phase is representative of the retirement years of wealthy lawyer, real estate investor and former judge Charles K. Silent. Silent's property, though private, was opened as a public park for citizens of Glendora from 1907 to Silent's death in 1918, then for years afterwards operated by the Silent Estate. Major components of this park and private property have been destroyed including most exotic plantings, the original orchards, and the original Greene & Greene designed house. However, some key features of the landscaping remain, including rock lined roads and paths, rock-lined water features, and a fish pool. The park likely made an impression on local Glendora visitors; however, the private home and garden does not appear to be host to a major historical event or influenced the growth of Glendora in any way.

Camp Aventura was one of nearly 40 Girl Scouts of America organizations camps established in Southern California between 1930 and 1970. Only one remaining feature of the original camp, established in 1953 remains: a 3-stall restroom and washroom building. The other buildings were demolished by the Navy Seabees and George Deukmejian between 1973 and 1974. As with Rancho Los Alisos, the camp may have made an impression on its occasional users, but did not particularly influence the growth of Glendora, or host any significant historical events. Despite local popularity as a public park and later as a Girl Scout campground, no significant historical associations were found during research. Due to a lack of identified significant associations with events important to history, the Rancho Los Alisos/Camp Aventura property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research identified a single important person, Judge Charles K. Silent (1842-1918), associated with the rancho Los Alisos/ Camp Avenura property. Silent was an influential lawyer, real estate investor, and former judge at a formative period in the history of Los Angeles, as stated above. He was instrumental in the formation of Redondo Beach and Inglewood via his company the Centinela-Inglewood Land Company (1887). Silent also created the first gated community in Los Angeles (Chester Place), and was influential in his role as City of Los Angeles Parks Commissioner. Despite this association, Silent's relationship with rancho Los Alisos/Camp Aventura is after the influential period of his life, after he had retired from his law practice and stopped working as Parks Commissioner. Rancho Los Alisos was not associated with the period of historical influence in Silent's life; therefore, the Rancho Los Alisos/Camp Aventura property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The Rancho Los Alisos property was initially built between 1907 and 1910, in a mixed Rustic style and Spanish Colonial Revival style romantically associated with old California ranchos. The grounds around the house were landscaped, and contained horticultural gardens, walks, retaining walls, stone benches, fountains, pools, fish-stocked ponds, orchards and experimental orchards, during the time Charles Silent was alive. The original house was probably designed by master architects Greene & Greene; however, this could not be determined as the house and all associated outbuildings were demolished in the late 1960s. The only remaining features of the original 1907-1910 property are the rock-lined landscaping features, including a pool, fountain, rock retaining walls, rock stairs, and rock-lined paths throughout the property. These features have been allowed to deteriorate or were partially demolished as more modern portions of the property were added, such as the partial demolition of a

rock retaining wall to allow a channel outlet for the West crib dam (1970) structure. These concrete and rock structures have also been damaged or altered by fires and flood and subsequent repairs. While interesting in construction, the majority of rock structures, original landscaping, and the original buildings on the property have been lost and the remaining structures lack the integrity to convey significance under this criteria. They cannot be positively identified as the work of a master, as the Greene & Greene house plans from 1907 do not include landscaping or structures aside from the main house. The structures have deteriorated and no longer possess high artistic value, and are not part of a district or entity whose components lack individual distinction.

The later Camp Aventura building has a similar issue. The only remaining building of the original 12 buildings and campgrounds is one Mid-Century Modern-style restroom building, badly deteriorated since its abandonment in the 1970s. Constructed in 1955-1956, the restroom building retains few character-defining features of the style including thin, upright supports and a flat roof with angled fascia board detailing. The original architect was narrowed down to either Paul R. Hunter or Tryon & Foy, neither of which can be considered master architects. The building has no artistic value and while it was originally a component of a larger Girl Scout-related campground, it is the only remaining features and as such does not adequately convey this distinctive association. Therefore, the Rancho Los Alisos/Camp Aventura property does not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The Rancho Los Alisos/Camp Aventura property is not likely to yield information important to understanding prehistory or history. Therefore, the Rancho Los Alisos/Camp Aventura property does not appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

As stated above in Criteria A/1 and C/3, the remaining stone landscaping structures (1907-1910) and remaining restroom building (1955-1956) do not reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage of Glendora. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research identified an association with influential lawyer, real estate developer and former judge Charles K. Silent, who is likely a significant person at the local and possibly State level. However, the Rancho Los Alisos property and Camp Aventura property do not retain an association with the influential period of Silent's life and are indicative only of his retirement and his posthumous estate transactions. No important person was identified in association with the Girl Scout camp. Therefore, Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

Rancho Los Alisos/Camp Aventura no longer embody the characteristics of their original styles, periods, or methods of construction due to integrity issues and overall loss of the majority of concurrent

features (i.e., Rancho Los Alisos has lost the original house, all associated outbuildings, and all original landscaping; Camp Aventura has lost the original 11 other campground buildings and major activity surfaces). Therefore, Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research failed to resolve whether the Rancho Los Alisos stone structures were designed by architects Greene & Greene as landscaping plans for the property have not been retained. Archival research also failed to identify if the Camp Aventura restroom is associated with architect Paul R. Hunter or Tryon & Foy, nor is the building definitively visibly the work of either architect. In both cases, the remaining Rancho Los Alisos/Camp Aventura structures and buildings are not representative of the notable work of a builder, designer, or architect. Therefore, Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

The Rancho Los Alisos/Camp Aventura buildings and structures retain only integrity of location, as they remain in their original locations. These features do not retain integrity of setting as the setting of both Rancho Los Alisos and Camp Aventura have been lost in subsequent fires, residential subdivision development, and flood control structure development. Enough of the Rancho Los Alisos or Camp Aventura settings have been altered, removed, or redeveloped such that integrity of setting is no longer intact. These features also do not retain integrity of design, materials or workmanship as all stone and concrete structures are in advanced states of decay, sometimes with the entire stone facing section missing. The Camp Aventura building has had several material portions removed so discerning original design intent, materials or workmanship was not possible. All features do not retain integrity of feeling as they do not convey the feeling of a mid-century Girl Scout camp with both accessible and remote camp sites nor convey the feeling of an early twentieth century several hundred-acre estate and intermittent park. Finally, no features retain integrity of association as all association with the Silent Estate and with the Los Angeles Girl Scout Council has been lost by the encroaching residential subdivision development.

USFS and LACFCD concrete crib dams and channel structures

As discussed above, crib dams and drainage channel on the property would not have received a building permit, for 1969-1970. These features are summarized below and additional details regarding these features are provided in Section 5.2 of the Cultural Report (Appendix C).

The West crib dam (1970) is a concrete crib check dam, built in 1970 located in the westernmost canyon of the property, northwest of the 950 Silent Ranch Drive house. The dam was one of forty such concrete crib check dams constructed after a fire and flooding event in 1968 and 1969 dam is constructed of reinforced concrete beams laid in crib bays with no mortar and metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. The Center crib dam (1970) is a concrete crib check dam, built in 1970 located in the second-from-west canyon of the property, northeast of the 950 Silent Ranch Drive house. The dam was one of forty such concrete crib check dams constructed after a fire and flooding event in 1968 and 1969 is constructed of reinforced concrete beams laid in crib bays with no mortar and metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. The East crib dam *(1970)* is a concrete crib check dam, built in 1970 located in the east-most canyon of the property, northeast of the 950 Silent Ranch Drive house. The dam was one of forty such concrete

crib check dams constructed after a fire and flooding event in 1968 and 1969. The dam is constructed of reinforced concrete beams laid in crib bays with metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. No permits were available from the Los Angeles County Department of Public Works (LACDPW) for the concrete crib dams or channel. No observed alterations were noted in the course of survey. The crib dams are in fair condition, but heavily overgrown by vegetation and the debris cone behind each dam has completely filled and level to the top of each dam.

NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The three crib dams and channel were constructed in 1970 in response to a 1968 fire and subsequent flooding and mudslides in 1969, in order to prevent further damage to the residential subdivisions of City of Glendora, which had been slowly reaching further and further north into the San Gabriel Mountain foothills. Though the 1968 fire was a substantial fire and brought about positive civil infrastructure changes, the fire and flood are exemplary of many in the history of Glendora, and its damages were not particularly exceptional or historic in their proportions. Fire and flood/mudslide patterns were typical to this area and most down-stream communities south the canyon outlets of San Gabriel Mountains. The crib dams were constructed as part of a larger joint USFS and LACFCD infrastructure program which created the larger Hook Canyon debris dam and channel, as well as 40 other concrete crib dams. As such, the dams on the proposed Project APE do not distinguish themselves as particularly important structures that made a significant contribution to the broad patterns of local Glendora history. Therefore, the three crib dams and channel do not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the USFS/LACFCD crib dams do not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The three dams and channel were constructed in 1970 as a joint project between USFS, LACFCD, with financial aid from the Army Corps of Engineers and the City. They are typically constructed of concrete beams arranged in cribs and built to various heights. Crib dams were not a new, novel, or improved engineering method for dealing with debris floods. The technique of using crib dams to control land erosion and heavy sediment flow originated in Europe and was used in the San Gabriel Mountains by the USFS as early as 1915. Because the dams are meant to slowly backfill, the multiple historical flood events in Los Angeles (1916, 1938) eventually covered and made obsolete earlier crib dams. Multiple crib dam building periods were identified by the USFS as important projects: a concrete arch check dam in Arroyo Seco Canyon (1942); the Coon Canyon Stabilization Project (1950); and the Los Angeles River Watershed Project (1954-1974), however this last did not provide crib dams in Glendora. The three crib dams in the study area are typical in their construction and offer no insight into engineering techniques or identified major projects. Archival research did not indicate an association between the dams and channel and a master engineer. The dams are of utilitarian construction and do not possess

artistic value. While the dams and channel are part of an entity of dams built after the 1969 mudslides and flood, they are neither significant nor distinguishable from earlier period crib dams constructed for similar regions throughout the San Gabriel National Forest. Therefore, the crib dams and channel do not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The crib dams and channel are not likely to yield information important to understanding prehistory or history. Therefore, the crib dams and channel do not appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

The three crib dams and the channel are utilitarian in construction and constructed by the USFS and LACFCD in 1970, in response to a flood and mudslide event in 1969. However, in the larger Glendora-area history this flood and mudslide event was one of many in Glendora's history, and resulted in the construction of 40 similar structures. These structures neither exemplify nor reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage of Glendora. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research failed to identify any associations with significant persons at the local, state, or national level. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

The three crib dams are 1970s-era concrete crib dams, and typical of the method of construction of crib dams by USFS. They are utilitarian in construction and do not embody a particular style, type, or period. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research failed to identify any associations with a specific architect, designer, or engineer. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

All three dams and the channel maintain integrity of location and setting as neither have changed since their construction in 1970. The dams have infilled, however there appear to be no notable alterations, repairs, demolitions, or additions, and therefore the three dams and channel maintain integrity of design, materials and workmanship. The dams and channel still evoke the feeling of

utilitarian flood control structures and therefore retain integrity of feeling. Though the dams retain signage by USFS and LACFCD, they appear to not be actively maintained and do not retain integrity of association.

MWD Upper Feeder Pipeline segment (Monrovia No. 1) and Above-ground Structures

The Monrovia No. 1 tunnel and hatch structure are components of a larger water conveyance system called the Upper Feeder pipeline, completed in 1939, owned and operated by MWD, and operating today as an active utility. The Upper Feeder was designed and constructed concurrently with the Colorado River Aqueduct as part of the distribution system, which furnished water to participating cities for distribution b local municipal water departments.

MWD Upper Feeder Pipeline segment: Monrovia No. 1 tunnel (1937)

The MWD Upper Feeder Pipeline segment: Monrovia No. 1 tunnel is a subterranean structure that transects the proposed Project APE from a point due east of the 950 Silent Ranch Drive main house building to a point northeast of the 950 Silent Ranch Drive main house building, in the eastern section of the proposed Project APE. No portion of the Monrovia No. 1 tunnel was accessible for survey, due to it being underground. Historical MWD source document that entirety of the 41.6 miles from Lake Matthews to the east portal of Monrovia No. 1 tunnel was constructed of welded steel and precast concrete pipe. The Monrovia No. 1 tunnel extended 7,868 feet from portal to portal, and was a concrete lined pressure tunnel in rock substrate, and was 10 feet in diameter, with light supper of steel ribs and timber lagging occasionally placed as-needed (Weymouth 1939: 266-269).

Concrete access point hatch 2256-93 (no date)

The concrete access hatch structure and above ground structure is part of the MWD Upper Feeder Pipeline located northeast of the 950 Silent Ranch Drive main house building, at the outlet of a wide gully. The hatch structure consists of a 6-foot diameter, circular concrete access point that rises 1-2 feet above the ground surface, with a rectangular asbestos lid with a crosshatch pattern. Date of construction for the hatch is unknown. The original subsurface section of the MWD Upper Feeder was constructed between 1936 and 1939; however, the asbestos lid does not appear to be of 1930s construction. The hatch structure is labeled with stenciled paint on the top and side with “2256-93.”

Identified Alterations

No permits were available from the Metropolitan Water District of the City of Glendora for the infrastructure related to the Upper Feeder. No observed alterations were noted in the course of survey.

NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The section of Upper Feeder pipeline within the study area is subterranean Monrovia No. 1 tunnel with only one visible, above-ground structure: the concrete access hatch. Monrovia No. 1 tunnel is an underground pipeline and critical segment of the MWD Upper Feeder pipeline, the first multi-city municipal water distribution system of its kind in the region. The entire Upper Feeder pipeline system was designed in 1931, contract for the Monrovia No. 1 tunnel was awarded to West Construction Company in 1934, the right-of-way easement was acquired in 1935 through the Silent Ranch Estate, and the Monrovia No. 1 tunnel was completed in 1937. Water first flowed through the distribution

system in 1941. No date of construction could be ascertained for this hatch; however, it is assumed that the construction date is concurrent with the Monrovia No. 1 tunnel: 1937. Both Monrovia No.1 tunnel and the access hatch are components of the larger Upper Feeder pipeline and distribution system for the Colorado River Aqueduct. The entire distribution the Upper Feeder pipeline belongs to extends 150-miles and serves participating cities in the greater metropolitan Los Angeles area, the Inland Empire, San Diego County, and other Southern California areas. The Upper Feeder pipeline is the first segment of the distribution system for the MWD Colorado River Aqueduct, extending 60 miles from the Colorado River Aqueduct's western terminus at Lake Matthews to the San Rafael tunnel between Pasadena and Glendale. The construction of the distribution system and Upper Feeder pipeline made a significant contribution to the board pattern of history as part of the transportation and distribution of Colorado River water, an enabling force for the intensive economic and residential development of Southern California.

The MWD Upper Feeder was instrumental to the transportation and distribution of Colorado River water to participating cities in Southern California. After Colorado River traversed the Mojave Desert from Nevada to Riverside in the Colorado River Aqueduct, the Upper Feeder pipeline was the practical means by which the participating cities accessed Colorado River water. The need for Colorado River water was dire in the 1920s, and the 2,200 square miles of coastal plain surrounding the City of Los Angeles was ripe for residential, commercial, industrial, and agricultural development. However, prior to receiving Colorado River water, municipalities in the arid region relied on outdated and overtaxed irrigation systems, artesian wells and groundwater, or private water companies to furnish water, or face annexation by City of Los Angeles in order to access the Los Angeles Department of Water and Power's Owens River water sources. Most smaller municipalities in the region simply lacked the resources to import water like Los Angeles on their own. After the Colorado River Compact enabled Arizona, California Colorado, Nevada, New Mexico, Utah and Wyoming to divert portions of Colorado River water in 1923, MWD was established in 1928, as a result of the Metropolitan Water Act. The Metropolitan Water Act outlined how to the Colorado River Aqueduct and distribution system would be located and constructed. Construction of both distribution system and Colorado River Aqueduct began in 1931. 150 miles of distribution system were completed in 1939 and 242 miles of Colorado River Aqueduct were completed in 1941.

The Upper Feeder was a segment of the distribution system of the MWD Colorado River Aqueduct, and the means by which the participating cities in the greater metropolitan Los Angeles area, the Inland Empire, San Diego County, and other Southern California areas got access to Colorado River water after the completion of the Hoover Dam. The MWD Upper Feeder pipeline, as well as the rest of the distribution system and Colorado River Aqueduct, were major construction programs affording thousands of jobs to Californians during the Great Depression. After both projects were completed, the increased water supply and made it possible for Southern California to enjoy widespread economic development and to be settled so densely.

For linear, water conveyance resources to be found eligible under Criterion A/1, it must be a key piece of the overall system. In this case, the Monrovia No. 1 tunnel is a key portion of the Upper Feeder pipeline, facilitating its portage from the south side of the San Gabriel foothills to the San Gabriel River canyon. Further, the Monrovia No. 1 tunnel and hatch maintain their original alignment and location, which is critical to understanding their importance and significance as a historically significant piece of water infrastructure. The Monrovia No. 1 tunnel and hatch also maintain its subterranean setting, situated in the original undeveloped suburban foothill area of Glendora. Finally, the Monrovia No. 1 tunnel and hatch continue to function as a water conveyance system operated by MWD. While setting is less important for an underground feature, maintaining the original alignment, association with MWD, and its continued use as a water conveyance structure are important are the character-defining features of the Monrovia No. 1 tunnel and hatch.

As such, the Monrovia No. 1 tunnel segment transecting the proposed Project APE and the above-ground access hatch, are recommended eligible for NRHP/CRHR Criterion A/1, as a component of the larger MWD Upper Feeder pipeline for the period 1931-1941, for transportation and distribution of Colorado River water to participating municipalities in Southern California, which was an enabling force for the intensive economic and residential development of Southern California.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with specific significant persons. Due to a lack of identified significant associations with important persons in history, the MWD Upper Feeder and all associated components do not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The entire Upper Feeder pipeline system was designed in 1931, contract for the Monrovia No. 1 tunnel was awarded to West Construction Company in 1934, the right-of-way easement was acquired in 1935 through the Silent Ranch Estate, and the Monrovia No. 1 tunnel was completed in 1937. Water first flowed through the distribution system in 1941. No date of construction could be ascertained for this hatch. However, it is assumed that the construction date is concurrent with the Monrovia No. 1 tunnel: 1937. The MWD Upper Feeder pipeline was designed by Metropolitan Water District engineer R.B. Diemer and multiple contractors were used to complete the above and below ground sections. Monrovia No. 1 tunnel was completed by contractor West Construction Company, and the majority of other concrete pipe sections completed by contractor J.F. Shea Company Inc. Like the Colorado River Aqueduct the scale and importance of the distribution system, which totaled over 150 miles and served dozens of cities across Southern California. The Upper Feeder segment between Lake Matthews and Morris Reservoir is 30+ miles long and passes through the proposed Project APE in a series of subterranean tunnels. No portion of the tunnels are visible as above ground features except for a single concrete hatch. As such, this report cannot offer comment on the type or method of construction. Adequate records of the construction of the section through the proposed Project APE are well recorded; however, construction techniques could not be confirmed as the line itself was not visible during the field visit.

Despite the Upper Feeder pipeline's historical importance and monumental scale, nothing about the original design for the Monrovia No. 1 tunnel was particularly identifiable to a specific historical period or method of construction. Concrete pipelines and tunnel construction are ubiquitous water infrastructure components and the Monrovia No. 1 tunnel and MWD Upper Feeder pipeline as a whole do not distinguish themselves other than by its size. The Upper Feeder pipeline as a whole is associated with MWD engineer R.B. Diemer, who despite his later role as chief engineer of MWD for nine years, does not rise to the level of master engineer. The Monrovia No. 1 tunnel is utilitarian infrastructure and does not possess high artistic value. Finally, the Monrovia No. 1 tunnel and the concrete hatch are components of a significant and distinguishable work of twentieth century water engineering and a major infrastructure development project, however they are subsurface components and not visible. Therefore, they are not representative of the pipeline as a whole. Therefore, the MWD Upper Feeder subsurface tunnel segment and associated infrastructure, including the hatch, do not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The Upper Feeder pipeline is not likely to yield information important to understanding prehistory or history. Therefore, Upper Feeder pipeline does not appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

The Monrovia No. 1 tunnel and hatch, which traverse the proposed Project APE, exemplifies special elements of City of Glendora's history. The addition of this water to the city existing water system allowed for the continuation of and assurance of water for irrigated crops in Glendora, allowing the Glendora citrus industry to persist until the mid-1960s, when residential and economic development pressure overrode the citrus industry's land requirements. Therefore, the Monrovia No. 1 tunnel and hatch are recommended eligible as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research failed to identify any associations with significant persons at the local, state, or national level. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

The Monrovia No. 1 tunnel and hatch are not particularly outstanding or innovative examples of 1930s-era monumental-scale water infrastructure. All components of the Upper Feeder tunnel in the APE are underground and Dudek was not able to verify the condition, construction, or alterations to the pipeline. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research identified that the MWD Upper Feeder's engineer is associated with MWD engineer R.B. Diemer, who despite his later role as chief engineer of MWD for nine years, does not rise to the level of master engineer. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

Integrity is the ability of a property to convey its significance. Under NRHP Criterion A and CRHR Criterion 1, a significant water conveyance resource must retain the following physical attributes as they relate to the integrity of location, setting, and association:

- Location: original alignment
- Setting: remains subterranean
- Association: continues to function as a water conveyance system

Dudek recommends that the pipeline retains integrity of location as it maintains its original 1930s alignment, as confirmed through map research. The Monrovia No. 1 tunnel segment also retains integrity of its setting, as the pipe is still under the ground surface. Because the pipeline is a subterranean feature, integrity of the aboveground setting is not necessary for the pipeline to convey its significance. The pipeline retains integrity of association with the MWD as the pipeline retains its original ownership and function. Integrity of design, materials, workmanship and feeling are not required for a water conveyance resource to convey its significance under Criterion A/1. Therefore Monrovia No. 1 tunnel and hatch retain the requisite aspects of integrity to convey their significance under Criterion A/1.

Summary of Evaluation Findings

Within the APE, one resource is recommended eligible for the NRHP, CRHR and City of Glendora Historic Resource of Landmark designation: the Monrovia No. 1 tunnel and hatch. The Monrovia No. 1 tunnel and hatch are recommended eligible under Criterion A/1/1 as a component of the MWD Upper Feeder pipeline, for the period 1931-1941 for representing a critical component of a larger water infrastructure, the MWD Upper Feeder pipeline. The Monrovia No. 1 tunnel and hatch was evaluated in accordance with Section 15064.5(a) (2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Resources Code, and it appears to be a historical resource for the purposes of CEQA and a historical property for the purposes of Section 106 of the NHPA (36 CFR Part 800). Dudek recommends this resource be assigned a California Historical Resource Status Code of 3D (appears eligible for NR as a contributor to a NR eligible district through survey evaluation).

The remaining resources located at 950 North Silent Ranch Drive (APN: 8684-045-004): the Rancho Los Alisos Structures, Camp Aventura building, and joint Forest Service and County Flood Control District dams and channel do not appear eligible for the NRHP, CRHR, or as a City of Glendora historic resource or landmark due to a lack of significant historical associations and architectural merit. Therefore, the property is not considered an historical resource for the purposes of CEQA or an historic property for the purposes of Section 106 of the NHPA. No management recommendations are required for cultural resources. These resources have been assigned a California Historical Resource Status Code of 6Z (found ineligible for the NRHP, CRHR, or local designation through survey evaluation).

Under Section 106 of the NHPA, an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative (36 CFR Part 800.5(1)).

As stated above, the Monrovia No. 1 tunnel and hatch appears eligible for listing in the NRHP Criterion A and CRHR Criterion 1. The proposed Project would develop a residential subdivision, and construction includes grading, fill deposits, utilities trenching, road construction, driveway construction, and construction of residential buildings over the MWD pipeline easement. In July 2019, MWD sent Giron Engineers, Inc. a letter commenting on plans submitted for the proposed Project and requiring the Project proponents to: make accommodations for MWD vehicles and build an MWD-accessible right-of-way in the proposed Project APE; provide protections such as bollards or gates for above ground MWD structures such as manholes or hatches; provide MWD with detailed plans for any protection provisions built for MWD resources as a result of the project; provide plans for landscaping or other improvements within the MWD proposed right-of-way; provide details of any non-potable

utilities for MWD review; and to include provisions for loads imposed on the pipeline. The letter further cautions that any facility constructed within the MWD easement is subject to the paramount right of MWD to use the easement for the purpose it was required. MWD reserved the right to remove facilities from the easement and to block access to their right-of-way at any time (MWD 2019). This letter provides for the protection of the structure of the Monrovia No. 1 tunnel segment of the MWD Upper Feeder pipeline which transects the proposed Project site. These restrictions are set forth in MM-GEO-2 in Section 3.7, Geology and Soils. With incorporation of MM-GEO-2, potential impacts to the Monrovia No. 1 tunnel segment of the MWD Upper Feeder pipeline and hatch would be less than significant and the historic property would still be able to convey is significance following proposed Project implementation. As a result, the proposed Project would not cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5 and impacts would be less than significant with mitigation.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less Than Significant with Mitigation.

CHRIS Record Search. As previously discussed, a CHRIS records search was conducted for the proposed Project APE and a 0.5-mile radius at the SCCIC on June 28, 2019. No cultural resources studies have been previously conducted within the Project site. Additionally, SCCIC records did not identify any previously recorded cultural resources within the proposed Project APE.

NAHC Consultation. As part of the process of identifying cultural resources within or near the proposed Project APE, Dudek contacted the NAHC on June 5, 2018, to request a review of the SLF. The NAHC replied via email on June 8, 2018, stating that the SLF search was completed with negative results. Because the SLF search does not include an exhaustive list of Native American cultural resources, the NAHC provided a list of six Native American individuals and/or tribal organizations who may have direct knowledge of cultural resources in or near the proposed Project APE. No additional tribal outreach was conducted by Dudek; however, in compliance with Assembly Bill (AB) 52, the City has contacted all NAHC-listed traditionally geographically affiliated tribal representatives that have requested Project notification, which is addressed in Section 3.18, Tribal Cultural Resources.

Cultural Resource Survey. An intensive-level pedestrian survey of the proposed Project APE was conducted on August 1, 2019. The survey focused on all accessible portions of the proposed Project APE. No prehistoric or historic in age archaeological resources were observed during the survey.

No newly or previously recorded archaeological resources were identified within the proposed Project APE as a result of the cultural resources study. Although no archaeological resources were identified within the proposed Project site, there is always the potential to encounter unanticipated cultural resources during the course of construction. In the event that archaeological resources are inadvertently discovered during ground-disturbing activities, MM-CUL-1 would require work to be halted within 100 feet of the discovery until it can be evaluated by a qualified archaeologist. Construction activities may continue in other areas while the archaeologist inspects the find. If the discovery proves to be significant, additional work, such as data recovery excavation or resource recovery, may be warranted and would be discussed in consultation with the appropriate regulatory agency. Implementation of MM-CUL-1 would ensure that impacts regarding a substantial adverse change in the significance of an archaeological resource remain less than significant.

MM-CUL-1: In the event that archaeological resources are unearthed during ground-disturbing activities, the construction contractor shall immediately cease all

earth-disturbing activities within 100 feet of the discovery and shall retain a qualified archaeologist that meets the Secretary of the Interior's Professional Qualification Standards. Construction activities may continue in other areas outside of the designated protection zone, which shall be delineated with cones, flagging, or fencing. The archaeologist shall evaluate the significance of the find and determine whether the resource uncovered is a "Tribal Cultural Resources" pursuant to Section 21074 of the California Public Resources Code, or a "unique archaeological resource" pursuant to Section 21083.2(g) of the California Public Resources Code or a "historical resource" pursuant to Section 15064.5(a) of the State CEQA Guidelines.

If the archaeological find is determined to be a resource, the archaeologist shall formulate a Mitigation Plan in consultation with the City of Glendora that satisfy the requirements of the above-listed Code Sections. Upon approval of the Mitigation Plan by the City, the Project shall be implemented in compliance with the Plan. If the Archaeologist determines that the resource is not significant, s/he shall record the evaluation and submit the recordation form to the California Historical Resources Information System (CHRIS) at the South Central Coastal Information Center (SCCIC). The archaeologist shall prepare a report of the results of any study prepared as part of a testing or Mitigation Plan, following accepted professional practice. The report shall follow guidelines of the California Office of Historic Preservation although format will be dependent on the nature of the archaeological investigation required. Copies of the report shall be submitted to the City and to the CHRIS at the SCCIC.

c) Would the project disturb any human remains, including those interred outside of dedicated cemeteries?

Less Than Significant with Mitigation. There is no indication that human remains are present within the boundaries of the Project site. However, in the unlikely event that excavation activities inadvertently discover buried human remains, implementation of MM-CUL-2 would reduce potential impacts to a level considered less than significant. Therefore, impacts to disturbance of any human remains, including those interred outside of dedicated cemeteries, would be less than significant with mitigation.

MM-CUL-2: In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the Los Angeles County Coroner shall be notified within 24 hours of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within two working days of notification of the discovery, the appropriate treatment and disposition of the human remains. If the County Coroner determines that the remains are, or are believed to be, Native American, s/he shall notify the Native American Heritage Commission (NAHC) in Sacramento within 48 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the Most Likely Descendant (MLD) of the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

3.6 Energy

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

a) Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Less Than Significant Impact. The short-term construction and long-term operation of the proposed Project would require the consumption of energy resources in several forms. Construction energy consumption includes: (1) temporary direct electrical service provided by SCE, which includes construction site lighting; computer equipment; and temporary construction trailer operation; and (2) fossil fuels (diesel and gasoline), which includes off-road construction equipment, diesel-fired electric generators, and worker vehicles, vender trucks, and haul trucks. Operational energy consumption includes: (1) direct electrical service provided by SCE, which includes, building heating, ventilation, and air-conditioning (HVAC), lighting: interior and exterior facilities, computer, audio and video equipment; and, appliances; (2) indirect energy consumption, which includes supply, distribution, and treatment of water, wastewater; and solid waste; and (3) fossil fuels (diesel and gasoline) from vehicle transportation.

Construction Energy Use

Electricity. Temporary electric power for as-necessary lighting and electronic equipment (such as computers inside temporary construction trailers) would be provided by SCE. The electricity used for such activities would be temporary and would be substantially less than that required for Project operation and would have a negligible contribution to the proposed Project's overall energy consumption.

Natural Gas. Natural gas is not anticipated to be required during construction of the proposed Project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the "petroleum" subsection. Any minor amounts of natural gas that may be consumed as a result of proposed Project construction would be substantially less than that required for operation and would have a negligible contribution to the proposed Project's overall energy consumption.

Petroleum. Petroleum would be consumed throughout construction. Fuel consumed by construction equipment would be the primary energy resource expended over the course of construction. Transportation of construction materials and construction workers would also result in petroleum consumption. Heavy-duty construction equipment, vendor trucks, and haul trucks would use diesel fuel. Construction workers would likely travel to and from the project area in gasoline-powered vehicles. Construction was modeled in CalEEMod to require approximately 18 months, beginning in

2023 and ending in 2024. Once construction activities cease, petroleum use from off-road equipment and construction transportation vehicles would end. All construction activities must be conducted in accordance with applicable regulations related to the recycling of construction and demolition debris. Because of the short-term nature of construction and relevantly small scale of the proposed Project, impacts would be less than significant.

Operation Energy Use

Electricity. Operation of the proposed Project would require electricity for multiple purposes, including cooling, lighting, appliances, and various equipment. Additionally, the supply, conveyance, treatment, and distribution of water and wastewater would indirectly result in electricity usage. Electricity consumption associated with proposed Project operation is based on CalEEMod outputs presented in Appendix A of this IS/MND.

CalEEMod default values for energy consumption for each land use were applied for the Project analysis. The energy use from non-residential land uses is calculated in CalEEMod based on the California Commercial End-Use Survey database. For parking lots, CalEEMod includes calculation of energy use from lighting, ventilation and elevators in parking lots and structures and is based on the type of parking lot selected by the user. Energy use in the residences (both natural gas and electricity) is divided by the program into end use categories subject to California Building Standards Code (Title 24) requirements (end uses associated with the building envelope, such as the HVAC system, water heating system, and integrated lighting) and those not subject to California Building Standards Code requirements (such as appliances, electronics, and miscellaneous "plug-in" uses).

Title 24 of the California Code of Regulations serves to enhance and regulate California's building standards. The most recent amendments to Title 24, Part 6, referred to as the 2019 standards, became effective on January 1, 2020. According to energy demand estimates produced in CalEEMod estimations; the proposed Project would consume approximately 95,688 kilowatt-hours per year during operation. For comparison, in 2017 the total residential electricity demand in Los Angeles County was approximately 23 million kilowatt-hours (CEC 2021). For these reasons, the operational electricity consumption of the Project would result in less than significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources.

Natural Gas. Project operation would require natural gas for various purposes, including water heating and natural gas appliances for future residences. Natural gas consumption associated with operation is based on the CalEEMod outputs (provided in Appendix A). According to these estimations, the proposed Project would consume approximately 288,451 kilo-British Thermal Units (kBTUs) per year. For comparison, in 2020 the residential natural gas use within Los Angeles County was 12 billion kBTUs per year (CEC 2021). Since the proposed Project would comply with applicable Title 24 requirements the proposed Project would not be considered inefficient or wasteful, and impacts would be less than significant.

Petroleum. During operations, the majority of fuel consumption resulting from the proposed Project would involve the use of motor vehicles for residential uses. Petroleum fuel consumption associated with motor vehicles traveling to and from the Project site is a function of the vehicle miles traveled (VMT) as a result of proposed Project operation. The annual VMT attributable to the proposed Project is expected to be 543,940 VMT. Similar to the construction worker and vendor trips, fuel consumption from operational trips is estimated by converting the total CO_2 emissions from operation of the proposed Project to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. Based on the annual fleet mix provided in CalEEMod, 85% of the fleet range from light-duty to medium-duty vehicles and motorcycles are assumed to run on gasoline. The remaining 15% of vehicles represent medium-heavy duty to heavy-duty vehicles and buses and are assumed to run on diesel. Calculations for annual mobile fuel consumption are provided in Table 3.6-1.

Table 3.6-1
Annual Mobile Source Demand (Gasoline and Diesel)

	Vehicle MT CO_2	kg/CO_2/Gallon	Gallons
Gasoline: Operations	152.18	8.78	17,332.16
Diesel: Operations	26.35	10.21	2,580.68

Sources: Trips and vehicle CO_2 (Appendix A; kg/CO_2/Gallon (The Climate Registry 2018).
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram

Over the lifetime of the proposed Project, the fuel efficiency of on-road vehicles of residents is expected to increase. As such, the amount of petroleum consumed as a result of vehicular trips to and from the Project site would decrease over time. There are numerous regulations in place that require and encourage increased fuel efficiency. For example, the CARB has adopted an approach to passenger vehicles by combining the control of smog-causing pollutants and greenhouse gas (GHG) emissions into a single, coordinated package of standards. The approach also includes efforts to support and accelerate the number of plug-in hybrids and zero-emissions vehicles in California (CARB 2013). Additionally, in response to Senate Bill (SB) 375, CARB adopted the goal of reducing per-capita GHG emissions from 2005 levels by 8% by 2020, and 18% by 2035 for light-duty passenger vehicles in the planning area for the SCAG. As such, operation of the proposed Project is expected to use decreasing amounts of petroleum over time due to advances in fuel economy.

In summary, although the proposed Project would increase petroleum use during operation as a result of residents commuting to and from the site, the use would be a fraction of the State- and County-wide use and, due to efficiency increases, would diminish over time. Given these considerations, petroleum consumption associated with the proposed Project would not be considered inefficient or wasteful and would result in a less-than-significant impact.

Overall, construction and operation of the proposed Project would result in less than significant environmental impacts regarding wasteful, inefficient, or unnecessary consumption of energy resources, and no mitigation is required.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. Part 6 of Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. Part 6 establishes energy efficiency standards for residential and non-residential buildings constructed in California to reduce energy demand and consumption. Part 6 is updated periodically (every 3 years) to incorporate and consider new energy efficiency technologies and methodologies. Title 24 also includes Part 11, the California Green Building Standards Code (CALGreen). CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, as well as schools and hospitals. The 2019 CALGreen standards became effective on January 1, 2020. The proposed Project would meet Title 24 and CALGreen standards to reduce energy demand and increase energy efficiency.

The City of Glendora developed resource protection and sustainability goals and policies within the Conservation Element of the City's General Plan. Energy Use is addressed in Goal CON-5, which

mandates reduced demand for energy resources through the use of conservation techniques. Relevant CON-5 policies are summarized as follows:

CON-5.1 Investigate and implement opportunities for energy conservation at all City-maintained facilities.

CON-5.2 Encourage the incorporation of energy conservation features in the design of all new construction and substantial rehabilitation projects and encourage the installation of conservation devices in existing developments.

CON-5.3 Encourage private energy conservation programs that minimize high energy demand and that use alternative energy sources.

CON-5.4 Require all new developments to incorporate energy-efficient lighting, heating, and cooling systems pursuant to the Uniform Building Code.

CON-5.5 Provide education and outreach to residents and businesses on opportunities to decrease energy consumption.

Consistent with the General Plan's goals for energy use, the proposed Project would follow applicable energy standards and regulations during construction and operations. In addition, the proposed Project would be built and operated in accordance with all existing, applicable regulations at the time of construction. As such, the proposed Project would not conflict with existing energy standards and regulations. Therefore, impacts during construction and operation of the proposed Project would not conflict with or obstruct a State or local plan for renewable energy or energy efficiency, and the proposed Project would result in less than significant impacts. No mitigation is required.

3.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☒	☐	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The analysis in this section is based on two Preliminary Reports of Geotechnical Investigation conducted for the Project site by G.A. Nicoll and Associates, Inc (G.A. Nicoll). The geotechnical studies are dated for November 2013 for the portion of the Project site that includes the residential development and dated for February 2016 for the northern section of the site and the proposed flood/debris control improvements. These reports are attached to this document as Appendix D-1 (G.A. Nicoll 2013) and D-2 (G.A. Nicoll 2016), respectively.

a) Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Seismic-, faulting-, and landslide-related impacts would only be considered significant in the event that Project-related construction or operation causes, or exacerbates the potential for faulting/ seismicity/ landslides to occur. Similarly, for a determination of significance of impacts unrelated to seismic hazard zones (e.g., subsidence, expansive soils, collapsible soils), the analysis considers the proposed Project's buildout with respect to compliance with existing CBC and Los Angeles County Building Code regulations. However, non-seismic related geologic/soils impacts would only be considered significant in the event that Project-related construction or operation causes, or exacerbates the potential for such impacts to occur.

No Impact. As described in Appendix D-1, the closest approach of a known active fault to the Project site is the Sierra Madre Fault. An east-northeast-trending fault segment of the Sierra Madre Fault crosses the Project site through the southeast corner. Additionally, a mapped segment of the Sierra Madre Fault identified in the General Plan's Safety Element crosses the Project site and an unnamed, east–west trending fault crosses the east side of the Project site (Appendix D-2). The segment of the Sierra Madre Fault zone extending through Glendora is mapped as Quaternary age, indicating that splays of the Sierra Madre Fault within Glendora are not active.

For the Geotechnical Investigations, a photographic lineament study was conducted using aerial photographs dated 1928, 1938, and 1953 and an image dated 2006. Four photographic lineaments[5] (PL-1 through PL-4) were evaluated and plotted, as identified in Figure 3.7-1, Photo Lineaments. As shown, PL-1 is located along the general alignment of the east-northeast trending fault that crosses the Project site. PL-3 is located along the trend of the fault that cuts the narrow ridge of the Project site. PL-2 is located along an old road, and PS-4 lies along the MWD pipeline alignment (Appendix D-1).

During exploratory borings conducted on the Project site, G.A. Nicoll found a number of shears in the area of the two fault segments. However, none of the shears had any striations or grooves indicating a trend of fault movement. Additionally, the borings that encountered older alluvium showed no signs of disturbance within the materials overlying the sheared bedrock, indicating that the latest fault movement is older than the estimated age of the overlying materials (which are estimated to be Pleistocene age).

The segment of the Sierra Madre Fault that crosses the Project site was investigated as part of a previous geotechnical investigation on a neighboring property to the south of the Project site. Approximately 200 feet of fault trenching showed no indication of faulting, and no fault-related disturbances were found during grading on the neighboring property. Furthermore, the Project site is not located within an Alquist-Priolo Earthquake Fault Zone for active faults. Additionally, no active faults were found during the MWD investigations or construction for the phase of the Monrovia No. 1 Tunnel or pipeline. For these reasons and based on evidence presented in Appendices D-1 and D-2, G.A. Nicoll concluded that there are no active faults on the Project site and that ground rupture along a fault plane is not expected at the Project site. Implementation of the proposed Project would not cause, or exacerbate the potential for fault rupture to occur. Therefore, there would be no impact regarding potential substantial adverse effects including the risk of loss, injury, or death involving rupture of a known earthquake fault.

ii) Strong seismic ground shaking?

Less Than Significant With Mitigation. As with all areas in Southern California, the Project site is located in a seismically active region, within which are numerous known earthquake faults. As a result, the proposed Project could be exposed to strong seismically induced ground shaking. As stated in Appendices D-1 and D-2, some areas of the Project site are underlain by deposits of unconsolidated colluvium, loose alluvium, and uncertified fill, which can amplify ground motion during an earthquake. In the event of seismic ground shaking on the Project site, the proposed structures and future residents could be adversely affected. However, the geotechnical reports for the proposed Project set forth a variety of recommendations that would reduce the potential for adverse safety hazards on the Project site associated with strong seismic ground shaking. For example, the geotechnical reports state that the unconsolidated colluvium, loose alluvium, and uncertified fill should be removed from the Project site during grading. Additionally, all buildings, retaining walls, and flood/debris control infrastructure should be designed to resist seismic lateral loads, per the recommendations in the geotechnical reports.

MM-GEO-1 requires that project design and construction adhere to the recommendations from the site-specific geotechnical reports (G.A. Nicoll 2013 and 2016; Appendices D-1 and D-2, respectively), and/or updated site-specific geologic evaluations prior to the approval of the final site plans. Upon implementation of MM-GEO-1, the proposed Project would be designed and constructed in a manner that would minimize seismic hazards to the extent practicable. The new single-family homes, Private Streets, and flood/debris control infrastructure would also be designed and constructed in accordance

5 Lineaments are linear features or geological structures that are visible in the topography of an area, often visible through aerial images or satellite imagery.

with the California Building Code, the City Building Code, and County Flood Control Standards which would provide additional safety for people and structures in the event of seismic ground shaking. Therefore, impacts related to the Project's potential to cause substantial adverse effects directly or indirectly, including the risk of loss, injury, or death involving strong seismic ground shaking would be less than significant with mitigation.

MM-GEO-1 At the time of submittal of the first plan check, the Project Applicant shall provide an additional, detailed site-specific geologic evaluation of the Project site, supporting the proposed grading design to the City for review. The recommendations of the project-specific Preliminary Reports of Geotechnical Investigation prepared by G.A. Nicoll and Associates, Inc. 2013 and 2016 shall be applied to the final Project designs, as applicable, and shall be refined, as necessary. In summary, preliminary recommendations to be incorporated into the Project design may include, but are not limited to: (1) removal of loose younger alluvium, existing fill, colluvium, and soil slumps and over-excavation in areas of transition to bedrock and of large trees to be removed; (2) re-use of rock materials scattered in the fill materials, as appropriate; (3) reworking/compaction of the soils to achieve 85-90% relative compaction; (4) protections of concrete and metal pipes from any high-sulphate bedrock, as appropriate; (5) buttressing of cut slopes and removal of any slump areas, finished with the sufficient added fill to buttress the remaining material; (6) slope stabilization fills and/or keys near the Metropolitan Water District of Southern California (MWD) pipeline, cut slopes, and small landslide area; (7) addition of fines to the fill mixture and/or geofabric stabilization for fill slopes and buttress fills; (8) a system of subdrains and outlets to address accumulations of subsurface water from rainfall and irrigation; and (9) positive surface gradients and other drainage provisions to replace the natural flow of surface water through the canyons, with mid-slope drain and down drains for slopes of 25 feet or higher.

iii) Seismic-related ground failure, including liquefaction?

Less Than Significant With Mitigation. As reported by G.A. Nicoll, the Project site is not located within a mapped liquefaction hazard area, as shown on the seismic hazards map produced by the state. G.A. Nicoll concluded that liquefaction would not occur on the Project site, since the site is underlain by coarse, granular, alluvial deposits and bedrock, and since no shallow free groundwater is present on the site. For these reasons, substantial adverse effects related to liquefaction are not expected to occur on the Project site.

Seismically induced settlement is another type of seismic-related ground failure. Seismically induced settlement has the potential to occur on the Project site due to the presence of loose colluvium and fill soils. Strong seismic ground shaking can cause settlement by allowing sediment particles to become more tightly packed, thereby reducing the space between particles. Loose colluvium and fill, both of which are found on the site, can be subject to seismically induced settlement. However, as stated in Section 3.6(a)(ii), above, and as required by MM-GEO-1, the existing fill and colluvium would be removed and replaced with compacted fill in the areas of the site where structures would be built. Soils that are potentially susceptible to seismically induced settlement would, therefore, be removed from areas where potential risks could occur in the event of an earthquake. For these reasons, people and structures on the Project site are not anticipated to be exposed to significant hazards associated with seismic-related ground failure, upon implementation of MM-GEO-1. Therefore, impacts related to the Project's potential to cause substantial adverse effects directly or indirectly, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction, would be less than significant with mitigation.

iv) Landslides?

Less Than Significant Impact. The Project site is sloped, and slopes increase in steepness in the northern section of the site. As such, G.A. Nicoll evaluated the potential for landslides to cause substantial adverse effects to people and/or structures on the Project site. According to G.A. Nicoll, the Project site is not located within an area designated as having a high potential for earthquake-induced landsliding. Furthermore, G.A. Nicoll notes that the Project site and surrounding area have been recently exposed to some of the heaviest periods of rainfall recorded in the Los Angeles area, as well as several powerful earthquakes (e.g., the Northridge and San Fernando earthquakes). Despite these conditions, no landsliding occurred in the hillside areas of the Project site. G.A. Nicoll also conducted slope stability analyses in the hillsides of the Project site. The results showed favorable hillside stability. For these reasons, G.A. Nicoll concluded that the potential for earthquake-induced landsliding on the Project site is low. For the same reasons, and due to implementation of flood control facilities on-site to provide effective protection from potential debris flows and flooding from the hillside areas to the north, the proposed Project is not expected to result in significant mudslides. Mudflow could occur at the Project site due to the undeveloped hillside areas located north of the proposed residences. However, as described in Section 3.10(c), flood/debris control improvements have been designed for the Project site that would contain debris flow from the hillside areas located north of the proposed residences. The flood/debris control improvements that would be part of the proposed Project are also expected to reduce the risk of inundation from mudflow or debris flow within the neighborhoods to the south of the Project site, which are largely unprotected from potential mudflow or debris flow under current conditions.

G.A. Nicoll also evaluated the potential for rockfall hazards to occur on the Project site. Rockfalls can expose people and structures to risks in the event that a person or structure is in the path of a rockfall or rockslide. A Preliminary Geologic Map produced by the State in 1964 identifies a rockslide on the Project site, within the hillside areas towards the western boundary of the site. However, based on surface mapping in this area of the site, G.A. Nicoll determined that the presence of a rockslide is unlikely. Through detailed mapping of the hillside areas of the site, G.A. Nicoll found no areas of loose rocks or rock outcrops that could cause a rock fall with the potential to adversely affect the Project site. For these reasons, the potential for landslides on the Project site, as well as rockfalls and rockslides, is considered low. Furthermore, the proposed Project is required to comply with the California Building Code and the City's Building Code, which outline specific design, engineering, and development standards for structures. Compliance with the current regulations would ensure that the project is designed and built to current standards, thereby minimizing impacts associated with landslides, in the unlikely event that one occurs and affects the site. Therefore, impacts related to the Project's potential to cause substantial adverse effects directly or indirectly, including the risk of loss, injury, or death involving landslides would be less than significant.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Less Than Significant Impact. During construction, soils could temporarily be subject to erosion, particularly during site preparation and grading phases. During these phases, existing vegetation would be removed in the areas of the site that are proposed for development. As such, soils would be exposed and disturbed while the site is graded. Wind and/or storm events during this period could result in potential erosion and/or loss of topsoil on the Project site. However, as described in Section 3-10, Hydrology and Water Quality, erosion-control measures would be implemented during construction as part of the Stormwater Pollution Prevention Plan (SWPPP) for the Project. Prior to the start of construction activities, the Contractor is required to file a Permit Registration Document with the SWRCB in order to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with the Construction and Land

Disturbance Activities (Order No 2009-009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for earthwork that result in the disturbance of one acre or more of total land area. The required SWPPP will mandate the implementation of BMPs to reduce or eliminate construction-related pollutants in the runoff, including sediment.

Upon buildout of the proposed Project, the portions of the Project site that would undergo disturbance during construction would be covered with residences, pavement, flood control facilities, and/or landscaping, which would preclude or minimize erosion. As shown in Figure 2-4a, areas adjacent to the proposed debris basins that would be subject to minimal grading/grooming to remove loose surface materials and reduce loose debris from running off into the debris basin facilities, as required by the LACFCD. Upon completion of the Project, the affected slopes would be hydroseeded with native seeds to facilitate the reestablishment of vegetative cover. The stormwater drainage system for the residential development would be designed to capture rainfall from storm events and direct it to the proposed on-site sewer system. The northern portion of the Project site, which would be re-developed with enlarged debris basins, would be designed to capture and retain bulked storm flows during rain events. The proposed Project would not substantially change the potential for soil erosion and/or loss of topsoil to occur in hillside areas of the site when compared with existing conditions. Therefore, with implementation of the erosion control BMPs in the SWPPP during construction, and construction of the debris basin facilities, there would not be substantial loss of topsoil associated with Project implementation, and associated impacts would be less than significant.

c) Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less Than Significant with Mitigation. As described in Sections 3.6(a)(iii) and (iv), liquefaction, landslides, and rockslides are not expected to pose a substantial, adverse effect to people or structures on the Project site. As described in Section 3.6(a)(iii), some of the existing on-site soils may be subject to seismically induced settlement. However, soils that are susceptible to settlement would be removed as part of the proposed Project. As stated in Appendix D and as required by MM-GEO-1, new fill would be placed and compacted to 85-90% relative compaction and moisture content, so that hydroconsolidation would not occur in imported materials. G.A. Nicoll also identified the presence of soil slips and slumps on the Project site. However, these features would be removed or stabilized per the recommendations in the geotechnical reports (MM-GEO-1).

Additionally, as shown on Figure 2-4a, the MWD easement is shown as Easement "A", which traverses from north to south through the Project site and would remain as-is with Project implementation. This easement contains a portion of the MWD Upper Feeder water supply system and consist of a 10-foot diameter pre-cast reinforced concrete pipe that crosses beneath (subterranean) the Project site, ultimately connecting to the Monrovia No. 1 tunnel approximately 60 feet to the north of the Project site. The tunnel and pipeline are a part of the Colorado River Aqueduct System. No habitable structures would be constructed on the MWD easement.

In July 2019, MWD prepared a letter (Appendix C of this IS/MND) commenting on plans submitted for the proposed Project and requiring the Project proponents to: make accommodations for MWD vehicles and build an MWD-accessible right-of-way in the proposed Project APE; provide protections such as bollards or gates for above ground MWD structures such as manholes or hatches; provide MWD with detailed plans for any protection provisions built for MWD resources as a result of the project; provide plans for landscaping or other improvements within the MWD proposed right-of-way; provide details of any non-potable utilities for MWD review; and to include provisions for loads imposed

on the pipeline. The letter further cautions that any facility constructed within the MWD easement is subject to the paramount right of MWD to use the easement for the purpose it was required. MWD reserved the right to remove facilities from the easement and to block access to their right-of-way at any time (MWD 2019). This letter provides for the protection of the structure of the Monrovia No. 1 tunnel segment of the MWD Upper Feeder pipeline which transects the proposed Project site. These development restrictions are necessary for the protection of the MWD Upper Feeder, but are also important to ensure that the proposed development of the residential lots are developed on stable and suitable soils to prevent instability that could potentially result in collapse. MM-GEO-2 requires that prior to the approval of the Final Plans for the proposed Project, the Project Applicant provide MWD with several documents, including but not limited to, the TTM, soils report and settlement analysis, laboratory testing results, and any other supporting documents related to development within the MWD easement, for MWD's review and approval. Implementation of MM-GEO-2 would ensure the protection of the MWD Upper Feeder to the satisfaction of the MWD and impacts associated the potential of development on unstable soils, which could potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse, would be less than significant with mitigation.[6]

MM-GEO-2 Prior to the approval of the Final Plans for the proposed Project, the Project Applicant shall provide the Metropolitan Water District of Southern California (MWD) with the following documents: the Tentative Tract Map; soils report and settlement analysis; laboratory testing results; detailed designs of the required secondary containment system for non-potable utilities landscaping plans; and any other supporting documents related to development within the MWD easement, including details of the retaining wall, foundations, and supporting calculations, shall be stamped and signed and submitted for MWD's review and written approval.

The Tentative Tract Map shall identify the following features and requirements:

- Gates or removable bollards, capable of accommodating MWD's locks, shall be installed at the location of the driveway approach to the Upper Feeder to prevent unauthorized entry to MWD's right-of-way;
- Bollards shall be placed on the south side of City of Glendora Flood Control's maintenance road to protect MWD's 10-foot-inside-diameter air vent shaft (at Station 2280+51) from damage;
- Building structures of any kind and trees are prohibited within the limits of the MWD easement.
- Any intrusion, modification, or destruction of any aspect of this Monrovia No. 1 tunnel segment of the MWD Upper Feeder pipeline or the hatch are prohibited.

The Covenants, Conditions & Restrictions (CCRs) of the Homeowner's Association shall require the written notification of the property owners of Lots 7, 8, and 9 that are located immediately northeast of the Upper Feeder pipeline and right-of-way, that access to the lots may become unavailable at any time, for a period of time, in the event that excavation of the pipeline becomes necessary for maintenance, repair, replacement, or the addition of another pipeline. The CCRs of the Homeowner's Association shall also

6 Since MWD conducted their preliminary review in July 2019, the Project's Tentative Tract Map and grading plan have been revised to accommodate changes within the southern portion of the Project area, such as a reduction in width of the Private Roadway, cubic yardage of overexcavation, retinting wall height, and minor changes to specific lot sizes. While these modifications would not be anticipated to impact the initial commentary provided by the MWD in July 2019, incorporation of MM-GEO-2 ensures that the Tentative Tract Map, grading plan, landscaping plan, and any other supporting documents related to development within the MWD easement will be stamped and signed and submitted for MWD's review and written approval.

require that all property owners of land within the MWD easement shall be notified that structures of any kind and trees are prohibited within the limits of the MWD easement.

d) Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less Than Significant With Mitigation. Expansive soils are clay-rich soils that shrink when dry and swell when wet. This change in volume can exert substantial pressure on foundations, resulting in structural distress and/or damage. As determined by G.A. Nicoll, the on-site soils are mixtures of mostly sand and gravel-sized rocks, which are considered to range from low expansion potential to no expansion potential. As such, the proposed Project would not be located on expansive soil, such that substantial risks to life or property would result. However, G.A. Nicoll notes that any imported fill material should consist of non-expansive materials, and that the import material should be observed, sampled, and tested prior to delivery at the site, to ensure that expansive materials are not introduced to the site during construction. These recommendations would be required per MM-GEO-1. Project construction would not increase or exacerbate the potential for expansive soils to create substantial direct or indirect risks to life or property. Additionally, the proposed Project would be constructed according to the mandatory seismic and structural design guidelines established in the California Building Code, Chapter 16, Section 1601 et seq.[7] Upon incorporation of the recommendations related to preventing soil expansion at the site (i.e., MM-GEO-1), impacts regarding expansive soils, creating substantial direct or indirect risks to life or property, would be less than significant with mitigation incorporated.

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed Project would construct new on-site sewer infrastructure that would discharge into an existing local sewer line in Palm Drive. No septic tanks or alternative wastewater disposal is proposed; therefore, the proposed Project would have no impacts related to soils supporting the use of septic tanks or alternative wastewater disposal systems.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant with Mitigation. The proposed Project area lies within the southern foothills at the base of the San Gabriel Mountains within the Transverse Ranges Geomorphic Province (Norris and Webb 1990; California Geological Survey, 2002). This province extends from the Pacific Ocean to the Mojave Desert (California Geological Survey 2002; Morton and Miller 2006). In general, this area is mapped as being underlain by Holocene (<12,000 years ago) Quaternary alluvium (map unit Qa), older Quaternary alluvium (map unit Qog), and middle Miocene (~16–12 million years ago) and Cretaceous (~145–66 million years ago) igneous rocks (Dibblee and Ehrenspeck 1999; Dibblee and Minch 2002). Igneous rocks have no paleontological sensitivity, and younger, Holocene age alluvial deposits have a low paleontological resource sensitivity. However, older, Pleistocene age alluvial deposits have a moderate to high paleontological resource sensitivity (McLeod 2018).

Past excavation activities in the area surrounding the proposed Project site have encountered paleontological resources in older Quaternary alluvial deposits. Jefferson (1991) reported numerous localities from this part of Los Angeles County that yielded Ice Age fossil amphibians, reptiles, birds,

7 California Building Code, Chapter 16, Section 1601 et seq. – Structural Design.

and mammals. According to the records search results received from the Natural History Museum of Los Angeles County (LACM), the closest fossil locality within older Quaternary alluvial deposits is located southwest of the proposed Project area and north of Dalton Wash, south of the Arrow Highway and east of Irwindale Avenue, (LACM 1807). This locality yielded a fossil specimen of mastodon (*Mammut americanum*) from a gravel deposit between 115 and 120 feet below the ground surface, or bgs (McLeod 2018). In the northeastern Puente Hills, southeast of the project area and southwest of the intersection of the Riverside Freeway (SR-60) and the Corona Freeway (SR-71), locality LACM 8014 yielded a bison (*Bison*) at shallow depths. In English Canyon, west of Chino, locality LACM 1728 yielded fossil specimens of horse (*Equus*), and camel (*Camelops*), at a depth of 15 to 20 feet bgs.

No paleontological resources were identified within the proposed Project area as a result of the institutional records search and desktop geological review. As such, the proposed Project site is not anticipated to be underlain by unique geologic features. While the proposed Project area is mapped as being underlain by coarse grained deposits, intact paleontological resources may be present within finer grained deposits at depth. Given the proximity of past fossil discoveries in the surrounding area and the potential for intact, undisturbed Pleistocene age deposits at depth, the proposed Project site is moderately to highly sensitive for supporting paleontological resources. In the event that intact paleontological resources are located on the proposed Project site, ground-disturbing activities associated with construction of the proposed Project, such as grading during site preparation, have the potential to destroy a unique paleontological resource or site. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. However, upon implementation of MM-GEO-3, impacts would be reduced to below a level of significance. Direct or indirect impacts of the proposed Project to destroy a unique paleontological resource or site or unique geologic feature would be less than significant with mitigation incorporated during construction.

MM-GEO-3 Prior to commencement of any grading activity on-site, the Project Applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) (2010) guidelines, subject to the review and approval of the City's Building Official, or designee. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed Project. The PRIMP shall be consistent with the guidelines of the SVP and should outline requirements for preconstruction meeting attendance and worker environmental awareness training, where monitoring is required within the project area based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods (including sediment sampling for microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the preconstruction meeting and a paleontological monitor shall be on-site during all rough grading and other significant ground-disturbing activities in previously undisturbed, fine-grained older Quaternary alluvial fan deposits. These deposits may be encountered at depths as shallow as 5-10 feet below ground surface. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will remove the rope and allow grading to recommence in the area of the find.

3.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less Than Significant Impact. Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system, and many factors (natural and human) can cause changes in Earth's energy balance. The greenhouse effect is the trapping and build-up of heat in the atmosphere near the Earth's surface (the troposphere). The greenhouse effect is a natural process that contributes to regulating the Earth's temperature, and it creates a livable environment on Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise. Global climate change is a cumulative impact; a project contributes to this impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. Thus, GHG impacts are recognized exclusively as cumulative impacts (CAPCOA 2008).

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. As defined in California Health and Safety Code Section 38505(g) for purposes of administering many of the state's primary GHG emissions reduction programs, GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride (see also CEQA Guidelines Section 15364.5). The three GHGs evaluated herein are CO_2, CH_4, and N_2O because these are the only GHG gases would be emitted during project construction and/or operations.

The Intergovernmental Panel on Climate Change developed the global warming potential (GWP) concept to compare the ability of each GHG to trap heat in the atmosphere relative to another gas. The reference gas used is CO_2; therefore, GWP-weighted emissions are measured in metric tons (MT) of CO_2 equivalent (CO_2e). Consistent with CalEEMod Version 2020.4.0, this GHG emissions analysis assumed the GWP for CH_4 is 25 (i.e., emissions of 1 MT of CH_4 are equivalent to emissions of 25 MT of CO_2), and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change Assessment Report (IPCC 2007).

As discussed in Section 3.3, Air Quality, of this IS/MND, the proposed Project is located within the jurisdictional boundaries of the SCAQMD. In October 2008, the SCAQMD proposed recommended

numeric CEQA significance thresholds for GHG emissions for lead agencies to use in assessing GHG impacts of residential and commercial development projects as presented in its *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold* (SCAQMD 2008). This document, which builds on the previous guidance prepared by the California Air Pollution Control Officers Association, explored various approaches for establishing a significance threshold for GHG emissions. The draft interim CEQA thresholds guidance document was not adopted or approved by the Governing Board. However, in December 2008, the SCAQMD adopted an interim 10,000 MT CO_2e per-year screening level threshold for stationary source/industrial projects for which the SCAQMD is the lead agency (see SCAQMD Resolution No. 08-35, December 5, 2008). The 10,000 MT CO_2e per-year threshold, which was derived from GHG reduction targets established in Executive Order (EO) S-3-05, was based on the conclusion that the threshold was consistent with achieving an emissions capture rate of 90% of all new or modified stationary source projects.

The SCAQMD formed a GHG CEQA Significance Threshold Working Group to work with SCAQMD staff on developing GHG CEQA significance thresholds until statewide significance thresholds or guidelines are established. From December 2008 to September 2010, the SCAQMD hosted working group meetings and revised the draft threshold proposal several times, although it did not officially provide these proposals in a subsequent document. The SCAQMD has continued to consider adoption of significance thresholds for residential and general land use development projects. The most recent proposal issued by SCAQMD, issued in September 2010, uses the following tiered approach to evaluate potential GHG impacts from various uses (SCAQMD 2010):

Tier 1. Determine if CEQA categorical exemptions are applicable. If not, move to Tier 2.

Tier 2. Consider whether or not the proposed Project is consistent with a locally adopted GHG reduction plan that has gone through public hearing and CEQA review, that has an approved inventory, includes monitoring, etc. If not, move to Tier 3.

Tier 3. Consider whether the project generates GHG emissions in excess of screening thresholds for individual land uses. The 10,000 MT CO_2e per-year threshold for industrial uses would be recommended for use by all lead agencies. Under option 1, separate screening thresholds are proposed for residential projects (3,500 MT CO_2e per year), commercial projects (1,400 MT CO_2e per year), and mixed-use projects (3,000 MT CO_2e per year). Under option 2, a single numerical screening threshold of 3,000 MT CO_2e per year would be used for all non-industrial projects. If the project generates emissions in excess of the applicable screening threshold, move to Tier 4.

Tier 4. Consider whether the project generates GHG emissions in excess of applicable performance standards for the project service population (population plus employment). The efficiency targets were established based on the goal of Assembly Bill (AB) 32 to reduce statewide GHG emissions to 1990 levels by 2020. The 2020 efficiency targets are 4.8 MT CO_2e per-service population for project-level analyses and 6.6 MT CO_2e per-service population for plan-level analyses. If the project generates emissions in excess of the applicable efficiency targets, move to Tier 5.

Tier 5. Consider the implementation of CEQA mitigation (including the purchase of GHG offsets) to reduce the project efficiency target to Tier 4 levels.

Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence." The CEQA Guidelines do not prescribe specific methodologies for performing an assessment, establish specific thresholds of significance, or

mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance that are consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009).

To determine the proposed Project's potential to generate GHG emissions that would have a significant impact on the environment, the Project's GHG emissions were compared to the 3,000 MT CO_2e threshold for all non-industrial land use types. Per the SCAQMD guidance, construction emissions should be amortized over the operational life of the project, which is assumed to be 30 years (SCAQMD 2008). Thus, this impact analysis compares estimated operational emissions plus amortized construction emissions to the proposed SCAQMD threshold of 3,000 MT CO_2e per year.

Construction Emissions. Construction of the proposed Project would result in GHG emissions primarily associated with the use of off-road construction equipment, on-road trucks, and worker vehicles. A depiction of expected construction schedules (including information regarding phasing, equipment used during each phase, truck trips, and worker vehicle trips) assumed for the purposes of emissions estimation is provided in Table 2.3-1, Construction Scenario Assumptions, and in Appendix A. Table 3.8-1, Estimated Annual Construction GHG Emissions, presents construction GHG emissions for the project from on-site and off-site emissions sources.

Table 3.8-1
Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2023	417.49	0.08	0.01	422.16
2024	221.23	0.04	0.01	223.68
			Total	645.84
			Amortized Over 30 Years	21.53

Source: See Appendix A for complete results.
Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent.

As shown in Table 3.8-1, the estimated total GHG emissions in 2023 and 2024, as included in the CalEEMod assumptions, would be approximately 422 MT CO_2e and 224 MT CO_2e, respectively. Amortized over 30 years, construction GHG emissions would be approximately 22 MT CO_2e per year. In addition, as with Project-generated construction criteria air pollutant emissions, GHG emissions generated during proposed construction activities would be short term, lasting only for the duration of the construction period, and would not represent a long-term source of GHG emissions.

Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis in the following text.

Operational Emissions. Operation of the proposed Project would generate GHG emissions through motor vehicle trips to and from the Project site; landscape maintenance equipment operation; energy use (natural gas and generation of electricity consumed by the project); solid waste disposal; and generation of electricity associated with water supply, treatment, and distribution; and wastewater treatment. CalEEMod was used to calculate the annual GHG emissions. GHG emission estimates were based on the mobile source, area source, and energy (natural gas) operational assumptions described in Section 3.3(b), within the air quality analysis. CalEEMod default values were used to estimate GHG emissions associated with area, mobile, energy consumption, solid waste, and water and wastewater.

The estimated operational (2024) Project-generated GHG emissions from area sources, energy usage, motor vehicles, solid waste generation, and water usage and wastewater generation are shown in Table 3.8-2, Estimated Annual Operational GHG Emissions.

Table 3.8-2
Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	metric tons per year			
Area	2.65	<0.01	<0.01	2.67
Energy	32.36	<0.01	<0.01	32.54
Mobile	176.06	0.01	0.01	178.53
Solid waste	2.83	0.17	0.00	7.01
Water supply and wastewater	3.02	0.03	<0.01	3.86
			Total	224.61
			Amortized Construction Emissions	*21.53*
			Operation + Amortized Construction Total	246.14

Notes: CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent
See Appendix A for detailed results.
These emissions reflect operational year 2024. No mitigation measures were assumed.

As shown in Table 3.8-2, estimated annual proposed Project-generated GHG emissions would be approximately 225 MT CO_2e per year as a result of Project operations only. Estimated annual Project-generated operational emissions (225 MT CO_2e per year) plus amortized project construction emissions (22 MT CO_2e per year) would be approximately 246 MT CO_2e per year, which would not exceed the recommended SCAQMD threshold of 3,000 MT CO_2e per year. Therefore, the Project would result in less than significant impacts regarding the generation of GHG emissions that may have a direct or indirect significant impact on the environment.

b) Would the project generate conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less Than Significant Impact. The City addresses GHG-reducing goals in the General Plan. The City has not adopted a comprehensive climate action plan, and there is currently no local guidance that would be applicable to the proposed Project other than the General Plan for GHGs. At this time, no mandatory GHG plans, policies, regulations, or finalized agency guidelines would apply to the proposed Project. Nonetheless, Project consistency with the SCAG 2020-2045 RTP/SCS, CARB's Scoping Plan, and statewide GHG reduction goals for 2030 or 2050 identified in EO S-3-05 and SB 32, is discussed below.

Applicable GHG Policies of the City of Glendora General Plan

The City of Glendora's General Plan, Chapter 5, Air Quality Element, addresses GHG-reducing goals and policies as presented below. However, it should be noted that the following goals and policies are primarily directed at City actions and are not enforceable directives for future residents at the Project site.

Goal **AQ-6** Reduced demand for energy resources.

Policies **AQ-6.1** Promote energy conservation throughout the City.

AQ-6.2 Educate and encourage Glendora residents and business owners on opportunities for reduced energy consumption.

AQ-6.3 Develop new incentives and promote existing incentives that encourage the use of energy conservation strategies by private and public developments.

AQ-6.4 Promote energy-efficient design features, including appropriate site orientation, use of lighter color roofing and building materials, and use of deciduous shade trees and windbreak trees to reduce fuel consumption for heating and cooling.

AQ-6.5 Provide incentives for "green building" programs that go beyond the requirements of Title 24 of the California Administrative Code and encourage energy efficient design elements as appropriate.

AQ-6.6 Utilize all available renewable energy sources to reduce fuel consumption and demand on the power grid.

The Project would be consistent with the City's General Plan Policies AQ-6.2 and AQ-6.4 because the future custom home development of each residential lot provides opportunities for the City to promote energy efficient design features and educate the residents on opportunities to reduce energy consumption. Although, as stated above, the policies and goals listed are more specifically aimed at municipal actions at the government level, the Project would not conflict with the policies and goals. Additionally, the proposed Project would not interfere with implementation of the City's General Plan policies because it would not exceed the SCAQMD's recommended threshold of 3,000 MT CO_2e per year. The residences would be built in accordance with 2019 Title 24 Standards and 2019 CALGreen at a minimum. In addition, the proposed Project does not prevent the City from promoting and utilizing clean forms of transportation to reduce the City's carbon footprint.

Proposed Project Consistency with SCAG's 2020-2045 RTP/SCS

The SCAG 2020–2045 RTP/SCS is a regional growth management strategy that targets per-capita GHG reduction from passenger vehicles and light trucks in the Southern California region pursuant to SB 375. In addition to demonstrating the region's ability to attain the GHG emission-reduction targets set forth by CARB, the 2020–2045 RTP/SCS outlines a series of actions and strategies for integrating the transportation network with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. Thus, successful implementation of the 2020–2045 RTP/SCS would result in more complete communities with a variety of transportation and housing choices, while reducing automobile use.

The following strategies are intended to be supportive of implementing the 2020–2045 RTP/SCS and reducing GHGs: focus growth near destinations and mobility options; promote diverse housing choices; leverage technology innovations; support implementation of sustainability policies; and promote a green region. The strategies that pertain to SCAG's support of local jurisdiction sustainability efforts would not apply to the proposed Project. The proposed Project's compliance with the remaining applicable strategies is presented below.

- **Focus Growth Near Destinations and Mobility Options.** The proposed Project's compliance with this strategy of the 2020–2045 RTP/SCS is demonstrated as discussed in Section 3.17 Transportation the proposed project would have less than significant impacts related to VMT.

- **Promote Diverse Housing Choices.** The proposed Project would provide 12 single family homes within the City. Additionally, the proposed Project would be consistent with the City's Housing General Plan element and would not prevent the City from providing other housing options within the City. Furthermore, the Project would assist the City in meeting its Regional Housing Need Assessment goals.
- **Leverage Technology Innovations.** The proposed Project would comply with this strategy of the 2020-2045 RTP/SCS since it would be consistent with the City's General Plan Policies and would be required to comply with the 2019 Title 24 Standards and 2019 CALGreen at a minimum, through energy-efficient design and support low emission technologies for transportation, such as alternative fuel vehicles to reduce per capita GHG emissions.
- **Promote a Green Region.** Another applicable strategy within the 2020–2045 RTP/SCS, for individual developments such as the proposed Project, involves promoting a green region through efforts such as supporting local policies for renewable energy production and promoting more resource efficient development (e.g., reducing energy consumption) to reduce GHG emissions. Landscaping would likely use water-saving native plants.

Based on the analysis above, the proposed Project would be consistent with the SCAG 2020–2045 RTP/SCS.

Proposed Project Consistency with the CARB Scoping Plan, SB 32, and EO S-3-05

The Scoping Plan, approved by CARB on December 12, 2008, provides a framework for actions to reduce California's GHG emissions and requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. As such, the Scoping Plan is not directly applicable to specific projects. Relatedly, in the Final Statement of Reasons for the Amendments to the CEQA Guidelines, the CNRA observed that "[t]he [Scoping Plan] may not be appropriate for use in determining the significance of individual projects because it is conceptual at this stage and relies on the future development of regulations to implement the strategies identified in the Scoping Plan" (CNRA 2009). Under the Scoping Plan, however, there are several state regulatory measures aimed at the identification and reduction of GHG emissions. CARB and other state agencies have adopted many of the measures identified in the Scoping Plan. Most of these measures focus on area source emissions (e.g., energy usage, high-GWP GHGs in consumer products) and changes to the vehicle fleet (i.e., hybrid, electric, and more fuel-efficient vehicles) and associated fuels (e.g., Low Carbon Fuel Standard), among others. The Project would comply with all applicable regulations adopted in furtherance of the Scoping Plan to the extent required by law.

Regarding consistency with SB 32 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and Executive Order (EO) S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future-year analysis. However, CARB has expressed optimism with regard to both the 2030 and 2050 goals. It states in the *First Update to the Climate Change Scoping Plan* that "California is on track to meet the near-term 2020 GHG emissions limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" (CARB 2014). With regard to the 2050 target for reducing GHG emissions to 80% below 1990 levels, the *First Update to the Climate Change Scoping Plan* states the following (CARB 2014):

> "This level of reduction is achievable in California. In fact, if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under Assembly Bill 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80% below 1990 levels by 2050. Additional measures,

> including locally driven measures and those necessary to meet federal air quality standards in 2032, could lead to even greater emission reductions."

In other words, CARB believes that the State is on a trajectory to meet the 2030 and 2050 GHG reduction targets set forth in AB 32, SB 32, and EO S-3-05. This is confirmed in *California's 2017 Climate Change Scoping Plan* (*2017 Scoping Plan*), which states, "This Plan draws from the experiences in developing and implementing previous plans to present a path to reaching California's 2030 GHG reduction target. The Plan is a package of economically viable and technologically feasible actions to not just keep California on track to achieve its 2030 target but stay on track for a low- to zero-carbon economy by involving every part of the state (CARB 2017)." The *2017 Scoping Plan* also states that although "the Scoping Plan charts the path to achieving the 2030 GHG emissions reduction target, we also need momentum to propel us to the 2050 statewide GHG target (80% below 1990 levels). In developing this Scoping Plan, we considered what policies are needed to meet our mid-term and long-term goals (CARB 2017)."

The proposed Project would not interfere with implementation of any of the above-described GHG reduction goals for 2030 or 2050 because the Project would not exceed the SCAQMD's GHG suggested threshold 3,000 MT CO_2e per year. Because the proposed Project would not exceed the threshold, this analysis provides support for the conclusion that the Project would not impede the State's trajectory toward the above-described statewide GHG reduction goals for 2030 or 2050.

Since the specific path to compliance for the State regarding the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the project would be speculative and cannot be identified at this time. With respect to future GHG targets under SB 32 and EO S-3-05, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet SB 32's 40% reduction target by 2030 and EO S-3-05's 80% reduction target by 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets.

Based on the above considerations, the proposed Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and no mitigation is required. This impact would be less than significant.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d) Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less Than Significant Impact. Construction would require the use of heavy machinery and equipment during grading and earthwork, including bulldozers, dump trucks, and scrapers. Construction of the homes would also require the use of heavy machinery and equipment, including concrete trucks, as well as materials required for the construction of electrical, plumbing, and HVAC systems. Potentially hazardous materials used during construction may include gasoline, diesel fuel, lubricating oil, grease, adhesive materials, solvents, paints, architectural coatings, and others. In the event that these materials are handled improperly or released to the environment during transport, use, and/or disposal, they could create hazards for the public and/or the environment. However, during construction, materials used would not be in such quantities or stored in such a manner as to pose a significant safety or environmental hazard. Proper use, handling, and storage of materials must be conducted in accordance with the manufacturer's specifications. Activities at the Project site, including those conducted by a contractor, must comply with existing federal, State, and local regulations regarding hazardous material use, storage, disposal, and transport to prevent Project-related risks to public health and safety. All on-site generated waste that meets hazardous criteria shall be stored, manifested, transported, and disposed of in accordance with federal and State requirements, including the Toxic Substances Control Act, SCAQMD's Rule 1403 (Asbestos Regulations), and the California Code of Regulations, Title 22.[8]

Operation of the proposed Project would include use of minor quantities of commercially-available hazardous materials, such as paints, lubricants, pool cleaners/chlorine, cleansers, pesticides, fertilizers, and miscellaneous organics and inorganics that may be used by the residents of the new homes for

8 California Code of Regulations, Title 22, Division 4.5 – Environmental Health Standards for the Management of Hazardous Waste.

landscaping, vehicle maintenance, household cleaning, and drainage maintenance activities. In the event that these materials are handled improperly or released to the environment during transport, use, and/or disposal, they can create hazards for the public and/or the environment. However, these materials are not considered acutely hazardous and are used routinely throughout urban environments for operation of commercial businesses. Handling, storage, and disposal of these hazardous materials would comply with all federal, state, and local requirements, including training of operational staff on proper handling. Furthermore, the City and County have programs in place the encourage safe and proper disposal of such materials. For example, the City has household hazardous waste collections (one-day events hosted by the LACSD and the LACDPW), which allow residents to safely dispose of their hazardous wastes. Athens Services provides Glendora residents with at-home pickup of hazardous materials. At-home pickups take place twice per year on designated Saturdays. Residents are also able to dispose of their hazardous wastes safely at Solvents/Automotive/Flammables/Electronics (S.A.F.E) Collection Centers, which are open every weekend and are operated by the City of Los Angeles Sanitation Department. The closest S.A.F.E Collection Center to the Project site is located at 4600 Colorado Boulevard, Los Angeles, California 90039. Through compliance with local, State, and federal regulations, in conjunction with local programs that encourage safe disposal of hazardous materials, implementation of the proposed Project would not create a significant hazard to the public or to the environment through the routine transport, use, or disposal of hazardous materials. The proposed Project would result in less than significant impacts regarding creation of hazards to the public or the environment through the routine transport, use, or disposal of hazardous materials, and no mitigation is required.

b) Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less Than Significant Impact. As described under Section 3.8(a) above, relatively small amounts of commonly used hazardous substances would be used during construction. In the event that these materials are handled improperly or released to the environment during upset or accident conditions, they can create hazards for the public and/or the environment. However, hazardous substances required for construction would be handled, transported, and/or disposed of in accordance with all federal, state, and local laws. Upon required compliance with these existing regulations, upset and accident conditions involving the use of such substances are not reasonably foreseeable.

Residents of future homes that would be developed on the Project site may use hazardous materials such as chemical reagents, solvents, fuels, paints, cleansers, pesticides, fertilizers, and miscellaneous organics and inorganics for landscaping, vehicle maintenance, and household cleaning. In the event that these materials are handled improperly or released to the environment during upset or accident conditions, they can create hazards for the public and/or the environment. However, these substances are not considered acutely hazardous and would be present on the site in relatively small quantities, since they would be for personal use by homeowners or tenants of the homes. Furthermore, as described under Section 3.8(a), regulations are in place at the federal, State, and local level that require hazardous materials to be stored, handled, and transported in a manner that minimizes the potential for their release into the environment. Upon compliance with these regulations, the likelihood of upset or accident conditions involving hazardous materials used during construction and/or operation of the proposed Project would be less than significant.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. Saint Lucy's Priory High School is located approximately 0.1-mile southwest of the Project site, at 655 West Sierra Madre Avenue (California Department of Education 2014). Project construction activities may involve the use of hazardous materials. These materials may include fuels, oils, mechanical fluids, and other chemicals used during construction. In the event that these materials are handled improperly or released to the environment during upset or accident conditions, they can create hazards for the public and/or the environment, with the potential to affect students, staff, and visitors at the nearby school. However, transportation, storage, use, and disposal of such hazardous materials during construction activities would be conducted in compliance with applicable federal, State, and local statutes and regulations. Compliance with regulatory requirements would ensure that children, teachers, staff, and visitors at the nearby schools are not exposed to hazardous materials.

During operation, small quantities of hazardous materials would be used on site, associated with standard operations of residential land uses. As described in Section 3.8(a), these substances are not considered acutely hazardous and would be present on the Project site in relatively small quantities, since they would be for personal use by homeowners or tenants of the homes. This would minimize the potential for hazardous materials used during project operation to adversely affect people at the nearby school. Additionally, there are federal, State, and local laws in place that regulate the handling of hazardous materials. Through compliance with local, State, and federal regulations, it is unlikely that implementation of the proposed Project would result in the emission of hazardous materials, substances, or wastes that would pose a threat to nearby schools. As such, impacts regarding hazardous emissions within one-quarter mile or an existing or proposed school would be less than significant, and no mitigation is required.

d) Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The Project site is not included on any hazardous waste site lists including the California Department of Toxic Substances Control's EnviroStor database, the State Water Resources Control Board's GeoTracker site, the Cortese list, the Superfund Site list, or other lists compiled pursuant to Section 65962.5 of the Government Code (CalEPA 2018a, 2018b, 2018c, 2018d; DTSC 2018a, 2018b; SWRCB 2018; U.S. EPA 2018). As such, the proposed Project would not be located on a hazardous materials site such that it would lead to a significant hazard to the public or the environment, and there would be no impact.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

No Impact. The Project site is not located within two miles of a public airport or public use airport or within an airport safety zone area. The closest public use airport, Brackett Field Airport, is located approximately 6.15 miles southeast of the Project site. Therefore, the proposed Project would not result in an airport safety hazard for people working or residing in the project area. No impacts would occur.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant With Mitigation. The City has prepared a Multi-Hazard Functional Plan for emergency response within the City. The Multi-Hazard Functional Plan addresses the City's planned response to emergencies associated with natural disasters and technological incidents (City of Glendora 2008). Key provisions of the plan include identifying critical areas of the City that may be subject to potential hazards, as well as areas of the City that would serve as meeting and staging areas in the event of an emergency. The Multi-Hazard Functional Plan also outlines provisions for communication and evacuation in the event of an emergency. The City's designated evacuation routes are Foothill Boulevard, from Citrus Avenue in the west to the City's boundary in the east, and Grand Avenue, from just north of West Sierra Madre Avenue in the north to East Arrow Highway in the south. The proposed Project would not alter these evacuation routes. The Project site is located just north of the Grand Avenue evacuation route. As such, construction and operation of the proposed Project may result in minor increases in traffic along Grand Avenue.

As described under Section 3.17(c), the internal circulation design of the on-site roadways would be required to allow for adequate turning radii for fire trucks, which are larger than emergency/ambulance vehicles. Further, required implementation of MM-TRAF-1 and MM-TRAF-2 would ensure that any Project associated impacts that could potentially occur within and near to the intersection of Grand Avenue and Palm Drive related to emergency access and other transportation related hazards would be less than significant (see Threshold 3.17[c]).

Therefore, due to the minor to negligible traffic that would be associated with the proposed Project, as well as the unique traffic conditions that would arise in the event of an emergency evacuation, Project-related traffic would not significantly affect the use or function of evacuation routes in the event of an emergency with the implementation of MM-TRAF-1 and MM-TRAF-2. The City's emergency plans would be implemented and would proceed in the same manner with or without Project construction and operation. Therefore, with implementation of MM-TRAF-1 and MM-TRAF-2, the Project would not interfere with implementation of emergency response or evacuation plans.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?

Less Than Significant Impact. The Project site is within a Very High Fire Hazard Severity Zone, as mapped by the California Department of Forestry and Fire Protection (CAL FIRE 2011). Additionally, the proposed Project would involve construction of residential lots and homes along a boundary of neighborhoods and wildlands. Due to the Project's location within the Very High Fire Hazard Severity Zone and the adjacent wildland areas, people and structures at the Project site could be exposed to a significant risk of loss, injury, or death involving wildland fires.

Portions of the City and surrounding foothill communities have historically been subject to wildfires within the San Gabriel Mountains, including the most recent Colby Fire, which affected Glendora in January 2014 and burned nearly 2,000 acres and destroyed five homes. In an effort to encourage residents to safeguard their private properties, the City prepared the "Landscaping Guidelines for Homes in Fire Hazard Severity Zones", which provides guidance on how to reduce future risks of damage from wildfires through the maintenance of "defensible space" and use of appropriate landscaping (City of Glendora 2014).

The City also adopted the California State Model Water Efficient Landscaping Ordinance (AB 1881) (see Section 21.03.060 of the City's zoning ordinance) to promote the values and benefits of

landscapes, recognizing the need to conserve water and other resources as efficiently as possible, and to establish a structure for designing, installing, and maintaining water-efficient landscapes. The ordinance protects public health and safety within the City's moderate, high and very high fire hazard zones, per the City's fire hazard severity zone map. Establishing a landscaping structure protects natural resources, including but not limited to animal and biological resources, and reduces risk of debris flows and fire damage. Accordingly, homeowners within a Very High Fire Hazard Severity Zone are required to obtain a permit before installing, restoring, or altering their landscaping. To obtain a permit, homeowners are required to submit landscaping plans to the City, and the plans are required to show adequate defensible space, proper fire-safe plant and tree selection, sufficient irrigation, and design features to control erosion and drainage (Glendora Municipal Code, Section 21.03.060) (City of Glendora 2014). All landscape plans must be reviewed and stamped by a Licensed Landscape Architect, certifying that the plans meet the guidelines set in ordinance 21.03.060 of the Glendora Municipal Code (City of Glendora 2014). As such, future homeowners at the Project site would be required to install landscaping that is designed to prevent and minimize fire danger in the area, which would help protect future residences and homes on the site.

California law (Public Resources Code 4291) requires a minimum defensible space of 100 feet around residential homes, which must consist of the 0 to 30-foot firebreak that requires removal of flammable vegetation and the 30 to 70- foot reduced fuel zone (or to the property line, whichever is nearer to the structure)[9]. Additionally, the County of Los Angeles Code of Ordinances, Title 32, Fire Code, requires that a fuel modification plan be submitted and have preliminary approval prior to any subdivision of land; or, have final approval prior to the issuance of a permit for any permanent structure used for habitation; where, such structure, or subdivision is located within areas designated as a Fire Hazard Severity Zone. Every fuel modification plan must be reviewed by the Forestry Division[10] of the LACFD for defensible space, fire safety, and compliance with Sections 325.2.1, 325.2.2, 325.10, and 503.2.1 of the County Code, the LACFD's fuel modification guidelines, and CCR, Title 14, Division 1.5, Chapter 7, subchapter 2. Before a final fuel modification plan is approved by the Forestry Division of the Fire Department, a signed and notarized copy of the provided covenant and agreement (and/or previously reviewed and approved association CC&R's that include the necessary fuel modification information) must be recorded at the County of Los Angeles Registrar-Recorder/County Clerk's Office and a copy given to the Forestry Division's Fuel Modification Unit. An on-site inspection must be conducted by the personnel of the Forestry Division of the Fire Department and a final approval of the fuel modification plan issued by the Forestry Division prior to a certificate of occupancy being granted by the building code official.

As shown in Figure 2-5, the proposed Project's design and preliminary plan has been reviewed, revised, and preliminarily approved by the County of Los Angeles Fire Department, Prevention Services Bureau as of November 2021. In addition, as shown on Figure 2-4a, a 6-foot masonry screening wall would be constructed along the eastern property line between proposed Lots 8-14 and the adjacent property, which would provide further fire protection from the residential property to the east.

In summary, compliance with mandatory wildfire protection regulations would reduce the potential for people or structures to undergo risk of loss, injury, or death related to wildland fire. Furthermore, as described in Section 3.15, Public Services, the Project site is located within close proximity to LACFD fire stations, which

9 California Code of Regulations (CCR) Title 14, Division 1.5, Chapter 7, Fire Protection, Subchapter 3, Section 1299, Defensible Space. https://svfra.org/home/svfra/pdf/PRC%20429114%20and%20CA%20ADC%201299.pdf

10 The Fuel Modification Unit of the LACFD's Forestry Division is responsible for the approval of a fuel modification plan for structures located in the Fire Hazard Severity Zones. The process of approval consists of reviewing aspects such as structure location and type of construction, topography, slope, amount and arrangement of vegetation and overall site settings. The goal of the approval plan process is to create defensible space necessary for effective fire protection of homes in the Fire Hazard Severity Zones (LACFD 2022).

would provide fire protection services in the event of a fire emergency at the Project site. As such, while the proposed Project could expose people and structures to wildland fire hazards, compliance with local and State regulations would reduce such hazards and impacts would be less than significant.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:				
i) result in substantial erosion or siltation on or off site;	☐	☐	☒	☐
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;	☐	☐	☒	☐
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less Than Significant Impact. A significant impact would occur if the proposed Project would discharge water that did not meet the water quality standards established by the SWRCB NPDES and waste discharge requirement permit programs, and the Los Angeles Regional Water Quality Control Board's (LARWQCB) Los Angeles Region Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan; LARWQCB 2019). The proposed Project is not anticipated to violate any water quality standard or waste discharge requirement during construction and operation, for the reasons described below.

Construction

Grading for the residential lots, roadways, and the flood control features would disturb a large portion of the Project site. During construction, stormwater runoff could potentially violate applicable water quality standards by introducing pollutants to stormwater runoff. There are two primary ways that construction activities could adversely affect water quality: land disturbances and spills or leaks of pollutants. Land disturbances such as vegetation removal, compaction, grading, and temporary soil stockpiling could potentially increase sediment loads in stormwater runoff by eroding soils that have been loosened or newly exposed by construction activity. Materials that could spill or leak during construction include diesel fuel, gasoline, lubrication oil, cement slurry, hydraulic fluid, antifreeze, transmission fluid, lubricating grease, and construction-related trash and debris. The amount of such materials used during construction would be the minimum necessary to fuel vehicles, power equipment, and complete activities. Improper management of hazardous materials could result in accidental spills or leaks, which could locally contaminate stormwater runoff.

However, the proposed Project would comply with the provisions of the Construction General Permit (CGP), which is NPDES General Permit for Storm Water Associated with Construction Activities (Order No 2009-009-DWQ as amended by 2010-0014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002). Because the proposed Project is greater than 1 acre in size, the Applicant would be required to submit a Notice of Intent to the SWRCB in order to obtain approval to complete construction activities under the CGP. This permit would include a number of design, management, and monitoring requirements for the protection of water quality and the reduction of construction phase impacts related to stormwater (and some non-stormwater) discharges. Permit requirements would include the preparation of a SWPPP, implementation and monitoring of BMPs, implementation of best available technology for toxic and non-conventional pollutants, implementation of best conventional technology for conventional pollutants, and periodic submittal of performance summaries and reports to the SWRCB. The SWPPP would apply to the Project as a whole and would include reference to the major construction areas, materials staging areas, and haul roads.

Typical BMPs that could be incorporated into the SWPPP include the following:

- Diverting off-site runoff away from the construction site
- Vegetating landscaped/vegetated swale areas as soon as feasible following grading activities
- Placing perimeter straw wattles to prevent off-site transport of sediment
- Using drop inlet protection (filters and sand bags or straw wattles), with sandbag check dams within paved areas
- Regular watering of exposed soils to control dust during demolition and construction
- Implementing specifications for demolition/construction waste handling and disposal
- Using contained equipment wash-out and vehicle maintenance areas
- Maintaining erosion and sedimentation control measures throughout the construction period
- Stabilizing construction entrances to avoid trucks from imprinting soil and debris onto City roadways
- Training, including for subcontractors, on general site housekeeping

Additionally, the proposed Project would comply with the City's Municipal Code, Chapter 21.03.090, Urban Runoff Pollution, which enhances and protects the water quality of the receiving waters of the United States in a manner that is consistent with the Clean Water Act and applicable implementing regulations; the municipal NPDES permit. It requires that each operator of any construction activity submit evidence to the City that all applicable permits have been obtained, including but not limited to the State Water Board's CGP, and that an Erosion and Sediment Control Plan and SWPPP has been

prepared accordingly. Given the above, the proposed Project would have a less than significant impact on water quality standards and waste discharge requirements and would not otherwise substantially degrade surface or ground water quality during construction, and no mitigation is required.

Operations

The proposed Project site produces nonpoint source pollutants associated with stormwater runoff and would continue to do so upon project implementation. The proposed Project would not introduce any industrial discharges and would not, therefore, violate any water quality standards or waste discharge requirements related to non-stormwater discharges. Any stormwater currently discharged from the Project site is similar in nature to discharges from surrounding open space and residential uses. The main difference between pre-project conditions and post-project conditions would be the development of 12 residential lots and two Private Streets and, subsequently, the development of 12 single-family homes on the new lots. The homes and the Private Streets would be developed in areas of the Project site that are currently naturalized and pervious. As such, the proposed Project would potentially increase stormwater runoff during operation due to the addition of new impervious (i.e. paved) surfaces. Additionally, residential uses can introduce pollutants to stormwater runoff such as trash, fertilizers, cleaning agents, etc.

The design of the proposed Project is required to comply with the City's BMPs and Low Impact Development (LID) requirements, as well as Los Angeles County Department of Public Works (LACDPW) requirements for allowable peak outflows to the existing public storm drain. A hydrology report was prepared by West Consultants, Inc., to study the hydrology of the site and to develop a site drainage design in compliance with City and LACDPW requirements. West Consultants designed the proposed drainage system so that the peak flow to the public storm drain would be in compliance with limits established by LACDPW (see Appendix E). As described in Appendix E, the overall outflow of stormwater from the Project site would be reduced after implementation of the drainage improvements (i.e. the volume of runoff leaving the Project site is expected to be reduced in quantity relative to existing conditions), as further discussed in Section 3.10(c).

The construction of three flood/debris control structures upstream of the residential lots is protective of water quality in that the structures would remove sediment from the runoff, and if rainfall is of sufficient magnitude to fill the basins, the stormwater that is discharged would be much less turbid than it is under existing conditions (since the existing debris basins no longer function as intended).

Due to the mountainous terrain on the Project site, erosion and sedimentation may occur during storm events. However, upon project buildout, the southern portion of the Project site would be developed with homes and associated landscaping and paved areas, including driveways and Private Streets. As such, the southern portion of the Project site would be covered with structures, hardscape, landscaping, and appropriate drainage infrastructure, which would reduce on-site erosion during operation. However, the northern portions of the site would remain as open space. LACDPW has requirements for erosion control structures and sediment retention structures, to reduce the amount of sediment leaving the Project site in stormwater runoff (Appendix E). As part of the proposed Project, debris containment would be provided via two proposed elevated inlets and a debris basin, which would be installed on site during construction. The final design and construction of the proposed debris containment structures would be conducted in accordance with LACDPW's Sedimentation Manual.

The capacities of the proposed debris containment structures have been designed to exceed the potential debris production from upstream areas (Appendix E). A description of the proposed capacities of the flood control features is provided in Table 3.10-1, Debris Containment Details, below.

Table 3.10-1
Debris Containment Details

Debris Facility	Contributing Drainage Area	Debris Protection Type	Drainage Area Debris Production (cubic yards)	Facility Debris Capacity (cubic yards)
West Basin ("B")	B1, B2, B3	Elevated Inlet	5,060	5,080
Middle Basin ("C")	C	Elevated Inlet	2,250	2,300
East Basin ("D")	D1, D2, D3	Debris Basin	6,280	6,300

Source: Hydrology Study, see Appendix E for complete results.

The three flood control facilities will debulk the off-site debris inflows and convey the flows into a new storm drain system that would terminate near the historic flow outlet point at the southern tract boundary. The flows would be split between direct flow into the existing storm drain system and the remaining flows would be released above ground via a parkway drain or equivalent. As shown in Table 3.10-1, the three debris containment facility capacities exceed the requirements for debris containment, which ensures the containment of debris flows and reduction of turbidity and sediment in stormwater flows. Accordingly, the proposed improvements would improve the protection of downstream residents within the region by eliminating debris flow and reducing overall outflow from the area.

As such, the proposed flood/debris control infrastructure would be sufficient to contain debris flow from the Project site, thereby alleviating sedimentation in stormwater runoff to the extent practicable. Because the existing on-site debris control structures are at capacity, the proposed Project would reduce debris flow and sedimentation relative to existing conditions. The proposed debris control structures would be transferred to LACFCD for maintenance. LACFCD staff would maintain the debris containment structures per County standards. Proper maintenance of the debris containment structures would ensure that the basins are regularly cleaned out and maintained, which prevents the structures from losing their effectiveness over time.

No separate NPDES permit or waste discharge requirements would be necessary for project operation. However, the project would be subject to standards and regulations pertaining to stormwater runoff and municipal separate storm sewer system (MS4) discharges. Compliance with these standards and regulations would reduce the potential effects of project operation, including water pollutants that are typically generated from residential land uses (trash, fertilizers, cleaning agents, sediments, chemicals from automobile maintenance, etc.). Standards for runoff pollution in the City are codified in Section 21.03.090 of the Glendora Municipal Code (storm water and runoff pollution control ordinance). The intent of Section 21.03.090 is, in part, to ensure consistency with and to implement the California Regional Water Quality Control Board Los Angeles Region Municipal National Pollutant Discharge Elimination System (NPDES) Permit, which is Order No. R4-2012-0175, NPDES No. CAS004001 (Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles). Specific sections of the storm water and runoff pollution control ordinance that would address the potential effects of project operation include Section 21.03.090(F), Illegal Disposal/Dumping, and Section 21.03.090(M), Control of Pollutants from New Development and Redevelopment – Low Impact Development (LID). Section 21.03.090(F) precludes people from allowing pollutants to enter the MS4. Such pollutants can include batteries, tires, waste receptacles, yard debris, refuse, rubbish, food waste, chemicals, animal waste, and oil cans.

Required compliance with Section 21.03.090(F) would ensure that future residents at the Project site would not intentionally cause water pollutants to enter the MS4. Section 21.03.090(M) requires new development to comply with a variety of design practices for limiting the volume of stormwater runoff and for minimizing pollutants that enter stormwater runoff. Such practices include minimizing pollutant loadings from impervious surfaces such as roof tops, parking lots, and roadways through the use of properly designed, technically appropriate BMPs (including source control BMPs such as good housekeeping practices), LID strategies, and treatment control BMPs; and selecting, designing, and maintaining LID and hydromodification control BMPs to address pollutants that are likely to be generated, reduce changes to pre-development hydrology, assure long-term function, and avoid the breeding of vectors. Specifically for single-family hillside homes, Section 21.03.090(M) requires the following: conservation of natural areas, protection of slopes and channels, providing storm drain system stenciling and signage, diversion of roof runoff to vegetated areas before discharge unless that diversion would cause slope instability, and direction of surface flow to vegetated areas before discharge unless the division would result in slope instability. While the designs of the residences that could be built on the Project site are yet to be determined, they would need to be designed and operated consistent with Section 21.03.090(M). The initial site design complies with Section 21.03.090(M) through conserving the open space area of the site and controlling site drainage in a manner that reduces runoff relative to current conditions.

In summary, compliance with the terms and conditions of the CGP and the current municipal NPDES permit is required by State law, and the Project Applicant and/or its contractor would also be required to further address water quality impacts in compliance with the City regulations described above. For these reasons, impacts regarding the violation of any water quality standards or waste discharge requirements or degradations to surface or ground water quality would be less than significant, and no mitigation is required.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. The proposed Project is consistent with the General Plan and does not require a General Plan Amendment; therefore, the Project would be consistent with the City's growth projections anticipated in local and regional planning documents, including the City's 2015 Urban Water Management Plan (UWMP) dated June 2016. As stated in the UWMP (UWMP 2016), the projected populations used in the UWMP for the City's service area were based on projections obtained from SCAG. The SCAG data incorporates demographic trends, existing land use, general plan land use policies, and input and projections from the Department of Finance and the U.S. Census Bureau.

Development on the Project site would be required to connect to the City's municipal water system. No water wells would be constructed on the Project site. Because the project would increase the residential density on a portion of the Project site, it would increase water demand at the site relative to existing conditions. However, future residential structures would be developed in compliance with the California Green Building Code (which implements water efficiency standards for appliances and fixtures) and would constitute a minor portion of the total water used in the City. See Section 3.19(b), which further describes the project's anticipated water use relative to Citywide demand.

As described in the City's UWMP, the City's primary source of water supply is groundwater, which is delivered to the system by eight active wells; Wells 5-E, 8-E, 9-E, and 12-G are located within the Upper San Gabriel Canyon Sub-basin and Wells 2-E, 10-E, 11-E and 13-E are located within the Glendora Sub-basin of the Main San Gabriel Basin (Main Basin). As stated in the UWMP, the Main Basin has been well managed for the full period of its adjudication, resulting in a stable and reliable

water supply for the City during average, single-dry, and multiple-dry water years (UWMP 2016). There are no contemplated basin management changes, other than increasing direct use of recycled water and the planned use of recycled water for groundwater replenishment in the Main Basin to reduce the need to import water from other regions. Therefore, the groundwater supplies in the Main Basin are deemed reliable.

To supplement the City's groundwater supply, the City also has three connections with Three Valleys District to purchase imported treated water from MWD and one connection with Covina Irrigating Company (CIC) to purchase local treated surface water and groundwater. As such, imported water can be utilized as a supplemental source of supplies. The City has been able to meet all historical water demands with the available water supply. However, the City produces the majority of its groundwater supply from the Canyon Basin and the Glendora Basin, both of which have fluctuating groundwater elevations due to drought conditions, despite replenishment efforts. If groundwater elevations in the Canyon Basin and/or the Glendora Basin decrease causing a reduction in the City's well capacity, the City may rely on purchased water supplies from Three Valleys District to meet water demands.

According to the UWMP, the City does not experience water supply constraints or deficiencies and projects having adequate supply through the planning year 2040. The proposed Project would not include any wells that would directly deplete groundwater supplies, and the City's UWMP anticipates adequate supply through 2040. As such, the proposed Project would not substantially decrease groundwater supplies such that the Project may impede sustainable groundwater management of the basin.

As described in Table 3.10-1 above, the three flood control facilities would retain stormwater flows, allowing for infiltration, which does not occur in the existing conditions because the existing undersized facilities are not functional and not able to retain flows. As described below in Threshold 3.10(c), as included in the Hydrology Study (Appendix E), runoff from the proposed Project would not exceed existing conditions for the specified stormwater design events, nor would flow to the existing storm drain exceed the Project-specific LACDPW specified allowable rate. For all storms, the total post-development outflow would be less than or equivalent to that under the existing condition. Therefore, the addition of new impervious pavement and concrete surface would not substantially decrease groundwater recharge such that the project may impede sustainable groundwater management of the basin. Therefore, the proposed Project would have a less than significant impact to groundwater supplies and would not interfere substantially with groundwater recharge, and no mitigation is required.

c) Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i) result in substantial erosion or siltation on or off site;

Less Than Significant Impact. Construction activities at the Project site would result in ground surface disruption during grading and excavation that could create the potential for erosion to occur. The construction contractor would be required to implement a SWPPP and an Erosion Control Plan, as described under Section 3.10(a), and would also be required to adhere to City regulations requiring implementation of BMPs to reduce pollutants to the maximum extent practicable (Glendora Municipal Code Section 21.03.090). The SWPPP and associated implementation of BMPs would result in minimized on-site and off-site erosion through implementation of devices such as sandbag barriers, dust controls, perimeter controls, drain inlet protection, and proper construction site housekeeping practices. Implementation of these BMPs would minimize the amount of erosion

and/or siltation that would have the potential to occur during construction and would ensure that significant impacts related to substantial erosion or siltation on or off site would not result from proposed Project construction.

Permanent alterations to site drainage and debris flow patterns across the site would occur as a result of the proposed flood/debris control improvements and the proposed residential development. However, as described in Section 3.10(a), the proposed debris containment structures have been designed to exceed the anticipated debris flow from the upstream areas. As such, the proposed flood/debris control infrastructure would be sufficient to contain debris flow from the Project site, thereby alleviating stormwater sedimentation to the extent practicable. Because the existing on-site debris control structures are at capacity and not functional, the proposed Project would in fact reduce debris flow and sedimentation relative to existing conditions because existing residential areas surrounding the Project site are not currently being protected by functioning facilities. This reduction would occur by compliance with the Los Angeles County Sedimentation Manual, which minimize the introduction of pollutants into stormwater runoff and also help protect filtration and infiltration facilities. This would be accomplished by implementation of low impact development (LID) during the site design stages, such as minimizing runoff from impervious areas by grading toward landscaped areas, disconnecting downspouts, and using pervious conveyances prior to discharging to the storm drain system (LACDPW 2009). By reducing stormwater volumes and debris flow, the proposed changes in drainage patterns are expected to improve conditions that potentially lead to erosion. Furthermore, the southern portion of the site would be developed with buildings, hardscape, and landscaping, which would preclude on-site erosion and siltation. As stated below, Project design, construction, and operation would be completed in accordance with the LACDPW Low Impact Development (LID) Standards Manual, with the goal of reducing the amount of pollutants in stormwater and urban runoff. The LID requirements include permanent control measures to reduce the long-term impacts of the Project on water quality and the tributary waterways. Site design and stormwater management facilities are required in order to maintain the site's pre-development runoff rates and volumes (LACDPW 2014). The goal of LID is to mimic the site's pre-development hydrology by using design techniques that filter, store, evaporate, and detain runoff close to the source of rainfall. With adherence to the SWPPP and the required drainage features, on- and off-site erosion and siltation would be reduced to a less-than-significant level. No mitigation is required.

ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site;

iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or

iv) impede or redirect flood flows?

Less Than Significant Impact. The City has required that the proposed Project adhere to their BMP and LID requirements; as such, the Hydrology Study (see Appendix E) analyzes the pre- and post-development conditions at the Project site. All hydrology and debris calculations were performed and all proposed design elements adhere to the LACDPW Hydrology Manual (2006) and the LACDPW Sedimentation Manual (2006), and the Report was recommended for approval by the Land Development Division, Hydrology Unit of LACDPW.

The existing Project watershed (tributary area) is mostly natural and undeveloped. Steep (>20%) slopes characterize the upper areas of the watershed. Three debris control and channel stabilization

structures were installed by the United States Forestry Service (USFS) in 1970. They have since been completely filled and are at capacity; therefore, under current conditions no debris or water retention occurs and runoff from the upper watershed spills freely over the structures.

After overtopping the existing structures, storm runoff and debris currently flows southeasterly through the existing watershed to a confluence at Grand Avenue near Palm Drive. Existing flows then split, with some amount draining into the existing 39-inch diameter reinforced concrete pipe (RCP) storm drain pipe along Grand Avenue, but the majority of the runoff flows into the streets. Calculations by LACDPW indicate that the existing storm drain has capacity for flows from the site.

Various levels of flood protection are required for the proposed Project. Specifically, the total routed clear water peak outflow from the developed site must not exceed the existing peak clear water flow for two events: (1) The Urban Flood, which corresponds to the 25-year frequency design storm incident to a saturated watershed, and (2) The Capital Flood, which corresponds to the 50-year frequency design storm incident to a saturated watershed. Additionally, capital flood protection also requires the effects of fires and erosion to be accounted for, so that the burned and bulked flow condition for the 50-year frequency is calculated.

Figure 3.10-1, Existing Conditions Tributary Subareas, depicts the total existing drainage area of 51.5 acres. This 51.5-acre area was calculated to have flows during the 25-year storm event (Q25) of 142 cubic feet per second (cfs); flows during the 50-year storm event (Q50) of 167 cfs; a Q50 with burned factor of 176 cfs; and a Q50 with burned and bulked factor of 342 cfs, resulting in 17,840 cubic yards of cumulative debris volume production in the existing condition. LAPDPW requires that the post-development burned flow entering the storm drain system be limited to 1.74 cfs/acre based on the existing (pre-development) drainage area. Therefore, the total allowable flow from the site to the existing storm drain is $Q_{allowable}$ = (1.74)(51.5) = 89.6 cfs. This requirement was implemented by designing an on-site storm drain system that would direct 89.6 cfs of the debulked off-site flow to the public storm drain. The remaining debulked off-site flow and all the on site flow would outlet to the street system along the historical flow path.

With all the necessary parameters established, as outlined in the Hydrology Report, the routing analysis of the existing conditions was conducted. The analysis predicts that the overall existing condition routed clear water flow is 142 cfs for the 25-year storm and 160 cfs for the 50-year storm. The LACDPW requires that the corresponding clear water outflow under the proposed condition be less than those under the existing condition.

The proposed post-development drainage conditions are shown in Figure 3.10-2, Post-Development Drainage Conditions. As shown in Figure 3.10-2, a new storm drain system would convey only off-site flows through the Project site. Two elevated inlets (i.e. West Basin and Middle Basin debris facilities) would be constructed according to the LACDPW regulations for elevated inlets. The East Basin is designed as a debris basin located directly northeast of the proposed residential areas. In keeping with LACDPW regulations, a minimum 2 feet of freeboard would be maintained in all three basins for all designed (i.e. Urban Flood and Capital Flood) storm events.

As shown in Figure 3.10-2, flows in the storm drain would be split with a portion conveyed into the public storm drain system. Specifically, the design would divert the $Q_{allowable}$ = 89.6 cfs burned, debulked flow to the public storm drain during the 50-year storm (Capital Flood). The other off-site flows would be conveyed along the historic drainage path by means of a flow return structure. All of the on site flows would be conveyed by the proposed surface streets along the historical path. Under proposed conditions, the overall outflow from the site is reduced, and a large portion (near but less than the $Q_{allowable}$ = 89.6 cfs) would be conveyed into the storm drainage system. The split of the storm drain flow into the main storm drain system flow and flow to the return flow structure would be accomplished utilizing different pipe sizes implemented within a manhole to be located near the

property line at Palm Drive. Storm drain inflows of 145.1 cfs would enter the manhole via 36-inch storm drain, and 54.9 cfs would exit the manhole through the parkway drain, and 89.6 cfs would exit the manhole to the public storm drain. The parkway drain allows for overland flows via the existing Grand Avenue valley gutter system, as in the current condition. The post-development conditions are shown in Table 3.10-2, Pre- Development and Post-Development Outflow Comparison and Table 3.10-3, Pre-Development Outflows to the Public Storm Drain, below.

Table 3.10-2
Pre-Development and Post-Development Outflow Comparison

Storm Event	Proposed On-Site Street Flows (cfs)	Proposed On-Site Storm Drain Flows (cfs)	Proposed Total Combined Flows (cfs)	Existing Condition Clear Water Flows (cfs)
25-year Clear (Urban Flood)	29.4	118	142	142
50-year Clear (Capital Flood)	34.5	138	167	167
50-year Burned (Capital Flood)	36.4	145	175	176

Source: Hydrology Study, see Appendix E for complete results.

Table 3.10-2 shows that the post-development flows would not exceed the existing condition flows during either the Urban Flood or Capital Flood conditions.

Table 3.10-3
Pre-Development Outflows to the Public Storm Drain

Storm Event	Total storm Drain Flow at Split (cfs)	Portion of Outflow to Public Storm Drain (cfs)	Portion of Outflow to Parkway Drain (cfs)
25-year Clear (Urban Flood)	118	73.2	44.9
50-year Clear (Capital Flood)	138	855	52.4
50-year Burned (Capital Flood)	145	89.6	54.9
Ultimate Condition	Q50 burned off site + Q25 clearwater on site = 145 + 29 = 174 cfs		

Source: Hydrology Study, see Appendix E for complete results.

Table 3.10-3 shows that the Q50 with burned factor of 176 cfs in the pre-development existing condition is not exceeded in the post-development "ultimate condition", which results in 174 cfs.

With incorporation of the proposed storm drain system, including the three proposed flood control facilities, the proposed Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site, would not exceed the capacity of the storm drain system, and would not impede or redirect flood flows, and impacts would be less than significant.

d) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

Less Than Significant Impact. The Project site is within Zone D of the Federal Emergency Management Act (FEMA) Floodplain Map. Zone D corresponds to an area where no analysis of flood hazards has been conducted, or "area of undetermined flood hazard" (FEMA 2022). According to LACDPW, the Project site is also within Flood Zone X, which is defined by FEMA as areas determined to be outside the 0.2% annual chance floodplain (LACDPW 2022a). Zone X is within a "Moderate-to-Low Risk Area", which is defined as a non-special flood hazard area, where the risk of being flooded is reduced, but not completely removed. This area is outside of the 1% annual chance floodplain, so flood insurance

is not required within Zone X (LACDPW 2022b). Currently, the existing on-site debris control structures are at capacity and not functional. Therefore, in the event of a flood event, the existing flood control structures would not be suitable for flood hazard concerns. However, with implementation of the proposed Project, the existing three flood control/debris check dam structures would be removed, and larger flood/debris control facilities would be constructed within generally the same location. This would protect the new residential development from safety hazards associated with flooding and debris flow. Therefore, the Project would not substantially risk release of pollutants due to Project inundation in a flood hazard zone. Impacts related to the release of pollutants due to Project inundation in a flood hazard zone would be less than significant, and no mitigation is required.

A tsunami is a sea wave generated by an underwater seismic disturbance, such as sudden faulting or landslide activity. The Project site is located approximately 35 miles inland from the Pacific Ocean; as such, it would not be susceptible to tsunami hazards. The Project would have no impact regarding risk of pollutants due to Project inundation in a tsunami zone.

Seiches are earthquake-induced waves in enclosed bodies of water, such as lakes or reservoirs. The Project site is located within the vicinity of several inland bodies of water, including the San Dimas Reservoir, located 5 miles east of the Project site; the Big Dalton Reservoir, located approximately 3 miles northeast of the Project site; Morris Reservoir, located approximately 1.5 miles north of the Project site; and the San Gabriel Reservoir, located approximately 3.5 miles north of the Project site. The City's General Plan states that the potential inundation area for the San Dimas Reservoir is located south of the I-210. As such, a seiche within the Big Dalton Reservoir or the San Dimas Reservoir would not be expected to inundate the Project site. Morris Reservoir and San Gabriel Reservoir are located to the north (i.e., uphill) from the Project site. However, in the unlikely event that a seiche or other compromising event were to cause overflow of the Morris and/or San Gabriel Reservoirs, the inundation is expected to extend to the west, away from the Project site (City of Azusa 2010; City of West Covina 2018). As such, the Project site is not expected to be inundated as a result of hazards associated with nearby contained waterbodies, and there would be a less than significant impact.

Overall, impacts related to risk of release of pollutants due to Project inundation in flood hazard, tsunami, or seiche zones would be less than significant and no mitigation is required.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less Than Significant Impact. The Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties is the Water Quality Control Plan (WQMP) for the Los Angeles Region, which includes the City of Glendora. The Basin Plan: (i) identifies beneficial uses for surface and ground waters, (ii) includes the narrative and numerical water quality objectives that must be attained or maintained to protect the designated beneficial uses and conform to the State's anti-degradation policy, and (iii) describes implementation programs and other actions that are necessary to achieve the water quality objectives established in the Basin Plan (LARWQCB 2019).The City is within the Upper San Gabriel River Watershed. The existing, potential or intermittent beneficial uses for the Upper San Gabriel River Tributaries where storm waters from the City are discharged include: domestic water supply (MUN); industrial activities (IND); industrial process dependent upon water quality (PROC); agricultural supply (AGR); groundwater recharge (GWR); Hydropower Generation (POW); warm water ecosystems (WARM); cold water ecosystems (COLD); terrestrial ecosystems (WILD); rare, threatened or endangered species (RARE); Spawning, Reproduction, and Early Development (SPWN); and wetland ecosystems (WET) (LARWQCB 2019).

With compliance with applicable regulations, proposed Project does not include any facilities or land uses that could generate pollutants that could result in substantial water quality impacts. As discussed in Threshold 3.10(a), compliance the City's Stormwater Management requirements would protect the

water quality of watercourses in a manner pursuant to and consistent with the Federal Clean Water Act, and pursuant to the NPDES Construction General Permit No. 2009-0009-DWQ. Restrictions in this Ordinance are applicable to both construction activities and operations. Additionally, compliance with General Permit issued by the SWRCB would require implementation of BMPs during construction to address the potential for pollutants from entering downstream waters.

California Department of Water Resources (DWR) is required to prioritize and update California's groundwater basin prioritization in accordance with the requirements of Sustainable Groundwater Management Act and related laws. The act requires that groundwater resources be managed sustainably for long-term reliability and multiple benefits for current and future beneficial uses. The Sustainable Groundwater Management Act applies to all California groundwater basins and requires that high- and medium-priority groundwater basins form Groundwater Sustainability Agencies (DWR 2019). DWR is required to prioritize California's 517 groundwater basins and subbasins as either high, medium, low, or very low. The San Gabriel Basin Valley, which underlies the City, was determined by DWR to be "Very Low" priority and is therefore not subject to the requirements to prepare form a Groundwater Sustainability Agency to develop a Groundwater Sustainability Plan.

As previously discussed, the SWPPP and LID features would reduce the Project's impact on water quality in accordance with all applicable federal, State, and local requirements. Additionally, the Project would be consistent with the assumptions set forth in the City of Glendora's UWMP discussed in Section 3.10(b). As a result, the Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Therefore, the Project's impact would be less than significant, and no mitigation is required.

3.11 Land Use and Planning

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

a) Would the project physically divide an established community?

No Impact. The Project site is currently developed with one single-family residence and flood/debris control structures. The site is located on the border of a single-family residential neighborhood and open space. The Project site is approximately 0.31-mile southeast of the ANF boundary. As such, the proposed Project is located at the edge of an existing neighborhood and, therefore, would not result in the physical division of an established community; no impacts would occur.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. Land use plans and policies that apply to the Project site include the City's General Plan and the City's Zoning Ordinance (Title 21 of the Glendora Municipal Code). Some components of the General Plan and the zoning ordinance contain provisions that help avoid and/or minimize environmental effects in the City. As such, the Project's consistency with these plans and policies is addressed below.

General Plan

The City's General Plan was adopted in 2008 and extends to the planning horizon of 2025. The General Plan land use map, updated in 2013, designates the Project site as low density and conservation open space. The portion that is designated as "low density" would be developed with 13 single-family houses upon buildout of the proposed Project. The City's low density designation allows for 1.1 to 3 dwelling units per acre (City of Glendora 2008). Upon Project buildout, the site would have 13 dwellings on a total of 11 acres, resulting in approximately 1.2 units per acre. The portion of the site that is designated as "conservation open space" would remain open space. Therefore, the development intensity of the proposed Project is allowable based on the General Plan land use designation for the southern section of the Project site. Because the General Plan shows a designation of "low density" for the southern section of the site, local land use planning (including plans for infrastructure development and implementation of policies for environmental protection) takes into account buildout of the southern section of the Project site at a density of 1.1 to 3 dwelling units per acre and the preservation of the northern portion of the Project site as open space. Furthermore, larger regional land use plans, such as the AQMP and the SCAG RTP/SCS, rely on local land use designations for regional infrastructure planning and for setting goals and policies for regional environmental issues, such as air quality, GHGs, transportation, and population growth. As such, the land use that would be developed on the site would be consistent with projections for the area, the planned growth for the City and region, and the environment protection goals and policies established in the General Plan and larger regional plans.

Zoning Ordinance

The southern section of the Project site, which would include 13 single-family houses, is zoned as "single-family estate." The northern section of the Project site, which would not be developed, is zoned as "open space." The single-family estate designation allows for single-family residences and accessory buildings, and the zoning ordinance establishes maximum lot sizes, setbacks, heights, and floor areas for houses in the single-family estate zone. The proposed Project would establish lots that are in compliance with the specifications of the zoning ordinance, and houses would be developed on the lots in accordance with the size and height requirements of the zoning ordinance. The maximum FAR in the single-family estate zone is 35% FAR for the first floor. The second floor can be 75% of the area of the first floor. The maximum height is defined as "two stories not to exceed 25 feet."

The purpose of the open space zone, as stated in the zoning ordinance, is to conserve and manage natural resources which may include biological resources, watercourses, hills, canyons, major rock outcroppings, etc.; protect the public health and safety by including areas requiring management due to hazardous or special conditions such as fire, flood and earthquake fault; and provide outdoor recreation including areas of scenic, historic or cultural value. All property that is designated as open space is required to be left in its natural state except for the following uses: riding and hiking trails, picnic and playground areas, flood control structures and facilities, and utility substations and related

equipment and structures. Under the proposed Project, flood control/debris improvements and access road would occur in the portion of the Project site designated for open space. However, no other development would occur, and the northern section of the Project site would otherwise remain in its natural state. As such, the proposed Project would be consistent with the permitted land uses for the single-family estate and open space zones and would comply with the policies established for these zones, including policies that have been established for environmental protection.

For the reasons described above, the proposed Project would be consistent with applicable land use plans, policies, and regulations that have been established for the purposes of avoiding or mitigating an environmental effect. No impacts would occur.

3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☒

a) Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

No Impact. According to the California Department of Conservation Division of Oil, Gas, and Geothermal Resources, there are no oil, gas, geothermal, or other known wells located within the project area (DOGGR 2018). As such, the proposed Project would not have the potential to interfere with extraction of oil, gas, or geothermal resources.

Glendora is located within the San Gabriel Production-Consumption Region for Portland Cement Concrete–grade aggregate resources, as mapped by the Division of Mines and Geology (renamed the California Geological Survey in 2006). The Division of Mines and Geology has mapped the Project site within Mineral Resource Zone 3 for aggregate resources. Mineral Resource Zone 3 is a designation given to areas containing mineral deposits the significance of which cannot be evaluated from available data (Division of Mines and Geology 1982). Currently, the Project site is used for residential purposes, flood and debris control, and open space. No mining operations are present on-site or within the project vicinity. Land uses in the Project vicinity consist of single-family residences, schools, churches, open space areas, and utility and flood control infrastructure.

Due to the existing land uses at the Project site and within its surroundings, as well as the absence of known, significant mineral resources as mapped by the state, project implementation is not anticipated to result in loss of availability of a known mineral resource of value to the region and residents of the state. No impacts would occur.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

No Impact. The City's General Plan does not indicate the presence of mineral resources on the Project site (City of Glendora 2008). Therefore, the proposed Project would not result in the loss of availability of a locally important mineral resource that has been delineated on local land use plans. The Project site does not currently support a mineral resource recovery site and has not supported one in the past. No impacts would occur.

3.13 Noise

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐
b) Generation of excessive ground borne vibration or ground borne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

a) Would the project result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Less than Significant With Mitigation. The City's General Plan Noise Element establishes maximum recommended noise exposure levels on the basis of land use zones. The recommended noise exposure levels use Community Noise Equivalent Level (CNEL), and are applicable to exterior (outside) noise, as opposed to noise levels occurring in interior building spaces. The recommended maximum exterior noise level for single family residences is 60 dBA CNEL. Table 3.13-1 provides the City's Noise and Land Use Compatibility Criteria.

Table 3.13-1
Noise and Land Use Compatibility

Land Use Category	Community Noise Exposure (L_{dn} or CNEL, dBA)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential - Low Density, Single-Family, Duplex, Mobile Homes	50 - 60	55 - 70	70-75	75-85
Residential - Multiple Family	50 - 65	60 - 70	70 - 75	70 - 85
Transient Lodging - Motel, Hotels	50 - 65	60 - 70	70 - 80	80 - 85
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	80 - 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 - 70	NA	65 - 85
Sports Arenas, Outdoor Spectator Sports	NA	50 - 75	NA	70 - 85
Playgrounds, Neighborhood Parks	50 - 70	NA	67.5 - 75	72.5 - 85
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 70	NA	70 - 80	80 - 85
Office Buildings, Business Commercial and Professional	50 - 70	67.5 - 77.5	75 - 85	NA
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	75 - 85	NA
NA: Not Applicable				
Source: *General Plan Guidelines*, Office of Planning and Research, California, October 2003.				
Normally Acceptable – Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements. **Conditionally Acceptable** – New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, will normally suffice. **Normally Unacceptable** – New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. **Clearly Unacceptable** – New construction or development should generally not be undertaken.				

Source: City of Glendora General Plan Noise Element.

The City's Municipal Code Noise Ordinance prescribes the maximum noise levels that may be generated by stationary sources (non-transportation sources) in each land use zone. Table 3.13-2 presents the noise generation limits prescribed in the Noise Ordinance.

Table 3.13-2
Glendora Noise Ordinance Standards

Zone	Noise Level (dBA)		
	Day: 7AM – 7PM	Evening: 7PM-10PM	Night: 10PM – 7AM
Single Family Residential (R-1)	55	50	45
Multiple Residential (R-3 and R-4)	55	55	50
Commercial	65	65	60
Industrial and Light Manufacturing	70	70	70
Special Zones (MS)	55	50	45
Source: *Glendora Municipal Code*, Chapter 9.44.040 (Ambient noise base levels)			

Source: City of Glendora General Plan Noise Element.

Section 9.44.110 (Construction of Buildings and Project's) of the City's Municipal Code states that it is unlawful for any person within a residential zone or within a radius of five hundred feet therefrom to operate equipment or perform any outside construction or repair work on buildings, structures or projects or to operate any pile driver, power shovel, pneumatic hammer, derrick, power hoist or any other construction type device (between the hours of nine p.m. of one day and seven a.m. of the next day) in such a manner that a reasonable person of normal sensitiveness residing in the area is caused discomfort or annoyance unless beforehand a permit therefore has been duly obtained from the city. No permit shall be required to perform emergency work as defined in Section 9.44.020(c) (Definitions).

Existing Noise Conditions. Currently, the Project site is developed with a single-family residence in the southwest corner of the property (which will be encompassed within the proposed Lot 1), with the majority of the site currently vacant and undeveloped. Single family residences are aligned along the southern property boundary of the Project site, as well as along the western side of the eastern portion of the site which extends southward. One single family residence exists to the east of the Project site, while open space and minor flood control facilities are located to the north and west of the Project site. The Project site is not in close proximity to any major roadway; Palm Drive is a neighborhood collector street with very low traffic which is adjacent to only one of the proposed home lots.

Dudek conducted noise measurements in the Project vicinity in July 2018 to characterize the existing noise environment. The daytime, short-term (1 hour or less) attended sound level measurements were taken with a SoftdB Piccolo 3 sound-level meter. This sound-level meter meets the current American National Standards Institute standard for a Type 2 general purpose sound-level meter. The calibration of the sound level meter was verified before and after the measurements were taken, and the measurements were conducted with the microphone positioned approximately five feet above the ground.

Dudek selected three noise measurement locations (ST1–ST3) near the Project site to characterize noise levels from important transportation sources in the area, as well as to establish ambient noise levels at sensitive receptors that could be affected by construction or operation of the proposed Project. The measurement locations are shown in Figure 3.13-1, Noise Measurement Locations, and the measured average noise levels and measurement location descriptions are provided in Table 3.13-3, Ambient Measured Noise Levels. Noise measurement data is also included in Appendix F. The primary noise sources at the measurement locations consisted of traffic along the adjacent roads. As shown in Table 3.13-3, the measured sound levels ranged from approximately 54 dBA equivalent continuous sound level (L_{eq}) at ST3 to approximately 62 dBA L_{eq} at ST1.

Table 3.13-3
Ambient Measured Noise Levels

Site	Location	Date	Time	Sound Level (dBA Leq)	Sound Level (dBA Lmax)
ST1	Sierra Madre East of Grand Ave.	July 31, 2018	10:51 – 11:06 a.m.	61.9	61.9
ST2	Grand Ave South of Palm Dr.		11:15 – 11:35 a.m.	58.9	58.9
ST3	Palm Dr. West of Grand Ave.		11:39 – 11:59 a.m.	54.4	54.4

Source: See Appendix F for complete results.
Notes: dBA = A-weighted decibels; Leq = equivalent continuous sound level. Lmax = maximum noise level

Sensitive Receptors. Noise- and vibration-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would be considered noise- and vibration-sensitive and may warrant unique measures for protection from intruding noise. Sensitive receptors near the Project site include the single-family residential land uses located immediately south of the Project site, and immediately west of the southerly extension of the Project site. The Church of the Open Door is also located approximately 500 feet southwest of the Project site while St. Lucy's Priory High School is located approximately 700 feet southwest of the site.

The above sensitive receptors represent the nearest residential land uses with the potential to be impacted by construction of the proposed Project. Additional sensitive receptors are located farther from the Project site in the surrounding community and would be less impacted by noise and vibration levels than the above-listed sensitive receptors.

Construction Noise (Short-Term Impacts). Construction noise and vibration are temporary phenomena. Construction noise and vibration levels vary from hour to hour and day to day, depending on the equipment in use, the operations being performed, and the distance between the source and receptor. The construction activities for the proposed Project would include grading and trenching for proposed lots, building construction, paving of the on-site road, and application of architectural coatings. Noise impacts from construction activities associated with the proposed Project's would be a function of the noise generated by construction equipment, equipment location, and sensitivity of nearby land uses, and the timing and duration of the construction activities. The nearest sensitive receptors to the Project site are single-family homes located as close as 20 feet west of the southern extension of the Project site. Other residential land uses are also located a little further along the southern boundary of the Project site.

Construction noise is difficult to quantify because of the many variables involved, including the specific equipment types, size of equipment used, percentage of time, condition of each piece of equipment, and number of pieces of equipment that would actually operate on site. The range of maximum noise levels for various types of construction equipment at a distance of 50 feet is depicted in Table 3.13-4, Construction Equipment Noise Levels. The noise values represent maximum noise generation, or full-power operation of the equipment. As an example, a loader and two dozers, all operating at full power and relatively close together, would generate a maximum sound level of approximately 90 dBA at 50 feet from their operations. As one increases the distance between equipment, and/or the separation of areas with simultaneous construction activity, dispersion and distance attenuation reduce the effects of separate noise sources added together. In addition, typical operating cycles may involve two minutes of full-power operation, followed by three or four minutes at lower levels. The average noise level during construction activity is generally lower since maximum noise generation may only occur up to 50% of the time. Noise levels from construction operations decrease at a rate of approximately 6 dBA per doubling of distance from the source.

Table 3.13-4
Construction Equipment Typical Noise Emission Levels

Equipment	Typical Sound Level (dBA) 50 Feet from Source
Roller	74
Concrete vibrator	76
Pump	76
Saw	76
Backhoe	80

Table 3.13-4
Construction Equipment Typical Noise Emission Levels

Equipment	Typical Sound Level (dBA) 50 Feet from Source
Air compressor	81
Generator	81
Compactor	82
Concrete pump	82
Crane, mobile	83
Concrete mixer	85
Dozer	85
Grader	85
Impact wrench	85
Loader	85
Pneumatic tool	85
Jackhammer	88
Truck	88
Paver	89

Source: FTA 2006

The nearest point of construction activities to the closest noise-sensitive receivers (single-family residence located to the west of the southern extension of the Project site) would be approximately 20 feet and the furthest would be approximately 210 feet. For construction noise, a concept called the "acoustic center" is useful in describing average noise levels across the entire construction period for adjacent receivers. The acoustic center is the idealized point from which the energy sum of all construction activity noise near and far would originate, and it is derived by taking the square root of the product of the shortest distance multiplied by the furthest distance. For this project construction, the acoustic center is calculated to be 65 feet from the closest receiver. Thus, the distance to the nearest construction activities would be approximately 20 feet, but the distribution of construction activity across the site would typically occur with a center approximately 65 feet or more away from the closest noise-sensitive receivers.

The Federal Highway Administration's Roadway Construction Noise Model (RCNM) (FHWA 2008) was used to estimate construction noise levels at these noise-sensitive land uses. Although the model was developed by the Federal Highway Administration, RCNM is often used for non-roadway projects, because the same types of construction equipment used for roadway projects are also used to construct other project types. Input variables for RCNM consist of the receiver/land use types, the equipment type and number of each (e.g., two graders, a loader, a tractor), the duty cycle for each piece of equipment (e.g., percentage of each hour the equipment typically works per day), and the distance from the noise-sensitive receiver. No topographical or structural shielding was assumed in the modeling of construction noise (i.e., the receivers are modelled with no obstacles to the travel of sound between the construction activity and receiver location, a worst-case assumption). The noise levels from the proposed construction activities are summarized in Table 3.13-5 (Construction Noise Model Results Summary). The complete set of RCNM input and output data for construction noise is provided in Appendix F. As shown, at the nearest residences, noise levels would range from approximately 90 to 95 dBA L_{eq} when construction is taking place at or near the project boundary. More typical construction noise levels (represented by the acoustic center distance noise levels) at the adjacent residences would range from approximately 80 to 85 dBA L_{eq}.

Table 3.13-5
Construction Noise Model Results Summary

Construction Phase	Construction Noise at Representative Receiver Distances (dBA L_{eq})	
	Nearest Construction Work (approximately 20 feet from sensitive receptors)	*Typical Construction Noise Levels (acoustic center, 65 feet from sensitive receptors)*
Site Preparation	93	83
Grading	95	85
Building Construction	90	80
Paving	90	83

Notes: L_{eq} = equivalent continuous sound level

As presented in Table 3.12-3, the highest noise levels are predicted to occur during site preparation activities when noise levels from construction activities would be as high as 95 dBA L_{eq} at the nearest existing residences, approximately 20 feet away. Based upon the acoustic center distance of 65 feet, construction noise would range from approximately 80 to 85 dBA L_{eq}.

The City regulates construction noise by restricting the allowable hours of construction. According to Section 9.44.110 of the Glendora Municipal Code, construction activity is prohibited between the hours of 9:00 PM and 7:00 AM, Monday through Friday, with no work allowed on Saturdays, Sundays, and federal holidays except for interior work unless otherwise permitted by the City Engineer in writing. In addition to noise ordinance requirements, the City may impose other measures, such as erecting noise barriers, to protect adjacent uses from excessive construction noise. While compliance with Chapter 9.44 of the Glendora Municipal Code would avoid construction noise during the most sensitive overnight period (thus avoiding sleep interruption) construction noise levels would be well above ambient levels, and would likely be a source of annoyance for immediately adjacent residences. Consequently, short-term construction noise impacts are considered potentially significant. In addition to compliance with the City's Municipal Code requirements, MM-NOI-1 is required to ensure temporary noise impacts would be less than significant. With implementation of MM-NOI-1, Project impacts from generation of a substantial temporary increase in ambient noise levels in the vicinity of the Project in excess of standards established in the local general plan or noise ordinance would be less than significant.

MM-NOI-1 Prior to the issuance of a grading or building permit, the Property Owner/Developer shall submit construction plans and/or specifications to the City of Glendora Planning Division demonstrating compliance with the following:

- The location and design of a temporary noise barrier between the construction area and the adjacent residences. Given that a retaining wall is proposed between the project access road and the adjoining residential properties, said retaining wall, constructed as part of the proposed Project, shall be erected immediately as the first component of construction, to function as a noise barrier. As necessary, temporary height extensions to the retaining wall to achieve a minimum height of 12 feet from the wall base on the project side to the top of the barrier, shall be added and maintained for the duration of construction. If immediate installation of the boundary retaining wall is not feasible for construction progression, then a temporary barrier shall be installed in the eventual location of the retaining wall.

The temporary noise barrier or temporary height extension of the retaining wall to achieve a 12-foot-high noise control barrier shall be constructed with plywood that is at least ½ inch thick or with another material that creates a noise transmission loss of at least 20 dBA.

- All construction equipment, fixed or mobile, shall be equipped with properly operating and maintained mufflers. Enforcement shall be accomplished by random field inspections by applicant personnel during construction activities, to the satisfaction of the City.
- Construction noise reduction methods such as shutting off idling equipment, maximizing the distance between construction equipment staging areas and adjacent residences, and use of electric air compressors and similar power tools, rather than diesel equipment, shall be used where feasible.
- During construction, stationary construction equipment shall be placed such that emitted noise is directed away from or shielded from sensitive receptors.
- Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow surrounding property owners to contact the job superintendent if necessary. In the event the City of Glendora receives a complaint, appropriate corrective actions shall be implemented and a report of the action provided to the reporting party.

On-Site Traffic Noise Exposure. The General Plan Noise Element recommends a maximum exterior noise exposure level of 60 dBA CNEL for single family residences. While the Noise Element does present traffic noise levels associated with major roadways in Glendora, Palm Drive is not one of the streets for which traffic noise is included. Palm Drive currently provides access to 38 single family residences, this number would increase by 12 as a result of the proposed Project. Using a trip generation rate of 9.42 average daily trips (ADTs) per single family home (ITE 2017), Palm Drive would be anticipated to carry 471 ADT, including the completed Project. At a distance of 6 feet from the edge of the roadway, the traffic noise level from 471 ADT would be 55 dBA CNEL (FHWA TNM). Proposed Lot #14 is the closest proposed lot to Palm Drive, and it would be at a distance further than 6 feet from the edge of Palm Drive. Consequently, traffic noise exposure at the future residential lots within the Project site would be less than 55 dBA CNEL. In addition, traffic noise levels from the internal private streets at existing residential properties adjacent to the Project would in all cases be less than this 55 dBA CNEL. This traffic noise exposure level is well below the recommended maximum of 60 dBA CNEL prescribed in the Noise Element, and therefore on-site traffic noise exposure levels would be less than significant. No mitigation is required.

Off-Site Traffic Noise. The proposed Project would generate traffic along adjacent roadways including Palm Drive, Grand Avenue, and Sierra Madre Avenue. Neither the Noise Element nor Circulation Element of the Glendora General Plan contain traffic volume data for Palm Drive. However, with Palm Drive currently providing access for 38 single family homes, this street should carry approximately 358 ADT under existing conditions. According to the Noise Element, the segment of Grand Avenue south of Sierra Madre currently has a volume of approximately 9,920 ADT; the segment of Sierra Madre west of Live Oak Road currently carries 5,030 ADT. The Project addition of approximately 113 ADT to these roadways would represent an increase ranging from 60% (Palm Drive) to 1% (Grand Avenue). A doubling of ADTs (100% increase) would result in a 3 dBA CNEL increase (Caltrans 2013), which correlates to a just noticeable increase in the traffic noise level. Project-related traffic increases to existing roadway volumes would not approach a 100% increase on any vicinity roadway. Existing plus Project volumes, and buildout volumes, are anticipated to be the same for Palm Avenue, because open space area abuts the project, and future buildout to be served by Palm Avenue above and beyond the

project is not anticipated. According to the Noise Element, buildout year traffic volumes for the segment of Grand Avenue south of Sierra Madre currently are predicted to be approximately 12,440 ADT; the segment of Sierra Madre west of Live Oak Road is predicted to carry 6,290 ADT under buildout conditions. Project trip generation increases on these roadways would represent a range between 1% (Grand Avenue) and 2% (Sierra Madre Avenue). Consequently, the Project's added trips to vicinity roadways would result in noise level increases that would not be noticeable to residents. Project-related traffic noise would therefore be less than significant and no mitigation is required.

b) Would the project result in generation of excessive ground borne vibration or ground borne noise levels?

Less Than Significant Impact. Construction activities that might expose persons to excessive ground-borne vibration or ground-borne noise could cause a potentially significant impact. Ground-borne vibration information related to construction activities has been collected by the California Department of Transportation (Caltrans 2013). The proposed Project uses (i.e., single family residential uses) are not vibration-generating uses, and thus, the following analysis addresses construction vibration impacts only. Ground-borne vibration information related to construction activities has been collected by the California Department of Transportation (Caltrans 2013). The Caltrans maximum vibration level standard is 0.2 inch/second Peak Particle Velocity (PPV) for the prevention of structural damage to typical residential buildings (Caltrans 2013). With regard to the potential for vibration to cause annoyance for residents, the Caltrans vibration standard is 0.1 inch/second PPV for human annoyance. The heavier pieces of construction equipment, such as bulldozers, would generate vibration of approximately 0.089 inch/second PPV or less at a distance of 25 feet (Caltrans 2013). Ground-borne vibration is typically attenuated over short distances. At the distance from the nearest residence to the construction area (approximately 20 feet) and with the anticipated construction equipment, vibration would be approximately 0.095 inch/second PPV at the nearest residence. This vibration level would be below the Caltrans structural damage threshold of 0.2 inch/second PPV for standard construction buildings, as well as below the threshold of 0.1 inch/second PPV for human annoyance. Construction-related vibration impacts would therefore be less than significant. Impacts related to ground-borne vibration from construction and operation of the Project are therefore considered less than significant, and no mitigation is required.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The proposed Project would not expose people residing or working in the Project area to excessive noise levels from aircraft. The nearest airport is Brackett Field Airport, located approximately 6.15 miles southeast of the Project site, while Ontario International Airport is located approximately 15 miles southeast of the Project site (Airnav 2022). The Project site is located outside of the 65 dBA CNEL noise contours of these airports. As such, there would be no impact regarding Project exposure of people residing or working the Project area to excessive noise levels from private or public airports.

3.14 Population and Housing

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) Would the project induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less Than Significant Impact. Buildout of the proposed Project is expected to result in approximately 12 new single-family residences. The average persons per household in the City is 3 residents. However, the residences that would be developed on the Project site are anticipated to have an average of 5 bedrooms. As such, this analysis relies on the conservative assumption that each household would have 4 residents (as opposed to the City-wide average of 3 residents per household). Therefore, the proposed Project is expected to result in approximately 48 additional residents within the City. According to U.S. Census Bureau estimates, the City's population in 2020 was 52,558 people (U.S. Census Bureau 2022). The additional 48 residents anticipated to result from the development of the proposed Project would be approximately 0.1% of the current City population.[11] SCAG projections indicate that the City's population may grow to 55,700 people by 2045, which is approximately 20 years after project buildout (SCAG 2020). As such, it is expected that the City's population will grow by approximately 3,142 residents between the present time and 2040. The proposed Project would contribute to be approximately 1.5% of this anticipated growth.[12] As such, the population growth that would be associated with the proposed Project would fall well within the growth that is anticipated for the City. Due to the minor nature of the population growth that could result from the project (0.1% of the current population) and because this growth falls well within the projected population growth for the City, population growth caused by the Project would not be substantial. Therefore, the Project would have less than significant impacts regarding introducing substantial unplanned population growth in an area, either directly or indirectly.

11 48 additional residents ÷ 52,558 residents = 0.000913 = 0.1%
12 48 additional residents ÷ 3,142 residents = 0.01528 = 1.5%

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. No housing would be displaced or removed by the proposed Project. The existing residence on the Project site would remain in place. Therefore, the Project would not displace housing necessitating the construction of replacement housing elsewhere. No impact would occur.

3.15 Public Services

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

Fire Protection

Less Than Significant Impact. The City is served by the LACFD, which provides both fire protection services and emergency response services. There are three fire stations within the City: Fire Station 85, located at 650 East Gladstone Avenue; Fire Station 86, located at 520 South Amelia Avenue; and Fire Station 151, located at 231 West Mountain View Avenue. Station 151, located approximately 1.1 mile south of the Project site, is the nearest station to the Project site. Station 151 is generally staffed with three captains, three firefighter specialists, nine firefighters/paramedics, and one nurse educator. The station is equipped with one engine. The average response time for the LACFD in the City is 4.38 minutes (City of Glendora 2008). If Fire Station 151 cannot meet the immediate needs of a call for services independently or does not have capability to address the full extent of a larger incident, Fire Stations 85 and 86, and other LACFD facilities, could respond or provide support.

Upon Project buildout, it is expected that approximately 48 additional people could potentially reside at the Project site. The Project site is currently occupied with one single-family house, vacant land, and open space. Therefore, development of the proposed Project would contribute incrementally to the demand for additional fire protection services within the City. Additionally, the Project site is located along the urban-wildland interface. As such, residences developed on the Project site could potentially

be susceptible to wildland fire hazards, as discussed in Section 3.9, Hazards and Hazardous Materials. However, the homes that would be constructed on the Project site would be subject to current LACFD requirements for fire sprinkler systems, fire alarm systems, fire flow, and equipment and firefighter access. California law (Public Resources Code 4291) requires a minimum defensible space of 100 feet around residential homes, which must consist of the 0 to 30-foot firebreak that requires removal of flammable vegetation and the 30- to 70- foot reduced fuel zone (or to the property line, whichever is nearer to the structure). Per Section 21.03.060, California Model Water Efficient Landscape Ordinance, of the City's zoning ordinance, the homes would also be subject to the City's requirements for defensible space, proper fire-safe plant and tree selection, sufficient irrigation, and design features to control erosion and drainage. Compliance with requirements for fire prevention, fire flow, emergency access, and protection from wildland fire hazards would reduce the likelihood of a fire emergency at the Project site, thereby reducing potential demand for fire services.

As illustrated in Figure 2-5, Preliminary Fuel Modification Plan, the LACFD has approved the proposed Project's preliminary fuel modification plan, which includes notes on the relevant Fuel Modification Zones, including the setback zone, irrigated zone, native brush thinning zone, and fire access road zone, as well as required routine maintenance for all zones to aid in ongoing wildfire prevention. Furthermore, the proposed Project plans would be required to undergo plan check review by the LACFD prior to the issuance of building permits for future homes at the site. Any future plantings within the Project site must be in accordance with LACFD's Fuel Modification Guidelines and would require LACFD approval prior to installation. Compliance with these standards would be ensured during the plan check process. For these reasons, the proposed Project would not result in the need for new or physically altered governmental facilities in order to maintain response times for fire protection services, and impacts would be less than significant.

Police Protection

Less Than Significant Impact. Police protection services in the City are provided by the Glendora Police Department. The Glendora Police Department is located at 150 South Glendora Avenue, which is located approximately 1.4 miles from the Project site. As of 2017, the Glendora Police Department had 54 sworn officers (City of Glendora 2022). The officer to resident ratio is approximately 1 officer per 1,000 residents.[13] The City is divided into four policing districts, each of which has an assigned District Commander. The Project site is located within District One (City of Glendora 2022c).

Upon Project buildout, it is expected that approximately 48 additional people could potentially reside at the Project site. The Project site is currently occupied with one single-family house, vacant land, and open space. Therefore, development of the proposed Project would potentially represent an incremental increase in demand for police services within the City. However, the houses that are developed on the Project site would be required to meet all Glendora Police Department requirements as part of construction, including requirements for adequate exterior lighting and defensible space. Furthermore, the population increase expected to result from the proposed Project represents approximately 0.1% of the current population of the City. As such, the Project would result in a negligible increase in Glendora Police Department service population, and the proposed Project would not require expansion of existing police facilities or construction of new police facilities. Therefore, impacts would be less than significant.

13 The U.S. Census Bureau estimates that the population of the City in 2017 is 52,558 residents. The number of officers per 1,000 residents can be calculated as follows: 1,000 × (54 ÷ 52,558) = 1.00274 officers, which approximately equates to 1 officer per 1,000 residents.

Schools

Less Than Significant Impact. Development of the proposed single family residences is anticipated to result in approximately 48 additional residents in the City. According to the California School Board, the average number of students generated per dwelling unit is 0.7 students (California Department of General Services, Office of Public School Construction 2009). Therefore, the proposed Project could result in approximately 8 new students.[14]

The proposed Project would be served by the Glendora Unified School District (GUSD). Students from the residences at the Project site would likely attend La Fetra Elementary School, Sandburg Middle School, and Glendora High School (GUSD 2018). La Fetra Elementary School is located at 547 West Bennett Avenue, less than one mile from the Project site. Sandburg Middle School is located at 835 West Bennett, less than one mile from the Project site. Glendora High School is located at 1600 East Foothill Boulevard, approximately 2.4 miles from the Project site. The addition of 8 students to the GUSD would be minor, and the students would likely be spread across the three schools (elementary, middle, and high school). As such, the addition of students to each school would be minor to negligible (approximately 2–3 students per school). While the proposed Project may involve a slight increase in student enrollment within GUSD, the increase in students would be minor and would not necessitate the construction or expansion of school facilities. Additionally, the district requires a development impact fee for residential construction, as allowed under Education Code Section 17620. This fee accounts for new students generated by residential development. For these reasons, impacts to schools would be less than significant.

Parks

Less Than Significant Impact. The Project site is served by the City of Glendora Community Services Department and its parks and recreational facilities. As stated in the General Plan, the City contains 46.8 acres of passive and active recreation parks, 24 acres of special use parks, 12.7 acres of join use facilities, and 938.5 acres of wilderness parks, totaling 1,022 acres of recreational area (City of Glendora 2008). The future residents of the proposed Project could use nearby park facilities. Nearby facilities include the Sandburg Middle School Park (located 0.6 miles south of the Project site) and Finkbiner Park (located 1.2 miles southeast of the Project site). Additionally, the ANF is 0.31 mile north of the Project site, and roads and trails into the ANF can be accessed from other locations in the City and in nearby communities. Project buildout is expected to result in the addition of 12 housing units to the Project site and is expected to result in a population increase in the City of approximately 48 people (see Section 3.14, Population and Housing). The residents of the Project site could use the nearby park facilities. As such, the proposed Project could increase the use of park facilities, especially those located within the vicinity of the Project site. However, the population increase expected to result from the proposed Project represents approximately 0.1% of the current population of the City and falls well within regional growth projections (see Section 3.14, Population and Housing for further details). As such, the proposed Project is not expected to place substantial demands on the City's park facilities, resulting in the need for new or expanded facilities. Additionally, the proposed Project would incorporate private outdoor areas for use on site (e.g., backyards, front yards, and side yards), which could reduce demands on nearby parks. Furthermore, the Project Applicant would be required to pay development fees that would help support recreational facilities in the City. For these reasons, impacts to park facilities would be less than significant.

14 12 dwelling units × 0.7 students per dwelling unit = 8.4 students

Other Public Facilities

Less Than Significant Impact. Other public facilities and services provided within the City include library services and City administrative services. Library services are provided by the Glendora Public Library, located at 140 South Glendora Avenue, which is located approximately 1.3 miles from the Project site. The population increase expected to result from the proposed Project represents approximately 0.1% of the current population of the City. This would result in a negligible increase in the service population for the Glendora Public Library and City administration. This minor increase in population is not anticipated to result in the need for additional library facilities or City administrative facilities. The proposed Project would not require expansion of existing library, City administration, or other public service facilities or construction of new facilities. Therefore, impacts to other public facilities would be less than significant.

3.16 Recreation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less Than Significant Impact. The Project site is served by the City of Glendora Community Services Department and its parks and recreational facilities. As stated in the General Plan, the City contains 46.8 acres of passive and active recreation parks, 24 acres of special use parks, 12.7 acres of join use facilities, and 938.5 acres of wilderness parks, totaling 1,022 acres of recreational area (City of Glendora 2008). The future residents of the proposed Project could use nearby park facilities. Nearby facilities include the Sandburg Middle School Park (located 0.6 miles south of the Project site) and Finkbiner Park (located 1.2 miles southeast of the Project site). Additionally, the ANF is 0.31 mile north of the Project site, and roads and trails into the ANF can be accessed from other locations in the City and in nearby communities.

The proposed Project would result in a small increase in housing units and population and would not place substantial added demands on the City's recreational facilities or result in increased physical deterioration of any facilities. The population increase expected to result from the proposed Project represents approximately 0.1% of the current population of the City and falls well within regional growth projections (see Section 3.14, Population and Housing). As such, the proposed Project is not expected to increase the use of recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. Additionally, the Project Applicant would be subject to a park development

fee. The purpose of this fee is to provide any needed improvements to the City's park facilities as a result of developing new residential units. Additionally, the proposed Project would incorporate private outdoor areas for use on site (e.g., backyards, front yards, and side yards), which would reduce demands on nearby parks. For these reasons, the Project would result in less than significant impacts regarding the increase of existing neighborhood and regional parks such that substantial physical deterioration of the facility would occur or be accelerated, and no mitigation is required.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?

Less Than Significant Impact. The proposed Project would include future development of residential backyards, front yards, and side yards in association with the potential new residential lots. The Project would not include the construction of recreational facilities or require the construction or expansion of recreational facilities, as existing surrounding recreational facilities in the City would adequately accommodate the Project's anticipated population of 48 persons. Construction of the residences and their associated yard spaces has been analyzed for environmental impacts as part of the proposed Project. As described and substantiated throughout this IS/MND, the environmental impacts of the proposed Project, including those of the residential yard spaces, would not create a significant effect on the environment. Furthermore, as described under Sections 3.14 and 3.15, the proposed Project would not be associated with a substantial increase in population, such that construction or expansion of recreational facilities would be required. For these reasons, impacts to recreational facilities would be less than significant.

3.17 Transportation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☒	☐
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☒	☐	☐
d) Result in inadequate emergency access?	☐	☒	☐	☐

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?

Less Than Significant Impact. Measures of effectiveness for the performance of the circulation system in the City are established by the City for intersections. The City has established a level of service (LOS) standard of LOS D or better on roads and intersections. The criteria used for determining whether a proposed Project would have a significant impact is based on a project's effects to an intersection's

volume-to-capacity (v/c) ratio and resulting reductions in LOS. The City uses thresholds from the Los Angeles County Traffic Impact Analysis Report Guidelines to determine when an increase in v/c ratio is considered to be a significant impact on the circulation system. Measures of effectiveness for selected intersections and freeway segments are also established in the Los Angeles County Metropolitan Transportation Authority's 2010 Congestion Management Program. The I-210 freeway and part of the I-210/SR-57 interchange are the only Congestion Management Program routes in the City (Metro 2010). Policies for non-motorized travel are addressed in the City's General Plan Circulation Element; the project's consistency with these policies are addressed in Section 2.16(f) below.

Construction. Construction of the proposed Project would generate additional, albeit minimal, vehicle trips in the project vicinity during the temporary construction period. During the most intensive phase of construction, 8 roundtrip truck trips would occur per day and 20 roundtrip worker vehicle trips would occur per day (see Appendix A for CalEEMod Assumptions). Most of these trips would occur outside of the AM and PM peak traffic hours. Increases in traffic in the project area on the order of 20 worker trips and 8 truck trips per day during the most intensive construction phase would be minor and temporary and would not significantly change roadway volumes. As such, construction of the proposed Project would not cause an increase in traffic that is substantial in relation to the context of the region, vicinity, and local roadways that provide access to the site. For the reasons described above, temporary increases in vehicle trips during project construction would be minimal, and impacts from the project related to conflicts with applicable programs, plans, ordinances or policies addressing the circulation system would be less than significant during construction.

Operation. Upon project buildout, it is anticipated that 12 new single-family homes would be present on the Project site and would be occupied with residents. Anticipated trip generation for project buildout is shown in Table 3.16-1. As shown, project operation would result in a total of 113 daily trips, 9 AM peak hour trips, and 12 PM peak hour trips. The relatively low vehicle trips generated by the project would not have a measurable impact to the surrounding street network and would not be substantial enough to cause intersection LOS to decline or alter the volume-to-capacity ratios of nearby intersections. For these reasons, the proposed Project is not expected to conflict with applicable plans, ordinances, or policies establishing measures of effectiveness for the long-term operational performance of the circulation system. Impacts would be less than significant.

Table 3.17-1
Trip Generation

Land Use	Units	Daily Trips	AM Peak Hour Volumes			PM Peak Hour Volumes		
			In	*Out*	*Total*	*In*	*Out*	*Total*
Single-Family Detached Housing	12	113	2	7	9	7	4	12

Notes: Numbers may not total due to rounding.
Source: Institute of Transportation Engineers 2017

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

No Impact. CEQA Guidelines Section 15064.3, subdivision (b), focuses on adopted criteria (VMT) adopted pursuant to SB 743 for determining the significance of transportation impacts. Pursuant to SB 743, the focus of transportation analysis changes from vehicle delay to VMT. The related updates to the CEQA Guidelines required under SB 743 were approved on December 28, 2018. As stated in CEQA Guidelines Section 15064.3(c), the provisions of Section 15064.3 shall apply prospectively. A

lead agency may elect to be governed by the provision of Section 15064.3 immediately. The provisions were required to be implemented statewide by July 1, 2020, and the City has adopted VMT significance thresholds. According to the adopted City VMT Screening and Calculator (Appendix I), due to the small size of the project, it is below the threshold for VMT Screening. Therefore, the proposed Project would not conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b) and no impact would occur.

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Less Than Significant With Mitigation.

Construction. Construction of the proposed Project would require a narrowed road section along Grand Avenue, south of Palm Drive, during multiple truck hauling operations for such work as clearing, rough grading, concrete construction, and street grading. Therefore, the proposed Project could result in temporary lane closures along Grand Avenue as a result of construction and would result in an increased use of existing roadways through construction activities such as truck hauling. Therefore, construction of the proposed Project could result in increased roadway hazards due to a geometric design feature or incompatible use. Thus, impacts would be potentially significant and mitigation measure MM-TRAF-1 would be required. With incorporation of MM-TRAF-1, impacts associated with hazards due to a geometric design features or incompatible uses would be less than significant.

Operations. The proposed Project would establish new Private Streets within the Project site, which would have an entrance along the existing Palm Drive, just west of Grand Avenue. As such, the proposed Project would involve a new vehicular ingress/egress along Palm Drive and would also involve internal circulation patterns associated with the Private Streets and the individual driveways that would connect to the Private Streets.

The proposed Project could increase safety hazards if any new roadways were to cause line-of-sight obstructions, substantial queuing, and/or unsafe conditions on the Private Streets or on surrounding residential streets. As such, in July 2020, the City prepared an intersection safety assessment for the Project related to the potential increase in Project related roadway congestion near to and surrounding the intersection of Palm Drive and Grand Avenue (the intersection), where the ingress/egress point to the Private Street would be located (see Appendix H, Intersection Safety Assessment, for further details and exhibits). According to the City's Site Distance Assessment, the recommended stopping sight distance for 25 miles per hour (mph) (the speed limit within the vicinity of the intersection) is 150 feet. The intersection approach sight distance for both northbound Grand Avenue and eastbound Palm Drive were determined as a result of the City assessment to meet the applicable sight distance requirements. While eastbound Palm Drive onto southbound Grand Avenue has an existing tree partially obscuring the sight lines at the stop bar, as a vehicle creeps forward, sight distance is clear. In addition, while there have been two collisions within the vicinity of the Grand Avenue and Palm Drive intersection between 2018 and 2020, only one collision occurred at the intersection.

Upon completion of the Safety assessment, the City provided recommendations to ensure that the Project would not result in any unsafe conditions on the Private Streets or on the surrounding residential communities. Without implementation of these recommendations, operational Project associated impacts would be potentially significant. As such, the City's recommendations are incorporated into MM-TRAF-2 and include the following: relocation of the existing stop sign and speed limit sign, construction of a 50-foot red curb on the South side of Palm Drive, curb ramp improvements, an upgrade to the existing street light pole on the northwest corner of the intersection and repainting of the existing of stop legend and stop bar and existing red curb along the west side of Grand Avenue.

The entrance to the proposed Private Streets would be gated, which would preclude ingress/egress except for residents and visitors who need to access the development. The Private Streets, the entrance to the Private Streets, and all driveways for the individual homes would be designed and constructed in accordance with applicable City intersection, roadway, and driveway design standards. In addition, the project would also be subject to applicable fire code requirements for access and turning radii. As shown on Figure 2-4a Tentative Tract Map No. 72413, the proposed access road for the flood control facilities also provides for adequate fire truck access and turn-around. Both the City and the LACFD have a plan check review process. During this process, the City and the LACFD would review the details of the private drive and any other internal circulation features to ensure safety, adequate fire access, adequate site distances, etc. For these reasons, and with the incorporation of MM-TRAF-1 and MM-TRAF-2, impacts associated with roadway hazards due to geometric design features or incompatible uses would be less than significant with mitigation.

MM-TRAF-1: Prior to the start of any Project-related construction, the Applicant shall develop and implement a Project-specific Traffic Control Plan (TCP). The TCP shall be stamped and signed by a licensed Traffic Engineer or Civil Engineer in the State of California. The TCP shall be prepared in accordance with applicable regulations and standards, including the California Manual on Uniform Traffic Control Devices (CA MUTCD), and approved by all regulatory agencies having jurisdiction over the work locations shown in the TCP, including the City of Glendora.

MM-TRAF-2: Prior to completion of any additional habitable structures on any Project site, the Applicant shall complete the following improvements to the Grand Avenue and Palm Drive intersection and immediate vicinity, as provided by the City of Glendora in the 2020 Grand Avenue/Palm Drive Intersection Safety Assessment:

(1) Relocate existing stop sign and street name sign onto a new taller post. The bottom section of the stop sign is currently 5.5 feet above sidewalk grade. Per the California Manual on Uniform Traffic Control Devices, the vertical clearance of all signs should be 7 feet minimum.

(2) Repaint red curb on the west side of Grand Avenue where the street narrows to 18 feet in width.

(3) Upgrade the existing wood pole streetlight at the intersection to LED.

(4) Relocate 25 mph speed limit sign onto the existing streetlight. Currently, the speed limit sign is obscured behind the street light pole. Remove signpost.

(5) Ensure sidewalk fronting the development are cleared from trees/debris. Include curb ramps on the north and south sides of the intersection.

(6) Add a 50-foot red curb on the south side of Palm Drive starting at

(7) Repaint stop legend and stop bar.

d) Would the project result in inadequate emergency access?

Less Than Significant With Mitigation. Emergency vehicle access to the Project site would be provided from Palm Drive, via the proposed Private Streets. As described under Section 3.17(c), the internal circulation design would be required to allow for adequate turning radii for fire trucks, which are larger than emergency/ambulance vehicles. Further, required implementation of MM-TRAF-1 and MM-TRAF-2 would ensure that any Project associated impacts that could potentially occur within and near to the intersection of Grand Avenue and Palm Drive related to emergency access and other transportation

related hazards would be less than significant (see Threshold 3.17[c]). While the private drive would be gated, the gate would be equipped with a Knox Box to facilitate rapid entry for emergency personnel. The proposed design plans would be reviewed by the City and the LACFD for compliance with accessibility requirements and adequacy of emergency vehicle access. For these reasons, impacts would be less than significant with mitigation incorporated.

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?	☐	☒	☐	☐

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k)?

Less Than Significant Impact. As described under Section 3.5 of this document, a CHRIS records search was conducted for the proposed Project area of potential effects (APE). No previously recorded tribal cultural resources (TCRs) listed in the CRHR or a local register were identified within the proposed Project APE. Further, no TCRs have been identified by California Native American tribes as part of the City's AB 52 notification and consultation process (see Section 3.17(b)(ii) below for a description of this process).

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Less Than Significant with Mitigation. There are no resources in the proposed Project APE that have been determined by the City to be significant pursuant to the criteria set forth in Public Resources Code Section 5024.1. Further, no TCRs were identified in the proposed Project APE by the Native American tribes as part of the City's AB 52 notification and consultation process.

In an effort to proactively reach out to tribes with a cultural affiliation to the proposed Project APE, the City sent notification of the proposed Project to California Native American tribal representatives identified by the NAHC as being traditionally or culturally affiliated with the geographic area July 18, 2018. Of the six affiliated or interested tribes that were notified by the City, including the Gabrieleño Band of Mission Indians - Kizh Nation, Gabrieleño/Tongva San Gabriel Band of Mission Indians, Gabrieleño/Tongva Nation, Gabrieleño Tongva Indians of California Tribal Council, Gabrieleño-Tongva Tribe, and San Fernando Band of Mission Indian, only the Gabrieleño Band of Mission Indians – Kizh Nation (Kizh Nation) responded. The Kizh Nation responded via email on October 30, 2018 stating that the proposed Project APE is located within and around a sacred village, sacred water courses, and major traditional trade routes. This email expressed concern regarding the high potential to impact TCRs and included three computer screenshots of historic map reconstructions and a letter containing requested mitigation language, which includes, in summary:

- Retention of a Native American Monitor/Consultant
- Cease construction activities in the immediate vicinity of and unanticipated discovery of tribal cultural and archaeological resources
- Preservation in place (i.e. avoidance) of unique archaeological resources as preferred per Public Resources Code Sections 21083.2(b) and if not feasible then archaeological data recovery
- Procedures for the unanticipated discovery of human remains and associated funerary objects

The City responded to the Kizh Nation, requesting clarification regarding some ambiguities in the historic map screenshots. The City request was dated February 14, 2019 and no response was received from the Kizh Nation.

The AB 52 government-to-government consultations initiated by the City have not resulted in the identification of a geographically defined TCR within or near the proposed Project APE. As no specific information regarding TCRs that could be impacted by the proposed Project has been received by the City, the City has determined that no TCRs are present in the proposed Project APE. However, there is still a potential for unknown subsurface TCRs to be impacted by the proposed Project, which could result in a potentially significant impact. Therefore, protocols for the inadvertent discovery of TCRs are included as MM-TCR-1 through MM-TCR-8, which when implemented, would reduce the potentially significant impact to a less than significant impact with mitigation incorporated.

MM-TCR-1 **Retain a Native American Monitor/Consultant.** The Project Applicant shall be required to retain and compensate for the services of a Tribal monitor/consultant who is both approved by the Gabrieleño Band of Mission Indians-Kizh Nation Tribal Government and is listed under the NAHC's Tribal Contact list for the area of the project location. This list is provided by the NAHC.

The monitor/consultant will only be present on-site during the construction phases that involve ground disturbing activities. Ground disturbing activities are defined by the Gabrieleño Band of Mission Indians-Kizh Nation as activities that may include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, tree removals, boring, grading, excavation, drilling, and trenching, within the project area. The Tribal Monitor/consultant will complete daily monitoring logs that will provide descriptions of the day's activities, including construction activities, locations, soil, and any cultural materials identified. The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor/consultant have indicated that the site has a low potential for impacting Tribal Cultural Resources.

MM-TRC-2 **Unanticipated Discovery of Tribal Cultural and Archaeological Resources.** Upon discovery of any archaeological resources, cease construction activities in the immediate vicinity of the find until the find can be assessed. All archaeological resources unearthed by project construction activities shall be evaluated by the qualified archaeologist and tribal monitor/consultant approved by the Gabrieleño Band of Mission Indians-Kizh Nation. If the resources are Native American in origin, the Gabrieleño Band of Mission Indians-Kizh Nation shall coordinate with the landowner regarding treatment and curation of these resources. Typically, the Tribe will request reburial or preservation for educational purposes. Work may continue on other parts of the project while evaluation and, if necessary, mitigation takes place (CEQA Guidelines Section15064.5 [f]). If a resource is determined by the qualified archaeologist to constitute a "historical resource" or "unique archaeological resource", time allotment and funding sufficient to allow for implementation of avoidance measures, or appropriate mitigation, must be available. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and unique archaeological resources.

MM-TRC-3 **Public Resources Code Sections 21083.2(b) for unique archaeological resources**. Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, they shall be offered to a local school or historical society in the area for educational purposes.

MM-TCR-4 **Unanticipated Discovery of Human Remains and Associated Funerary Objects.** Native American human remains are defined in PRC 5097.98 (d)(1) as an inhumation or cremation, and in any state of decomposition or skeletal completeness. Funerary objects, called associated grave goods in PRC 5097.98, are also to be treated according to this statute. Health and Safety Code 7050.5 dictates that any discoveries of human skeletal material shall be

immediately reported to the County Coroner and excavation halted until the coroner has determined the nature of the remains. If the coroner recognizes the human remains to be those of a Native American or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the Native American Heritage Commission (NAHC) and PRC 5097.98 shall be followed.

MM-TCR-5 **Resource Assessment & Continuation of Work Protocol**. Upon discovery of human remains and associated funerary objects, the tribal and/or archaeological monitor/consultant(s) will immediately divert work at a minimum of 150 feet and place an exclusion zone around the burial. The monitor/consultant(s) will then notify the Tribe, the qualified lead archaeologist, and the construction manager who will call the coroner. Work will continue to be diverted while the coroner determines whether the remains are Native American. The discovery is to be kept confidential and secure to prevent any further disturbance. If the finds are determined to be Native American, the coroner will notify the NAHC as mandated by state law who will then appoint a Most Likely Descendant (MLD).

MM-TCR-6 **Kizh-Gabrieleño Procedures for Burials and Funerary Remains**. If the Gabrieleño Band of Mission Indians – Kizh Nation is designated MLD, the following treatment measures shall be implemented. To the Tribe, the term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the burial of funerary objects with the deceased, and the ceremonial burning of human remains. These remains are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects.

MM-TCR-7 **Treatment Measures.** Prior to the continuation of ground disturbing activities, the landowner shall arrange a designated site location within the footprint of the Project for the respectful reburial of the human remains and/or ceremonial objects. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24-hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the Project and keeping the remains in situ and protected. If the Project cannot be diverted, it may be determined that burials will be removed. The Tribe will work closely with the qualified archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe for data recovery purposes. Cremations will either be removed in bulk or by means as necessary to ensure complete recovery of all material. If the discovery of human remains includes four or more burials, the location is considered a cemetery and a separate treatment plan shall be

created. Once complete, a final report of all activities shall be submitted to the Tribe and the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive diagnostics on human remains.

Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects, and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within 6 months of recovery. The site of reburial/repatriation shall be on the Project site but at a location agreed upon between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.

MM-TCR-8 **Professional Standards**. Archaeological and Native American monitoring and excavation during construction projects will be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of human remains and associated funerary objects shall be taken. Principal personnel must meet the Secretary of Interior standards for archaeology and have a minimum of 10 years of experience as a principal investigator working with Native American archaeological sites in Southern California. The Qualified Archaeologist shall ensure that all other personnel are appropriately trained and qualified.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☒	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

a) Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment, or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant With Mitigation.

Water. A Water System Improvements Technical Memorandum was prepared by Stetson Engineers, Inc. for the proposed Project and is included in Appendix G of this MND. The analysis assumes the development of 12 new residential single-family homes and one existing home with an expected home area of up to 6,000 square feet each. The pad elevations of the proposed lots in the new development range from 950 feet to 1090 feet above mean sea level (amsl). In the vicinity of the new development, the City has two existing pressure zones (Zone 5 and Zone 11) that serve the existing community.

The City's existing Zone 5 covers approximately 87 acres north of Sierra Madre Avenue. Zone 5 operates off of the Hook Canyon Tanks located at an elevation of 1,174.5 feet amsl with a high water elevation of 1,196.5 feet amsl. Zone 11 is located along the northern boundary of Zone 5 at the end of Silent Ranch Drive and covers approximately 3 acres of single family estate land use that require higher pressures than can be supplied by Zone 5. Zone 11 is served by a hydro-pneumatic system that is over 30 years old.

Water from Zone 5 is pumped using two booster pumps (one duty pump and one standby pump) at the Silent Ranch Pump Station to the existing hydro-pneumatic tank to serve Zone 11. The hydro-pneumatic tank is located at an elevation of approximately 1,115 feet amsl. Each booster pump has a capacity of 180 gallons per minute (gpm) and the hydro-pneumatic tank is set to provide water system pressures between 65 and 90 pounds per square inch (psi).

Domestic Supply. The City's 2015 Urban Water Management Plan (UWMP) details the 2015 Interim Urban Water Use Target of 245 gallons per capita per day (GPCD). This is considered the average domestic water use which is multiplied by a factor of 1.76 to obtain the maximum day demand and the maximum day demand is multiplied by a factor of 1.41 to obtain the peak hour demand. Based on these factors and assuming on average that 4 people live in each home, the calculated peak hour demand for a home is estimated to be 100 gallons per hour (=245 x 4 x 1.76 x 1.41 / 24). In addition, the City's goal is to supply homes with a minimum pressure of 50 psi at the street meter.

Fire Flows. With regards to fire flows, the 2016 California Building Code (CBC) requires a minimum fire flow residual pressure of 20 psi and fire flow rate of 2,000 gpm for 2 hours (assuming flammable construction materials, i.e. wood framed homes – CBC B.102 and Table B105.1(2)). In addition, since the new development is in a Very High Fire Hazard Severity Zone, an additional fire flow of 500 gpm is required (per LA County Code 20.16.060). Therefore, a total fire flow of 2,500 gpm is necessary. In order to ensure that the fire flow requirements and locations of fire hydrants are acceptable to the Los Angeles County Fire Department, MM UTL-1 is required.

Proposed Water Supply Configuration. Water supply for the new development is largely dictated by the topography and elevations of each proposed new home. Zone 5 is able to provide static pressures at or above the City's minimum house pressure (50 psi) for all the proposed new lots except lots 1, 2, and 3. However, Zone 11 is able to provide over 50 psi to lots 1, 2, and 3. Depending on the configuration of existing Zone 11 piping, it is anticipated that a 1.5-inch diameter pipe will be necessary to convey the domestic water supply for Zone 11 to Lots 1, 2, and 3.

Zone 11 does not have the flow capacity to meet the required fire flows. However, Zone 5 has sufficient flow capacity and the Hook Canyon reservoirs have sufficient storage capacity to provide the volume of fire flow required (i.e. 300,000 gal = 2,500 gpm x 120 min). Based on the hydraulic modeling, it was determined that a 10-inch diameter pipeline looped system feeding the new development from the existing 10-inch pipeline in Palm Drive and from the existing 12-inch pipeline adjacent to the existing hydro pneumatic tank would be able to provide maximum day demand and 2,500 gpm fire flow at 39 psi at the top of the cul-de- sac at the Project site. The proposed 10-inch diameter pipeline would have sufficient pressure to also serve the domestic water demands of lots 5 through 14. The looped piping configuration also provides good circulation which promotes good water quality through the new development.

Figure 3.19-1, Proposed Water Pipeline System, depicts a proposed alignment for the new water infrastructure, including the required off-site connection to the existing hydro-pneumatic system. While the proposed 10-inch diameter pipeline would not provide the desired 50 psi for domestic water service to lots 1, 2, and 3, the existing hydro-pneumatic tank system can provide the desired pressure to lots 1, 2, and 3. However, the system is over 30 years old and should be replaced to provide reliable domestic water service to the existing homes and the proposed new homes on lots 1, 2 and 3. The replacement of the hydro-pneumatic tank system would occur separate of the proposed Project. In order to ensure adequate water supply to lots 1, 2, and 3. The City will impose a Condition of Approval on the Tentative Tract Map that these lots, which would be served by the hydro-pneumatic tank system, cannot be occupied prior to completion of this City-sponsored infrastructure improvement. Further, the Project Applicant would be required to provide water rights to serve the proposed Project. Currently, water right fees are approximately $14,000 per acre foot of water (City of Glendora 2019). Additionally, the proposed alignment would require coordination between the City and the Project Applicant to provide easements for the new off-site water supply piping.,

Therefore MM-UTL-1 is require to ensure adequate domestic water services for lots 1, 2, and 3. In summary, the Water System Improvements Technical Memorandum concluded: (1) adequate flow and pressure for domestic water supply for lots 5 through 14 can be supplied from Zone 5; (2) adequate flow and pressure for domestic water supply for lots 1, 2, and 3 can be supplied from Zone 11; and (3) adequate flow and pressure for fire flows for all lots in Tract 72413 can be supplied from Zone 5 to new fire hydrants. With incorporation of MM-UTL-2, potential impacts related to the construction of new water system infrastructure would be less than significant.

MM-UTL-1 Prior to the issuance of an occupancy permit, the Project Applicant shall provide the City with payment of the Project's fair-share contribution to the replacement of the Zone 11 hydro-pneumatic system (pumps, tank, and controls) to provide a reliable water delivery system for Zone 11 homes. The replacement facilities shall be fully operational and all required access easements for the construction and long-term maintenance of the off-site water lines shall be in place prior to the occupancy of the Lots 2 and 3.

MM-UTL-2 Prior to the issuance of a grading permit, the Project Applicant shall provide the City with documentation that confirms the review and approval of the Project's fire flow requirements and the locations of new fire hydrants by Los Angeles County Fire Department.

Sewer. A Sanitary Sewer Service Memorandum was prepared by Giron Engineers, Inc. for the proposed Project and is included in Appendix G of this MND. In addition, a Will Serve Letter provided by the LACSD was issued for the project in March 2018 (see Appendix G). Sewage would be delivered into the City's sewer collection system, which is operated and maintained by the City's Public Works Department. The LACSD manages, operates, and maintains the larger sewer trunk lines into which the City's collection system feeds. Wastewater from the Project site would be treated at either the San Jose Creek Water Reclamation Plant (WRP) or the Whittier Narrows WRP.

Sewer lines in the City convey wastewater to the LACSD Baseline Trunk Sewer Section 3, located in Grand Avenue south of Whitcomb Avenue. This 15-inch diameter trunk line has a capacity of 2.9 million gallons per day (mgd) and conveyed a peak flow of 0.4 mgd when last measured in 2015 (LACSD 2018). The proposed Project is anticipated to generate approximately 3,120 gallons of wastewater per day, based on LACSD's average wastewater generation factors (LACSD 2018). As a point of comparison, the San Jose Creek Water Reclamation Plant has a capacity of 100 mgd and currently processes an average flow of 64.1 mgd (LACSD 2018). As such, the San Jose Creek WRP has a remaining capacity of approximately 35.9 mgd. The proposed Project's anticipated wastewater generation would be 0.009% of the San Jose Creek WRP's remaining capacity. The Whittier Narrows WRP has a capacity of 15 mgd and currently produces an average recycled water flow of 7.2 mgd (LACSD 2018). As such, the Whittier Narrows Water Reclamation Plant has a remaining capacity of approximately 7.8 mgd. The proposed Project's anticipated wastewater generation would be 0.04% of the Whittier Narrows WRP's remaining capacity.

The LACSD charges a connection fee for increasing the strength or quantity of wastewater discharged from connected facilities. The connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the sewage system to accommodate the Project. As such, the anticipated wastewater generation from the proposed Project would be minor and would be accommodated within the wastewater treatment plants that serve the project area. As such, the proposed Project would not result in the construction or expansion of wastewater treatment facilities.

Regarding sewer infrastructure, the proposed Project would construct an 8-inch sewer line beneath the Private Street to serve the new residential lots, which would be owned by the City and maintained by the City's Consolidated Sewer Maintenance District. The wastewater flow originating from the proposed lots would discharge into an 8-inch existing local sewer line in Palm Drive for conveyance beneath Grand Avenue to the LACSD Baseline Trunk Sewer. The proposed Project's lot 1 has an existing home, which is connected to the local sewer line in Silent Ranch Drive. In 2015, an approved Sewer Capacity Study was prepared for Tract No. 70622, which is located on the west side of Grand Avenue just south of Sierra Madre Avenue (about 800 ft. south of the proposed development). The sewer line analyzed in that study is the same local line that the proposed Project would connect to. Flow tests for that study were conducted at Grand Avenue and Richardson Lane and it concluded that the post-development Q_{peak} flow of the line was 0.48 cfs, with an available capacity of 1.93 cfs. Based upon the 2015 Sewer Capacity Study, the local line in Grand Avenue is currently flowing at about 25% of peak flow capacity (half-full). The addition of 12 new homes would increase the flows within the existing system to 9,750 gallons per day (or 0.02 cfs), resulting in a total of 0.50 cfs post-development Q_{peak} flow of the line. Therefore, the capacity of the sewer line in the post-Project condition would be approximately 26% of the capacity of the pipe. Per City and County sewer design and capacity requirements, the sewer pipe is considered at full capacity when it is at 50% capacity. Therefore, potential impacts related to the construction of a new sewer system infrastructure would be less than significant.

Stormwater. As previously described in Section 3.10(c), the overall outflow of stormwater from the Project site would be reduced after implementation of the drainage improvements (i.e. the volume of runoff leaving the Project site is expected to be reduced in quantity relative to existing conditions). As previously shown in Figure 3.10-2, Post-Development Drainage Conditions, flows in the storm drain would be split with a portion conveyed into the public storm drain system. Specifically, the storm drain design would divert the $Q_{allowable}$ = 89.6 cfs burned, debulked flow to the public storm drain during the 50-year storm (Capital Flood). The other off-site flows would be conveyed along the historic drainage path by means of a flow return structure. All of the on site flows would be conveyed by the proposed surface streets along the historical path. Under proposed conditions, the overall outflow from the site is reduced, and a large portion (near but less than the $Q_{allowable}$ = 89.6 cfs) would be conveyed into the storm drainage system. The split of the storm drain flow into the main storm drain system flow and flow to the return flow structure would be accomplished utilizing different pipe sizes implemented

within a manhole to be located near the property line at Palm Drive. Storm drain inflows of 145.1 cfs would enter the manhole via 36-inch storm drain, and 54.9 cfs would exit the manhole through the parkway drain, and 89.6 cfs would exit the manhole to the public storm drain. The parkway drain allows for overland flows via the existing Grand Avenue valley gutter system, as in the current condition. The post-development conditions are shown in Tables 3.10-2 and 3.10-3 in Section 3.10(c). Table 3.10-2 shows that the post-development flows would not exceed the existing condition flows during either the Urban Flood or Capital Flood conditions. Table 3.10-3 shows that the Q50 with burned factor of 176 cfs in the pre-development existing condition is not exceeded in the post-development "ultimate condition", which results in 174 cfs.

With incorporation of the proposed storm drain system, including the three proposed flood control facilities, the proposed Project would not substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site, would not exceed the capacity of the storm drain system. Therefore, potential impacts related to the construction of a new storm drain system infrastructure would be less than significant.

Electricity. Electrical services are provided to the site by SCE. SCE uses a mix of fossil fuel and renewable energy resources to supply electricity to Southern California. SCE services include all required electrical hookups. SCE maintains an easement on the Project site and provides electricity to the property. Near the location of the proposed Private Street, an existing SCE power pole would need to be relocated to allow for the roadway construction and easement.

Natural Gas. The Southern California Gas Company provides gas service to the City of Glendora. The serves 18 million people through 5 million gas meters in more than 530 communities. The Southern California Gas Company maintains an easement on the Project site near the corner of Palm Avenue and Grand Avenue (City of Glendora 2008).

Communications Services. Communications services including line and wireless telephone and internet services are available to the Project site through numerous private providers.

For all utilities, separate utility meters would be required for each lot, including Lot 4, which would include common area utilities, such as electricity, telephone, and water for the private streets.

Infrastructure is available to serve the proposed Project with the required improvement discussed above related to relocation of an electrical pole. Construction of utilities for the proposed Project are considered in the impact analyses throughout this IS/MND, and no impacts beyond those discussed in this document would result from construction of utilities to serve the Project site. The proposed Project would not require or result in the relocation or construction of new or expanded electric power, natural gas, or telecommunications facilities, that could cause significant environmental effects, and no mitigation is required.

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Less Than Significant Impact. As previously described in Section 3.10(c), the proposed Project is consistent with the General Plan and does not require a General Plan Amendment; therefore, the Project would be consistent with the City's growth projections anticipated in local and regional planning documents, including the City's 2020 Urban Water Management Plan (UWMP) dated June 2021. As stated in the UWMP, the projected populations used in the UWMP for the City's service area were based on projections obtained from SCAG. The SCAG data incorporates demographic trends, existing land use, general plan land use policies, and input and projections from the Department of Finance and the U.S. Census Bureau and is determined in coordination with local jurisdictions/municipalities, including the City of Glendora.

The proposed Project's water demand is anticipated to be 3,492 gallons of water per day, which would equate to 3.9 acre-feet per year. The volume of water supplied in 2020 within the City of Glendora totaled 9,898 acre feet. In 2025, the City's projected water supplies are estimated to be 11,090 acre feet and in 2030, and 11,211 acre-feet in 2030 (City of Glendora 2021). The proposed Project's water demand would be approximately 0.035% of the supplies that are expected to be available when the proposed Project is operational. The proposed Project's anticipated annual water consumption would be nominal relative to the supplies that are currently available and that are projected to be available after Project buildout, and the increased demand was previously considered and accounted for during the preparation of the UWMP. According to the UWMP, the City does not experience water supply constraints or deficiencies and projects having adequate supply through the planning year 2045. The proposed Project would not include any wells that would directly deplete groundwater supplies, and the City's UWMP anticipates adequate supply through 2045. Given the nominal percentage of overall annual water consumption attributable to the proposed Project, the proposed Project would have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry, and multiple dry years. Impacts would be less than significant and no mitigation is required.

c) Would the project result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. As described above, the proposed Project would construct adequate infrastructure to convey sewer from the proposed residential properties to the LACSD treatment facilities. The service providers are required to treat wastewater in accordance with federal, state, and local regulations. For example, sewage would be treated in accordance with applicable waste discharge requirements prior to being discharged. Both the City and LACSD are subject to compliance with State Water Resources Control Board Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, as amended. State Water Resources Control Board Order No. 2006-0003-DWQ establishes performance criteria and effluent limitations to ensure that treated effluent discharges do not violate basin plan objectives for receiving waters. The order ensures that the City and the LACSD properly maintain and manage sewer systems and reduce frequency and severity of sanitary sewer overflows and their potential impacts on public health, safety, and the environment. The regional wastewater treatment plants are subject to their own individual NPDES and waste discharge requirements that set standards and criteria for the quality of the effluent produced. The wastewater generated by the proposed Project would be typical of urban uses, would not include any industrial or concentrated discharges that could negatively affect the LACSD capacity or ability to treat flows from the Project site.

As stated in Section 3.19(a), the proposed Project would be connected to the wastewater line in Palm Drive and be transported to the San Jose Creek WRP or the Whittier Narrows WRP. Both facilities would have capacity to serve the proposed Project, which would generate a nominal amount of wastewater relative to the WRPs treatment capacity. As such, the proposed Project would not exceed current capacities of the wastewater treatment system and would not significantly impact existing wastewater treatment systems such that new facilities would be required.

d) Would the project generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less Than Significant Impact. Waste collection and recycling services are provided by Athens Services. The proposed Project would produce construction debris and would also generate solid waste during operation, attributable to the 12 new residences that are expected to be developed on the Project site. Project operation is expected to produce approximately 7 tons of solid waste per year (Appendix A). The City is

required to comply with the solid waste diversion mandates established by the California Integrated Waste Management Board under AB 939, which states that all cities in California must divert 50% of their waste stream by 2000 and maintain this diversion rate. As such, it is anticipated that 50% or more of the project's waste would be diverted from a landfill, thereby reducing the effects of construction and operation on landfill capacity.

Trash collected by Athens is first directed to a Material Recovery Facility (MRF) in the City of Industry where recyclable material is removed and processed for resale to secondary markets. Trash from the MRF is taken to Landfills in San Bernardino County. Green waste from the MRF is taken to Athens' Victorville compost facility. The Puente Hills Landfill closed in 2013. The operator, LACSD, has a new permitted facility called Mesquite Regional Landfill in Imperial County where solid waste is hauled by rail from the Puente Hills Intermodal Facility Transfer Station. The Mesquite Regional Landfill has a maximum throughput of 20,000 tons per day and as of May 2021, had a remaining capacity of approximately 1,100,000,000 cubic yards. Estimated closure is in year 2139 (CalRecycle 2022). As such, the solid waste from the proposed Project would be accommodated within a landfill that has sufficient permitted and remaining capacity, well into the future. The project's incremental increase in solid waste generation would be negligible relative to the remaining permitted capacity of the Mesquite Regional Landfill. The additional solid waste from the project is considered minor, and the facilities mentioned have adequate capacity to accept solid waste from the project. Impacts would be less than significant.

e) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

No Impact. The City has an exclusive franchise agreement with Athens Services for solid waste disposal and recycling throughout the City. The proposed Project's solid waste disposal needs would be serviced through this franchise. The City enforces compliance with all federal, state, and local regulations related to solid waste for all properties in the City through the franchise agreement and City ordinances. As such, the proposed Project would be in compliance with regulations related to solid waste, and no impact would occur.

3.20 Wildfire

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. According to the General Plan EIR, the City maintains an Emergency Operations Center at the Glendora Police Department at 150 South Glendora Avenue and an alternate Emergency Operations Center is located at the Youth Center (159 North Cullen Avenue) to coordinate City services during an emergency and has designated evacuation routes. During an emergency, the centralized command center houses personnel from the City, emergency responders and other appropriate agencies. Grand Avenue, beginning approximately 700 feet south of the Project site (just north of Sierra Madre Avenue) and continuing southward past the I-210 and towards the City of Covina, is a designated evacuation route. Foothill Boulevard is approximately 1.5 miles south of the Project site and is also a designated evacuation route. The City of Glendora's Multi-Hazard Functional Plan (MHFP) provides the policies and procedures addressing emergency response to air disasters. The MHFP addresses the City's planned response to emergencies associated with natural disasters and technological incidents. It provides an overview of operational concepts, identifies components of the City's emergency management organization within the SEMS and describes the overall responsibilities of Federal, State and county entities and the City for protecting life and property and assuring the overall wellbeing of the population.

In the event of a major disaster or emergency, the City's MHFP would improve the efficiency of the City's disaster response. The proposed Project would not include the construction of any buildings or infrastructure that would preclude the City's ability to implement an adopted emergency response plan or emergency evacuation plan. No short-term construction street closures are anticipated and there would be no impairment of evacuation roadways. Upon operation of the proposed Project, emergency access would be provided via the Private Streets to all residential properties as well as to the flood control facilities. As such, the proposed Project would not substantially impair an adopted emergency response plan or emergency evacuation plan and impacts would be less than significant. No mitigation is required.

b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

Less Than Significant Impact. As described in Section 3.9(g), the Project site is within a Very High Fire Hazard Severity Zone, as mapped by the California Department of Forestry and Fire Protection (CAL

FIRE 2011). Additionally, the proposed Project would involve construction of residential lots and homes along a boundary of neighborhoods and wildlands. Implementation of the Project would remove some areas of vegetated land and replaced with an urban landscape that is irrigated and less combustible than the existing vegetation. However, due to the Project's location within the Very High Fire Hazard Severity Zone and the adjacent wildland areas, and the proposed increase of anthropogenic (i.e., caused by humans) sources of fire that were not previously on the Project site, the proposed Project has the potential to exacerbate wildfire risks. Potential sources of wildfire hazard are associated with the introduction of new and/or more anthropogenic activities adjacent to wildlands, including but not limited to, discarded cigarettes, illegal campfires, fireworks, fallen or sparking electrical power lines, and vehicle and/or landscaping equipment engine sparks.

Portions of the City and surrounding foothill communities have historically been subject to wildfires within the San Gabriel Mountains, including the most recent Colby Fire, which affected Glendora in January 2014 and burned nearly 2,000 acres and destroyed five homes. In an effort to encourage residents to safeguard their private properties, the City prepared the "Landscaping Guidelines for Homes in Fire Hazard Severity Zones", which provides guidance on how to reduce future risks of damage from wildfires through the maintenance of "defensible space" and use of appropriate landscaping (City of Glendora 2014)

The City of Glendora also adopted the California State Model Water Efficient Landscaping Ordinance[15] (see Section 21.03.060 of the City's zoning ordinance) to promote the values and benefits of landscapes, recognizing the need to conserve water and other resources as efficiently as possible, and to establish a structure for designing, installing, and maintaining water-efficient landscapes. The ordinance protects public health and safety within the City's moderate, high and very high fire hazard zones as identified by the California Department of Forestry and Fire Protection (City of Glendora 2014). Establishing a landscaping structure protects natural resources, including but not limited to animal and biological resources, and reduces risk of debris flows and fire damage. Accordingly, homeowners within a Very High Fire Hazard Severity Zone are required to obtain a permit before installing, restoring, or altering their landscaping. To obtain a permit, homeowners are required to submit landscaping plans to the City, and the plans are required to show adequate defensible space, proper fire-safe plant and tree selection, sufficient irrigation, and design features to control erosion and drainage (City of Glendora 2014). As such, future homeowners at the Project site would be required to install landscaping that is designed to prevent and minimize fire danger in the area, which would help protect future residences and homes on the site.

California law (Public Resources Code 4291) requires a minimum defensible space of 100 feet around residential homes, which must consist of the 0 to 30-foot firebreak that requires removal of flammable vegetation and the 30 to 70- foot reduced fuel zone (or to the property line, whichever is nearer to the structure)[16]. Additionally, according to the City's Conceptual Review and Entitlement Phase Checklist, when a project is within in a Very High Fire Hazard Severity Zone, the Applicant must provide a fuel modification plan approved by the LACFD (City of Glendora 2020). Every fuel modification plan must be reviewed by the Forestry Division of the LACFD for defensible space, fire safety, and compliance with the LACFD fuel modification guidelines, and CCR, Title 14, Division 1.5, Chapter 7, subchapter 2. Before a final fuel modification plan is approved by the Forestry Division of the LACFD, a signed and notarized copy of the provided covenant and agreement (and/or previously reviewed and approved HOA Covenants, Conditions & Restrictions that include the necessary fuel modification information) must be recorded at the County of Los Angeles Registrar-Recorder/County Clerk's Office and a copy

15 Code of Regulations (CCR) Title 23, Division 2, Chapter 2.7, Model Water Efficient Landscape Ordinance, Section 492.6, Landscape Design Plan. https://asic.org/wp-content/uploads/2016/03/MWELO.pdf.

16 California Code of Regulations (CCR) Title 14, Division 1.5, Chapter 7, Fire Protection, Subchapter 3, Section 1299, Defensible Space. https://svfra.org/home/svfra/pdf/PRC%20429114%20and%20CA%20ADC%201299.pdf.

given to the Forestry Division's Fuel Modification Unit. An on-site inspection must be conducted by the personnel of the Forestry Division of the LACFD and a final approval of the fuel modification plan issued by the Forestry Division prior to a certificate of occupancy being granted by the building code official.

As shown in Figure 2-5, Preliminary Fuel Modification Plan, the proposed Project's design and preliminary plan has been reviewed, revised, and preliminarily approved by the LACFD Forestry Division's Fuel Modification Unit, as of November 2021. Furthermore, as illustrated in Appendix B-2, Draft Architectural Landscape Plans and Tee Removals, all proposed planting of HOA areas would be irrigated with a permanent irrigation system to comply with Section 21.030.060 of the City's zoning ordinance, and all proposed planting outside of the Fuel Modification Zones, would be irrigated with a temporarily irrigation system for "hydroseed" establishment. This seeding method is a type of planting process that promotes quick germination of grasses, which, due to their fibrous root systems, can increase water infiltration and hold soil in place (Barkley 2006; 2019; USDA 2022). As such, hydroseeding may help treat areas where fires are likely to spread to, and can improve slope stability in previously burned areas, such as the Project site (Barkley 2006). In addition, the northern portion of the Project site would be irrigated with a temporary spray irrigation system until such time that plant materials are established. As shown on Figure 2-4a, Tentative Trace Map No. 72413, a 6-foot masonry screening wall would be constructed along the eastern property line between proposed Lots 8 through14 and the adjacent property, which would provide further fire protection from the residential property to the east. Further, the proposed Project would construct paved, all weather access to higher elevations on the Project site and incorporate fire hydrants which would provide fire protection for the site.

In summary, compliance with mandatory wildfire protection regulations would reduce the potential for people or structures to undergo risk of loss, injury, or death related to wildland fire. Furthermore, as further described in Section 3.15, the Project site is located within proximity to LACFD fire stations, which would provide fire protection services in the event of a fire emergency at the Project site. As such, while the proposed Project could expose people and structures to wildland fire hazards, compliance with local and state regulations would reduce such hazards and impacts would be less than significant.

c) Would the project require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

Less Than Significant Impact. The Project site is currently undeveloped, with the exception of a single-family residence, remnant structures from previous uses on the site, and three flood control/debris check dam structures. The existing single-family residence would remain in place, and the three existing flood control structures would be redeveloped as part of the proposed Project, to provide effective protection from potential debris flows and flooding. The flood control facilities require the construction of an access road from the main Private Street to allow for the maintenance of the facilities, including periodic removal of accumulated sediment and debris, as needed. The access road and the maintained debris basins would serve as an additional buffer of defensible space between the residential lots and the hillsides to the north of the Project site. The introduction of larger flood control facilities onto the Project site would not exacerbate fire risks, but rather would provide additional defensible space due to the ongoing maintenance of the facilities, which requires periodic mowing and removal of accumulated vegetation within the structures.

Maintenance of the flood control facilities would require annual mowing and periodic sediment removal, as needed to maintain the design capacity of the structures. This would require the use of landscaping equipment (e.g. mowers, weed-whackers) and possibly small excavators (e.g. bobcats) if large debris flows occurred. As described above under Section 3.20(b), vehicles and landscaping

equipment has the potential to generate sparks or other fire hazards, and could exacerbate risks. However, the ongoing maintenance of the flood control structures would be conducted by the County of Los Angeles Flood Control District (LACFCD), which is in charge of maintaining drainage infrastructure throughout the County, including 14 major dams and reservoirs, 483 miles of open channel, 27 spreading grounds, 172 debris basins, 27 sediment placement sites, and an estimated 82,000 catch basins. Many of these facilities are located within wildland interface areas due to the nature of their purpose to protect urban areas from flood hazards. As such, given the expertise and experience of the LACFCD and required protocols for the protection of health and safety, the ongoing maintenance of the proposed Project's flood control facilities would not result in exacerbated wildfire risks. No other infrastructure would be required within the northern portion of the property designed as open space. Impacts related to the installation and maintenance of infrastructure that could exacerbate fire risks would be less than significant, and no mitigation is required.

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact. As previously described in Section 3.10(a), the three flood control facilities would debulk the off-site debris inflows and convey the flows into a new storm drain system that would terminate near the historic flow outlet point at the southern tract boundary. As shown in Table 3.10-1, the three debris containment facility capacities exceed the requirements for debris containment, which ensures the containment of debris flows and reduction of turbidity and sediment in stormwater flows. Accordingly, the proposed improvements would improve the protection of downstream residents within the region by eliminating debris flow and reducing overall outflow from the area. Because the existing on-site debris control structures are at capacity, the proposed Project would reduce debris flow and sedimentation relative to existing conditions. The proposed debris control structures would be transferred to LACFCD for maintenance. LACFCD staff would maintain the debris containment structures per County standards. Proper maintenance of the debris containment structures would ensure that the basins are regularly cleaned out and maintained, which prevents the structures from losing their effectiveness over time.

As described in Section 3.7(a), the Project site is sloped, and slopes increase in steepness in the northern section of the site. As such, G.A. Nicoll evaluated the potential for landslides to cause substantial adverse effects to people and/or structures on the Project site. According to G.A. Nicoll, the Project site is not located within an area designated as having a high potential for earthquake-induced landsliding. Furthermore, G.A. Nicoll notes that the Project site and surrounding area have been recently exposed to some of the heaviest periods of rainfall recorded in the Los Angeles area, as well as several powerful earthquakes (e.g., the Northridge and San Fernando earthquakes). Despite these conditions, no landsliding occurred in the hillside areas of the Project site. G.A. Nicoll also conducted slope stability analyses in the hillsides of the Project site. The results showed favorable hillside stability. For these reasons, G.A. Nicoll concluded that the potential for earthquake-induced landsliding on the Project site is low. In addition, as illustrated in Appendix B-2, Architectural Landscape Plans and Tree Removals, all proposed planting outside of the Fuel Modification Zones, would be irrigated with a temporarily irrigation system for "hydroseed" establishment. Hydroseeding and can improve post-fire slope stability, thereby reducing the probability of a landslide occurring (Barkley 2006; 2019; USDA 2022).

For these reasons, potential impacts associated with the exposure of people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes would be less than significant, and no mitigation is required.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☒	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant with Mitigation. As discussed in Section 3.4, Biological Resources, and the BRTR (Appendix B-1) of this IS/MND, while there is no USFWS-designated critical habitat, surveys conducted on the Project site identified six vegetation communities and land covers, three of which are considered "sensitive" under CEQA: California walnut groves, disturbed coastal sage scrub, and coast live oak woodlands. In addition, one special-status wildlife species, yellow warbler, was observed during surveys at the Project site, while three additional species, Southern California legless lizard, coastal whiptail, and hoary bat, have a moderate potential to occur (see Appendix B-1, Biological Resources Technical Report). Potentially significant impacts to vegetation and wildlife communities, including reduction of habitat and direct mortality, could occur as a result of Project associated construction and/or vegetation removal activities. However, mitigation measures have been identified that would reduce these impacts to less than significant levels, including MM-BIO-1 through MM-BIO-8. As such, impacts to biological resources resulting from the proposed Project would be less than significant with mitigation incorporated. No further mitigation is required.

As described in Section 3.5, Cultural Resources, and the Historic Resources Technical Report (Appendix C), of this IS/MND, the Monrovia No. 1 tunnel and hatch would be considered an important

example of California historic water infrastructure, representing the period of 1931 through 1941. The proposed Project includes grading, fill deposits, utilities trenching, road construction, driveway construction, and construction of residential buildings over which could result in a potentially significant impact to this historic resource. However, with incorporation of MM-GEO-2, potential impacts to the Monrovia No. 1 tunnel segment and hatch would be less than significant, and the historic property would still be able to convey is significance following proposed Project implementation. As such, after mitigation, the proposed Project would not substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory. Impacts would be less than significant with mitigation incorporated. No further mitigation is required.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less Than Significant with Mitigation. The proposed Project would result in potentially significant project-level impacts involving Aesthetics, Agriculture and Forestry Resources, Biological Resources, Cultural Resources, Geology and Soils, Noise, Transportation, Tribal Cultural Resources, and Utilities and Service Systems. However, mitigation measures have been identified that would reduce these impacts to less than significant levels. There are no current or planned projects identified in the area surrounding the Project site. The areas immediately to the south of the Project site are built out with existing residential uses, while the areas to the north, due to existing land use policy and topography, would not be considered suitable for development. Furthermore, future projects in the vicinity would be guided by the policies identified in the City's 2025 Community Plan, the regulations established in the City's Municipal Code, and other applicable regional, state, and/or federal requirements regarding the nature, location, and extent of allowable development. Therefore, compliance with applicable land use and environmental regulations would ensure that environmental effects associated with the proposed Project would not combine with effects from reasonably foreseeable future development in the City to cause cumulatively considerable significant impacts. Cumulative impacts would therefore be less than significant with mitigation incorporated. No further mitigation is required.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less Than Significant with Mitigation. As detailed throughout this IS/MND, the proposed Project would not exceed any significance thresholds or result in significant impacts in the following environmental categories typically associated with indirect or direct effects to human beings: air quality, hazards and hazardous materials, and public services. However, as described in Sections 3.1, Aesthetics, 3.13, Noise, and 3.17, Transportation, the proposed Project could result in potentially significant impacts in the categories of aesthetics, noise, and transportation during construction and/or operation of the proposed Project. However, with implementation of MM-AES-1, MM-NOI-1, MM-TRAF-1, and MM-TRAF-2, these impacts would be reduced to less than significant levels. As such, impacts would be less than significant with mitigation incorporated. No further mitigation is required.

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4 References and Preparers

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4.2 List of Preparers

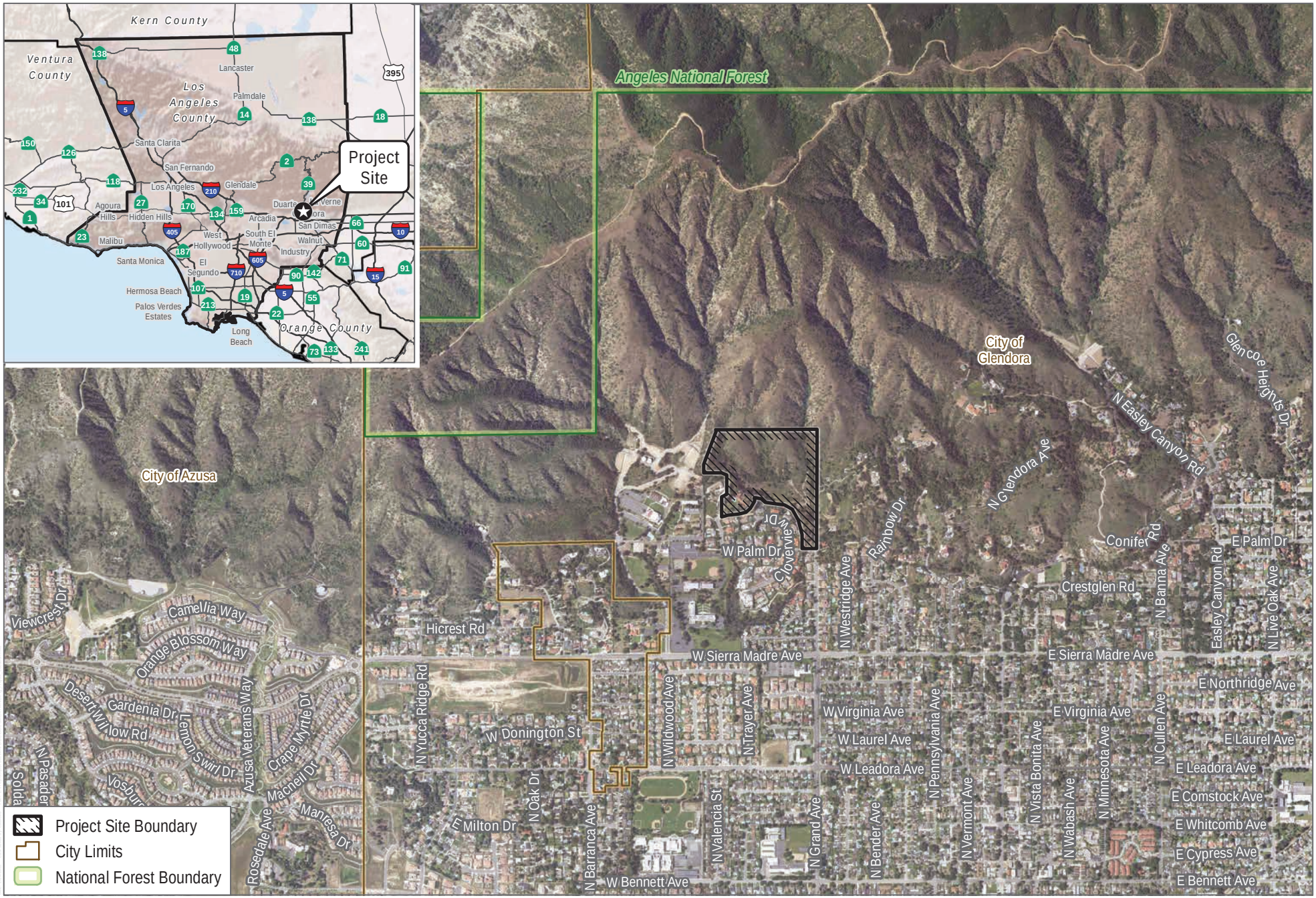
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Linda Kry, Senior Archaeologist
Jonathan Leech, Senior Noise Specialist
Christopher Starbird, GIS Specialist

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SOURCE: Esri, Digital Globe; OpenStreetMap 2019

DUDEK

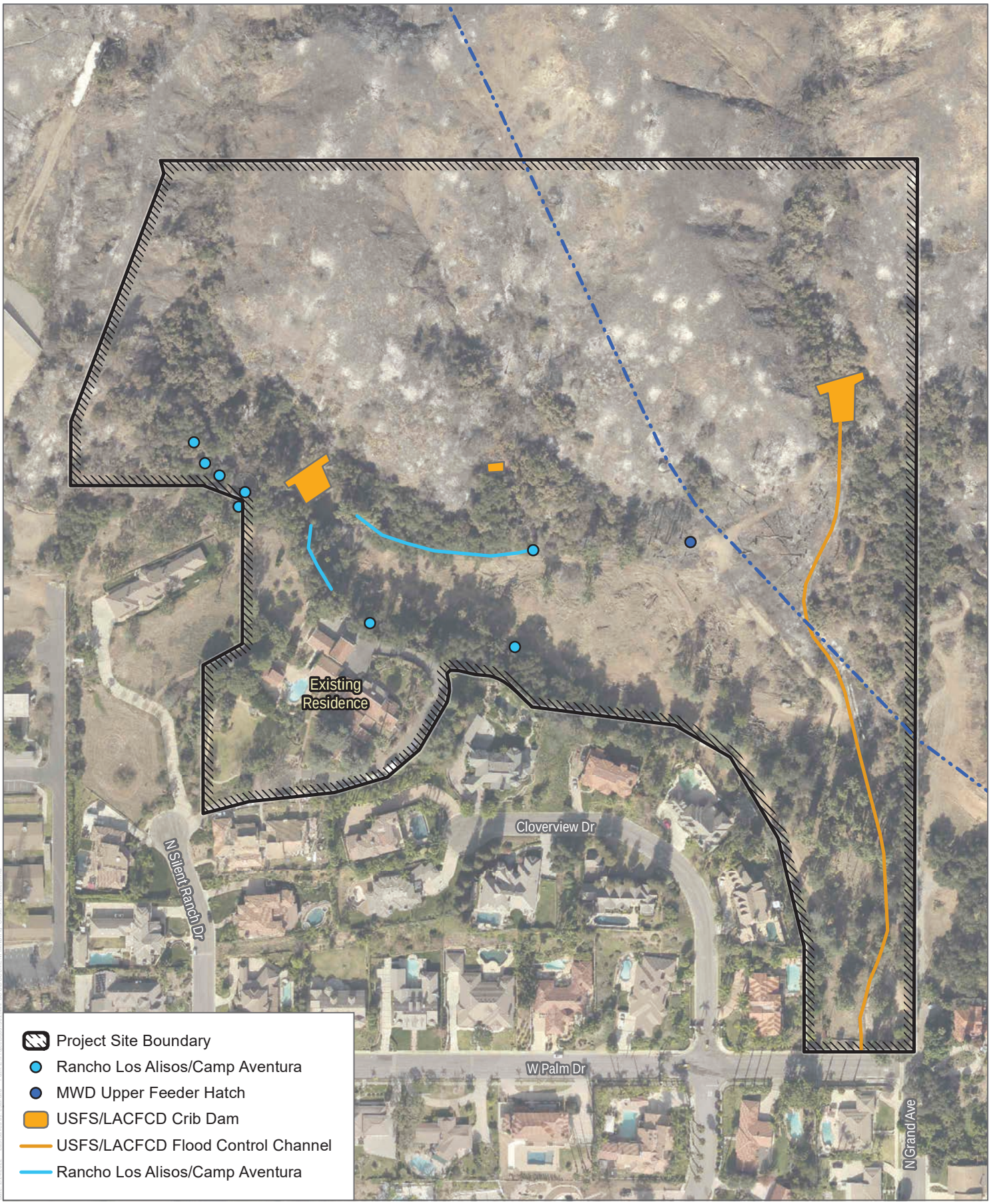
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FIGURE 2-1

Regional Location and Project Vicinity

Grand Estates Project

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SOURCE: County of Los Angeles 2018; Bing Maps 2018; NHD 2018

DUDEK

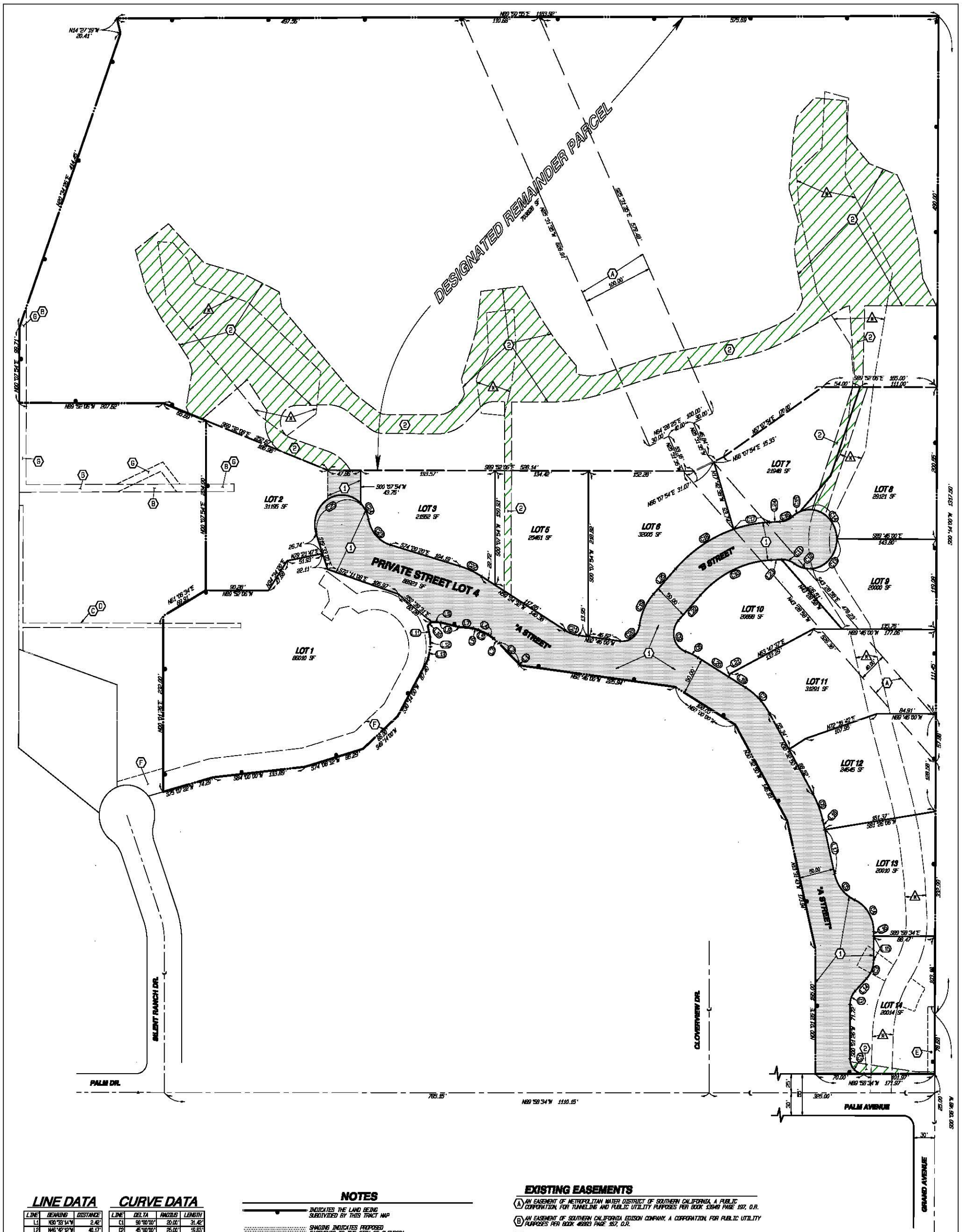
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FIGURE 2-2

Aerial View and Existing On-Site Features

Grand Estates Project

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LINE DATA

LINE	BEARING	DISTANCE
L1	N30°33'14"W	2.42'
L2	N46°42'12"W	40.17'
L3	N50°53'28"W	9.23'
L4	N55°55'25"W	19.06'
L5	N89°55'15"W	15.47'
L6	N74°34'25"W	7.44'
L7	N85°22'28"W	20.48'
L8	N77°02'21"W	25.94'
L9	N85°23'39"W	12.97'
L10	S45°50'54"W	7.75'
L11	S12°58'54"E	15.07'
L12	S02°43'57"E	12.54'
L13	S11°24'15"W	15.54'
L14	S45°01'26"W	23.23'
L15	S00°01'26"W	31.29'
L16	N00°01'26"E	6.37'
L17	S13°31'43"E	60.12'
L18	S13°31'43"E	12.26'
L19	S89°00'00"E	26.18'
L20	S89°00'00"E	50.39'
L21	N89°00'00"E	4.96'
L22	S43°40'44"W	46.11'
L23	S87°25'44"W	15.07'
L24	N87°25'44"E	15.07'
L25	N43°40'44"E	46.11'

CURVE DATA

LINE	DELTA	RADIUS	LENGTH
C1	90°00'00"	20.00'	31.42'
C2	45°00'00"	25.00'	19.63'
C3	45°00'00"	35.00'	27.49'
C4	66°55'31"	45.00'	52.56'
C5	53°23'22"	50.00'	46.59'
C6	17°01'07"	125.00'	37.13'
C7	29°27'10"	95.00'	48.83'
C8	11°12'02"	95.00'	19.08'
C9	115°32'47"	25.00'	50.42'
C10	43°45'00"	150.00'	114.54'
C11	37°08'45"	30.00'	19.45'
C12	37°08'43"	39.00'	25.28'
C13	66°08'33"	39.00'	60.01'
C14	110°28'08"	39.00'	75.19'
C15	16°33'06"	39.00'	12.53'
C16	37°08'45"	30.00'	19.45'
C17	15°08'22"	200.00'	52.85'
C18	28°36'38"	200.00'	99.87'
C19	35°12'59"	75.00'	46.08'
C20	88°45'35"	25.00'	38.73'
C21	23°21'28"	50.00'	20.38'
C22	14°55'48"	150.00'	39.08'
C23	63°31'35"	44.00'	48.76'
C24	34°46'25"	39.00'	23.68'
C25	153°55'55"	39.00'	104.76'

NOTES

INDICATES THE LAND BEING SUBDIVIDED BY THIS TRACT MAP

SHADING INDICATES PROPOSED EASEMENTS TO THE CITY OF GLENDORA, M.W.D. & FOR PRIVATE STREET USE

CROSSHATCHING INDICATES PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES

ASSESSOR'S PARCEL NO. = 8684-045-004

EXISTING & PROPOSED ZONE: E7-20,000

PROPOSED LAND USE: SINGLE-FAMILY RESIDENTIAL

CITY DEVIATIONS: NONE

UTILITIES:
WATER: CITY OF GLENDORA
SEWER: LOS ANGELES COUNTY SANITATION DISTRICT #22

PRESERVATION OF FOUND METROPOLITAN WATER DISTRICT (MWD) EASEMENT MONUMENTS: PRIOR TO THE CONSTRUCTION OF ANY IMPROVEMENTS, THE PROJECT LAND SURVEYOR MUST FILE WITH THE COUNTY OF LOS ANGELES, CORNER RECORDS FOR THE PRESERVATION OF ANY EXISTING MWD MONUMENTS WITHIN THE AREAS OF PROPOSED IMPROVEMENTS AND/OR GRADING. ANY MONUMENTS DESTROYED DURING GRADING/CONSTRUCTION MUST BE REPLACED ACCORDINGLY.

MWD NOTIFICATION REQUIREMENTS: NOTIFY JESSE FRANCO, JR. OF THE MWD WATER SYSTEM OPERATIONS GROUP, OFFICE TELEPHONE (909) 392-7184 OR CELL PHONE (818) 469-5189, AT LEAST TWO WORKING DAYS (MONDAY THROUGH THURSDAY) PRIOR TO STARTING ANY WORK IN THE VICINITY OF MWD FACILITIES.

EXISTING EASEMENTS

(A) AN EASEMENT OF METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, A PUBLIC CORPORATION, FOR TUNNELING AND PUBLIC UTILITY PURPOSES PER BOOK 13949 PAGE 197, O.R.

(B) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER BOOK 46883 PAGE 167, O.R.

(C) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 4013 REC. 05-07-76, O.R.

(D) AN EASEMENT OF GENERAL TELEPHONE COMPANY OF CALIFORNIA, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 3509 REC. 06-01-76, O.R.

(E) AN EASEMENT OF SOUTHERN CALIFORNIA GAS COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 85-184744 REC. 02-15-85, O.R.

(F) PRIVATE DRIVEWAY AND FIRELANE (PER PARCEL MAP. NO. 25942, PM8302, P857-60)

(G) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 04-0451457 REC. 02-26-2004, O.R.

EASEMENT TO BE ABANDONED

(A) AN EASEMENT OF LOS ANGELES COUNTY FLOOD CONTROL DISTRICT, A BODY CORPORATE AND POLITIC FOR THE IMPROVEMENT, CONSTRUCTION RECONSTRUCTION, OPERATION, AND MAINTENANCE OF DEBRIS REDUCTION AND STABILIZATION CHECK DAMS, AND APPURTENANT STRUCTURES PER INSTRUMENT NO. 2987 REC. 06-13-72, O.R. - TO BE ABANDONED

PROPOSED EASEMENTS

(1) PROPOSED EASEMENTS TO THE CITY OF GLENDORA, M.W.D. & FOR PRIVATE STREET USE

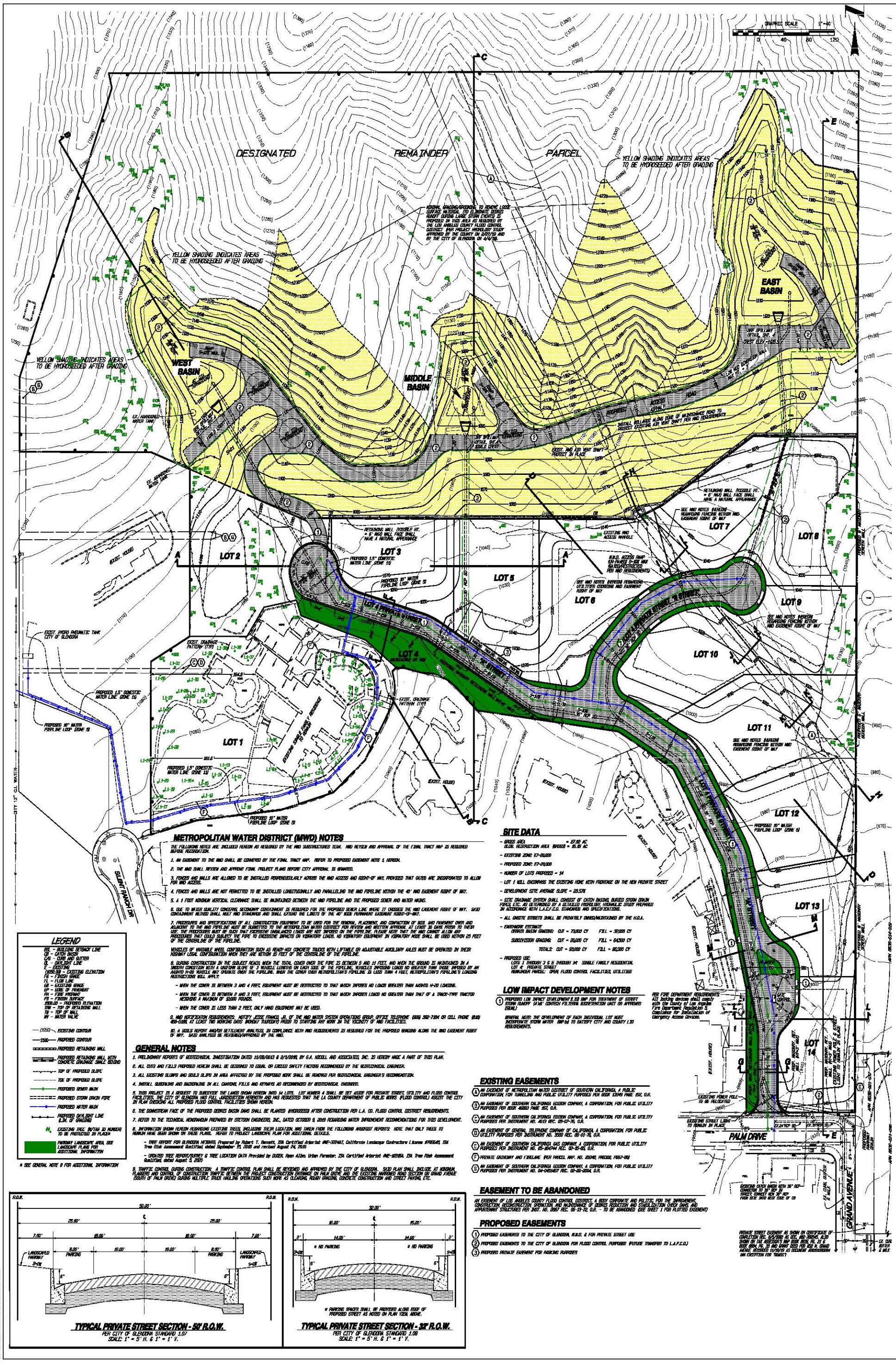
(2) PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES (FUTURE TRANSFER TO L.A.F.C.D.)

SOURCE: Dreamland Investments, LLC., 2017; Giron Engineers Inc., 2017

FIGURE 2-3
Site Plan
Silent Ranch Hillside Subdivision Project

DUDEK

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METROPOLITAN WATER DISTRICT (MWD) NOTES

THE FOLLOWING NOTES ARE INCLUDED HEREON AS REQUIRED BY THE MWD SUBSTRUCTURES TEAM. MWD REVIEW AND APPROVAL OF THE FINAL TRACT MAP IS REQUIRED BEFORE RECORDATION.

1. AN EASEMENT TO THE MWD SHALL BE CONVEYED BY THE FINAL TRACT MAP. REFER TO PROPOSED EASEMENT NOTE 3, HEREIN.
2. THE MWD SHALL REVIEW AND APPROVE FINAL PROJECT PLANS BEFORE CITY APPROVAL IS GRANTED.
3. FENCES AND WALLS ARE ALLOWED TO BE INSTALLED PERPENDICULARLY ACROSS THE MWD ACCESS AND RIGHT-OF WAY, PROVIDED THAT GATES ARE INCORPORATED TO ALLOW FOR MWD ACCESS.
4. FENCES AND WALLS ARE NOT PERMITTED TO BE INSTALLED LONGITUDINALLY AND PARALLELING THE MWD PIPELINE WITHIN THE 40' MWD EASEMENT RIGHT OF WAY.
5. A 1 FOOT MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE MWD PIPELINE AND THE PROPOSED SEWER AND WATER MAINS.
6. DUE TO WATER QUALITY CONCERNS, SECONDARY CONTAINMENT IS REQUIRED FOR THE PROPOSED SEWER LINE WHERE IT CROSSES THE MWD EASEMENT RIGHT OF WAY. SAID CONTAINMENT METHOD SHALL MEET MWD STANDARDS AND SHALL EXTEND THE LIMITS OF THE 40' WIDE PERMANENT EASEMENT RIGHT-OF-WAY.
7. PROCEDURES AND SPECIFICATIONS OF ALL CONSTRUCTION EQUIPMENT TO BE USED FOR THE REMOVAL, PLACEMENT, AND COMPACTION OF SOIL AND PAVEMENT OVER AND ADJACENT TO THE MWD PIPELINE MUST BE SUBMITTED TO THE METROPOLITAN WATER DISTRICT FOR REVIEW AND WRITTEN APPROVAL AT LEAST 30 DAYS PRIOR TO THEIR USE. THE PROCEDURES MUST BE SUCH THAT EXCESSIVE UNBALANCED LOADS ARE NOT IMPOSED ON THE PIPELINE. PLEASE NOTE THAT THE MWD CANNOT ALLOW ANY PROCEDURES THAT COULD SUBJECT THE PIPE TO EXCESSIVE IMPACTS OR VIBRATORY LOADS. NO VIBRATORY EQUIPMENT IN VIBRATORY MODE SHALL BE USED WITHIN 25 FEET OF THE CENTERLINE OF THE PIPELINE.

VEHICLES OF VARIABLE WHEEL CONFIGURATION SUCH AS READY-MIX CONCRETE TRUCKS WITH LIFTABLE OR ADJUSTABLE AUXILIARY AXLES MUST BE OPERATED IN THEIR HIGHWAY LEGAL CONFIGURATION WHEN THEY ARE WITHIN 25 FEET OF THE CENTERLINE OF THE PIPELINE.

8. DURING CONSTRUCTION IN THE SUBJECT REACH, WHEN THE TOTAL COVER OVER THE PIPE IS BETWEEN 5 AND 11 FEET, AND WHEN THE GROUND IS MAINTAINED IN A SMOOTH CONDITION WITH A UNIFORM SLOPE OF 3 VEHICLE LENGTHS ON EACH SIDE OF THE PIPELINE, VEHICLES IMPOSING LOADS NO GREATER THAN THOSE IMPOSED BY AN AASHTO H-20 VEHICLE MAY OPERATE OVER THE PIPELINE. WHEN THE COVER OVER METROPOLITAN'S PIPELINE IS LESS THAN 4 FEET, METROPOLITAN'S PIPELINE'S LOADING RESTRICTIONS WILL APPLY:
   - WHEN THE COVER IS BETWEEN 3 AND 4 FEET, EQUIPMENT MUST BE RESTRICTED TO THAT WHICH IMPOSES NO LOADS GREATER THAN AASHTO H-20 LOADING.
   - WHEN THE COVER IS BETWEEN 2 AND 3 FEET, EQUIPMENT MUST BE RESTRICTED TO THAT WHICH IMPOSES LOADS NO GREATER THAN THAT OF A TRACK-TYPE TRACTOR WEIGHING A MAXIMUM OF 12,000 POUNDS.
   - WHEN THE COVER IS LESS THAN 2 FEET, ONLY HAND EQUIPMENT MAY BE USED.
9. MWD NOTIFICATION REQUIREMENTS. NOTIFY JESSE FRANCO, JR. OF THE MWD WATER SYSTEM OPERATIONS GROUP, OFFICE TELEPHONE (909) 992-7184 OR CELL PHONE (818) 469-5188, AT LEAST TWO WORKING DAYS (MONDAY THROUGH THURSDAY) PRIOR TO STARTING ANY WORK IN THE VICINITY OF MWD FACILITIES.
10. A SOILS REPORT AND/OR SETTLEMENT ANALYSIS, IN COMPLIANCE WITH MWD REQUIREMENTS IS REQUIRED FOR THE PROPOSED GRADING ALONG THE MWD EASEMENT RIGHT OF WAY. SAID ANALYSIS TO BE REVIEWED/APPROVED BY THE MWD.

LEGEND

- BSL - BUILDING SETBACK LINE
- CB - CATCH BASIN
- C/G - CURB AND GUTTER
- DL - DAYLIGHT LINE
- E - EXISTING
- (XXXX.XX) - EXISTING ELEVATION
- FG - FINISH GRADE
- FL - FLOW LINE
- EP - EDGE OF PAVEMENT
- FH - FIRE HYDRANT
- FS - FINISH SURFACE
- XXXX.XX - PROPOSED ELEVATION
- TOW - TOP OF RETAINING WALL
- TW - TOP OF WALL
- WV - WATER VALVE
- (1050) EXISTING CONTOUR
- 1500 PROPOSED CONTOUR
- PROPOSED RETAINING WALL
- PROPOSED RETAINING WALL WITH CONCRETE DRAINAGE SWALE BEHIND
- TOP OF PROPOSED SLOPE
- TOE OF PROPOSED SLOPE
- PROPOSED SEWER MAIN
- PROPOSED STORM DRAIN PIPE
- PROPOSED WATER MAIN
- PROPOSED DAYLIGHT LINE (LIM. OF GRADING)
- EXISTING TREE (W/TAG ID NUMBER TO BE PROTECTED IN PLACE*)
- PARKWAY LANDSCAPE AREA, SEE LANDSCAPE PLANS FOR ADDITIONAL INFORMATION

* SEE GENERAL NOTE 8 FOR ADDITIONAL INFORMATION

GENERAL NOTES

1. PRELIMINARY REPORTS OF GEOTECHNICAL INVESTIGATION DATED 11/20/2013 & 2/1/2018, BY G.A. NOCELL AND ASSOCIATES, INC. IS HEREBY MADE A PART OF THIS PLAN.
2. ALL CUTS AND FILLS PROPOSED HEREIN SHALL BE DESIGNED TO EQUAL OR EXCEED SAFETY FACTORS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
3. ALL EXISTING SLUMPS AND SOILS SLIPS IN AREA AFFECTED BY THE PROPOSED WORK SHALL BE REMOVED PER GEOTECHNICAL ENGINEER'S RECOMMENDATION.
4. INSTALL SUBDRAINS AND BACKDRAINS IN ALL CANYONS, FILLS AND KEYWAYS AS RECOMMENDED BY GEOTECHNICAL ENGINEER.
5. THIS PROJECT IS A REQUEST TO SUBDIVIDE THE LANDS SHOWN HEREIN INTO 14 LOTS. LOT NUMBER 4 SHALL BE SET ASIDE FOR PRIVATE STREET, UTILITY AND FLOOD CONTROL FACILITIES. THE CITY OF GLENDORA HAS FULL JURISDICTION HEREWITH AND HAS REQUESTED THAT THE LA COUNTY DEPARTMENT OF PUBLIC WORKS (FLOOD CONTROL) ASSIST THE CITY IN PLAN CHECKING ALL PROPOSED FLOOD CONTROL FACILITIES SHOWN HEREIN.
6. THE DOWNSTREAM FACE OF THE PROPOSED DEBRIS BASIN DAMS SHALL BE PLANTED (HYDROSEED) AFTER CONSTRUCTION PER L.A. CO. FLOOD CONTROL DISTRICT REQUIREMENTS.
7. REFER TO THE TECHNICAL MEMORANDUM PREPARED BY STETSON ENGINEERS, INC., DATED OCTOBER 9, 2019 REGARDING WATER IMPROVEMENT RECOMMENDATIONS FOR THIS DEVELOPMENT.
8. INFORMATION SHOWN HEREON REGARDING EXISTING TREES, INCLUDING THEIR LOCATION, WAS TAKEN FROM THE FOLLOWING ARBORIST REPORTS. NOTE THAT ONLY TREES TO REMAIN HAVE BEEN SHOWN ON THESE PLANS. REFER TO PROJECT LANDSCAPE PLAN FOR ADDITIONAL DETAILS.
   - TREE REPORT FOR GLENDORA HEIGHTS, Prepared by Robert T. Bennett, ISA Certified Arborist #WE-3724AT, California Landscape Contractors License #706545, ISA Tree Risk Assessment Qualified, dated September 12, 2018 and revised August 24, 2019
   - UPDATED TREE REPORT/SURVEY & TREE LOCATION DATA Provided by DUDEK, Ryan Allen, Urban Forester, ISA Certified Arborist #WE-10916A, ISA Tree Risk Assessment Qualified, dated August 5, 2020
9. TRAFFIC CONTROL DURING CONSTRUCTION: A TRAFFIC CONTROL PLAN SHALL BE REVIEWED AND APPROVED BY THE CITY OF GLENDORA. SAID PLAN SHALL INCLUDE, AT MINIMUM, FLAGGERS AND CONTROL OF CONSTRUCTION TRAFFIC BETWEEN THE PROJECT CONSTRUCTION ENTRANCE ON PALM DRIVE AND THE EXISTING WARDMAN ROAD SECTION ON GRAND AVENUE (SOUTH OF PALM DRIVE) DURING MULTIPLE TRUCK HAULING OPERATIONS SUCH WORK AS CLEARING, ROUGH GRADING, CONCRETE CONSTRUCTION AND STREET PAVING, ETC.

SITE DATA

- GROSS AREA = 27.92 AC
  GLOB. RESTRICTION AREA (GROSS) = 15.15 AC
- EXISTING ZONE: E7-20,000
- PROPOSED ZONE: E7-20,000
- NUMBER OF LOTS PROPOSED = 14
- LOT 1 WILL ENCOMPASS THE EXISTING HOME WITH FRONTAGE ON THE NEW PRIVATE STREET
- DEVELOPMENT SITE AVERAGE SLOPE = 29.57%
- SITE DRAINAGE SYSTEM SHALL CONSIST OF CATCH BASINS, BURIED STORM DRAIN PIPES, ETC., AS DETERMINED BY A DETAILED HYDROLOGY, HYDRAULIC STUDY PREPARED IN ACCORDANCE WITH L.A.C.F.C.D. STANDARDS AND SPECIFICATIONS.
- ALL ONSITE STREETS SHALL BE PRIVATELY OWNED/MAINTAINED BY THE H.O.A.
- EARTHWORK ESTIMATE:
  DEBRIS BASIN GRADING: CUT = 73,000 CY FILL = 32,000 CY
  SUBDIVISION GRADING: CUT = 20,000 CY FILL = 64,500 CY
  TOTALS: CUT = 93,000 CY FILL = 96,500 CY
- PROPOSED USE:
  LOTS 1 THROUGH 3 & 5 THROUGH 14: SINGLE FAMILY RESIDENTIAL
  LOT 4: PRIVATE STREET
  REMAINDER PARCEL: OPEN, FLOOD CONTROL FACILITIES, UTILITIES

LOW IMPACT DEVELOPMENT NOTES

1. PROPOSED LOW IMPACT DEVELOPMENT (LID) BMP FOR TREATMENT OF STREET STORM RUNOFF (4 NO. CONTECH FILTERRA BIORETENTION UNIT OR APPROVED EQUAL)

GENERAL NOTE: THE DEVELOPMENT OF EACH INDIVIDUAL LOT MUST INCORPORATE STORM WATER BMP(S) TO SATISFY CITY AND COUNTY LID REQUIREMENTS.

PER FIRE DEPARTMENT REQUIREMENTS
All locking devices shall comply with the County of Los Angeles Fire Department Regulation 5 Compliance for Installation of Emergency Access Devices.

EXISTING EASEMENTS

(A) AN EASEMENT OF METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, A PUBLIC CORPORATION, FOR TUNNELING AND PUBLIC UTILITY PURPOSES PER DEED 12845 PAGE 231, O.R.
(B) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER BOOK 48883 PAGE 257, O.R.
(C) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 4615 REC. 05-07-76, O.R.
(D) AN EASEMENT OF GENERAL TELEPHONE COMPANY OF CALIFORNIA, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 3398 REC. 05-01-76, O.R.
(E) AN EASEMENT OF SOUTHERN CALIFORNIA GAS COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 85-104744 REC. 02-15-85, O.R.
(F) PRIVATE DRIVEWAY AND FIRELANE (PER PARCEL MAP NO. 25242, PM082, P057-059)
(G) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 04-0453457 REC. 02-22-2004, O.R.

EASEMENT TO BE ABANDONED

AN EASEMENT OF LOS ANGELES COUNTY FLOOD CONTROL DISTRICT, A BODY CORPORATE AND POLITIC, FOR THE IMPROVEMENT, CONSTRUCTION, RECONSTRUCTION OPERATION, AND MAINTENANCE OF DEBRIS REDUCTION AND STABILIZATION CHECK DAMS AND APPURTENANT STRUCTURES PER DEED NO. 2987 REC. 05-13-72, O.R. - TO BE ABANDONED (SEE SHEET 1 FOR PLOTTED EASEMENT)

PROPOSED EASEMENTS

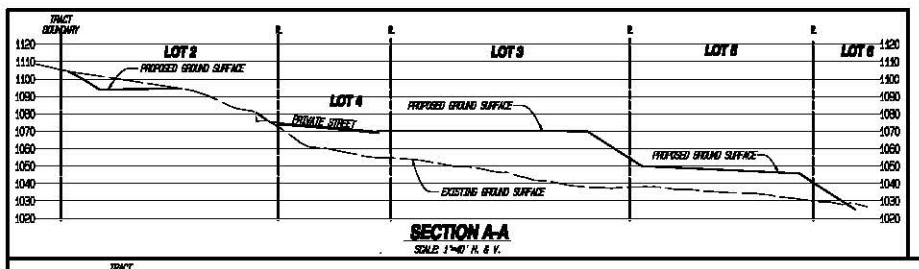
(1) PROPOSED EASEMENTS TO THE CITY OF GLENDORA, M.W.D. & FOR PRIVATE STREET USE
(2) PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES (FUTURE TRANSFER TO L.A.F.C.D.)
(3) PROPOSED PRIVATE EASEMENT FOR PARKING PURPOSES

SOURCE: City of Glendora Engineering Division, 2021

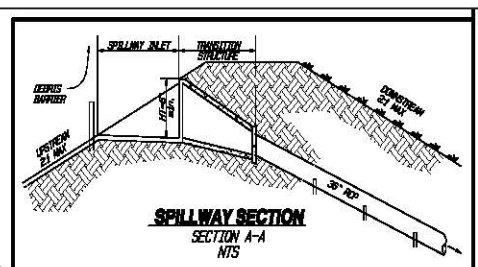
FIGURE 2-4a
Tentative Tract Map No. 72413
Grand Estates Project

DUDEK

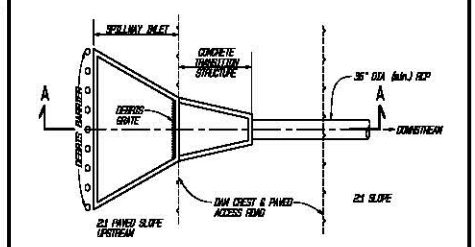
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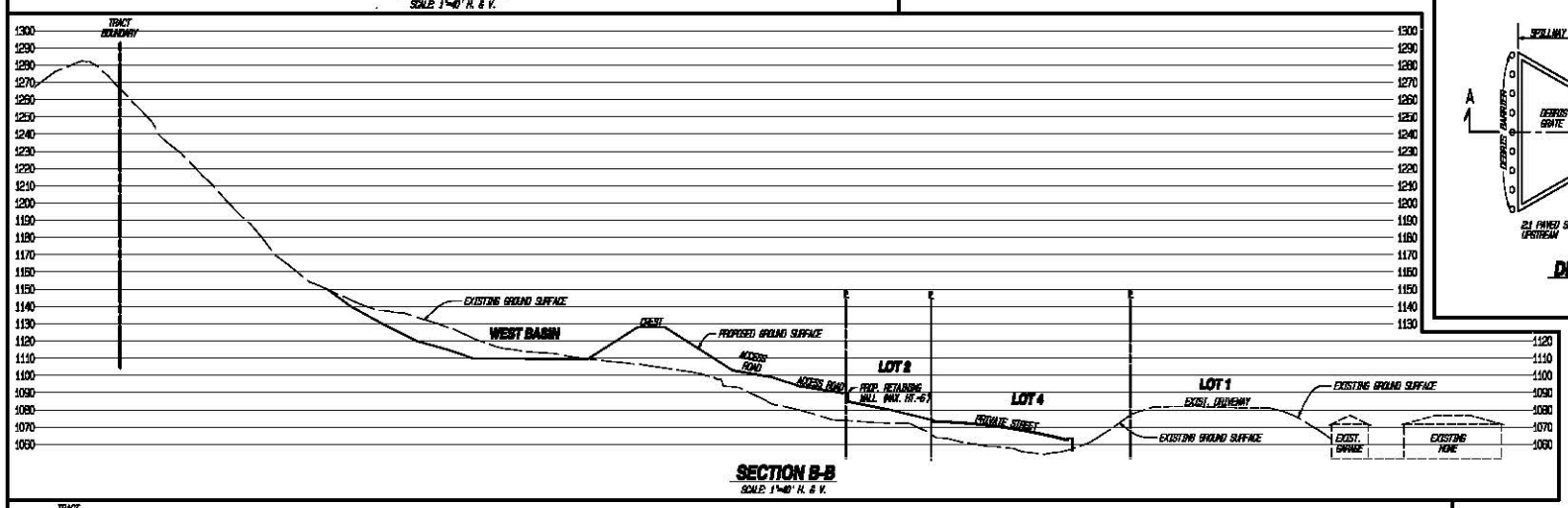
SECTION A-A
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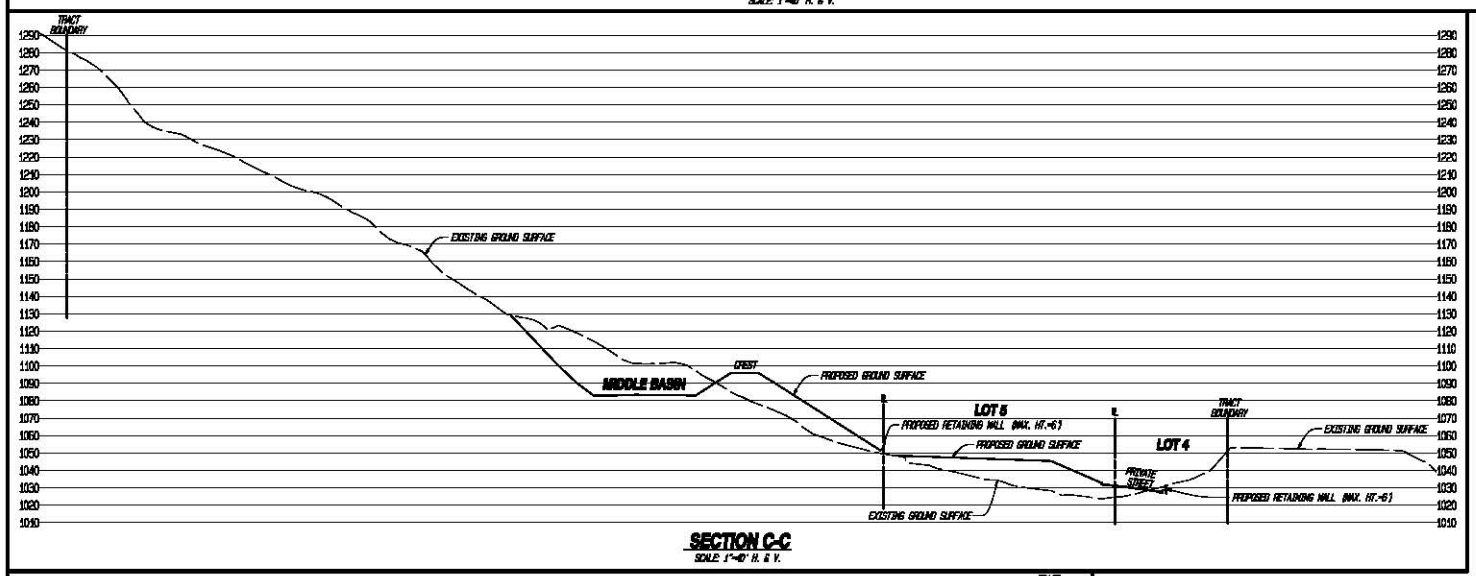
SPILLWAY SECTION
SECTION A-A
NTS



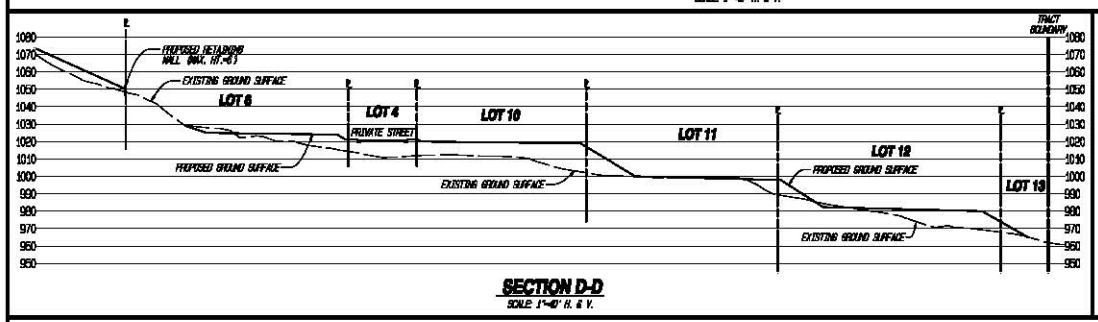
DEBRIS BASIN SPILLWAY
PLAN VIEW
NTS



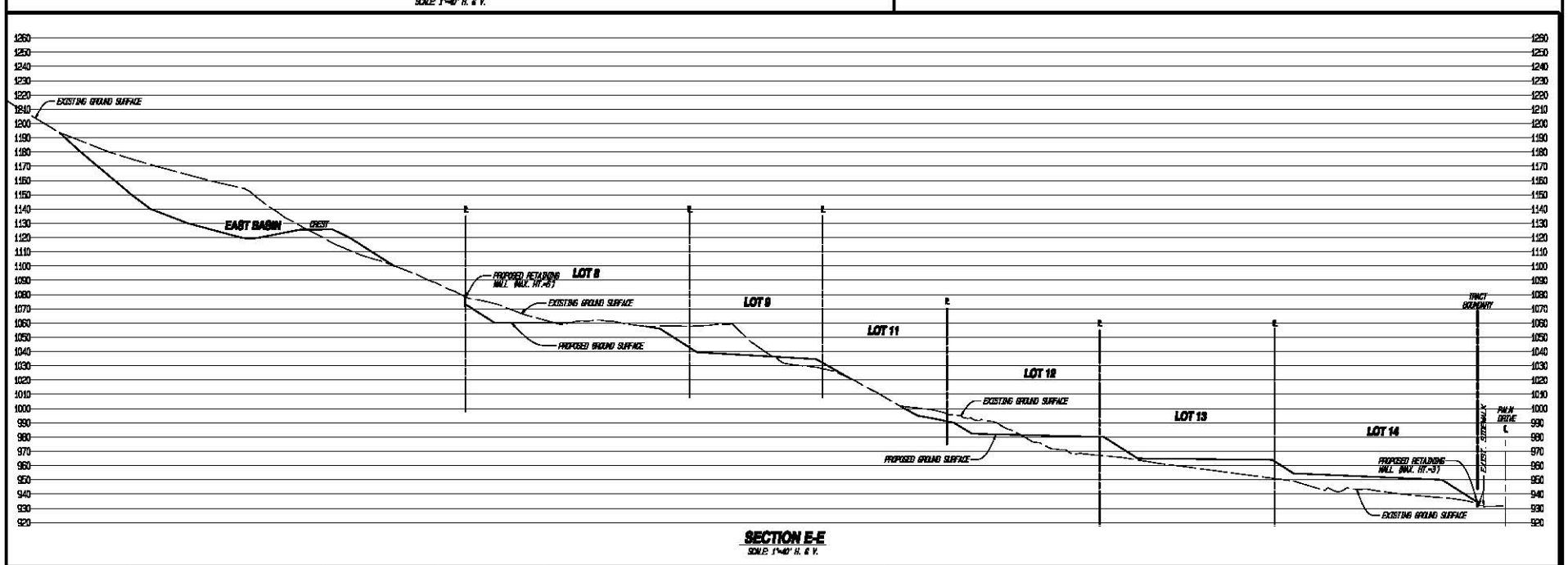
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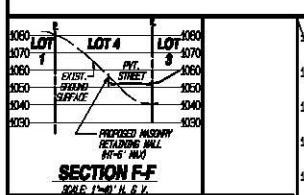
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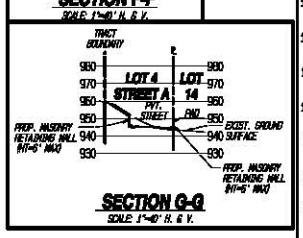
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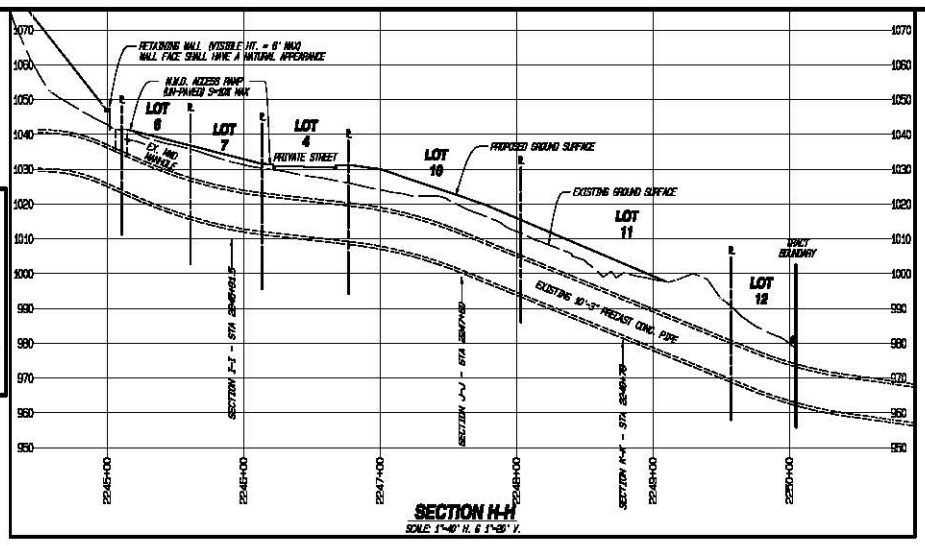
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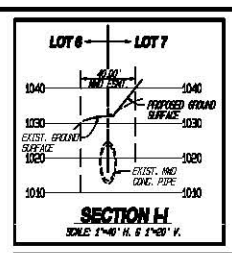
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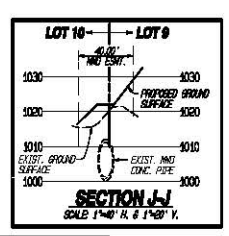
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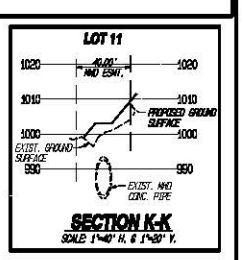
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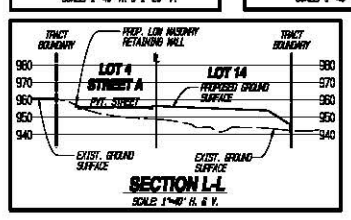
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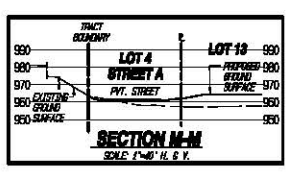
SECTION J-J
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SECTION K-K
SCALE: 1"=40' H. & 1"=20' V.



SECTION L-L
SCALE: 1"=40' H. & V.



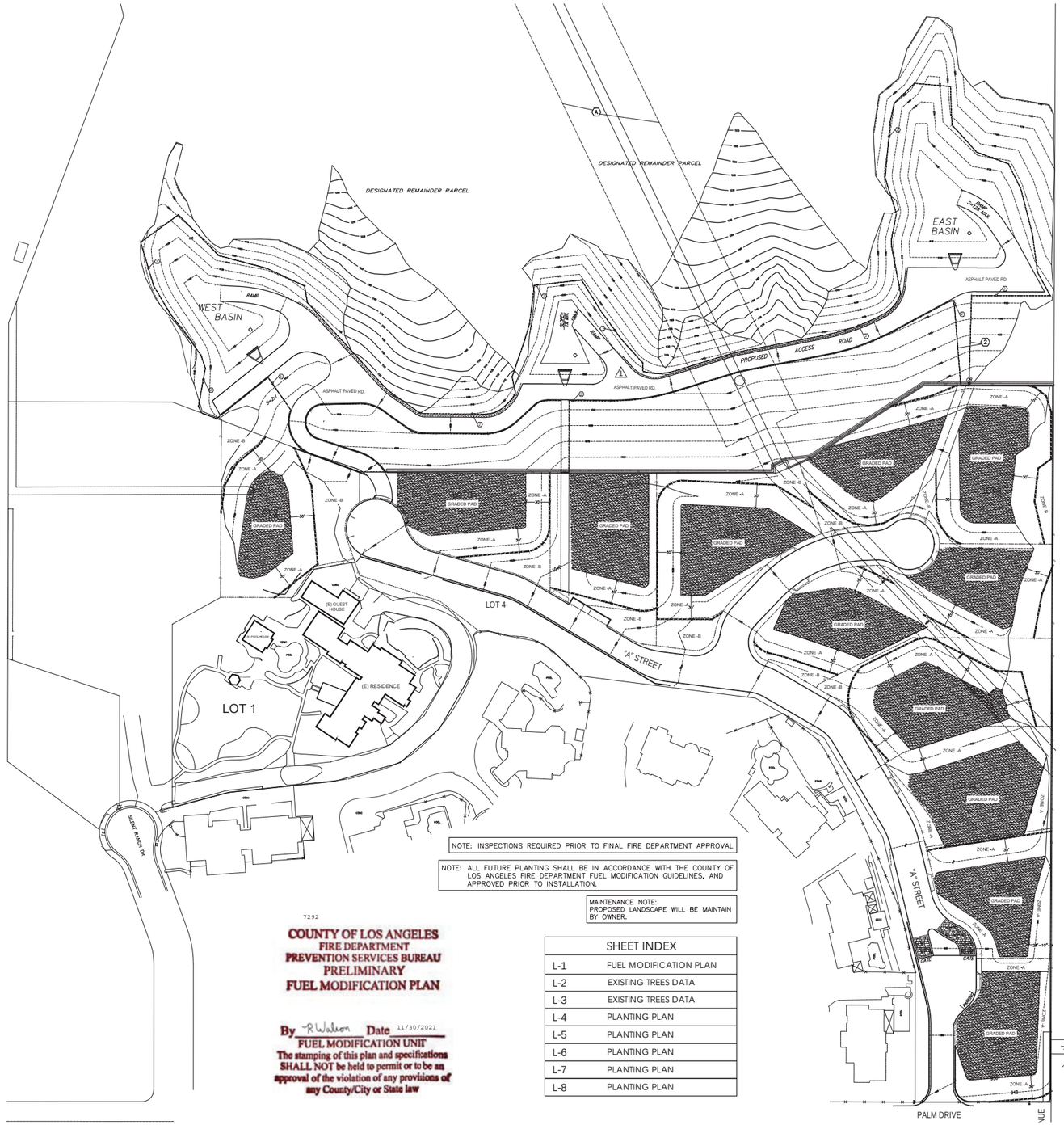
SECTION M-M
SCALE: 1"=40' H. & V.

SOURCE: City of Glendora Engineering Division, 2021

FIGURE 2-4b
Cross-Sections of TTM No. 72413
Grand Estates Project

DUDEK

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CONSULTANTS

OWNER / DEVELOPER
DREAMLAND INVESTMENT
INVESTMENT LLC
626.236.7388

CIVIL ENGINEER
GIRON ENGINEERS INC.
654 S. GLENDORA AVE.
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LANDSCAPE ARCHITECT
Phil May Landscape Architecture
2532 Wallace Ave.
Fullerton, CA 92831
909-373-1959

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FIRE DEPARTMENT
1320 NORTH EASTERN AVENUE
LOS ANGELES, CALIFORNIA 90063-3294
(323) 881-2401
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FUEL MODIFICATION PLAN NOTES

Zone A – Setback Zone

- Extends 30 feet beyond the edge of any combustible structure, accessory structure, appendage or projection. Overhangs or parts of structures not accurately reflected on the plans may negate the approval of plant location on the approved plan.
- Irrigation by automatic or manual systems shall be provided to maintain healthy vegetation and fire resistance.
- Vegetation in this zone shall consist primarily of green lawns, ground covers not exceeding 6 inches in height, and adequately spaced shrubs. The overall landscape characteristics shall provide adequate defensible space in a fire environment.
- Plants in Zone A shall be inherently highly fire resistant and appropriately spaced. Species selection should reference the Fuel Modification Plant List. Other species may be used subject to approval. Plans re-submitted 6 months after the initial review will be evaluated based on the current Fuel Modification Plant List, available from the Fuel Modification Unit.
- Trees are generally **not recommended,** except for dwarf varieties or mature trees small in stature.
- Target species will typically not be allowed within 30 feet of combustible structures and may require removal if existing.
- Vines and climbing plants shall not be allowed on any combustible structure requiring review.

Zone B – Irrigated Zone

- Extends from the outer edge of Zone A to 100 feet from structures.
- Irrigation by automatic or manual systems shall be provided to maintain healthy vegetation and fire resistance.
- Vegetation in this zone shall primarily consist of green lawns, ground covers, and adequately spaced shrubs and trees.
- Unless otherwise approved, ground covers shall be maintained at a height not to exceed 6 inches. On slopes, 12 inches is acceptable within 50 feet of a structure, and 18 inches beyond 50 feet. The overall landscape characteristics shall provide adequate defensible space in a fire environment. Specimen native plants may be approved to remain if properly maintained for adequate defensible space. Annual grasses or weeds shall be maintained at a height not to exceed 3 inches.
- Plants shall be fire resistant and appropriately spaced. Plant selection should reference the Fuel Modification Plant List. Other plants may be used subject to approval.
- Replacement planting to meet minimum City or County slope coverage requirements or ordinances will be considered. In all cases, the overall landscape characteristics shall provide adequate defensible space in a fire environment.
- Target species may require removal within 50 feet of structures, depending on site conditions.
- All trees, unless otherwise approved, shall be planted far enough from structures and Fire access roads, as to not overhang any structure or access at maturity.

Zone C – Native Brush Thinning Zone

- Extends from the outer edge of Zone B up to 200 feet from structures or to the property line.
- Requires thinning and clearance will be determined upon inspection.
- Irrigation systems are not required.
- Vegetation may consist of modified existing native plants, adequately spaced ornamental shrubs and trees, or both. Replacement planting to meet minimum City or County slope coverage requirements or ordinances will be considered. In all cases, the overall landscape characteristics shall provide adequate defensible space in a fire environment.
- Plants shall be spaced appropriately. Existing native vegetation shall be modified by thinning and removal of plants constituting a fire risk; these include, but are not limited to: chamise, sage, ridge brush, and buckwheat.
- Annual grasses and weeds shall be maintained at a height not to exceed 3 inches.
- General spacing for existing native shrubs or groups of shrubs is 15 feet between canopies. Native plants may be thinned by reduced amounts as the distance from development increases.
- General spacing for existing native trees or groups of trees is 30 feet between canopies. This distance may vary depending on the slope, arrangement of trees in relation to slope, and the tree species.

Fire Access Road Zone

- Extends a minimum of 10 feet from the edge of any public or private road used by fire-fighting resources.
- Clear and remove flammable growth for a minimum of 10 feet on each side of Fire Access Roads. (Fire Code 325.10) Additional clearance beyond 10 feet may be required upon inspection.
- Fire access roads, driveways and turnarounds shall be maintained in accordance with fire code. Fire Access Roads shall have unobstructed vertical clearance clear to the sky for a width of 20 feet. (Fire Code 503.2.1)
- Remaining plants shall be appropriately spaced and maintained to provide safe egress in wildland fire environments.
- All trees, unless otherwise approved, shall be planted far enough from structures and Fire access roads, as to not overhang any structure or access at maturity.

Maintenance

Routine maintenance shall be regularly performed in all zones. Requirements include items in the Fuel Modification Guidelines and those outlined below:

- Removal or thinning of undesirable combustible vegetation and removal of dead or dying plants to meet minimum brush clearance requirements.
- Pruning and thinning to reduce the overall fuel load and continuity of fuels.
- Fuel loads shall be reduced by pruning lower branches of trees and tree-form shrubs to 1/3 of their height, or 6 feet from lowest hanging branches to the ground, to help prevent fire from spreading and make maintenance easier. Trees with understory plants should be limbed up at least three times the height of the underlying vegetation or up to one third the height of the tree, whichever is less, to help prevent fire from spreading upward into the crown.
- Accumulated plant litter and dead wood shall be removed. Debris and trimmings produced by maintenance should be removed from the site or chipped and evenly dispersed in the same area to a maximum depth of 6 inches.
- All invasive species and their parts should be removed from the site.
- Manual and automatic irrigation systems shall be maintained for operational integrity and programming. Effectiveness should be regularly evaluated to avoid over or under-watering.
- Compliance with the Fire Code is a year-round responsibility. Enforcement will occur following inspection by the Fire Department. Annual inspections for brush clearance code requirements are conducted following the natural drying of grasses and fine fuels, between the months of April and June depending on geographic region. Inspection for compliance with an approved Fuel Modification Plan may occur at any time of year.
- Brush Clearance enforcement issues on adjacent properties should be directed to the County of Los Angeles Fire Department's Brush Clearance Unit at (626) 969-2375.
- All future plantings shall be in accordance with the County of Los Angeles Fire Department Fuel Modification Guidelines and approved prior to installation. Changes to the approved plan which require an additional plan review will incur a plan review fee.
- Questions regarding landscape planting and maintenance with regard to fire safety should be directed to the Fire Department's Fuel Modification Unit at (626) 969-5205.

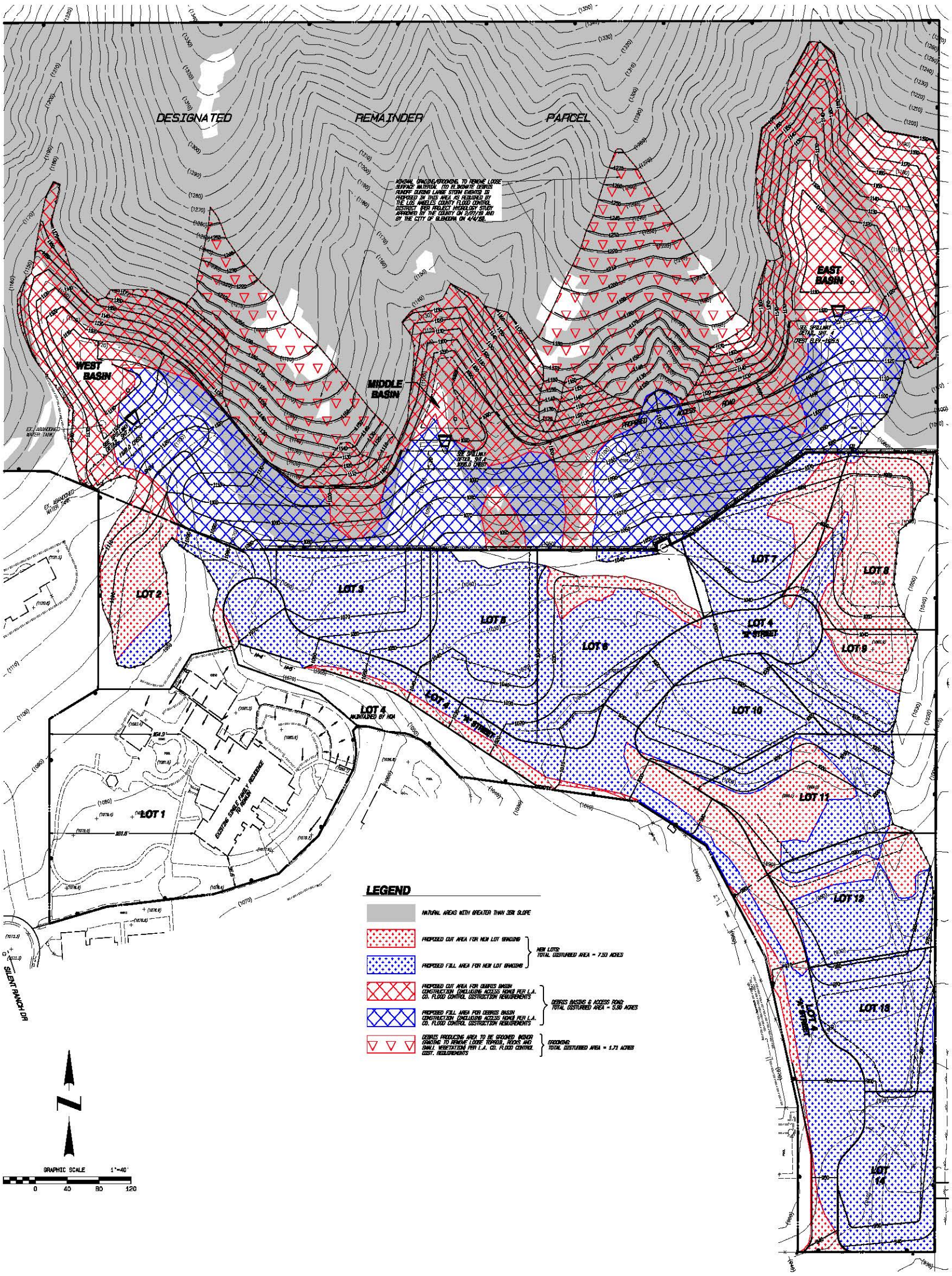
Approval of this Fuel Modification Plan constitutes approval for only those Codes reviewed as part of the Fuel Modification process and does not replace the needed approval of any other office or agency with jurisdiction and review responsibility for those items which may or may not be illustrated on the plan.

SOURCE: Phil May Landscape Architecture, 2021

FIGURE 2-5
Preliminary Fuel Modification Plan
Grand Estates Project

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AVERAGE SLOPE CALCULATIONS

TENTATIVE TRACT MAP # 72413

AVERAGE SLOPE CALCULATIONS

A - Overall lot before subdivision	Lot 2 - after grading	Lot 7 - after grading	Lot 11 - after grading
S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL
L = 114850 ft CUMULATIVE LENGTH OF CONTOURS	L = 1375 ft CUMULATIVE LENGTH OF CONTOURS	L = 1107 ft CUMULATIVE LENGTH OF CONTOURS	L = 1999 ft CUMULATIVE LENGTH OF CONTOURS
A = 27.072 ac AREA OF LOT	A = 0.72 ac AREA OF LOT	A = 0.50 ac AREA OF LOT	A = 0.72 ac AREA OF LOT
S = 48.79 % AVERAGE SLOPE	S = 21.96 % AVERAGE SLOPE	S = 25.46 % AVERAGE SLOPE	S = 31.93 % AVERAGE SLOPE
	LOT COVERAGE ALLOWED 25% 7840.8 SF	LOT COVERAGE ALLOWED 20% 4356. SF	LOT COVERAGE ALLOWED 20% 6272.6 SF
B - South portion of overall lot - before grading	**Lot 3 - after grading**	**Lot 8 - after grading**	**Lot 12 - after grading**
S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL
L = 22255 ft CUMULATIVE LENGTH OF CONTOURS	L = 991 ft CUMULATIVE LENGTH OF CONTOURS	L = 1181 ft CUMULATIVE LENGTH OF CONTOURS	L = 947 ft CUMULATIVE LENGTH OF CONTOURS
A = 10.860 ac AREA OF LOT	A = 0.49 ac AREA OF LOT	A = 0.67 ac AREA OF LOT	A = 0.57 ac AREA OF LOT
S = 23.57 % AVERAGE SLOPE	S = 23.26 % AVERAGE SLOPE	S = 23.7 % AVERAGE SLOPE	S = 19.11 % AVERAGE SLOPE
	LOT COVERAGE ALLOWED 25% 5336.1 SF	LOT COVERAGE ALLOWED 25% 7296.3 SF	LOT COVERAGE ALLOWED 25% 6207.3 SF
C - Remainder parcel	**Lot 5 - after grading**	**Lot 9 - after grading**	**Lot 13 - after grading**
S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL
L = 92587 ft CUMULATIVE LENGTH OF CONTOURS	L = 858 ft CUMULATIVE LENGTH OF CONTOURS	L = 933 ft CUMULATIVE LENGTH OF CONTOURS	L = 841 ft CUMULATIVE LENGTH OF CONTOURS
A = 16.212 ac AREA OF LOT	A = 0.58 ac AREA OF LOT	A = 0.46 ac AREA OF LOT	A = 0.46 ac AREA OF LOT
S = 65.68 % AVERAGE SLOPE	S = 17.01 % AVERAGE SLOPE	S = 23.33 % AVERAGE SLOPE	S = 21.01 % AVERAGE SLOPE
	LOT COVERAGE ALLOWED 25% 6316.2 SF	LOT COVERAGE ALLOWED 25% 5009.4 SF	LOT COVERAGE ALLOWED 25% 5009.4 SF
	Lot 6 - after grading	**Lot 10 - after grading**	**Lot 14 - after grading**
	S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A	S = [I.0023(I)(L)]/A
	I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL	I = 5 ft CONTOUR INTERVAL
	L = 1894 ft CUMULATIVE LENGTH OF CONTOURS	L = 953 ft CUMULATIVE LENGTH OF CONTOURS	L = 811 ft CUMULATIVE LENGTH OF CONTOURS
	A = 0.73 ac AREA OF LOT	A = 0.48 ac AREA OF LOT	A = 0.46 ac AREA OF LOT
	S = 29.84 % AVERAGE SLOPE	S = 22.83 % AVERAGE SLOPE	S = 20.28 % AVERAGE SLOPE
	LOT COVERAGE ALLOWED 20% 6959.8 SF	LOT COVERAGE ALLOWED 25% 5227.2 SF	LOT COVERAGE ALLOWED 25% 5009.4 SF

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SOURCE: City of Glendora Engineering Division, 2021

FIGURE 2-6

Hillside Slope and Areas of Cut/Fill

Grand Estates Project

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View A - Existing Conditions



View A - Proposed Conditions

SOURCE: Dreamland Investments LLC, 2022

DUDEK

FIGURE 3-1a
View Simulation A
Grand Estates Project

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View B - Existing Conditions



View B - Proposed Conditions



View B - X-Ray View

SOURCE: Dreamland Investments LLC, 2022

DUDEK

FIGURE 3-1b
View Simulation B
Grand Estates Project

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View C - Existing Conditions



View C - Proposed Conditions



View C - X-Ray View

SOURCE: Dreamland Investments LLC, 2022

FIGURE 3-1c

View Simulation C

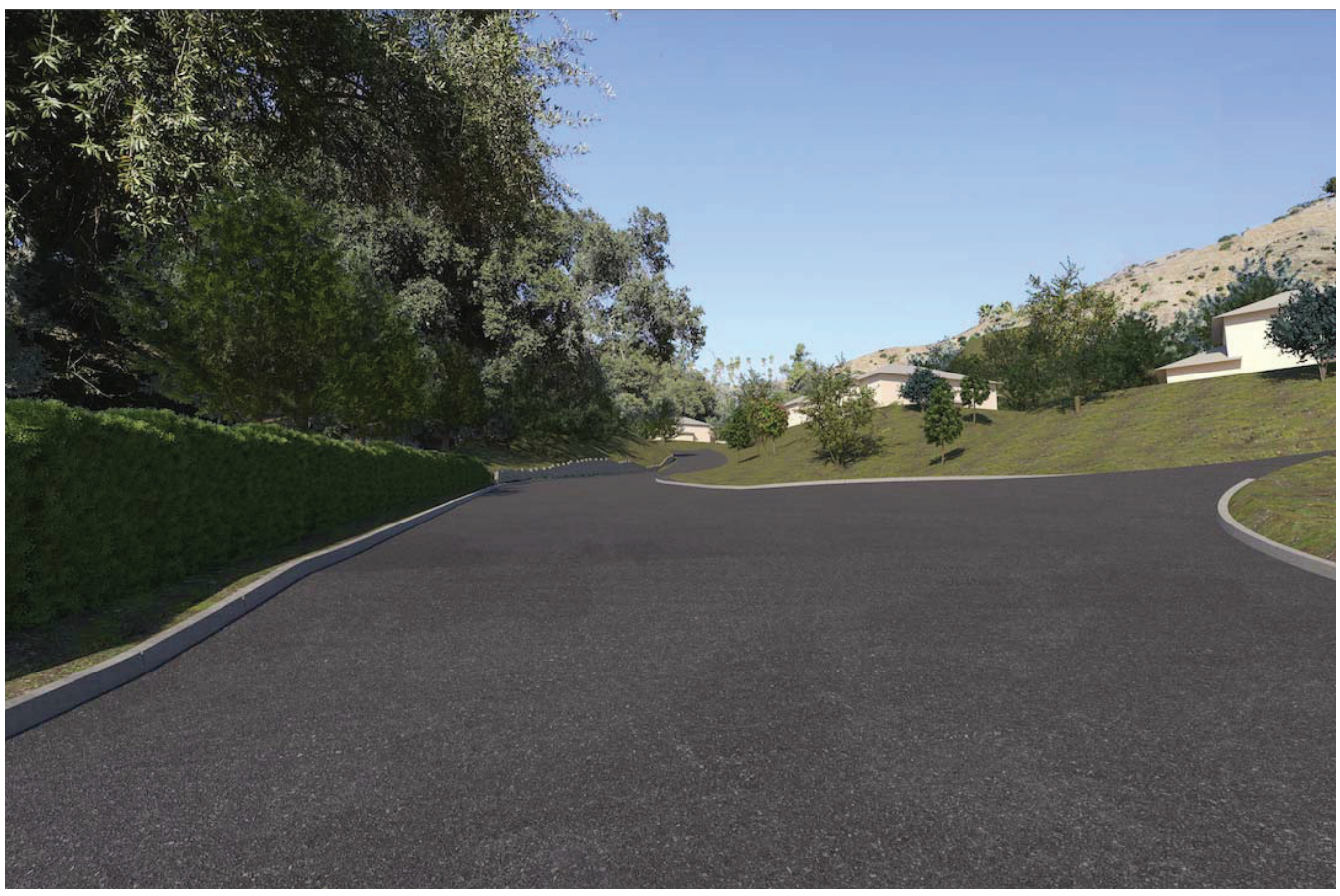
Grand Estates Project

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View D - Existing Conditions



View D - Proposed Conditions

SOURCE: Dreamland Investments LLC, 2022

DUDEK

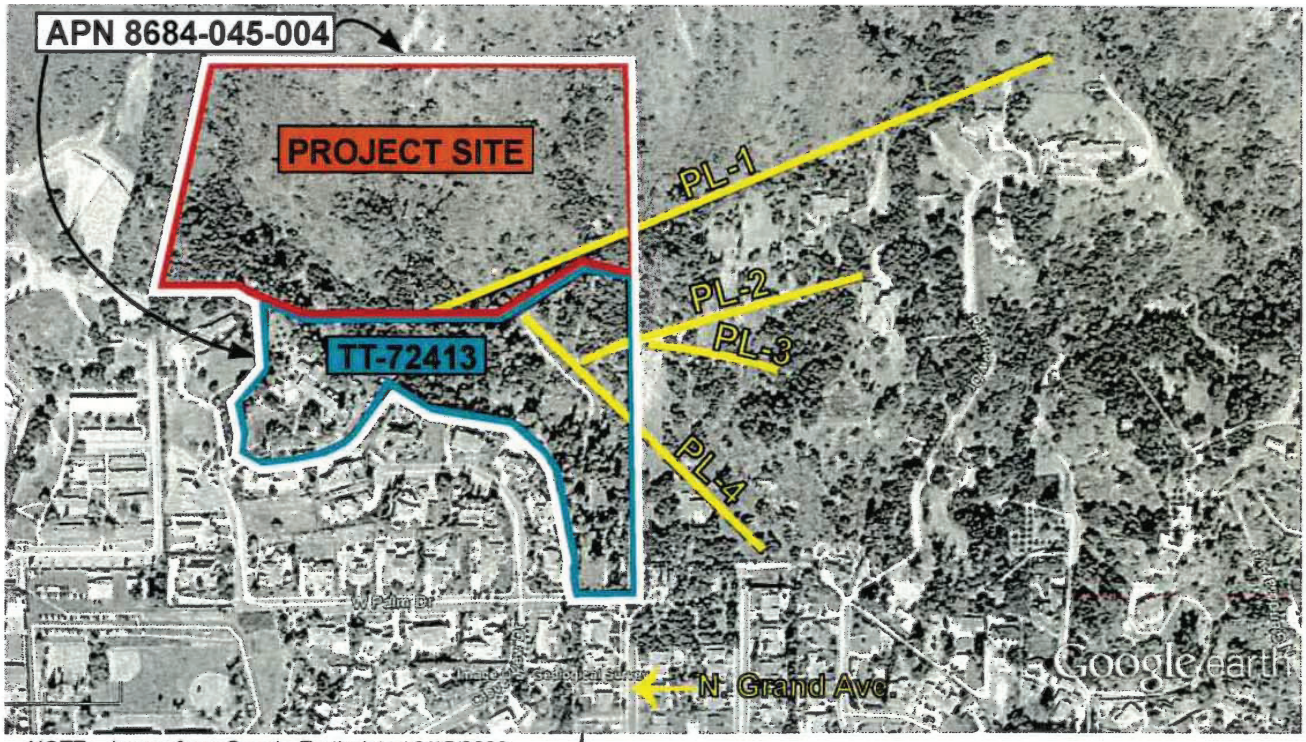
FIGURE 3-1d

View Simulation D

Grand Estates Project

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NOTE: Image from Google Earth dated 3/15/2006

N



NOTE: Image from Aerial Photograph Exposure AXJ-1952-92-84, dated 1/2/1953

PL-4 Location of photographic lineament

PL-1 Dashed where projected

N

400 0 400 800

scale feet

SOURCE: G. A. Nicoll & Associates, Inc 2021

FIGURE 3.7-1

Photo Lineament

Grand Estates Project

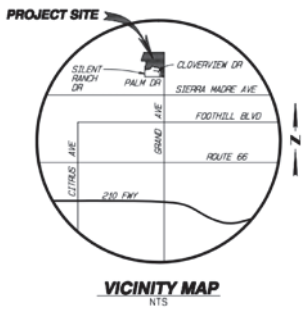
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1" = 100'

0 50 100 200 300 400 Feet

N



VICINITY MAP
NTS

Existing condition hydrologic design data and debris production

Subarea	Total Area (ac)	Percent Impervious	Longest Flow Path Length (ft)	Longest Flow Path Slope (%)	Routing Flow Path Length (ft)	Routing Flow Path Slope (%)	Soil Type	Bulking factor	DPR (yd^3/mi^2)	DPV (yd^3)
A1	5.6	1.0%	971	44%	971	44%	081	2.0	240000	2100
A2	4.8	1.0%	812	47%	812	47%	081	2.0	240000	1800
A3	3.6	1.0%	926	38%	611	26%	081	2.0	240000	1350
A4	7.0	1.0%	749	58%	521	48%	081	2.0	240000	2630
A5	4.7	1.0%	835	32%	757	24%	081	2.0	240000	1760
A6	6.1	1.0%	886	50%	886	50%	081	2.0	240000	2290
A7	5.6	1.0%	983	44%	595	24%	081	2.0	240000	2100
A8-1	3.9	3.0%	1166	23%	806	12%	081	1.921	201000	1220
A8-2	5.1	1.0%	766	38%	659	16%	081	1.964	222000	1770
A9	1.5	1.0%	655	28%	395	20%	081	2.0	240000	560
A10-1	1.7	1.0%	882	13%	617	09%	007	1.604	46000	120
A10-2	1.4	1.0%	768	15%	711	14%	007	1.643	65000	140
Lot1b	0.5	21%	451	24%	184	09%	007	N/A	N/A	N/A
TOTAL:	51.5								TOTAL:	17840

HYDROLOGY STUDY
APPROVED BY CITY OF GLENDORA
APPROVED BY: _____ RCE NO. _____ DATE: _____

HYDROLOGY STUDY
CITY OF GLENDORA
RECOMMENDED FOR CITY APPROVAL
CHECKED BY: _____ RCE NO. 88200 DATE: 2/27/2019
APPROVED BY: _____ DATE: 2/27/2019
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

Legend

- Subarea Concentration Point
- DPA Zone Boundary
- Travel Time Flowpath
- 10 ft Contour
- Property Boundary
- Subarea Boundary
- Parcel Boundaries

A1 5.6 AC
A2 4.8 AC
A3 3.6 AC
A4 7 AC
A5 4.7 AC
A6 6.1 AC
A7 5.6 AC
A8-1 3.9 AC
A8-2 5.1 AC
A9 1.5 AC
A10-1 1.7 AC
A10-2 1.4 AC
Lot 1b 0.5 AC

1884
1862
1635
1540
1278
1148
1108
1084
1028
1013
1590

ΣQ25 = 18.6cfs
ΣQ50 = 21.5cfs
ΣQ50 Burn = 22.3cfs
ΣQ50 BB = 44.6fs
ΣDPV = 1800yd³

ΣQ25 = 21.7cfs
ΣQ50 = 25.1cfs
ΣQ50 Burn = 26cfs
ΣQ50 BB = 52cfs
ΣDPV = 2100yd³

ΣQ25 = 42.8cfs
ΣQ50 = 49.8cfs
ΣQ50 Burn = 51.7cfs
ΣQ50 BB = 103cfs
ΣDPV = 4430yd³
ΣArea = 11.8 ac

ΣQ25 = 31.3cfs
ΣQ50 = 36.6cfs
ΣQ50 Burn = 38.1cfs
ΣQ50 BB = 76.2cfs
ΣDPV = 3450yd³
ΣArea = 9.2 ac

ΣQ25 = 58.1cfs
ΣQ50 = 68cfs
ΣQ50 Burn = 70.8cfs
ΣQ50 BB = 142cfs
ΣDPV = 6530yd³
ΣArea = 17.4 ac

ΣQ25 = 23.6cfs
ΣQ50 = 27.4cfs
ΣQ50 Burn = 28.3cfs
ΣQ50 BB = 56.6cfs
ΣDPV = 2290yd³

ΣQ25 = 42.1cfs
ΣQ50 = 49.5cfs
ΣQ50 Burn = 51.8cfs
ΣQ50 BB = 104cfs
ΣDPV = 5230yd³
ΣArea = 13.9 ac

ΣQ25 = 61.3cfs
ΣQ50 = 71.6cfs
ΣQ50 Burn = 74.8cfs
ΣQ50 BB = 150cfs
ΣDPV = 7090yd³
ΣArea = 18.9 ac

CP1
ΣQ25 = 80.8cfs
ΣQ50 = 96cfs
ΣQ50 Burn = 101cfs
ΣQ50 BB = 197cfs
ΣDPV = 10610yd³
ΣArea = 29.5 ac

CP2
ΣQ25 = 142cfs
ΣQ50 = 167cfs
ΣQ50 Burn = 176cfs
ΣQ50 BB = 342cfs
ΣDPV = 17840yd³

DPA Zone 1
DPA Zone 7

Cloverview Dr
W Palm Dr
Ex 36" RCP SD
Grand Ave

F-2

SOURCE: Dreamland Investments LLC, 2021

FIGURE 3.10-1
Existing Conditions Tributary Subareas
Grand Estates Project

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SOURCE: Dreamland Investments LLC, 2021

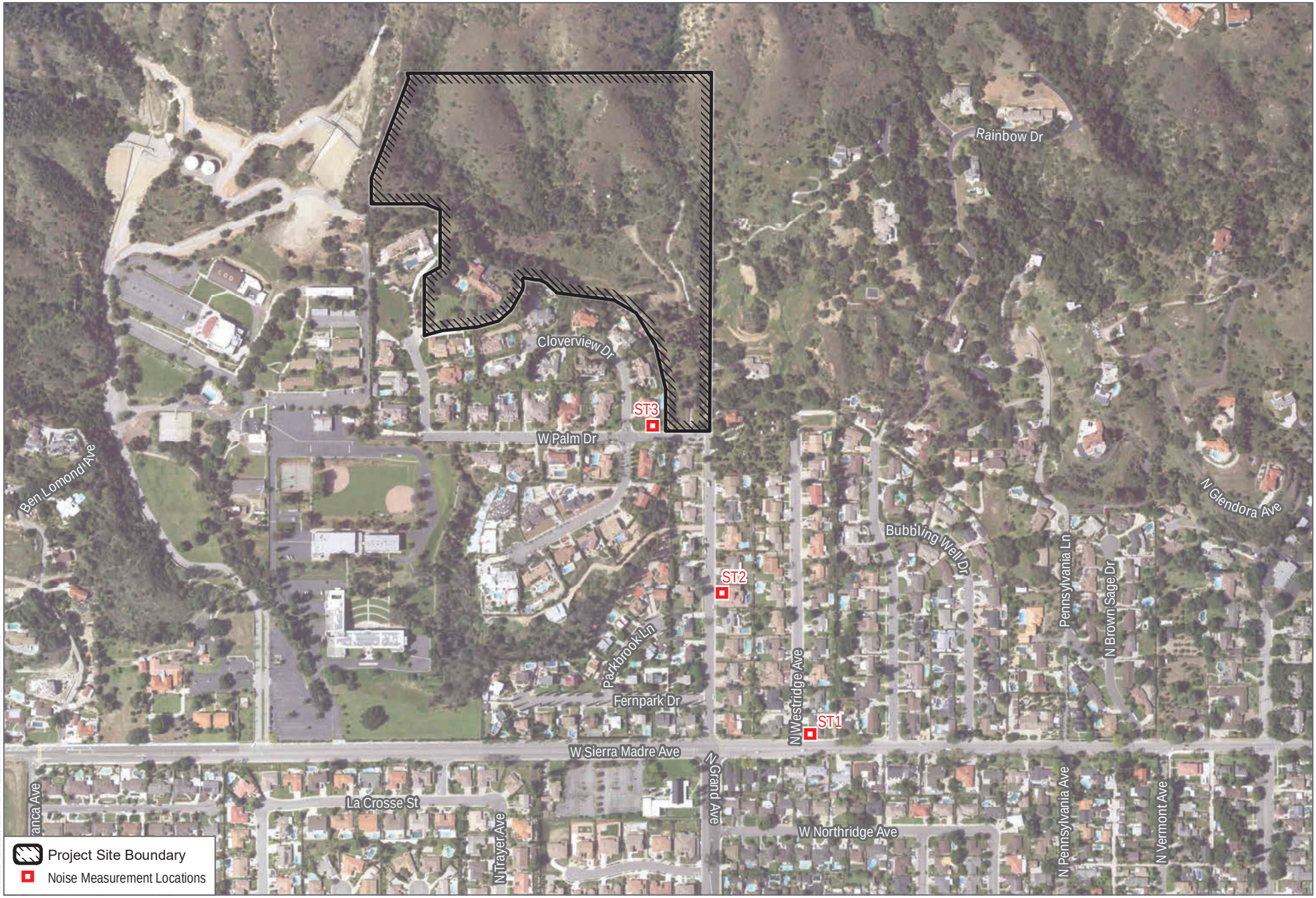
FIGURE 3.10-2

Post-Development Drainage Conditions

Grand Estates Project

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SOURCE: County of Los Angeles 2018; ESRI World Imagery

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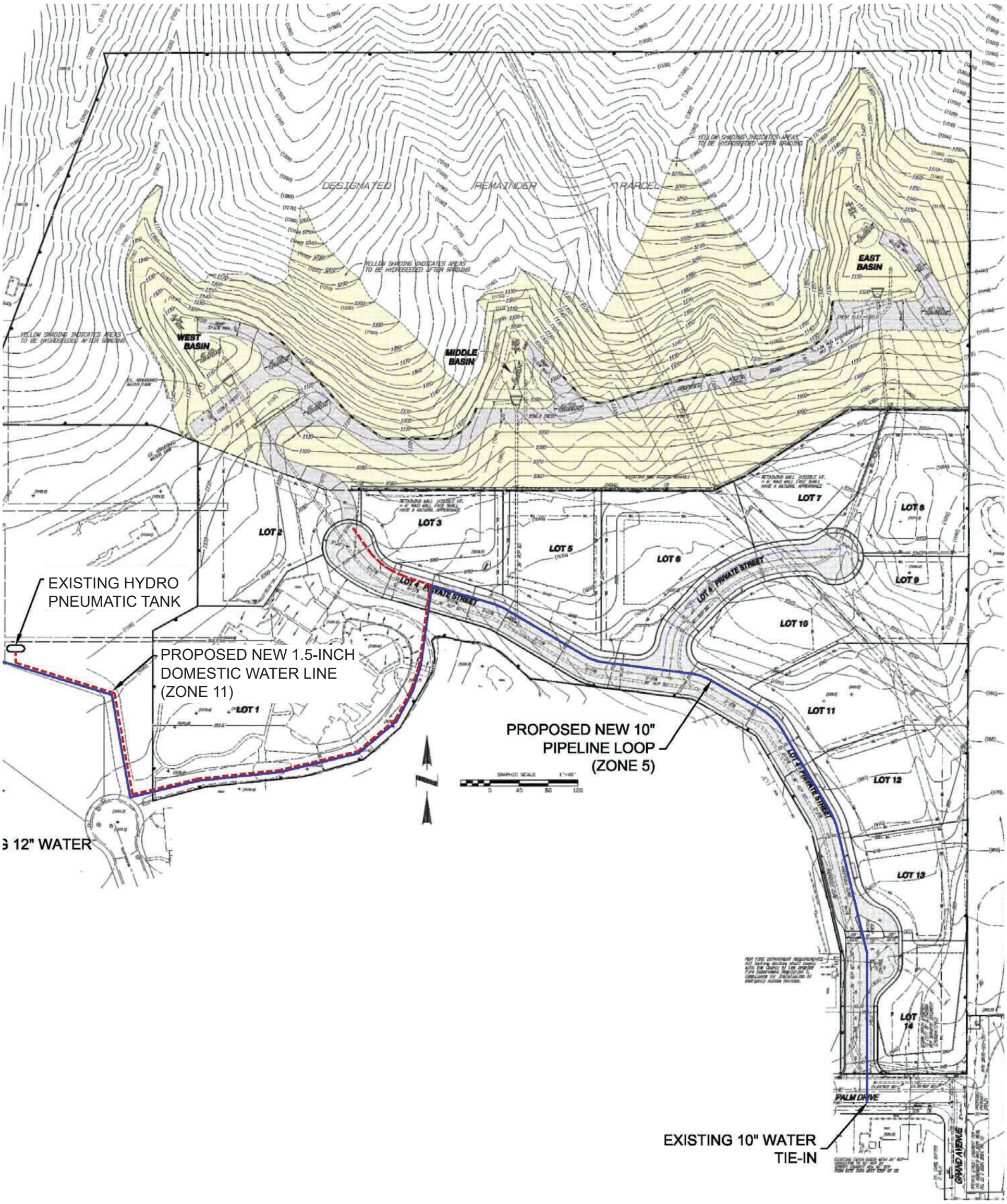
0 250 500 Feet

FIGURE 3.13-1

Noise Measurement Locations

Grand Estates Project

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SOURCE: Dreamland Investments LLC, 2021

FIGURE 3.19-1

Proposed Water Pipeline System

Grand Estates Project

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Appendix A

CalEEMod Modeling Data Sheets

Glendora Hillside Subdivision - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Glendora Hillside Subdivision

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	127.00	1000sqft	2.92	127,000.00	0
Single Family Housing	12.00	Dwelling Unit	9.12	54,000.00	34

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	3			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2024

Land Use - Lot acreage and building square footage based on project site plan.

Construction Phase - Construction scheduel information was provided by the project applicant.

Trips and VMT - Water trucks were added as vendor trucks and haul truck data is based on information provided by the project applicant.

Grading - CalEEMod defaults.

Architectural Coating - CalEEMod defaults.

Vehicle Trips - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Woodstoves - In compliance with SCAQMD Rule 455 no woodstoves or fireplaces were included.

Area Coating - CalEEMod defaults.

Energy Use - CalEEMod defaults.

Construction Off-road Equipment Mitigation - In compliance with SCAQMD Ruel 403 2x watering and limiting vehicle speed to 15 mph was included the modeling.

Fleet Mix - CalEEMod defaults.

Road Dust - CalEEmod defaults.

On-road Fugitive Dust - CalEEMod defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	300.00	305.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	10.00	12.00
tblFireplaces	NumberWood	0.60	0.00
tblGrading	MaterialImported	0.00	2,300.00
tblLandUse	LandUseSquareFeet	21,600.00	54,000.00
tblLandUse	LotAcreage	3.90	9.12
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	227.00	270.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblWoodstoves	NumberCatalytic	0.60	0.00
tblWoodstoves	NumberNoncatalytic	0.60	0.00

2.0 Emissions Summary

Glendora Hillside Subdivision - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	18.2867	36.4360	34.5431	0.0737	19.9719	1.4399	21.2409	10.1870	1.3252	11.3545	0.0000	7,258.4171	7,258.4171	2.0016	0.1598	7,356.0646
2024	1.7057	14.4676	18.9594	0.0388	1.0342	0.6232	1.6575	0.2779	0.5862	0.8641	0.0000	3,784.0656	3,784.0656	0.6357	0.0851	3,825.3210
Maximum	**18.2867**	**36.4360**	**34.5431**	**0.0737**	**19.9719**	**1.4399**	**21.2409**	**10.1870**	**1.3252**	**11.3545**	**0.0000**	**7,258.4171**	**7,258.4171**	**2.0016**	**0.1598**	**7,356.0646**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	18.2867	36.4360	34.5431	0.0737	9.1606	1.4399	10.4295	4.6306	1.3252	5.7981	0.0000	7,258.4171	7,258.4171	2.0016	0.1598	7,356.0645
2024	1.7057	14.4676	18.9594	0.0388	1.0342	0.6232	1.6575	0.2779	0.5862	0.8641	0.0000	3,784.0656	3,784.0656	0.6357	0.0851	3,825.3210
Maximum	**18.2867**	**36.4360**	**34.5431**	**0.0737**	**9.1606**	**1.4399**	**10.4295**	**4.6306**	**1.3252**	**5.7981**	**0.0000**	**7,258.4171**	**7,258.4171**	**2.0016**	**0.1598**	**7,356.0645**

Glendora Hillside Subdivision - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	51.47	0.00	47.21	53.10	0.00	45.47	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Energy	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Mobile	0.4117	0.4844	4.6714	0.0111	1.1723	7.6700e-003	1.1799	0.3124	7.1400e-003	0.3195		1,131.7529	1,131.7529	0.0638	0.0438	1,146.3860
Total	**1.6874**	**0.7380**	**5.7770**	**0.0127**	**1.1723**	**0.0328**	**1.2050**	**0.3124**	**0.0322**	**0.3446**	**0.0000**	**1,442.5369**	**1,442.5369**	**0.0715**	**0.0494**	**1,459.0507**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Energy	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Mobile	0.4117	0.4844	4.6714	0.0111	1.1723	7.6700e-003	1.1799	0.3124	7.1400e-003	0.3195		1,131.7529	1,131.7529	0.0638	0.0438	1,146.3860
Total	**1.6874**	**0.7380**	**5.7770**	**0.0127**	**1.1723**	**0.0328**	**1.2050**	**0.3124**	**0.0322**	**0.3446**	**0.0000**	**1,442.5369**	**1,442.5369**	**0.0715**	**0.0494**	**1,459.0507**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/16/2023	1/31/2023	5	12	
2	Grading	Grading	2/1/2023	2/28/2023	5	20	
3	Building Construction	Building Construction	5/1/2023	6/28/2024	5	305	
4	Architectural Coating	Architectural Coating	5/1/2023	5/31/2023	5	23	
5	Paving	Paving	8/1/2023	8/31/2023	5	23	

Acres of Grading (Site Preparation Phase): 18

Acres of Grading (Grading Phase): 60

Acres of Paving: 2.92

Residential Indoor: 109,350; Residential Outdoor: 36,450; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,620 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	270.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	58.00	22.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0200e-003	0.2395	0.0901	1.2400e-003	0.0440	1.4500e-003	0.0454	0.0127	1.3800e-003	0.0140		133.2656	133.2656	4.4800e-003	0.0193	139.1207
Worker	0.0694	0.0492	0.8233	2.3600e-003	0.2709	1.4900e-003	0.2724	0.0719	1.3700e-003	0.0732		238.7269	238.7269	5.1400e-003	5.1300e-003	240.3830
Total	**0.0765**	**0.2887**	**0.9134**	**3.6000e-003**	**0.3149**	**2.9400e-003**	**0.3178**	**0.0845**	**2.7500e-003**	**0.0873**		**371.9926**	**371.9926**	**9.6200e-003**	**0.0244**	**379.5037**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**8.8457**	**1.2660**	**10.1117**	**4.5461**	**1.1647**	**5.7108**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0200e-003	0.2395	0.0901	1.2400e-003	0.0440	1.4500e-003	0.0454	0.0127	1.3800e-003	0.0140		133.2656	133.2656	4.4800e-003	0.0193	139.1207
Worker	0.0694	0.0492	0.8233	2.3600e-003	0.2709	1.4900e-003	0.2724	0.0719	1.3700e-003	0.0732		238.7269	238.7269	5.1400e-003	5.1300e-003	240.3830
Total	**0.0765**	**0.2887**	**0.9134**	**3.6000e-003**	**0.3149**	**2.9400e-003**	**0.3178**	**0.0845**	**2.7500e-003**	**0.0873**		**371.9926**	**371.9926**	**9.6200e-003**	**0.0244**	**379.5037**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2036**	**1.4245**	**10.6281**	**3.6538**	**1.3105**	**4.9643**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0291	1.6262	0.4573	7.7100e-003	0.2361	0.0123	0.2485	0.0647	0.0118	0.0765		848.4216	848.4216	0.0472	0.1348	889.7681
Vendor	7.0200e-003	0.2395	0.0901	1.2400e-003	0.0440	1.4500e-003	0.0454	0.0127	1.3800e-003	0.0140		133.2656	133.2656	4.4800e-003	0.0193	139.1207
Worker	0.0772	0.0547	0.9148	2.6200e-003	0.3010	1.6600e-003	0.3027	0.0798	1.5300e-003	0.0814		265.2522	265.2522	5.7100e-003	5.7000e-003	267.0922
Total	**0.1133**	**1.9204**	**1.4622**	**0.0116**	**0.5811**	**0.0154**	**0.5966**	**0.1572**	**0.0147**	**0.1719**		**1,246.9394**	**1,246.9394**	**0.0574**	**0.1598**	**1,295.9810**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**4.1416**	**1.4245**	**5.5661**	**1.6442**	**1.3105**	**2.9547**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0291	1.6262	0.4573	7.7100e-003	0.2361	0.0123	0.2485	0.0647	0.0118	0.0765		848.4216	848.4216	0.0472	0.1348	889.7681
Vendor	7.0200e-003	0.2395	0.0901	1.2400e-003	0.0440	1.4500e-003	0.0454	0.0127	1.3800e-003	0.0140		133.2656	133.2656	4.4800e-003	0.0193	139.1207
Worker	0.0772	0.0547	0.9148	2.6200e-003	0.3010	1.6600e-003	0.3027	0.0798	1.5300e-003	0.0814		265.2522	265.2522	5.7100e-003	5.7000e-003	267.0922
Total	**0.1133**	**1.9204**	**1.4622**	**0.0116**	**0.5811**	**0.0154**	**0.5966**	**0.1572**	**0.0147**	**0.1719**		**1,246.9394**	**1,246.9394**	**0.0574**	**0.1598**	**1,295.9810**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0257	0.8782	0.3303	4.5400e-003	0.1612	5.3000e-003	0.1665	0.0464	5.0700e-003	0.0515		488.6406	488.6406	0.0164	0.0707	510.1092
Worker	0.2237	0.1586	2.6528	7.6100e-003	0.8730	4.8100e-003	0.8778	0.2315	4.4300e-003	0.2359		769.2312	769.2312	0.0166	0.0165	774.5675
Total	**0.2495**	**1.0368**	**2.9831**	**0.0122**	**1.0342**	**0.0101**	**1.0443**	**0.2779**	**9.5000e-003**	**0.2874**		**1,257.8718**	**1,257.8718**	**0.0330**	**0.0872**	**1,284.6767**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0257	0.8782	0.3303	4.5400e-003	0.1612	5.3000e-003	0.1665	0.0464	5.0700e-003	0.0515		488.6406	488.6406	0.0164	0.0707	510.1092
Worker	0.2237	0.1586	2.6528	7.6100e-003	0.8730	4.8100e-003	0.8778	0.2315	4.4300e-003	0.2359		769.2312	769.2312	0.0166	0.0165	774.5675
Total	**0.2495**	**1.0368**	**2.9831**	**0.0122**	**1.0342**	**0.0101**	**1.0443**	**0.2779**	**9.5000e-003**	**0.2874**		**1,257.8718**	**1,257.8718**	**0.0330**	**0.0872**	**1,284.6767**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0251	0.8825	0.3248	4.4700e-003	0.1612	5.3200e-003	0.1665	0.0464	5.0900e-003	0.0515		481.6144	481.6144	0.0164	0.0698	502.8112
Worker	0.2090	0.1414	2.4678	7.3900e-003	0.8730	4.6000e-003	0.8776	0.2315	4.2300e-003	0.2357		746.7523	746.7523	0.0150	0.0154	751.7022
Total	**0.2341**	**1.0239**	**2.7926**	**0.0119**	**1.0342**	**9.9200e-003**	**1.0442**	**0.2779**	**9.3200e-003**	**0.2872**		**1,228.3667**	**1,228.3667**	**0.0314**	**0.0851**	**1,254.5133**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0251	0.8825	0.3248	4.4700e-003	0.1612	5.3200e-003	0.1665	0.0464	5.0900e-003	0.0515		481.6144	481.6144	0.0164	0.0698	502.8112
Worker	0.2090	0.1414	2.4678	7.3900e-003	0.8730	4.6000e-003	0.8776	0.2315	4.2300e-003	0.2357		746.7523	746.7523	0.0150	0.0154	751.7022
Total	**0.2341**	**1.0239**	**2.7926**	**0.0119**	**1.0342**	**9.9200e-003**	**1.0442**	**0.2779**	**9.3200e-003**	**0.2872**		**1,228.3667**	**1,228.3667**	**0.0314**	**0.0851**	**1,254.5133**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2265					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**16.4182**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0463	0.0328	0.5489	1.5700e-003	0.1806	9.9000e-004	0.1816	0.0479	9.2000e-004	0.0488		159.1513	159.1513	3.4300e-003	3.4200e-003	160.2553
Total	**0.0463**	**0.0328**	**0.5489**	**1.5700e-003**	**0.1806**	**9.9000e-004**	**0.1816**	**0.0479**	**9.2000e-004**	**0.0488**		**159.1513**	**159.1513**	**3.4300e-003**	**3.4200e-003**	**160.2553**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2265					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**16.4182**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0463	0.0328	0.5489	1.5700e-003	0.1806	9.9000e-004	0.1816	0.0479	9.2000e-004	0.0488		159.1513	159.1513	3.4300e-003	3.4200e-003	160.2553
Total	**0.0463**	**0.0328**	**0.5489**	**1.5700e-003**	**0.1806**	**9.9000e-004**	**0.1816**	**0.0479**	**9.2000e-004**	**0.0488**		**159.1513**	**159.1513**	**3.4300e-003**	**3.4200e-003**	**160.2553**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3326					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3654**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0617	0.0437	0.7318	2.1000e-003	0.2408	1.3300e-003	0.2422	0.0639	1.2200e-003	0.0651		212.2017	212.2017	4.5700e-003	4.5600e-003	213.6738
Total	**0.0617**	**0.0437**	**0.7318**	**2.1000e-003**	**0.2408**	**1.3300e-003**	**0.2422**	**0.0639**	**1.2200e-003**	**0.0651**		**212.2017**	**212.2017**	**4.5700e-003**	**4.5600e-003**	**213.6738**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3326					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3654**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0617	0.0437	0.7318	2.1000e-003	0.2408	1.3300e-003	0.2422	0.0639	1.2200e-003	0.0651		212.2017	212.2017	4.5700e-003	4.5600e-003	213.6738
Total	**0.0617**	**0.0437**	**0.7318**	**2.1000e-003**	**0.2408**	**1.3300e-003**	**0.2422**	**0.0639**	**1.2200e-003**	**0.0651**		**212.2017**	**212.2017**	**4.5700e-003**	**4.5600e-003**	**213.6738**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4117	0.4844	4.6714	0.0111	1.1723	7.6700e-003	1.1799	0.3124	7.1400e-003	0.3195		1,131.7529	1,131.7529	0.0638	0.0438	1,146.3860
Unmitigated	0.4117	0.4844	4.6714	0.0111	1.1723	7.6700e-003	1.1799	0.3124	7.1400e-003	0.3195		1,131.7529	1,131.7529	0.0638	0.0438	1,146.3860

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	113.28	114.48	102.60	543,940	543,940
Total	113.28	114.48	102.60	543,940	543,940

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Single Family Housing	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
NaturalGas Unmitigated	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	790.276	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Total		**8.5200e-003**	**0.0728**	**0.0310**	**4.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**		**92.9736**	**92.9736**	**1.7800e-003**	**1.7000e-003**	**93.5261**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.790276	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Total		**8.5200e-003**	**0.0728**	**0.0310**	**4.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**		**92.9736**	**92.9736**	**1.7800e-003**	**1.7000e-003**	**93.5261**

6.0 Area Detail

Glendora Hillside Subdivision - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Unmitigated	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0198	0.1692	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	216.0000	216.0000	4.1400e-003	3.9600e-003	217.2836
Landscaping	0.0310	0.0115	1.0025	5.0000e-005		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003		1.8104	1.8104	1.7800e-003		1.8550
Total	**1.2672**	**0.1807**	**1.0745**	**1.1300e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**217.8104**	**217.8104**	**5.9200e-003**	**3.9600e-003**	**219.1386**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0198	0.1692	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	216.0000	216.0000	4.1400e-003	3.9600e-003	217.2836
Landscaping	0.0310	0.0115	1.0025	5.0000e-005		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003		1.8104	1.8104	1.7800e-003		1.8550
Total	**1.2672**	**0.1807**	**1.0745**	**1.1300e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**217.8104**	**217.8104**	**5.9200e-003**	**3.9600e-003**	**219.1386**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Glendora Hillside Subdivision - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Glendora Hillside Subdivision

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	127.00	1000sqft	2.92	127,000.00	0
Single Family Housing	12.00	Dwelling Unit	9.12	54,000.00	34

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	3			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2024

Land Use - Lot acreage and building square footage based on project site plan.

Construction Phase - Construction scheduel information was provided by the project applicant.

Trips and VMT - Water trucks were added as vendor trucks and haul truck data is based on information provided by the project applicant.

Grading - CalEEMod defaults.

Architectural Coating - CalEEMod defaults.

Vehicle Trips - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Glendora Hillside Subdivision - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Woodstoves - In compliance with SCAQMD Rule 455 no woodstoves or fireplaces were included.

Area Coating - CalEEMod defaults.

Energy Use - CalEEMod defaults.

Construction Off-road Equipment Mitigation - In compliance with SCAQMD Ruel 403 2x watering and limiting vehicle speed to 15 mph was included the modeling.

Fleet Mix - CalEEMod defaults.

Road Dust - CalEEmod defaults.

On-road Fugitive Dust - CalEEMod defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	300.00	305.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	10.00	12.00
tblFireplaces	NumberWood	0.60	0.00
tblGrading	MaterialImported	0.00	2,300.00
tblLandUse	LandUseSquareFeet	21,600.00	54,000.00
tblLandUse	LotAcreage	3.90	9.12
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	227.00	270.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblWoodstoves	NumberCatalytic	0.60	0.00
tblWoodstoves	NumberNoncatalytic	0.60	0.00

2.0 Emissions Summary

Glendora Hillside Subdivision - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	18.3050	36.5303	34.2002	0.0735	19.9719	1.4400	21.2409	10.1870	1.3253	11.3545	0.0000	7,244.1315	7,244.1315	2.0014	0.1603	7,341.9384
2024	1.7204	14.5241	18.7122	0.0384	1.0342	0.6233	1.6575	0.2779	0.5862	0.8642	0.0000	3,741.3692	3,741.3692	0.6356	0.0862	3,782.9481
Maximum	**18.3050**	**36.5303**	**34.2002**	**0.0735**	**19.9719**	**1.4400**	**21.2409**	**10.1870**	**1.3253**	**11.3545**	**0.0000**	**7,244.1315**	**7,244.1315**	**2.0014**	**0.1603**	**7,341.9384**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	18.3050	36.5303	34.2002	0.0735	9.1606	1.4400	10.4295	4.6306	1.3253	5.7981	0.0000	7,244.1315	7,244.1315	2.0014	0.1603	7,341.9384
2024	1.7204	14.5241	18.7122	0.0384	1.0342	0.6233	1.6575	0.2779	0.5862	0.8642	0.0000	3,741.3692	3,741.3692	0.6356	0.0862	3,782.9481
Maximum	**18.3050**	**36.5303**	**34.2002**	**0.0735**	**9.1606**	**1.4400**	**10.4295**	**4.6306**	**1.3253**	**5.7981**	**0.0000**	**7,244.1315**	**7,244.1315**	**2.0014**	**0.1603**	**7,341.9384**

Glendora Hillside Subdivision - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	51.47	0.00	47.21	53.10	0.00	45.47	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Energy	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Mobile	0.4000	0.5204	4.4578	0.0106	1.1723	7.6800e-003	1.1799	0.3124	7.1400e-003	0.3195		1,078.9293	1,078.9293	0.0650	0.0454	1,094.0879
Total	**1.6757**	**0.7740**	**5.5634**	**0.0122**	**1.1723**	**0.0328**	**1.2050**	**0.3124**	**0.0322**	**0.3446**	**0.0000**	**1,389.7133**	**1,389.7133**	**0.0727**	**0.0511**	**1,406.7525**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Energy	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Mobile	0.4000	0.5204	4.4578	0.0106	1.1723	7.6800e-003	1.1799	0.3124	7.1400e-003	0.3195		1,078.9293	1,078.9293	0.0650	0.0454	1,094.0879
Total	**1.6757**	**0.7740**	**5.5634**	**0.0122**	**1.1723**	**0.0328**	**1.2050**	**0.3124**	**0.0322**	**0.3446**	**0.0000**	**1,389.7133**	**1,389.7133**	**0.0727**	**0.0511**	**1,406.7525**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/16/2023	1/31/2023	5	12	
2	Grading	Grading	2/1/2023	2/28/2023	5	20	
3	Building Construction	Building Construction	5/1/2023	6/28/2024	5	305	
4	Architectural Coating	Architectural Coating	5/1/2023	5/31/2023	5	23	
5	Paving	Paving	8/1/2023	8/31/2023	5	23	

Acres of Grading (Site Preparation Phase): 18

Acres of Grading (Grading Phase): 60

Acres of Paving: 2.92

Residential Indoor: 109,350; Residential Outdoor: 36,450; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,620 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	270.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	58.00	22.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7500e-003	0.2512	0.0928	1.2400e-003	0.0440	1.4500e-003	0.0454	0.0127	1.3900e-003	0.0141		133.4782	133.4782	4.4600e-003	0.0193	139.3468
Worker	0.0744	0.0538	0.7374	2.2200e-003	0.2709	1.4900e-003	0.2724	0.0719	1.3700e-003	0.0732		224.8184	224.8184	5.1200e-003	5.4400e-003	226.5669
Total	**0.0811**	**0.3051**	**0.8302**	**3.4600e-003**	**0.3149**	**2.9400e-003**	**0.3179**	**0.0845**	**2.7600e-003**	**0.0873**		**358.2966**	**358.2966**	**9.5800e-003**	**0.0248**	**365.9137**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**8.8457**	**1.2660**	**10.1117**	**4.5461**	**1.1647**	**5.7108**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.7500e-003	0.2512	0.0928	1.2400e-003	0.0440	1.4500e-003	0.0454	0.0127	1.3900e-003	0.0141		133.4782	133.4782	4.4600e-003	0.0193	139.3468
Worker	0.0744	0.0538	0.7374	2.2200e-003	0.2709	1.4900e-003	0.2724	0.0719	1.3700e-003	0.0732		224.8184	224.8184	5.1200e-003	5.4400e-003	226.5669
Total	**0.0811**	**0.3051**	**0.8302**	**3.4600e-003**	**0.3149**	**2.9400e-003**	**0.3179**	**0.0845**	**2.7600e-003**	**0.0873**		**358.2966**	**358.2966**	**9.5800e-003**	**0.0248**	**365.9137**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2036**	**1.4245**	**10.6281**	**3.6538**	**1.3105**	**4.9643**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0272	1.7037	0.4640	7.7200e-003	0.2361	0.0124	0.2485	0.0647	0.0118	0.0765		849.3773	849.3773	0.0471	0.1349	890.7670
Vendor	6.7500e-003	0.2512	0.0928	1.2400e-003	0.0440	1.4500e-003	0.0454	0.0127	1.3900e-003	0.0141		133.4782	133.4782	4.4600e-003	0.0193	139.3468
Worker	0.0827	0.0598	0.8194	2.4700e-003	0.3010	1.6600e-003	0.3027	0.0798	1.5300e-003	0.0814		249.7982	249.7982	5.6900e-003	6.0400e-003	251.7410
Total	**0.1166**	**2.0147**	**1.3762**	**0.0114**	**0.5811**	**0.0155**	**0.5966**	**0.1572**	**0.0147**	**0.1720**		**1,232.6537**	**1,232.6537**	**0.0572**	**0.1603**	**1,281.8548**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.1416	0.0000	4.1416	1.6442	0.0000	1.6442			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**4.1416**	**1.4245**	**5.5661**	**1.6442**	**1.3105**	**2.9547**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0272	1.7037	0.4640	7.7200e-003	0.2361	0.0124	0.2485	0.0647	0.0118	0.0765		849.3773	849.3773	0.0471	0.1349	890.7670
Vendor	6.7500e-003	0.2512	0.0928	1.2400e-003	0.0440	1.4500e-003	0.0454	0.0127	1.3900e-003	0.0141		133.4782	133.4782	4.4600e-003	0.0193	139.3468
Worker	0.0827	0.0598	0.8194	2.4700e-003	0.3010	1.6600e-003	0.3027	0.0798	1.5300e-003	0.0814		249.7982	249.7982	5.6900e-003	6.0400e-003	251.7410
Total	**0.1166**	**2.0147**	**1.3762**	**0.0114**	**0.5811**	**0.0155**	**0.5966**	**0.1572**	**0.0147**	**0.1720**		**1,232.6537**	**1,232.6537**	**0.0572**	**0.1603**	**1,281.8548**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0248	0.9212	0.3404	4.5400e-003	0.1612	5.3300e-003	0.1665	0.0464	5.1000e-003	0.0515		489.4201	489.4201	0.0164	0.0708	510.9384
Worker	0.2397	0.1735	2.3761	7.1700e-003	0.8730	4.8100e-003	0.8778	0.2315	4.4300e-003	0.2359		724.4148	724.4148	0.0165	0.0175	730.0489
Total	**0.2644**	**1.0947**	**2.7165**	**0.0117**	**1.0342**	**0.0101**	**1.0444**	**0.2779**	**9.5300e-003**	**0.2874**		**1,213.8349**	**1,213.8349**	**0.0329**	**0.0884**	**1,240.9873**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0248	0.9212	0.3404	4.5400e-003	0.1612	5.3300e-003	0.1665	0.0464	5.1000e-003	0.0515		489.4201	489.4201	0.0164	0.0708	510.9384
Worker	0.2397	0.1735	2.3761	7.1700e-003	0.8730	4.8100e-003	0.8778	0.2315	4.4300e-003	0.2359		724.4148	724.4148	0.0165	0.0175	730.0489
Total	**0.2644**	**1.0947**	**2.7165**	**0.0117**	**1.0342**	**0.0101**	**1.0444**	**0.2779**	**9.5300e-003**	**0.2874**		**1,213.8349**	**1,213.8349**	**0.0329**	**0.0884**	**1,240.9873**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0241	0.9257	0.3347	4.4800e-003	0.1612	5.3400e-003	0.1665	0.0464	5.1100e-003	0.0515		482.3954	482.3954	0.0164	0.0699	503.6404
Worker	0.2247	0.1546	2.2107	6.9600e-003	0.8730	4.6000e-003	0.8776	0.2315	4.2300e-003	0.2357		703.2750	703.2750	0.0149	0.0163	708.5000
Total	**0.2488**	**1.0803**	**2.5454**	**0.0114**	**1.0342**	**9.9400e-003**	**1.0442**	**0.2779**	**9.3400e-003**	**0.2873**		**1,185.6703**	**1,185.6703**	**0.0313**	**0.0862**	**1,212.1404**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0241	0.9257	0.3347	4.4800e-003	0.1612	5.3400e-003	0.1665	0.0464	5.1100e-003	0.0515		482.3954	482.3954	0.0164	0.0699	503.6404
Worker	0.2247	0.1546	2.2107	6.9600e-003	0.8730	4.6000e-003	0.8776	0.2315	4.2300e-003	0.2357		703.2750	703.2750	0.0149	0.0163	708.5000
Total	**0.2488**	**1.0803**	**2.5454**	**0.0114**	**1.0342**	**9.9400e-003**	**1.0442**	**0.2779**	**9.3400e-003**	**0.2873**		**1,185.6703**	**1,185.6703**	**0.0313**	**0.0862**	**1,212.1404**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2265					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**16.4182**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0496	0.0359	0.4916	1.4800e-003	0.1806	9.9000e-004	0.1816	0.0479	9.2000e-004	0.0488		149.8789	149.8789	3.4200e-003	3.6300e-003	151.0446
Total	**0.0496**	**0.0359**	**0.4916**	**1.4800e-003**	**0.1806**	**9.9000e-004**	**0.1816**	**0.0479**	**9.2000e-004**	**0.0488**		**149.8789**	**149.8789**	**3.4200e-003**	**3.6300e-003**	**151.0446**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2265					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**16.4182**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0496	0.0359	0.4916	1.4800e-003	0.1806	9.9000e-004	0.1816	0.0479	9.2000e-004	0.0488		149.8789	149.8789	3.4200e-003	3.6300e-003	151.0446
Total	**0.0496**	**0.0359**	**0.4916**	**1.4800e-003**	**0.1806**	**9.9000e-004**	**0.1816**	**0.0479**	**9.2000e-004**	**0.0488**		**149.8789**	**149.8789**	**3.4200e-003**	**3.6300e-003**	**151.0446**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3326					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3654**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0661	0.0479	0.6555	1.9800e-003	0.2408	1.3300e-003	0.2422	0.0639	1.2200e-003	0.0651		199.8386	199.8386	4.5500e-003	4.8300e-003	201.3928
Total	**0.0661**	**0.0479**	**0.6555**	**1.9800e-003**	**0.2408**	**1.3300e-003**	**0.2422**	**0.0639**	**1.2200e-003**	**0.0651**		**199.8386**	**199.8386**	**4.5500e-003**	**4.8300e-003**	**201.3928**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3326					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3654**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0661	0.0479	0.6555	1.9800e-003	0.2408	1.3300e-003	0.2422	0.0639	1.2200e-003	0.0651		199.8386	199.8386	4.5500e-003	4.8300e-003	201.3928
Total	**0.0661**	**0.0479**	**0.6555**	**1.9800e-003**	**0.2408**	**1.3300e-003**	**0.2422**	**0.0639**	**1.2200e-003**	**0.0651**		**199.8386**	**199.8386**	**4.5500e-003**	**4.8300e-003**	**201.3928**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4000	0.5204	4.4578	0.0106	1.1723	7.6800e-003	1.1799	0.3124	7.1400e-003	0.3195		1,078.9293	1,078.9293	0.0650	0.0454	1,094.0879
Unmitigated	0.4000	0.5204	4.4578	0.0106	1.1723	7.6800e-003	1.1799	0.3124	7.1400e-003	0.3195		1,078.9293	1,078.9293	0.0650	0.0454	1,094.0879

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	113.28	114.48	102.60	543,940	543,940
Total	113.28	114.48	102.60	543,940	543,940

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Single Family Housing	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
NaturalGas Unmitigated	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	790.276	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Total		**8.5200e-003**	**0.0728**	**0.0310**	**4.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**		**92.9736**	**92.9736**	**1.7800e-003**	**1.7000e-003**	**93.5261**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.790276	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Total		**8.5200e-003**	**0.0728**	**0.0310**	**4.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**		**92.9736**	**92.9736**	**1.7800e-003**	**1.7000e-003**	**93.5261**

6.0 Area Detail

Glendora Hillside Subdivision - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Unmitigated	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0198	0.1692	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	216.0000	216.0000	4.1400e-003	3.9600e-003	217.2836
Landscaping	0.0310	0.0115	1.0025	5.0000e-005		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003		1.8104	1.8104	1.7800e-003		1.8550
Total	**1.2672**	**0.1807**	**1.0745**	**1.1300e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**217.8104**	**217.8104**	**5.9200e-003**	**3.9600e-003**	**219.1386**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0198	0.1692	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	216.0000	216.0000	4.1400e-003	3.9600e-003	217.2836
Landscaping	0.0310	0.0115	1.0025	5.0000e-005		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003		1.8104	1.8104	1.7800e-003		1.8550
Total	**1.2672**	**0.1807**	**1.0745**	**1.1300e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**217.8104**	**217.8104**	**5.9200e-003**	**3.9600e-003**	**219.1386**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Glendora Hillside Subdivision - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Glendora Hillside Subdivision

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	127.00	1000sqft	2.92	127,000.00	0
Single Family Housing	12.00	Dwelling Unit	9.12	54,000.00	34

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	3			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2024

Land Use - Lot acreage and building square footage based on project site plan.

Construction Phase - Construction scheduel information was provided by the project applicant.

Trips and VMT - Water trucks were added as vendor trucks and haul truck data is based on information provided by the project applicant.

Grading - CalEEMod defaults.

Architectural Coating - CalEEMod defaults.

Vehicle Trips - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Woodstoves - In compliance with SCAQMD Rule 455 no woodstoves or fireplaces were included.

Area Coating - CalEEMod defaults.

Energy Use - CalEEMod defaults.

Construction Off-road Equipment Mitigation - In compliance with SCAQMD Ruel 403 2x watering and limiting vehicle speed to 15 mph was included the modeling.

Fleet Mix - CalEEMod defaults.

Road Dust - CalEEmod defaults.

On-road Fugitive Dust - CalEEMod defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	300.00	305.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	10.00	12.00
tblFireplaces	NumberWood	0.60	0.00
tblGrading	MaterialImported	0.00	2,300.00
tblLandUse	LandUseSquareFeet	21,600.00	54,000.00
tblLandUse	LotAcreage	3.90	9.12
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	227.00	270.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblWoodstoves	NumberCatalytic	0.60	0.00
tblWoodstoves	NumberNoncatalytic	0.60	0.00

2.0 Emissions Summary

Glendora Hillside Subdivision - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.4156	2.0205	2.2760	4.7100e-003	0.3112	0.0908	0.4020	0.1244	0.0849	0.2093	0.0000	417.4862	417.4862	0.0833	8.7100e-003	422.1645
2024	0.1107	0.9444	1.2203	2.5000e-003	0.0660	0.0405	0.1065	0.0178	0.0381	0.0559	0.0000	221.2272	221.2272	0.0375	5.1000e-003	223.6831
Maximum	**0.4156**	**2.0205**	**2.2760**	**4.7100e-003**	**0.3112**	**0.0908**	**0.4020**	**0.1244**	**0.0849**	**0.2093**	**0.0000**	**417.4862**	**417.4862**	**0.0833**	**8.7100e-003**	**422.1645**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.4156	2.0205	2.2760	4.7100e-003	0.1957	0.0908	0.2865	0.0710	0.0849	0.1559	0.0000	417.4858	417.4858	0.0833	8.7100e-003	422.1641
2024	0.1107	0.9444	1.2203	2.5000e-003	0.0660	0.0405	0.1065	0.0178	0.0381	0.0559	0.0000	221.2270	221.2270	0.0375	5.1000e-003	223.6829
Maximum	**0.4156**	**2.0205**	**2.2760**	**4.7100e-003**	**0.1957**	**0.0908**	**0.2865**	**0.0710**	**0.0849**	**0.1559**	**0.0000**	**417.4858**	**417.4858**	**0.0833**	**8.7100e-003**	**422.1641**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**30.62**	**0.00**	**22.71**	**37.59**	**0.00**	**20.15**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
17	**1-1-2023**	**3-31-2023**	0.5744	0.5744
18	**4-1-2023**	**6-30-2023**	0.5727	0.5727
19	**7-1-2023**	**9-30-2023**	0.6957	0.6957
20	**10-1-2023**	**12-31-2023**	0.5690	0.5690
21	**1-1-2024**	**3-31-2024**	0.5279	0.5279
22	**4-1-2024**	**6-30-2024**	0.5141	0.5141
		Highest	0.6957	0.6957

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2261	3.5500e-003	0.1262	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.6547	2.6547	2.5000e-004	4.0000e-005	2.6743
Energy	1.5600e-003	0.0133	5.6600e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	32.3626	32.3626	1.7300e-003	4.6000e-004	32.5416
Mobile	0.0704	0.0940	0.8043	1.9000e-003	0.2048	1.3600e-003	0.2061	0.0547	1.2700e-003	0.0559	0.0000	176.0625	176.0625	0.0105	7.3900e-003	178.5251
Waste						0.0000	0.0000		0.0000	0.0000	2.8297	0.0000	2.8297	0.1672	0.0000	7.0105
Water						0.0000	0.0000		0.0000	0.0000	0.2480	2.7766	3.0247	0.0257	6.3000e-004	3.8552
Total	**0.2981**	**0.1108**	**0.9362**	**2.0000e-003**	**0.2048**	**3.2900e-003**	**0.2081**	**0.0547**	**3.2000e-003**	**0.0579**	**3.0777**	**213.8565**	**216.9342**	**0.2054**	**8.5200e-003**	**224.6066**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2261	3.5500e-003	0.1262	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.6547	2.6547	2.5000e-004	4.0000e-005	2.6743
Energy	1.5600e-003	0.0133	5.6600e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	32.3626	32.3626	1.7300e-003	4.6000e-004	32.5416
Mobile	0.0704	0.0940	0.8043	1.9000e-003	0.2048	1.3600e-003	0.2061	0.0547	1.2700e-003	0.0559	0.0000	176.0625	176.0625	0.0105	7.3900e-003	178.5251
Waste						0.0000	0.0000		0.0000	0.0000	2.8297	0.0000	2.8297	0.1672	0.0000	7.0105
Water						0.0000	0.0000		0.0000	0.0000	0.2480	2.7766	3.0247	0.0257	6.3000e-004	3.8552
Total	**0.2981**	**0.1108**	**0.9362**	**2.0000e-003**	**0.2048**	**3.2900e-003**	**0.2081**	**0.0547**	**3.2000e-003**	**0.0579**	**3.0777**	**213.8565**	**216.9342**	**0.2054**	**8.5200e-003**	**224.6066**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/16/2023	1/31/2023	5	12	
2	Grading	Grading	2/1/2023	2/28/2023	5	20	
3	Building Construction	Building Construction	5/1/2023	6/28/2024	5	305	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4	Architectural Coating	Architectural Coating	5/1/2023	5/31/2023	5	23	
5	Paving	Paving	8/1/2023	8/31/2023	5	23	

Acres of Grading (Site Preparation Phase): 18

Acres of Grading (Grading Phase): 60

Acres of Paving: 2.92

Residential Indoor: 109,350; Residential Outdoor: 36,450; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,620 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	270.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	58.00	22.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	19.80	7.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1179	0.0000	0.1179	0.0606	0.0000	0.0606	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1652	0.1095	2.3000e-004		7.6000e-003	7.6000e-003		6.9900e-003	6.9900e-003	0.0000	20.0704	20.0704	6.4900e-003	0.0000	20.2327
Total	**0.0160**	**0.1652**	**0.1095**	**2.3000e-004**	**0.1179**	**7.6000e-003**	**0.1255**	**0.0606**	**6.9900e-003**	**0.0676**	**0.0000**	**20.0704**	**20.0704**	**6.4900e-003**	**0.0000**	**20.2327**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.5100e-003	5.5000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.7259	0.7259	2.0000e-005	1.1000e-004	0.7578
Worker	4.1000e-004	3.3000e-004	4.5600e-003	1.0000e-005	1.6000e-003	1.0000e-005	1.6000e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2425	1.2425	3.0000e-005	3.0000e-005	1.2522
Total	**4.5000e-004**	**1.8400e-003**	**5.1100e-003**	**2.0000e-005**	**1.8600e-003**	**2.0000e-005**	**1.8700e-003**	**4.9000e-004**	**2.0000e-005**	**5.1000e-004**	**0.0000**	**1.9684**	**1.9684**	**5.0000e-005**	**1.4000e-004**	**2.0100**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0531	0.0000	0.0531	0.0273	0.0000	0.0273	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0160	0.1651	0.1095	2.3000e-004		7.6000e-003	7.6000e-003		6.9900e-003	6.9900e-003	0.0000	20.0704	20.0704	6.4900e-003	0.0000	20.2327
Total	**0.0160**	**0.1651**	**0.1095**	**2.3000e-004**	**0.0531**	**7.6000e-003**	**0.0607**	**0.0273**	**6.9900e-003**	**0.0343**	**0.0000**	**20.0704**	**20.0704**	**6.4900e-003**	**0.0000**	**20.2327**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.5100e-003	5.5000e-004	1.0000e-005	2.6000e-004	1.0000e-005	2.7000e-004	7.0000e-005	1.0000e-005	8.0000e-005	0.0000	0.7259	0.7259	2.0000e-005	1.1000e-004	0.7578
Worker	4.1000e-004	3.3000e-004	4.5600e-003	1.0000e-005	1.6000e-003	1.0000e-005	1.6000e-003	4.2000e-004	1.0000e-005	4.3000e-004	0.0000	1.2425	1.2425	3.0000e-005	3.0000e-005	1.2522
Total	**4.5000e-004**	**1.8400e-003**	**5.1100e-003**	**2.0000e-005**	**1.8600e-003**	**2.0000e-005**	**1.8700e-003**	**4.9000e-004**	**2.0000e-005**	**5.1000e-004**	**0.0000**	**1.9684**	**1.9684**	**5.0000e-005**	**1.4000e-004**	**2.0100**

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0920	0.0000	0.0920	0.0365	0.0000	0.0365	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0332	0.3452	0.2805	6.2000e-004		0.0142	0.0142		0.0131	0.0131	0.0000	54.5352	54.5352	0.0176	0.0000	54.9762
Total	**0.0332**	**0.3452**	**0.2805**	**6.2000e-004**	**0.0920**	**0.0142**	**0.1063**	**0.0365**	**0.0131**	**0.0497**	**0.0000**	**54.5352**	**54.5352**	**0.0176**	**0.0000**	**54.9762**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	0.0171	4.6000e-003	8.0000e-005	2.3200e-003	1.2000e-004	2.4500e-003	6.4000e-004	1.2000e-004	7.6000e-004	0.0000	7.7004	7.7004	4.3000e-004	1.2200e-003	8.0757
Vendor	7.0000e-005	2.5200e-003	9.1000e-004	1.0000e-005	4.3000e-004	1.0000e-005	4.5000e-004	1.2000e-004	1.0000e-005	1.4000e-004	0.0000	1.2098	1.2098	4.0000e-005	1.8000e-004	1.2630
Worker	7.6000e-004	6.1000e-004	8.4400e-003	3.0000e-005	2.9500e-003	2.0000e-005	2.9700e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.3010	2.3010	5.0000e-005	6.0000e-005	2.3189
Total	**1.1100e-003**	**0.0203**	**0.0140**	**1.2000e-004**	**5.7000e-003**	**1.5000e-004**	**5.8700e-003**	**1.5400e-003**	**1.5000e-004**	**1.7000e-003**	**0.0000**	**11.2111**	**11.2111**	**5.2000e-004**	**1.4600e-003**	**11.6575**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0414	0.0000	0.0414	0.0164	0.0000	0.0164	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0332	0.3452	0.2805	6.2000e-004		0.0142	0.0142		0.0131	0.0131	0.0000	54.5351	54.5351	0.0176	0.0000	54.9761
Total	**0.0332**	**0.3452**	**0.2805**	**6.2000e-004**	**0.0414**	**0.0142**	**0.0557**	**0.0164**	**0.0131**	**0.0296**	**0.0000**	**54.5351**	**54.5351**	**0.0176**	**0.0000**	**54.9761**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.8000e-004	0.0171	4.6000e-003	8.0000e-005	2.3200e-003	1.2000e-004	2.4500e-003	6.4000e-004	1.2000e-004	7.6000e-004	0.0000	7.7004	7.7004	4.3000e-004	1.2200e-003	8.0757
Vendor	7.0000e-005	2.5200e-003	9.1000e-004	1.0000e-005	4.3000e-004	1.0000e-005	4.5000e-004	1.2000e-004	1.0000e-005	1.4000e-004	0.0000	1.2098	1.2098	4.0000e-005	1.8000e-004	1.2630
Worker	7.6000e-004	6.1000e-004	8.4400e-003	3.0000e-005	2.9500e-003	2.0000e-005	2.9700e-003	7.8000e-004	2.0000e-005	8.0000e-004	0.0000	2.3010	2.3010	5.0000e-005	6.0000e-005	2.3189
Total	**1.1100e-003**	**0.0203**	**0.0140**	**1.2000e-004**	**5.7000e-003**	**1.5000e-004**	**5.8700e-003**	**1.5400e-003**	**1.5000e-004**	**1.7000e-003**	**0.0000**	**11.2111**	**11.2111**	**5.2000e-004**	**1.4600e-003**	**11.6575**

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1376	1.2587	1.4214	2.3600e-003		0.0612	0.0612		0.0576	0.0576	0.0000	202.8292	202.8292	0.0483	0.0000	204.0354
Total	**0.1376**	**1.2587**	**1.4214**	**2.3600e-003**		**0.0612**	**0.0612**		**0.0576**	**0.0576**	**0.0000**	**202.8292**	**202.8292**	**0.0483**	**0.0000**	**204.0354**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-003	0.0807	0.0293	4.0000e-004	0.0139	4.7000e-004	0.0144	4.0100e-003	4.4000e-004	4.4500e-003	0.0000	38.8137	38.8137	1.3000e-003	5.6200e-003	40.5203
Worker	0.0193	0.0156	0.2142	6.4000e-004	0.0750	4.2000e-004	0.0754	0.0199	3.9000e-004	0.0203	0.0000	58.3866	58.3866	1.3200e-003	1.4200e-003	58.8413
Total	**0.0215**	**0.0963**	**0.2435**	**1.0400e-003**	**0.0889**	**8.9000e-004**	**0.0898**	**0.0239**	**8.3000e-004**	**0.0248**	**0.0000**	**97.2003**	**97.2003**	**2.6200e-003**	**7.0400e-003**	**99.3616**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1376	1.2587	1.4214	2.3600e-003		0.0612	0.0612		0.0576	0.0576	0.0000	202.8289	202.8289	0.0483	0.0000	204.0352
Total	**0.1376**	**1.2587**	**1.4214**	**2.3600e-003**		**0.0612**	**0.0612**		**0.0576**	**0.0576**	**0.0000**	**202.8289**	**202.8289**	**0.0483**	**0.0000**	**204.0352**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.2000e-003	0.0807	0.0293	4.0000e-004	0.0139	4.7000e-004	0.0144	4.0100e-003	4.4000e-004	4.4500e-003	0.0000	38.8137	38.8137	1.3000e-003	5.6200e-003	40.5203
Worker	0.0193	0.0156	0.2142	6.4000e-004	0.0750	4.2000e-004	0.0754	0.0199	3.9000e-004	0.0203	0.0000	58.3866	58.3866	1.3200e-003	1.4200e-003	58.8413
Total	**0.0215**	**0.0963**	**0.2435**	**1.0400e-003**	**0.0889**	**8.9000e-004**	**0.0898**	**0.0239**	**8.3000e-004**	**0.0248**	**0.0000**	**97.2003**	**97.2003**	**2.6200e-003**	**7.0400e-003**	**99.3616**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0957	0.8739	1.0508	1.7500e-003		0.0399	0.0399		0.0375	0.0375	0.0000	150.7019	150.7019	0.0356	0.0000	151.5928
Total	**0.0957**	**0.8739**	**1.0508**	**1.7500e-003**		**0.0399**	**0.0399**		**0.0375**	**0.0375**	**0.0000**	**150.7019**	**150.7019**	**0.0356**	**0.0000**	**151.5928**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-003	0.0603	0.0214	2.9000e-004	0.0103	3.5000e-004	0.0107	2.9800e-003	3.3000e-004	3.3100e-003	0.0000	28.4187	28.4187	9.7000e-004	4.1200e-003	29.6704
Worker	0.0134	0.0103	0.1481	4.6000e-004	0.0557	3.0000e-004	0.0560	0.0148	2.8000e-004	0.0151	0.0000	42.1066	42.1066	8.8000e-004	9.8000e-004	42.4198
Total	**0.0150**	**0.0705**	**0.1695**	**7.5000e-004**	**0.0660**	**6.5000e-004**	**0.0667**	**0.0178**	**6.1000e-004**	**0.0184**	**0.0000**	**70.5253**	**70.5253**	**1.8500e-003**	**5.1000e-003**	**72.0902**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0957	0.8738	1.0508	1.7500e-003		0.0399	0.0399		0.0375	0.0375	0.0000	150.7017	150.7017	0.0356	0.0000	151.5927
Total	**0.0957**	**0.8738**	**1.0508**	**1.7500e-003**		**0.0399**	**0.0399**		**0.0375**	**0.0375**	**0.0000**	**150.7017**	**150.7017**	**0.0356**	**0.0000**	**151.5927**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.6000e-003	0.0603	0.0214	2.9000e-004	0.0103	3.5000e-004	0.0107	2.9800e-003	3.3000e-004	3.3100e-003	0.0000	28.4187	28.4187	9.7000e-004	4.1200e-003	29.6704
Worker	0.0134	0.0103	0.1481	4.6000e-004	0.0557	3.0000e-004	0.0560	0.0148	2.8000e-004	0.0151	0.0000	42.1066	42.1066	8.8000e-004	9.8000e-004	42.4198
Total	**0.0150**	**0.0705**	**0.1695**	**7.5000e-004**	**0.0660**	**6.5000e-004**	**0.0667**	**0.0178**	**6.1000e-004**	**0.0184**	**0.0000**	**70.5253**	**70.5253**	**1.8500e-003**	**5.1000e-003**	**72.0902**

3.5 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1866					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2000e-003	0.0150	0.0208	3.0000e-005		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	2.9362	2.9362	1.8000e-004	0.0000	2.9406
Total	**0.1888**	**0.0150**	**0.0208**	**3.0000e-005**		**8.1000e-004**	**8.1000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**2.9362**	**2.9362**	**1.8000e-004**	**0.0000**	**2.9406**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	4.2000e-004	5.8200e-003	2.0000e-005	2.0400e-003	1.0000e-005	2.0500e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.5877	1.5877	4.0000e-005	4.0000e-005	1.6000
Total	**5.2000e-004**	**4.2000e-004**	**5.8200e-003**	**2.0000e-005**	**2.0400e-003**	**1.0000e-005**	**2.0500e-003**	**5.4000e-004**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**1.5877**	**1.5877**	**4.0000e-005**	**4.0000e-005**	**1.6000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1866					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.2000e-003	0.0150	0.0208	3.0000e-005		8.1000e-004	8.1000e-004		8.1000e-004	8.1000e-004	0.0000	2.9362	2.9362	1.8000e-004	0.0000	2.9406
Total	**0.1888**	**0.0150**	**0.0208**	**3.0000e-005**		**8.1000e-004**	**8.1000e-004**		**8.1000e-004**	**8.1000e-004**	**0.0000**	**2.9362**	**2.9362**	**1.8000e-004**	**0.0000**	**2.9406**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.2000e-004	4.2000e-004	5.8200e-003	2.0000e-005	2.0400e-003	1.0000e-005	2.0500e-003	5.4000e-004	1.0000e-005	5.5000e-004	0.0000	1.5877	1.5877	4.0000e-005	4.0000e-005	1.6000
Total	**5.2000e-004**	**4.2000e-004**	**5.8200e-003**	**2.0000e-005**	**2.0400e-003**	**1.0000e-005**	**2.0500e-003**	**5.4000e-004**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**1.5877**	**1.5877**	**4.0000e-005**	**4.0000e-005**	**1.6000**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.1172	0.1677	2.6000e-004		5.8700e-003	5.8700e-003		5.4000e-003	5.4000e-003	0.0000	23.0309	23.0309	7.4500e-003	0.0000	23.2171
Paving	3.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.1172**	**0.1677**	**2.6000e-004**		**5.8700e-003**	**5.8700e-003**		**5.4000e-003**	**5.4000e-003**	**0.0000**	**23.0309**	**23.0309**	**7.4500e-003**	**0.0000**	**23.2171**

Glendora Hillside Subdivision - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-004	5.6000e-004	7.7700e-003	2.0000e-005	2.7200e-003	2.0000e-005	2.7300e-003	7.2000e-004	1.0000e-005	7.4000e-004	0.0000	2.1169	2.1169	5.0000e-005	5.0000e-005	2.1334
Total	**7.0000e-004**	**5.6000e-004**	**7.7700e-003**	**2.0000e-005**	**2.7200e-003**	**2.0000e-005**	**2.7300e-003**	**7.2000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**2.1169**	**2.1169**	**5.0000e-005**	**5.0000e-005**	**2.1334**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0119	0.1172	0.1677	2.6000e-004		5.8700e-003	5.8700e-003		5.4000e-003	5.4000e-003	0.0000	23.0309	23.0309	7.4500e-003	0.0000	23.2171
Paving	3.8300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0157**	**0.1172**	**0.1677**	**2.6000e-004**		**5.8700e-003**	**5.8700e-003**		**5.4000e-003**	**5.4000e-003**	**0.0000**	**23.0309**	**23.0309**	**7.4500e-003**	**0.0000**	**23.2171**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.0000e-004	5.6000e-004	7.7700e-003	2.0000e-005	2.7200e-003	2.0000e-005	2.7300e-003	7.2000e-004	1.0000e-005	7.4000e-004	0.0000	2.1169	2.1169	5.0000e-005	5.0000e-005	2.1334
Total	**7.0000e-004**	**5.6000e-004**	**7.7700e-003**	**2.0000e-005**	**2.7200e-003**	**2.0000e-005**	**2.7300e-003**	**7.2000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**2.1169**	**2.1169**	**5.0000e-005**	**5.0000e-005**	**2.1334**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0704	0.0940	0.8043	1.9000e-003	0.2048	1.3600e-003	0.2061	0.0547	1.2700e-003	0.0559	0.0000	176.0625	176.0625	0.0105	7.3900e-003	178.5251
Unmitigated	0.0704	0.0940	0.8043	1.9000e-003	0.2048	1.3600e-003	0.2061	0.0547	1.2700e-003	0.0559	0.0000	176.0625	176.0625	0.0105	7.3900e-003	178.5251

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	113.28	114.48	102.60	543,940	543,940
Total	113.28	114.48	102.60	543,940	543,940

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Single Family Housing	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

5.0 Energy Detail

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	16.9698	16.9698	1.4300e-003	1.7000e-004	17.0573
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	16.9698	16.9698	1.4300e-003	1.7000e-004	17.0573
NaturalGas Mitigated	1.5600e-003	0.0133	5.6600e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.3928	15.3928	3.0000e-004	2.8000e-004	15.4843
NaturalGas Unmitigated	1.5600e-003	0.0133	5.6600e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.3928	15.3928	3.0000e-004	2.8000e-004	15.4843

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	288451	1.5600e-003	0.0133	5.6600e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.3928	15.3928	3.0000e-004	2.8000e-004	15.4843
Total		**1.5600e-003**	**0.0133**	**5.6600e-003**	**8.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**15.3928**	**15.3928**	**3.0000e-004**	**2.8000e-004**	**15.4843**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	288451	1.5600e-003	0.0133	5.6600e-003	8.0000e-005		1.0700e-003	1.0700e-003		1.0700e-003	1.0700e-003	0.0000	15.3928	15.3928	3.0000e-004	2.8000e-004	15.4843
Total		**1.5600e-003**	**0.0133**	**5.6600e-003**	**8.0000e-005**		**1.0700e-003**	**1.0700e-003**		**1.0700e-003**	**1.0700e-003**	**0.0000**	**15.3928**	**15.3928**	**3.0000e-004**	**2.8000e-004**	**15.4843**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	95687.5	16.9698	1.4300e-003	1.7000e-004	17.0573
Total		**16.9698**	**1.4300e-003**	**1.7000e-004**	**17.0573**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	95687.5	16.9698	1.4300e-003	1.7000e-004	17.0573
Total		**16.9698**	**1.4300e-003**	**1.7000e-004**	**17.0573**

6.0 Area Detail

Glendora Hillside Subdivision - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2261	3.5500e-003	0.1262	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.6547	2.6547	2.5000e-004	4.0000e-005	2.6743
Unmitigated	0.2261	3.5500e-003	0.1262	2.0000e-005		8.6000e-004	8.6000e-004		8.6000e-004	8.6000e-004	0.0000	2.6547	2.6547	2.5000e-004	4.0000e-005	2.6743

Glendora Hillside Subdivision - South Coast AQMD Air District, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0187					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2033					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.5000e-004	2.1100e-003	9.0000e-004	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4494	2.4494	5.0000e-005	4.0000e-005	2.4640
Landscaping	3.8700e-003	1.4400e-003	0.1253	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	0.2053	0.2053	2.0000e-004	0.0000	0.2104
Total	**0.2261**	**3.5500e-003**	**0.1262**	**2.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**2.6547**	**2.6547**	**2.5000e-004**	**4.0000e-005**	**2.6743**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0187					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.2033					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.5000e-004	2.1100e-003	9.0000e-004	1.0000e-005		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	2.4494	2.4494	5.0000e-005	4.0000e-005	2.4640
Landscaping	3.8700e-003	1.4400e-003	0.1253	1.0000e-005		6.9000e-004	6.9000e-004		6.9000e-004	6.9000e-004	0.0000	0.2053	0.2053	2.0000e-004	0.0000	0.2104
Total	**0.2261**	**3.5500e-003**	**0.1262**	**2.0000e-005**		**8.6000e-004**	**8.6000e-004**		**8.6000e-004**	**8.6000e-004**	**0.0000**	**2.6547**	**2.6547**	**2.5000e-004**	**4.0000e-005**	**2.6743**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	3.0247	0.0257	6.3000e-004	3.8552
Unmitigated	3.0247	0.0257	6.3000e-004	3.8552

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.781848 / 0.492904	3.0247	0.0257	6.3000e-004	3.8552
Total		**3.0247**	**0.0257**	**6.3000e-004**	**3.8552**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.781848 / 0.492904	3.0247	0.0257	6.3000e-004	3.8552
Total		**3.0247**	**0.0257**	**6.3000e-004**	**3.8552**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.8297	0.1672	0.0000	7.0105
Unmitigated	2.8297	0.1672	0.0000	7.0105

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	13.94	2.8297	0.1672	0.0000	7.0105
Total		**2.8297**	**0.1672**	**0.0000**	**7.0105**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	13.94	2.8297	0.1672	0.0000	7.0105
Total		**2.8297**	**0.1672**	**0.0000**	**7.0105**

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Glendora Hillside Subdivision - LST

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	127.00	1000sqft	2.92	127,000.00	0
Single Family Housing	12.00	Dwelling Unit	9.12	54,000.00	34

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	3			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2024.

Land Use - Acreage and building square footage for single family homes based on site plan.

Construction Phase - Schedule based on schedule provided by project applicant.

Trips and VMT - Trip distances were reduced to zero for the LST analysis.

Grading - CalEEMod defaults.

Architectural Coating - CalEEMod defaults.

Vehicle Trips - CalEEmod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Woodstoves - Per SCAQMD Rule 445 No woodstoves or fireplaces were included.

Area Coating - CalEEMod defaults.

Energy Use - CalEEMod defaults.

Construction Off-road Equipment Mitigation - In compliance with SCAQMD rule 403, 2x daily watering and unpaved vehicle road speeds were limited to 15 mph.

Fleet Mix - CalEEMod defaults.

Off-road Equipment - CalEEmod defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	300.00	305.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	10.00	12.00
tblFireplaces	NumberWood	0.60	0.00
tblGrading	MaterialImported	0.00	2,300.00
tblLandUse	LandUseSquareFeet	21,600.00	54,000.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblLandUse	LotAcreage	3.90	9.12
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	227.00	270.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblWoodstoves	NumberCatalytic	0.60	0.00
tblWoodstoves	NumberNoncatalytic	0.60	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	18.0948	34.8379	31.3550	0.0626	19.6574	1.4248	20.9235	10.1026	1.3108	11.2674	0.0000	6,063.2402	6,063.2402	1.9478	9.8400e-003	6,114.5347
2024	1.5545	13.7158	16.6121	0.0274	1.1500e-003	0.6137	0.6149	4.6000e-004	0.5773	0.5777	0.0000	2,601.3478	2,601.3478	0.6114	8.6900e-003	2,619.2199
Maximum	**18.0948**	**34.8379**	**31.3550**	**0.0626**	**19.6574**	**1.4248**	**20.9235**	**10.1026**	**1.3108**	**11.2674**	**0.0000**	**6,063.2402**	**6,063.2402**	**1.9478**	**9.8400e-003**	**6,114.5347**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	18.0948	34.8379	31.3550	0.0626	7.6666	1.4248	8.9327	3.9401	1.3108	5.1049	0.0000	6,063.2402	6,063.2402	1.9478	9.8400e-003	6,114.5347
2024	1.5545	13.7158	16.6121	0.0274	1.1500e-003	0.6137	0.6149	4.6000e-004	0.5773	0.5777	0.0000	2,601.3478	2,601.3478	0.6114	8.6900e-003	2,619.2199
Maximum	**18.0948**	**34.8379**	**31.3550**	**0.0626**	**7.6666**	**1.4248**	**8.9327**	**3.9401**	**1.3108**	**5.1049**	**0.0000**	**6,063.2402**	**6,063.2402**	**1.9478**	**9.8400e-003**	**6,114.5347**

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	61.00	0.00	55.67	61.00	0.00	52.03	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Energy	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Mobile	0.4117	0.4844	4.6714	0.0111	1.1723	7.6700e-003	1.1799	0.3124	7.1400e-003	0.3195		1,131.7529	1,131.7529	0.0638	0.0438	1,146.3860
Total	**1.6874**	**0.7380**	**5.7770**	**0.0127**	**1.1723**	**0.0328**	**1.2050**	**0.3124**	**0.0322**	**0.3446**	**0.0000**	**1,442.5369**	**1,442.5369**	**0.0715**	**0.0494**	**1,459.0507**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Energy	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Mobile	0.4117	0.4844	4.6714	0.0111	1.1723	7.6700e-003	1.1799	0.3124	7.1400e-003	0.3195		1,131.7529	1,131.7529	0.0638	0.0438	1,146.3860
Total	**1.6874**	**0.7380**	**5.7770**	**0.0127**	**1.1723**	**0.0328**	**1.2050**	**0.3124**	**0.0322**	**0.3446**	**0.0000**	**1,442.5369**	**1,442.5369**	**0.0715**	**0.0494**	**1,459.0507**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/16/2023	1/31/2023	5	12	
2	Grading	Grading	2/1/2023	2/28/2023	5	20	
3	Building Construction	Building Construction	5/1/2023	6/28/2024	5	305	
4	Architectural Coating	Architectural Coating	5/1/2023	5/31/2023	5	23	
5	Paving	Paving	8/1/2023	8/31/2023	5	23	

Acres of Grading (Site Preparation Phase): 18

Acres of Grading (Grading Phase): 60

Acres of Paving: 2.92

Residential Indoor: 109,350; Residential Outdoor: 36,450; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,620 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	270.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	58.00	22.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.9900e-003	0.0680	0.0558	9.0000e-005	1.6000e-004	4.0000e-005	2.0000e-004	6.0000e-005	4.0000e-005	1.0000e-004		9.6538	9.6538	3.4000e-004	1.5400e-003	10.1208
Worker	0.0230	7.8700e-003	0.0784	3.0000e-005	1.8000e-004	8.0000e-005	2.6000e-004	7.0000e-005	8.0000e-005	1.5000e-004		3.4553	3.4553	1.9500e-003	1.0200e-003	3.8080
Total	**0.0270**	**0.0759**	**0.1342**	**1.2000e-004**	**3.4000e-004**	**1.2000e-004**	**4.6000e-004**	**1.3000e-004**	**1.2000e-004**	**2.5000e-004**		**13.1091**	**13.1091**	**2.2900e-003**	**2.5600e-003**	**13.9287**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6662	0.0000	7.6662	3.9400	0.0000	3.9400			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**7.6662**	**1.2660**	**8.9323**	**3.9400**	**1.1647**	**5.1047**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.9900e-003	0.0680	0.0558	9.0000e-005	1.6000e-004	4.0000e-005	2.0000e-004	6.0000e-005	4.0000e-005	1.0000e-004		9.6538	9.6538	3.4000e-004	1.5400e-003	10.1208
Worker	0.0230	7.8700e-003	0.0784	3.0000e-005	1.8000e-004	8.0000e-005	2.6000e-004	7.0000e-005	8.0000e-005	1.5000e-004		3.4553	3.4553	1.9500e-003	1.0200e-003	3.8080
Total	**0.0270**	**0.0759**	**0.1342**	**1.2000e-004**	**3.4000e-004**	**1.2000e-004**	**4.6000e-004**	**1.3000e-004**	**1.2000e-004**	**2.5000e-004**		**13.1091**	**13.1091**	**2.2900e-003**	**2.5600e-003**	**13.9287**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2036**	**1.4245**	**10.6281**	**3.6538**	**1.3105**	**4.9643**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0149	0.2456	0.2061	3.5000e-004	2.9000e-004	1.4000e-004	4.3000e-004	1.0000e-004	1.3000e-004	2.4000e-004		38.2695	38.2695	1.1000e-003	6.0500e-003	40.0993
Vendor	3.9900e-003	0.0680	0.0558	9.0000e-005	1.6000e-004	4.0000e-005	2.0000e-004	6.0000e-005	4.0000e-005	1.0000e-004		9.6538	9.6538	3.4000e-004	1.5400e-003	10.1208
Worker	0.0255	8.7500e-003	0.0871	4.0000e-005	2.0000e-004	9.0000e-005	2.9000e-004	8.0000e-005	9.0000e-005	1.6000e-004		3.8392	3.8392	2.1700e-003	1.1300e-003	4.2311
Total	**0.0444**	**0.3223**	**0.3489**	**4.8000e-004**	**6.5000e-004**	**2.7000e-004**	**9.2000e-004**	**2.4000e-004**	**2.6000e-004**	**5.0000e-004**		**51.7625**	**51.7625**	**3.6100e-003**	**8.7200e-003**	**54.4511**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.5894	0.0000	3.5894	1.4250	0.0000	1.4250			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**3.5894**	**1.4245**	**5.0139**	**1.4250**	**1.3105**	**2.7355**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0149	0.2456	0.2061	3.5000e-004	2.9000e-004	1.4000e-004	4.3000e-004	1.0000e-004	1.3000e-004	2.4000e-004		38.2695	38.2695	1.1000e-003	6.0500e-003	40.0993
Vendor	3.9900e-003	0.0680	0.0558	9.0000e-005	1.6000e-004	4.0000e-005	2.0000e-004	6.0000e-005	4.0000e-005	1.0000e-004		9.6538	9.6538	3.4000e-004	1.5400e-003	10.1208
Worker	0.0255	8.7500e-003	0.0871	4.0000e-005	2.0000e-004	9.0000e-005	2.9000e-004	8.0000e-005	9.0000e-005	1.6000e-004		3.8392	3.8392	2.1700e-003	1.1300e-003	4.2311
Total	**0.0444**	**0.3223**	**0.3489**	**4.8000e-004**	**6.5000e-004**	**2.7000e-004**	**9.2000e-004**	**2.4000e-004**	**2.6000e-004**	**5.0000e-004**		**51.7625**	**51.7625**	**3.6100e-003**	**8.7200e-003**	**54.4511**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0146	0.2493	0.2045	3.3000e-004	5.8000e-004	1.4000e-004	7.2000e-004	2.3000e-004	1.3000e-004	3.6000e-004		35.3973	35.3973	1.2500e-003	5.6400e-003	37.1094
Worker	0.0740	0.0254	0.2526	1.1000e-004	5.7000e-004	2.7000e-004	8.4000e-004	2.3000e-004	2.5000e-004	4.8000e-004		11.1337	11.1337	6.2900e-003	3.2900e-003	12.2701
Total	**0.0886**	**0.2747**	**0.4571**	**4.4000e-004**	**1.1500e-003**	**4.1000e-004**	**1.5600e-003**	**4.6000e-004**	**3.8000e-004**	**8.4000e-004**		**46.5309**	**46.5309**	**7.5400e-003**	**8.9300e-003**	**49.3795**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0146	0.2493	0.2045	3.3000e-004	5.8000e-004	1.4000e-004	7.2000e-004	2.3000e-004	1.3000e-004	3.6000e-004		35.3973	35.3973	1.2500e-003	5.6400e-003	37.1094
Worker	0.0740	0.0254	0.2526	1.1000e-004	5.7000e-004	2.7000e-004	8.4000e-004	2.3000e-004	2.5000e-004	4.8000e-004		11.1337	11.1337	6.2900e-003	3.2900e-003	12.2701
Total	**0.0886**	**0.2747**	**0.4571**	**4.4000e-004**	**1.1500e-003**	**4.1000e-004**	**1.5600e-003**	**4.6000e-004**	**3.8000e-004**	**8.4000e-004**		**46.5309**	**46.5309**	**7.5400e-003**	**8.9300e-003**	**49.3795**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.2485	0.2022	3.2000e-004	5.8000e-004	1.4000e-004	7.1000e-004	2.3000e-004	1.3000e-004	3.6000e-004		34.8652	34.8652	1.2400e-003	5.5600e-003	36.5519
Worker	0.0685	0.0235	0.2431	1.1000e-004	5.7000e-004	2.6000e-004	8.3000e-004	2.3000e-004	2.4000e-004	4.6000e-004		10.7837	10.7837	5.8000e-003	3.1300e-003	11.8603
Total	**0.0829**	**0.2720**	**0.4453**	**4.3000e-004**	**1.1500e-003**	**4.0000e-004**	**1.5400e-003**	**4.6000e-004**	**3.7000e-004**	**8.2000e-004**		**45.6489**	**45.6489**	**7.0400e-003**	**8.6900e-003**	**48.4122**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0145	0.2485	0.2022	3.2000e-004	5.8000e-004	1.4000e-004	7.1000e-004	2.3000e-004	1.3000e-004	3.6000e-004		34.8652	34.8652	1.2400e-003	5.5600e-003	36.5519
Worker	0.0685	0.0235	0.2431	1.1000e-004	5.7000e-004	2.6000e-004	8.3000e-004	2.3000e-004	2.4000e-004	4.6000e-004		10.7837	10.7837	5.8000e-003	3.1300e-003	11.8603
Total	**0.0829**	**0.2720**	**0.4453**	**4.3000e-004**	**1.1500e-003**	**4.0000e-004**	**1.5400e-003**	**4.6000e-004**	**3.7000e-004**	**8.2000e-004**		**45.6489**	**45.6489**	**7.0400e-003**	**8.6900e-003**	**48.4122**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2265					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**16.4182**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0153	5.2500e-003	0.0523	2.0000e-005	1.2000e-004	6.0000e-005	1.7000e-004	5.0000e-005	5.0000e-005	1.0000e-004		2.3035	2.3035	1.3000e-003	6.8000e-004	2.5386
Total	**0.0153**	**5.2500e-003**	**0.0523**	**2.0000e-005**	**1.2000e-004**	**6.0000e-005**	**1.7000e-004**	**5.0000e-005**	**5.0000e-005**	**1.0000e-004**		**2.3035**	**2.3035**	**1.3000e-003**	**6.8000e-004**	**2.5386**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2265					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**16.4182**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0153	5.2500e-003	0.0523	2.0000e-005	1.2000e-004	6.0000e-005	1.7000e-004	5.0000e-005	5.0000e-005	1.0000e-004		2.3035	2.3035	1.3000e-003	6.8000e-004	2.5386
Total	**0.0153**	**5.2500e-003**	**0.0523**	**2.0000e-005**	**1.2000e-004**	**6.0000e-005**	**1.7000e-004**	**5.0000e-005**	**5.0000e-005**	**1.0000e-004**		**2.3035**	**2.3035**	**1.3000e-003**	**6.8000e-004**	**2.5386**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3326					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3654**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0204	7.0000e-003	0.0697	3.0000e-005	1.6000e-004	7.0000e-005	2.3000e-004	6.0000e-005	7.0000e-005	1.3000e-004		3.0714	3.0714	1.7400e-003	9.1000e-004	3.3848
Total	**0.0204**	**7.0000e-003**	**0.0697**	**3.0000e-005**	**1.6000e-004**	**7.0000e-005**	**2.3000e-004**	**6.0000e-005**	**7.0000e-005**	**1.3000e-004**		**3.0714**	**3.0714**	**1.7400e-003**	**9.1000e-004**	**3.3848**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3326					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3654**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0204	7.0000e-003	0.0697	3.0000e-005	1.6000e-004	7.0000e-005	2.3000e-004	6.0000e-005	7.0000e-005	1.3000e-004		3.0714	3.0714	1.7400e-003	9.1000e-004	3.3848
Total	**0.0204**	**7.0000e-003**	**0.0697**	**3.0000e-005**	**1.6000e-004**	**7.0000e-005**	**2.3000e-004**	**6.0000e-005**	**7.0000e-005**	**1.3000e-004**		**3.0714**	**3.0714**	**1.7400e-003**	**9.1000e-004**	**3.3848**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4117	0.4844	4.6714	0.0111	1.1723	7.6700e-003	1.1799	0.3124	7.1400e-003	0.3195		1,131.7529	1,131.7529	0.0638	0.0438	1,146.3860
Unmitigated	0.4117	0.4844	4.6714	0.0111	1.1723	7.6700e-003	1.1799	0.3124	7.1400e-003	0.3195		1,131.7529	1,131.7529	0.0638	0.0438	1,146.3860

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	113.28	114.48	102.60	543,940	543,940
Total	113.28	114.48	102.60	543,940	543,940

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Single Family Housing	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
NaturalGas Unmitigated	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	790.276	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Total		**8.5200e-003**	**0.0728**	**0.0310**	**4.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**		**92.9736**	**92.9736**	**1.7800e-003**	**1.7000e-003**	**93.5261**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.790276	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Total		**8.5200e-003**	**0.0728**	**0.0310**	**4.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**		**92.9736**	**92.9736**	**1.7800e-003**	**1.7000e-003**	**93.5261**

6.0 Area Detail

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Unmitigated	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0198	0.1692	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	216.0000	216.0000	4.1400e-003	3.9600e-003	217.2836
Landscaping	0.0310	0.0115	1.0025	5.0000e-005		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003		1.8104	1.8104	1.7800e-003		1.8550
Total	**1.2672**	**0.1807**	**1.0745**	**1.1300e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**217.8104**	**217.8104**	**5.9200e-003**	**3.9600e-003**	**219.1386**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0198	0.1692	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	216.0000	216.0000	4.1400e-003	3.9600e-003	217.2836
Landscaping	0.0310	0.0115	1.0025	5.0000e-005		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003		1.8104	1.8104	1.7800e-003		1.8550
Total	**1.2672**	**0.1807**	**1.0745**	**1.1300e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**217.8104**	**217.8104**	**5.9200e-003**	**3.9600e-003**	**219.1386**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Glendora Hillside Subdivision - LST

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	127.00	1000sqft	2.92	127,000.00	0
Single Family Housing	12.00	Dwelling Unit	9.12	54,000.00	34

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	3			**Operational Year**	2024
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Operational year 2024.

Land Use - Acreage and building square footage for single family homes based on site plan.

Construction Phase - Schedule based on schedule provided by project applicant.

Trips and VMT - Trip distances were reduced to zero for the LST analysis.

Grading - CalEEMod defaults.

Architectural Coating - CalEEMod defaults.

Vehicle Trips - CalEEmod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

Vehicle Emission Factors - CalEEMod defaults.

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Woodstoves - Per SCAQMD Rule 445 No woodstoves or fireplaces were included.

Area Coating - CalEEMod defaults.

Energy Use - CalEEMod defaults.

Construction Off-road Equipment Mitigation - In compliance with SCAQMD rule 403, 2x daily watering and unpaved vehicle road speeds were limited to 15 mph.

Fleet Mix - CalEEMod defaults.

Off-road Equipment - CalEEmod defaults.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	300.00	305.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	20.00	23.00
tblConstructionPhase	NumDays	10.00	12.00
tblFireplaces	NumberWood	0.60	0.00
tblGrading	MaterialImported	0.00	2,300.00
tblLandUse	LandUseSquareFeet	21,600.00	54,000.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

tblLandUse	LotAcreage	3.90	9.12
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	227.00	270.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripLength	7.90	0.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripLength	19.80	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblWoodstoves	NumberCatalytic	0.60	0.00
tblWoodstoves	NumberNoncatalytic	0.60	0.00

2.0 Emissions Summary

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	18.0862	34.8621	31.4257	0.0626	19.6574	1.4248	20.9235	10.1026	1.3108	11.2674	0.0000	6,064.3631	6,064.3631	1.9480	0.0102	6,115.7379
2024	1.5473	13.7341	16.6678	0.0274	1.1500e-003	0.6137	0.6149	4.6000e-004	0.5773	0.5777	0.0000	2,601.9982	2,601.9982	0.6121	9.0000e-003	2,619.9839
Maximum	**18.0862**	**34.8621**	**31.4257**	**0.0626**	**19.6574**	**1.4248**	**20.9235**	**10.1026**	**1.3108**	**11.2674**	**0.0000**	**6,064.3631**	**6,064.3631**	**1.9480**	**0.0102**	**6,115.7379**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	18.0862	34.8621	31.4257	0.0626	7.6666	1.4248	8.9327	3.9401	1.3108	5.1049	0.0000	6,064.3631	6,064.3631	1.9480	0.0102	6,115.7379
2024	1.5473	13.7341	16.6678	0.0274	1.1500e-003	0.6137	0.6149	4.6000e-004	0.5773	0.5777	0.0000	2,601.9982	2,601.9982	0.6121	9.0000e-003	2,619.9839
Maximum	**18.0862**	**34.8621**	**31.4257**	**0.0626**	**7.6666**	**1.4248**	**8.9327**	**3.9401**	**1.3108**	**5.1049**	**0.0000**	**6,064.3631**	**6,064.3631**	**1.9480**	**0.0102**	**6,115.7379**

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	61.00	0.00	55.67	61.00	0.00	52.03	0.00	0.00	0.00	0.00	0.00	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Energy	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Mobile	0.4000	0.5204	4.4578	0.0106	1.1723	7.6800e-003	1.1799	0.3124	7.1400e-003	0.3195		1,078.9293	1,078.9293	0.0650	0.0454	1,094.0879
Total	**1.6757**	**0.7740**	**5.5634**	**0.0122**	**1.1723**	**0.0328**	**1.2050**	**0.3124**	**0.0322**	**0.3446**	**0.0000**	**1,389.7133**	**1,389.7133**	**0.0727**	**0.0511**	**1,406.7525**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Energy	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Mobile	0.4000	0.5204	4.4578	0.0106	1.1723	7.6800e-003	1.1799	0.3124	7.1400e-003	0.3195		1,078.9293	1,078.9293	0.0650	0.0454	1,094.0879
Total	**1.6757**	**0.7740**	**5.5634**	**0.0122**	**1.1723**	**0.0328**	**1.2050**	**0.3124**	**0.0322**	**0.3446**	**0.0000**	**1,389.7133**	**1,389.7133**	**0.0727**	**0.0511**	**1,406.7525**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/16/2023	1/31/2023	5	12	
2	Grading	Grading	2/1/2023	2/28/2023	5	20	
3	Building Construction	Building Construction	5/1/2023	6/28/2024	5	305	
4	Architectural Coating	Architectural Coating	5/1/2023	5/31/2023	5	23	
5	Paving	Paving	8/1/2023	8/31/2023	5	23	

Acres of Grading (Site Preparation Phase): 18

Acres of Grading (Grading Phase): 60

Acres of Paving: 2.92

Residential Indoor: 109,350; Residential Outdoor: 36,450; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 7,620 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	2	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	7	18.00	6.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	6.00	270.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	58.00	22.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	12.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	0.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6570**	**1.2660**	**20.9230**	**10.1025**	**1.1647**	**11.2672**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5900e-003	0.0724	0.0588	9.0000e-005	1.6000e-004	4.0000e-005	2.0000e-004	6.0000e-005	4.0000e-005	1.0000e-004		9.8669	9.8669	3.2000e-004	1.5700e-003	10.3441
Worker	0.0211	8.5600e-003	0.0929	3.0000e-005	1.8000e-004	8.0000e-005	2.6000e-004	7.0000e-005	8.0000e-005	1.5000e-004		3.4136	3.4136	2.2200e-003	1.0800e-003	3.7913
Total	**0.0247**	**0.0810**	**0.1517**	**1.2000e-004**	**3.4000e-004**	**1.2000e-004**	**4.6000e-004**	**1.3000e-004**	**1.2000e-004**	**2.5000e-004**		**13.2804**	**13.2804**	**2.5400e-003**	**2.6500e-003**	**14.1354**

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.6662	0.0000	7.6662	3.9400	0.0000	3.9400			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**7.6662**	**1.2660**	**8.9323**	**3.9400**	**1.1647**	**5.1047**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.5900e-003	0.0724	0.0588	9.0000e-005	1.6000e-004	4.0000e-005	2.0000e-004	6.0000e-005	4.0000e-005	1.0000e-004		9.8669	9.8669	3.2000e-004	1.5700e-003	10.3441
Worker	0.0211	8.5600e-003	0.0929	3.0000e-005	1.8000e-004	8.0000e-005	2.6000e-004	7.0000e-005	8.0000e-005	1.5000e-004		3.4136	3.4136	2.2200e-003	1.0800e-003	3.7913
Total	**0.0247**	**0.0810**	**0.1517**	**1.2000e-004**	**3.4000e-004**	**1.2000e-004**	**4.6000e-004**	**1.3000e-004**	**1.2000e-004**	**2.5000e-004**		**13.2804**	**13.2804**	**2.5400e-003**	**2.6500e-003**	**14.1354**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					9.2036	0.0000	9.2036	3.6538	0.0000	3.6538			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105		6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**9.2036**	**1.4245**	**10.6281**	**3.6538**	**1.3105**	**4.9643**		**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0130	0.2646	0.2131	3.6000e-004	2.9000e-004	1.7000e-004	4.5000e-004	1.0000e-004	1.6000e-004	2.6000e-004		39.2257	39.2257	9.9000e-004	6.2000e-003	41.0977
Vendor	3.5900e-003	0.0724	0.0588	9.0000e-005	1.6000e-004	4.0000e-005	2.0000e-004	6.0000e-005	4.0000e-005	1.0000e-004		9.8669	9.8669	3.2000e-004	1.5700e-003	10.3441
Worker	0.0234	9.5200e-003	0.1033	4.0000e-005	2.0000e-004	9.0000e-005	2.9000e-004	8.0000e-005	9.0000e-005	1.6000e-004		3.7928	3.7928	2.4700e-003	1.2000e-003	4.2126
Total	**0.0400**	**0.3465**	**0.3751**	**4.9000e-004**	**6.5000e-004**	**3.0000e-004**	**9.4000e-004**	**2.4000e-004**	**2.9000e-004**	**5.2000e-004**		**52.8854**	**52.8854**	**3.7800e-003**	**8.9700e-003**	**55.6543**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.5894	0.0000	3.5894	1.4250	0.0000	1.4250			0.0000			0.0000
Off-Road	3.3217	34.5156	28.0512	0.0621		1.4245	1.4245		1.3105	1.3105	0.0000	6,011.4777	6,011.4777	1.9442		6,060.0836
Total	**3.3217**	**34.5156**	**28.0512**	**0.0621**	**3.5894**	**1.4245**	**5.0139**	**1.4250**	**1.3105**	**2.7355**	**0.0000**	**6,011.4777**	**6,011.4777**	**1.9442**		**6,060.0836**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0130	0.2646	0.2131	3.6000e-004	2.9000e-004	1.7000e-004	4.5000e-004	1.0000e-004	1.6000e-004	2.6000e-004		39.2257	39.2257	9.9000e-004	6.2000e-003	41.0977
Vendor	3.5900e-003	0.0724	0.0588	9.0000e-005	1.6000e-004	4.0000e-005	2.0000e-004	6.0000e-005	4.0000e-005	1.0000e-004		9.8669	9.8669	3.2000e-004	1.5700e-003	10.3441
Worker	0.0234	9.5200e-003	0.1033	4.0000e-005	2.0000e-004	9.0000e-005	2.9000e-004	8.0000e-005	9.0000e-005	1.6000e-004		3.7928	3.7928	2.4700e-003	1.2000e-003	4.2126
Total	**0.0400**	**0.3465**	**0.3751**	**4.9000e-004**	**6.5000e-004**	**3.0000e-004**	**9.4000e-004**	**2.4000e-004**	**2.9000e-004**	**5.2000e-004**		**52.8854**	**52.8854**	**3.7800e-003**	**8.9700e-003**	**55.6543**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0132	0.2655	0.2155	3.4000e-004	5.8000e-004	1.6000e-004	7.4000e-004	2.3000e-004	1.6000e-004	3.8000e-004		36.1785	36.1785	1.1900e-003	5.7700e-003	37.9283
Worker	0.0680	0.0276	0.2994	1.1000e-004	5.7000e-004	2.7000e-004	8.4000e-004	2.3000e-004	2.5000e-004	4.8000e-004		10.9993	10.9993	7.1700e-003	3.4800e-003	12.2164
Total	**0.0811**	**0.2931**	**0.5149**	**4.5000e-004**	**1.1500e-003**	**4.3000e-004**	**1.5800e-003**	**4.6000e-004**	**4.1000e-004**	**8.6000e-004**		**47.1778**	**47.1778**	**8.3600e-003**	**9.2500e-003**	**50.1447**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0132	0.2655	0.2155	3.4000e-004	5.8000e-004	1.6000e-004	7.4000e-004	2.3000e-004	1.6000e-004	3.8000e-004		36.1785	36.1785	1.1900e-003	5.7700e-003	37.9283
Worker	0.0680	0.0276	0.2994	1.1000e-004	5.7000e-004	2.7000e-004	8.4000e-004	2.3000e-004	2.5000e-004	4.8000e-004		10.9993	10.9993	7.1700e-003	3.4800e-003	12.2164
Total	**0.0811**	**0.2931**	**0.5149**	**4.5000e-004**	**1.1500e-003**	**4.3000e-004**	**1.5800e-003**	**4.6000e-004**	**4.1000e-004**	**8.6000e-004**		**47.1778**	**47.1778**	**8.3600e-003**	**9.2500e-003**	**50.1447**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0130	0.2648	0.2129	3.3000e-004	5.8000e-004	1.6000e-004	7.4000e-004	2.3000e-004	1.5000e-004	3.8000e-004		35.6476	35.6476	1.1700e-003	5.6900e-003	37.3720
Worker	0.0627	0.0256	0.2880	1.1000e-004	5.7000e-004	2.6000e-004	8.3000e-004	2.3000e-004	2.4000e-004	4.6000e-004		10.6516	10.6516	6.6000e-003	3.3100e-003	11.8043
Total	**0.0757**	**0.2903**	**0.5009**	**4.4000e-004**	**1.1500e-003**	**4.2000e-004**	**1.5700e-003**	**4.6000e-004**	**3.9000e-004**	**8.4000e-004**		**46.2993**	**46.2993**	**7.7700e-003**	**9.0000e-003**	**49.1762**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0130	0.2648	0.2129	3.3000e-004	5.8000e-004	1.6000e-004	7.4000e-004	2.3000e-004	1.5000e-004	3.8000e-004		35.6476	35.6476	1.1700e-003	5.6900e-003	37.3720
Worker	0.0627	0.0256	0.2880	1.1000e-004	5.7000e-004	2.6000e-004	8.3000e-004	2.3000e-004	2.4000e-004	4.6000e-004		10.6516	10.6516	6.6000e-003	3.3100e-003	11.8043
Total	**0.0757**	**0.2903**	**0.5009**	**4.4000e-004**	**1.1500e-003**	**4.2000e-004**	**1.5700e-003**	**4.6000e-004**	**3.9000e-004**	**8.4000e-004**		**46.2993**	**46.2993**	**7.7700e-003**	**9.0000e-003**	**49.1762**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2265					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**16.4182**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0141	5.7100e-003	0.0620	2.0000e-005	1.2000e-004	6.0000e-005	1.7000e-004	5.0000e-005	5.0000e-005	1.0000e-004		2.2757	2.2757	1.4800e-003	7.2000e-004	2.5275
Total	**0.0141**	**5.7100e-003**	**0.0620**	**2.0000e-005**	**1.2000e-004**	**6.0000e-005**	**1.7000e-004**	**5.0000e-005**	**5.0000e-005**	**1.0000e-004**		**2.2757**	**2.2757**	**1.4800e-003**	**7.2000e-004**	**2.5275**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	16.2265					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**16.4182**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0141	5.7100e-003	0.0620	2.0000e-005	1.2000e-004	6.0000e-005	1.7000e-004	5.0000e-005	5.0000e-005	1.0000e-004		2.2757	2.2757	1.4800e-003	7.2000e-004	2.5275
Total	**0.0141**	**5.7100e-003**	**0.0620**	**2.0000e-005**	**1.2000e-004**	**6.0000e-005**	**1.7000e-004**	**5.0000e-005**	**5.0000e-005**	**1.0000e-004**		**2.2757**	**2.2757**	**1.4800e-003**	**7.2000e-004**	**2.5275**

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3326					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3654**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0188	7.6100e-003	0.0826	3.0000e-005	1.6000e-004	7.0000e-005	2.3000e-004	6.0000e-005	7.0000e-005	1.3000e-004		3.0343	3.0343	1.9800e-003	9.6000e-004	3.3700
Total	**0.0188**	**7.6100e-003**	**0.0826**	**3.0000e-005**	**1.6000e-004**	**7.0000e-005**	**2.3000e-004**	**6.0000e-005**	**7.0000e-005**	**1.3000e-004**		**3.0343**	**3.0343**	**1.9800e-003**	**9.6000e-004**	**3.3700**

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3326					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3654**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0188	7.6100e-003	0.0826	3.0000e-005	1.6000e-004	7.0000e-005	2.3000e-004	6.0000e-005	7.0000e-005	1.3000e-004		3.0343	3.0343	1.9800e-003	9.6000e-004	3.3700
Total	**0.0188**	**7.6100e-003**	**0.0826**	**3.0000e-005**	**1.6000e-004**	**7.0000e-005**	**2.3000e-004**	**6.0000e-005**	**7.0000e-005**	**1.3000e-004**		**3.0343**	**3.0343**	**1.9800e-003**	**9.6000e-004**	**3.3700**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4000	0.5204	4.4578	0.0106	1.1723	7.6800e-003	1.1799	0.3124	7.1400e-003	0.3195		1,078.9293	1,078.9293	0.0650	0.0454	1,094.0879
Unmitigated	0.4000	0.5204	4.4578	0.0106	1.1723	7.6800e-003	1.1799	0.3124	7.1400e-003	0.3195		1,078.9293	1,078.9293	0.0650	0.0454	1,094.0879

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Other Asphalt Surfaces	0.00	0.00	0.00		
Single Family Housing	113.28	114.48	102.60	543,940	543,940
Total	113.28	114.48	102.60	543,940	543,940

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Other Asphalt Surfaces	18.50	10.10	7.90	0.00	0.00	0.00	0	0	0
Single Family Housing	19.80	9.60	12.90	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Other Asphalt Surfaces	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721
Single Family Housing	0.542450	0.061470	0.185138	0.129299	0.023799	0.006448	0.011958	0.009209	0.000810	0.000503	0.024446	0.000751	0.003721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
NaturalGas Unmitigated	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	790.276	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Total		**8.5200e-003**	**0.0728**	**0.0310**	**4.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**		**92.9736**	**92.9736**	**1.7800e-003**	**1.7000e-003**	**93.5261**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.790276	8.5200e-003	0.0728	0.0310	4.6000e-004		5.8900e-003	5.8900e-003		5.8900e-003	5.8900e-003		92.9736	92.9736	1.7800e-003	1.7000e-003	93.5261
Total		**8.5200e-003**	**0.0728**	**0.0310**	**4.6000e-004**		**5.8900e-003**	**5.8900e-003**		**5.8900e-003**	**5.8900e-003**		**92.9736**	**92.9736**	**1.7800e-003**	**1.7000e-003**	**93.5261**

6.0 Area Detail

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386
Unmitigated	1.2672	0.1807	1.0745	1.1300e-003		0.0192	0.0192		0.0192	0.0192	0.0000	217.8104	217.8104	5.9200e-003	3.9600e-003	219.1386

Glendora Hillside Subdivision - LST - South Coast AQMD Air District, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0198	0.1692	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	216.0000	216.0000	4.1400e-003	3.9600e-003	217.2836
Landscaping	0.0310	0.0115	1.0025	5.0000e-005		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003		1.8104	1.8104	1.7800e-003		1.8550
Total	**1.2672**	**0.1807**	**1.0745**	**1.1300e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**217.8104**	**217.8104**	**5.9200e-003**	**3.9600e-003**	**219.1386**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.1023					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.1142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0198	0.1692	0.0720	1.0800e-003		0.0137	0.0137		0.0137	0.0137	0.0000	216.0000	216.0000	4.1400e-003	3.9600e-003	217.2836
Landscaping	0.0310	0.0115	1.0025	5.0000e-005		5.5300e-003	5.5300e-003		5.5300e-003	5.5300e-003		1.8104	1.8104	1.7800e-003		1.8550
Total	**1.2672**	**0.1807**	**1.0745**	**1.1300e-003**		**0.0192**	**0.0192**		**0.0192**	**0.0192**	**0.0000**	**217.8104**	**217.8104**	**5.9200e-003**	**3.9600e-003**	**219.1386**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Grand Estates, City of Glendora Energy Demand

Mobile Source Petroleum Demand

Scenario	**Vehicle MT CO_2**		
Proposed Project Mobile Emissions	178.53		
Fuel Type	**Vehicle MT CO_2**	**Kg/CO2/Gallon**	**Gallons**
Proposed Project Gasoline	152.18	8.78	17,332
Proposed Project Diesel	26.35	10.21	2,581
		Proposed Project Total	*19,913*

Electricty and Natural Gas Demand

Scenario	**Electricity kWh/yr**	**NG kBtu/yr**
Proposed Project	95,688	288,451

Appendix B-1

Biological Resources Technical Report

DRAFT

Biological Resources Technical Report

Grand Estates Project

MARCH 2022

Prepared for:

CITY OF GLENDORA
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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AMSL	above mean sea level
BRTR	Biological Resources Technical Report
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRP	Conceptual Restoration Plan
CRPR	California Rare Plant Rank
FESA	federal Endangered Species Act
HCP	Habitat Conservation Plan
HMMP	Habitat Mitigation and Monitoring Plan
LACFCD	Los Angeles County Flood District
NCCP	Natural Community Conservation Plan
OHWM	ordinary high water mark
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
TPZ	tree protection zone
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

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1 Introduction

Dudek has prepared this Biological Resources Technical Report (BRTR) for the City of Glendora (City) for the Grand Estates (proposed Project or Project). The Project proposes to develop 12 new single-family residential lots and one lot for two private streets located on privately owned land within the City of Glendora, Los Angeles County, California. The Project site includes several flood control easements within the northern portion of the property. Thus, the proposed Project also includes the installation of three debris basins (per Los Angeles County Flood Control Department requirements) and construction of a new access road within the northern portion of the property.

The purpose of this report is to: (1) describe the conditions of biological resources within the Project area in terms of vegetation, flora, jurisdictional waters and wetlands, wildlife, and wildlife habitats; (2) quantify potential direct and indirect impacts to biological resources that will result from the proposed Project; (3) discuss those impacts in terms of biological significance in view of federal, state, and local laws and City policies; and (4) discuss mitigation measures that will reduce significant biological impacts to a less-than-significant level consistent with federal, state, and local regulations, including the California Environmental Quality Act (CEQA). This BRTR presents the findings of several biological surveys conducted at the Project site by Dudek, including a general biological reconnaissance survey conducted on May 15, 2019, jurisdictional delineation update on July 18, 2019, focused special-status bird surveys from April to July 2019, focused special-status plant surveys conducted in May and July 2019, and a general biological reconnaissance survey conducted on January 22, 2022.

1.1 Project Location

The approximately 27-acre property is located on privately owned land at 950 North Silent Ranch Drive within the City of Glendora in eastern Los Angeles County, approximately 23 miles east of downtown Los Angeles, as shown on Figure 1, Project Location. The general Project area lies north of I-210, east of SR-39, and west of SR-57 bordered by the Cities of Azusa to the west, San Dimas to the east, Citrus, Covina and Charter Oaks to the south, and unincorporated Los Angeles County to the north. The Project area is in Township 10 North, Range 6 West, and Section 4 as shown on the U.S. Geological Survey (USGS) 7.5-minute Glendora, CA and Azusa, CA quadrangle maps (USGS 2018). The northern approximately 16 acres of the property is zoned Open Space - Natural and are designated as a “building restriction area”, and the southern approximately 11 acres is zoned for single-family residences.

1.2 Project Description

The proposed Project would develop 12 new graded pads and a Private Street in the southern section of the Project site. Each residential lot would accommodate custom home development at a future date. One existing home and its associated residential lot is also included within the Project boundaries. Although the ultimate timing and design of each residential home would occur at an unknown future date subject to economic market conditions and the buyer’s preferences, for the purposes of the impact evaluation within this IS/MND, the construction and long-term occupancy of the properties is assumed and analyzed. The existing single-family residence in the southwestern corner of the Project site would remain in place. As such, upon buildout, the Project site is expected to support a total of 12 residences, all of which would be located within the 11-acre southern section of the Project site, which is zoned for single-family residential use.

The approximately 11-acre southern section of the site would be developed with residential uses and the approximately 16-acre northern section of the site would remain as open space, with the exception of flood control. The new lots would range in size from approximately 32,000 square feet to 20,000 square feet. The existing single-family residence is on a 86,010 square foot lot.

The Private Street would be constructed along the southeastern edge of the Project site, providing access to each residential lot. The street would be privately held by the Homeowner's Association (HOA), which would be established for the proposed development, once the new custom homes are constructed and occupied. More specifically, covenants, conditions, and restrictions of the HOA would be approved prior to grading so that all hydroseeding, watering, maintenance of the HOA areas and the habitat restoration areas; additional mitigation requirements; and other conditions or approvals would be established prior to construction of the proposed Project. The City would impose this as a condition of approval of the Tentative Tract Map. Entrance to the Project site would be gated, with a gate controller and turn-around located within the Private Street adjacent to Lots 13 and 14.

Flood Control Facility Improvements

The northern 16 acres of the Project site are zoned open space and would be designated as a "building restriction area." No habitable structures would be constructed within the northern section of the Project site, except for the proposed flood/debris control facilities. The LACFCD determined that with implementation of the proposed Project, potential debris flows during rain events from the undeveloped hillside areas to the north of the site could not be adequately captured by the existing debris control structures, which are filled to capacity and no longer function as intended. Therefore, the existing three flood control/debris check dam structures would be removed and larger flood/debris control facilities would be constructed within generally the same location, to protect the new residential development from safety hazards associated with flooding and debris flow.

Each spillway inlet would be approximately 5 feet tall, would include a debris barrier rack to filter out large woody debris, and would connect to a 36-inch reinforced concrete pipeline that would connect to the storm drain system in the residential area below. An asphalt maintenance access road would be constructed to the north of the residential development and to the south of the inlets and the debris basin, to allow maintenance vehicles to access the drainage facilities. The access road would be paved and would be 20 feet wide with 40-foot diameter turnarounds to allow for vehicular and maintenance equipment site ingress/egress and connect to the proposed Private Street. Ramps would be constructed from the access roads to the top of the earthen debris basins to allow for vehicle access.

Landscape and Fuel Modification Improvements

Retaining walls would be screened by shrubbery. Anticipated landscape trees include canyon live oak, black walnut, Brisbane box, hollyleaf cherry, and Chinese pistache. All on-site lots would be equipped with landscaping irrigation. A 6-foot masonry screen wall would be constructed on the eastern edge of the Tract Map, which would serve as aesthetic fencing but also as wildfire protection between the Project site and the adjacent residential uses to the east.

Areas adjacent to the proposed debris basins would be subject to minimal grading/grooming to remove loose surface materials and reduce loose debris from running off into the debris basin facilities, as required by the

LACFCD. Upon completion of the Project, the affected slopes would be hydroseeded with native seeds to facilitate the reestablishment of vegetative cover.

Offsite Components

A subterranean water, sewer, and storm drain infrastructure are the only off-site features required for Project implementation. The trenching required for pipeline installation and connection to subterranean existing utility infrastructure would be within paved roadways/driveways. Storm drain improvements along Palm Drive would require trenching within the existing sidewalk. The sidewalk would be repaved once storm drain improvements are implemented, as a condition of approval for the Project.

Short-Term Construction Activities

The first phases of construction would consist of site preparation and grading. During grading, the total cut is anticipated to be approximately 93,000 cubic yards, and the total fill is anticipated to be approximately 96,500 cubic yards, with 2,300 cubic yards of imported soils required. This includes 73,000 cubic yards of cut materials and 32,000 cubic yards of fill materials within the debris basin infrastructure hillside area, and 20,000 cubic yards of cut materials and 64,500 cubic yards of fill materials within the residential development area. Construction activities would occur in one phase, and could take place Monday to Friday from 7:00 a.m. to 6:00 p.m., with no work allowed on Saturdays, Sundays, or federal holidays, with the exception of interior work.

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2 Regulatory Setting

This chapter outlines the federal, state, and local regulations pertinent to the biological resources located on the Project site.

2.1 Federal

2.1.1 Federal Endangered Species Act

The federal Endangered Species Act (FESA) of 1973 (16 USC 1531 et seq.), as amended, is administered by the U.S. Fish and Wildlife Service (USFWS) for most plant and animal species and by the National Oceanic and Atmospheric Administration National Marine Fisheries Service for certain marine species. This legislation is intended to provide a means to conserve the ecosystems upon which endangered and threatened species depend and provide programs for the conservation of those species, thus preventing the extinction of plants and wildlife. The FESA defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under FESA, it is unlawful to "take" any listed species, and "take" is defined as, "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

FESA allows for the issuance of incidental take permits for listed species under Section 7, which is generally available for projects that also require other federal agency permits or other approvals, and under Section 10, which provides for the approval of habitat conservation plans on private property without any other federal agency involvement.

2.1.2 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (16 USC 703 et seq.), as amended, prohibits the intentional take of any migratory bird or any part, nest, or eggs of any such bird. Under the Migratory Bird Treaty Act, "take" is defined as pursuing, hunting, shooting, capturing, collecting, or killing, or attempting to do so. Additionally, Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires that any project with federal involvement address impacts of federal actions on migratory birds with the purpose of promoting conservation of migratory bird populations (66 FR 3853–3856). The Executive Order requires federal agencies to work with USFWS to develop a memorandum of understanding. USFWS reviews actions that might affect these species.

2.1.3 Clean Water Act

The Clean Water Act provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters. Section 401 requires a project operator for a federal license or permit that allows activities resulting in a discharge to waters of the United States to obtain state certification, thereby ensuring that the discharge will comply with provisions of the Clean Water Act. The Regional Water Quality Control Boards (RWQCB) administer the certification program in California. Section 402 establishes a permitting system for the discharge of any pollutant (except dredged or fill material) into waters of the United States. Section 404 establishes a permit program administered by USACE that regulates the discharge of dredged or fill material into waters of the

United States, including wetlands. USACE implementing regulations are found at 33 CFR 320 and 330. Guidelines for implementation are referred to as the Section 404(b)(1) Guidelines, which were developed by the U.S. Environmental Protection Agency in conjunction with USACE (40 CFR 230). The guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that would have less adverse impacts.

Wetlands and Other Waters of the United States

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources and can fall under the jurisdiction of several regulatory agencies. USACE exerts jurisdiction over waters of the United States, including all waters that are subject to the ebb and flow of the tide; wetlands and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds; and tributaries of the above features.

The extent of waters of the United States is generally defined as that portion that falls within the limits of an ordinary high-water mark (OHWM). Typically, the OHWM corresponds to the water surface elevation of a 2-year flood event (USACE 2008a). In addition, waters of the United States may include wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, defined by USACE as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3[b]; 40 CFR 230.3[t]). Indicators of three wetland parameters (i.e., hydric soils, hydrophytic vegetation, and wetlands hydrology), as determined by field investigation, must be present for a site to be classified as a wetland by USACE (USACE 1987).

2.2 State

2.2.1 California Endangered Species Act

The California Endangered Species Act (CESA) (California Fish and Game Code, Section 2050 et seq.) provides protection and prohibits the take of plant, fish, and wildlife species listed by the State of California. Unlike FESA, under CESA state-listed plants have the same degree of protection as wildlife, but insects and other invertebrates may not be listed. Take is defined similarly to FESA and is prohibited for both listed and candidate species. Take authorization may be obtained by the Project applicant from CDFW under CESA Section 2081, which allows take of a listed species for educational, scientific, or management purposes. In this case, private developers consult with CDFW to develop a set of measures and standards for managing the listed species, including full mitigation for impacts, funding of implementation, and monitoring of mitigation measures.

2.2.2 California Fish and Game Code

Fully Protected Species

Sections 3511, 4700, 5050, and 5515 of the California Fish and Game Code outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. CDFW cannot issue permits or licenses that authorize the "take" of any fully protected species, except under certain circumstances, such as scientific research and live capture and relocation

of such species pursuant to a permit for the protection of livestock. Furthermore, it is the responsibility of the CDFW to maintain viable populations of all native species. Toward that end, the CDFW has designated certain vertebrate species as Species of Special Concern (SSC), because declining population levels, limited ranges, and/or continuing threats have made them vulnerable to extinction.

Section 1602

Under Section 1602 of the California Fish and Game Code, a Project operator is required to notify CDFW prior to any Project that would divert, obstruct, or change the natural flow, bed, channel, or bank of any river, stream, or lake. Pursuant to the code, a "stream" is defined as a body of water that flows at least periodically, or intermittently, through a bed or channel having banks and supporting fish or other aquatic life. Based on this definition, a watercourse with surface or subsurface flows that supports or has supported riparian vegetation is a stream and is subject to CDFW jurisdiction, with the jurisdictional limits extending beyond the top of bank to the outer canopy limits of riparian-associated vegetation that overlies the stream. Altered or artificial watercourses valuable to fish and wildlife are also subject to CDFW jurisdiction. CDFW also has jurisdiction over dry washes that carry water during storm events.

Preliminary notification and Project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFW is required to propose reasonable Project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement, which becomes part of the plans, specifications, and bid documents for the Project.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 (see Section 1900 et seq. of the California Fish and Game Code) directed CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and protect endangered and rare plants from take. CESA expanded on the original Native Plant Protection Act and enhanced legal protection for plants, but the Native Plant Protection Act remains part of the California Fish and Game Code. To align with federal regulations, CESA created the categories of "threatened" and "endangered" species. It converted all "rare" animals into the act as threatened species, but did not do so for rare plants. Thus, there are three listing categories for plants in California: rare, threatened, and endangered. Because rare plants are not included in CESA, mitigation measures for impacts to rare plants are specified in a formal agreement between CDFW and the Project Applicant.

Nesting Birds

Section 3503 makes it unlawful to take, possess, or needlessly destroy the nest or eggs of any bird and Section 3513 makes it unlawful to take or possess any migratory nongame bird as designated in the MBTA.

2.2.3 California Environmental Quality Act

CEQA requires identification of a Project's potentially significant impacts on biological resources and ways that such impacts can be avoided, minimized, or mitigated. The act also provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts.

CEQA Guidelines Section 15380(b)(1) defines endangered animals or plants as species or subspecies whose "survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat,

change in habitat, overexploitation, predation, competition, disease, or other factors." A rare animal or plant is defined in Section 15380(b)(2) as a species that, although not presently threatened with extinction, exists "in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or … [t]he species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered 'threatened' as that term is used in the federal Endangered Species Act." Additionally, an animal or plant may be presumed to be endangered, rare, or threatened if it meets the criteria for listing, as defined further in CEQA Guidelines Section 15380(c).

CDFW has developed a list of "Special Species" as "a general term that refers to all of the taxa the California Natural Diversity Database (CNDDB) is interested in tracking, regardless of their legal or protection status." This is a broader list than those species that are protected under the FESA, CESA, and other California Fish and Game Code provisions, and includes lists developed by other organizations, including for example the Audubon Watch List Species. Guidance documents prepared by other agencies, including the Bureau of Land Management Sensitive Species and USFWS Birds of Special Concern, are also included on this CDFW Special Species list. Additionally, CDFW has concluded that plant species listed as California Rare Plant Rank (CRPR) 1 and 2 by the California Native Plant Society (CNPS 2022a), and potentially some CRPR 3 plants, are covered by CEQA Guidelines Section 15380.

Section IV, Appendix G (Environmental Checklist Form), of the CEQA Guidelines requires an evaluation of impacts to "any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service."

2.2.4 Porter–Cologne Water Quality Control Act

The intent of the Porter–Cologne Water Quality Control Act is to protect water quality and the beneficial uses of water, and it applies to both surface water and groundwater. Under this law, the State Water Resources Control Board develops statewide water quality plans, and the nine RWQCB develop basin plans that identify beneficial uses, water quality objectives, and implementation plans. The RWQCB have the primary responsibility to implement the provisions of both statewide and basin plans. Waters regulated under the Porter–Cologne Water Quality Control Act include isolated waters that are no longer regulated by USACE. Developments with impact to jurisdictional waters must demonstrate compliance with the goals of the act by developing stormwater pollution prevention plans, standard urban stormwater mitigation plans, and other measures to obtain an order of Waste Discharge Requirement (or, in cases where a CWA Section 401 certification is required, a waiver of Waste Discharge Requirement).

2.3 Local

2.3.1 City of Glendora General Plan

The following policies of the Land Use and Natural Resource Conservation Elements of the City of Glendora General Plan (2006) are relevant to naturally occurring biological resources:

- **Goal CON-9: Preservation and conservation of natural resources and sensitive habitats.**
  - **CON-9.1** Investigate opportunities for open space land acquisition for the preservation of natural resources and sensitive habitats.

- **CON-9.2** Continue to partner with the Glendora Community Conservancy to determine funding opportunities for open space land acquisitions for the preservation of natural resources and sensitive habitats.
- **CON-9.3** Pursue partnerships with other organizations, such as the United States Forest Service to ensure preservation of natural resources and sensitive habitats.
- **CON-9.4** Ensure the preservation of the natural plant communities in the hillside areas.
- **CON-9.5** Ensure land use decisions consider the preservation of sensitive plant and animal species, critical habitat, wildlife corridors, and biologically sensitive areas.
- **CON-9.6** Develop a land management/land maintenance plan, including best management practices, of City-owned conservation areas to increase fire safety, protect biodiversity and preserve native plant species.
- **CON-9.7** Ensure preservation of local watersheds in development to maintain native plant habitats and ensure connectivity of wildlife corridors.

- **Goal CON-10: A tree preservation strategy**
  - **CON-10.1** Involve residents in the maintenance and preservation of individual trees by providing them with a choice of trees planted.
  - **CON-10.2** Maintain the tree preservation ordinance to ensure the preservation of existing tree resources.
  - **CON-10.4** Ensure appropriate placement and proper maintenance of tree resources within the City.

The City of Glendora defines vegetation communities to be sensitive if they provide habitat for listed or otherwise sensitive species, are of special value to the local ecosystem (e.g., water sources), or are regulated by local, State or federal resources agencies (City of Glendora 2006a). Woodland habitats, particularly along streambeds, are recognized as being highly sensitive habitats because major drainages that contain woodland habitat support a wide diversity of wildlife species and may function as habitat linkages and corridors. Additionally, coastal sage scrub is considered a sensitive vegetation community based on extensive loss of habitat and widespread awareness among the resource agencies, policy makers, and public (City of Glendora 2006a). Woodland and coastal sage scrub habitats are considered special-status vegetation communities in this report based on their local importance as defined in the Glendora Community Plan (City of Glendora 2006a).

2.3.2 City of Glendora Tree Preservation Ordinance No. 1768

In accordance with Tree Preservation Ordinance No. 1768 (City of Glendora 2003), Section 20.08.130(6) requires that all existing living trees meeting the requirements in the Urban Forestry Manual (City of Glendora 2018aa), be preserved to the extent feasible as per recommendations provided by a certified arborist. If trees are destroyed, the applicant shall replace them with suitable trees in locations determined by the Planning Department before final occupancy is granted to any new resident. Additionally, where required by the Planning Department, the applicant shall submit a tree preservation/relocation/replacement/removal plan, which shall include the methods of tree preservation, tree replacement recommendations, and a report with recommendations from a certified arborist, as per the guidelines outlined in Tree Preservation Ordinance No. 1768 (City of Glendora 2003).

The Urban Forestry Manual defines policies and procedures utilized by City staff in the management and care of all trees located on City owned property, with City parkway areas, in some cases regarding California native species, and new developments (e.g., private property) (City of Glendora 2018a). The City takes impacts on private property trees into consideration with every application for discretionary zoning approval in order to maintain and further develop the local urban forest on public and private property within the City (City of Glendora 2018a). Removal of any species of private trees with a diameter at breast height (DBH) of 10 inches or more must be replaced according to the size scale described in the Urban Forestry Manual (City of Glendora 2018a).

Native oak trees are of particular importance within the City of Glendora. Any oak removed from private property with a DBH of 8" or more, as well as multi-trunk trees, oak or other species with a combined DBH of all trunk branches 4" DBH or greater shall require replacement as per the Urban Forestry Manual (City of Glendora 2018a), as shown in Table 1, City of Glendora Replacement Criteria for Privately Owned Trees. Additionally, the addendum to Chapter 16.12 of the City of Glendora tree preservation ordinance protects pre-existing or native trees that may be impacted by new development in the City (City of Glendora 2003, 2018). It is the City's policy to protect and preserve healthy trees that provide valuable benefits to the environment and quality of life in Glendora (City of Glendora 2003, 2018).

Table 1. City of Glendora Replacement Criteria for Privately Owned Trees

Tree to be Removed Tree	Existing Diameter at Breast Height (DBH)	Container Replacement Size
Any species with a DBH of at least 10 inches	10 to 15 inches	24-inch boxed tree - 1:1 replacement
	15 to 36 inches	36-inch boxed tree - 1:1 replacement
	36 to 48 inches	48-inch boxed tree - 2:1 replacement
	49 inches or more	To be determined by the City Forester
Native oak trees with DBH of at least 8 inches	8 to 15 inches	36-inch boxed tree - 2:1 replacement
	15 to 36 inches	48-inch boxed tree - 3:1 replacement
	36 inches or more	To be determined by the City Forester

3 Environmental Setting

The purpose of this chapter is to describe the general existing conditions within and adjacent to the Study Area to document the baseline conditions for the BRTR and subsequent analysis.

3.1 Climate

The Project site is located approximately 35 miles from the Pacific Ocean. The City of Glendora has a Mediterranean climate with cool, wet winters and hot, dry summers. August is the average warmest month with an average high temperature of 92 degrees Fahrenheit (˚F) and December is the coolest month on average with a low of 42 ˚F. Rainfall occurs primarily between October and April, with the maximum average precipitation occurring in January. According to the Western Regional Climate Center (WRCC) (2022), the mean annual rainfall for the region is 14.39 approximate inches of rain per year.

3.2 Soils

Soils mapping is from the County of Los Angeles, using the U.S. Department of Agriculture (USDA) National Resources Conservation Service (NRCS) Soil Survey Geographic database (County of Los Angeles 2014). Soils and their acreages are provided in Table 2, Soils on Grand Estates Site, spatial distributions are presented within Figure 3, Hydrogeologic Setting, and a brief description of each soil series is provided below.

Table 2. Soils on Grand Estates Site

Soil Mapping Unit	Acres
Hanford Gravelly Sandy Loam	6.9
Upper San Gabriel River	20.0

Source: County of Los Angeles 2014.
Note: Numbers may not sum due to rounding.

Hanford gravelly sandy loam occurs within the southern portion of the Project area. This soil is well-drained and formed from moderately fine textured consolidated alluvium, soft shale, and fine grained sandstone. This soil is formed from alluvium dominantly from granite and other quarts rocks and occurs on floodplains, stream bottoms and alluvial fans. The Hanford series are well-drained soils with low runoff and rapid permeability (USDA NRCS 2022a).

Upper San Gabriel River. Limited information is available for the upper San Gabriel river soils series. According to the Final Program Environmental Impact Report for the San Gabriel River Corridor Master Plan (County of Los Angeles 2006), the primary soils found within the upper San Gabriel river watershed consist of silt loam and sand.

3.3 Topography

On-site elevations range from 960 feet above mean sea level (AMSL) to 1,170 feet AMSL. The southern portion of the site, where development is proposed, is slightly south sloping and has a moderate to flat grade. Elevations across this portion of the site range from 960 to 1,025 AMSL. The northern approximately 16 acres, which are designated as preserve open space, contain moderate to steep slopes with elevations ranging from 1,026 feet to 1,170 feet AMSL.

3.4 Land Uses

3.4.1 On-Site Land Uses

The Project area is located along the foothills and hillsides of the San Gabriel Mountains. The Project area is largely undeveloped, with the exception of an existing single-family residential lot that is located along the southwestern portion of the Project site and zoned for development. The ground surface has been previously disturbed within the majority of the level areas zoned for single-family residential development and use. This area has been used as a Girl Scout camp and for various other outdoor uses. The northern portion of the Project area zoned as open space is comprised of moderate to steep slopes consisting of undeveloped canyons lined with coast live oak woodland and California walnut groves. Additionally, non-native grassland and disturbed California sagebrush scrub habitat occurs along the ridges of the mountains.

The Project is within the Low Density Residential Land Use Designation within the City of Glendora (City of Glendora 2018b). The Low Density Residential Designation is provided for transitional areas between hillside areas and higher density single-family residential areas and allows for the development of single family residential on lots ranging from 10,500 to 30,000 square feet (City of Glendora 2006b). The Project is within the Hillside Study Area and consistent with the Recommended Hillside Strategy document (City of Glendora 2006b). Based upon Dudek's review of the General Plan, the Project would not conflict with any City goals, policies, and/or design.

3.4.2 Surrounding Land Uses

To the north of the Project site are mountainous, undeveloped areas within the northern portion of the City. Approximately 0.31 mile to the north is the southern boundary of the Angeles National Forest. To the east of the Project site are hillside areas (also within the City of Glendora) that are sparsely developed with rural residences. (This area is designated as "Hillside Very Low Density" in the City's General Plan.) The areas south and southwest of the Project site are developed with single-family residential neighborhoods. Approximately 0.15-mile southwest of the Project site is St. Lucy's Priory High School. To the southwest of the Project site is also a small unincorporated area of the County, which is surrounded on all sides by the City of Glendora. This area is developed primarily with single-family residences. To the west of the Project site are single-family residences, undeveloped hillside areas within the City, and utility and flood control infrastructure, consisting of a concrete drainage system that leads out of the San Gabriel Mountains. Also to the west of the Project site is the Church of the Open Door, located approximately 0.15-mile west of the Project site.

Several County-designated Significant Ecological Areas (SEAs) are located near the Project site. The San Gabriel Canyon SEA is located approximately 0.35-mile northwest of the Project site. The East San Gabriel Valley SEA, which includes South Hills Park and surrounding undeveloped lands within the City, is located approximately two miles southeast of the Project site.

3.5 Watersheds and Hydrology

The Project site is located within the Upper San Gabriel Hydrologic Area of the San Gabriel River Unit (Figure 2, San Gabriel River Watershed). The Groundwater Basin Number is 4-13 (California Department of Water Resources 2016). The San Gabriel River is located approximately two miles west of the Project site and the Morris Reservoir is approximately 1.4 miles to the northwest. The river flows south coming out of the San Gabriel Mountains and

then turns west as it makes its way to the Pacific Ocean (San Gabriel Watershed Master Plan 2006). Three main drainages are located within the Project site, which are currently intercepted by the three flood control/debris check dam structures. However, due to accumulated sediment and lack of maintenance, these structures are not functioning to retain debris or flood flows (Figure 2).

3.6 Fire History

The most recent fire (the Colby Fire) started on January 16, 2014 and occurred within the Project area. It burned approximately 1,952 acres, of which 15 acres burned within the Project site, including nearly all of the designated open space area. The fire destroyed five homes and damaged 17 structures in and around the Cities of Glendora and Azusa and the Angeles National Forest before it was contained on January 27, 2014 (CAL FIRE 2014). The Canyon Inn Fire was the last fire occurrence in the area prior to the Colby Fire and occurred 35 years prior on August 23, 1968.

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4 Methods

Data regarding biological resources present on the Project site were obtained through a review of pertinent literature and through field reconnaissance; both of which are described in detail below. The approximate 27-acre property boundary is also referred to as the Study Area within this biological resources technical report.

4.1 Literature Review

Special-status biological resources present or potentially present in the Study Area were identified through a literature search using the following sources:

- CDFW CNDDB (CDFW 2022a) was queried to compile a list of potentially occurring flora and fauna in the Glendora, Azusa, and surrounding seven quadrangles
- CNPS Inventory of Rare, Threatened, and Endangered Plants of California, 8th online edition (CNPS 2022b), was searched to compose a list of potentially occurring flora in the Glendora, Azusa, and surrounding eight quadrangles
- Critical Habitat online viewer (USFWS 2022a)
- Wetland Mapper online viewer (USFWS 2022b)
- Watershed Assessment, Tracking and Environmental Results (WATERS) (EPA 2017)
- USGS National Hydrography Dataset (USGS 2022)
- Historic aerials and topographic maps (Google Maps 2022; NETR 2022; USGS 2018)

4.2 Resource Mapping

Biological fieldwork for the Project was originally conducted in May and July of 2014. Given the lapse in time from the initial surveys in 2014, an updated biological assessment was requested to determine whether biological resources on site have altered since the previous survey efforts were conducted. As such, an additional biological reconnaissance survey was conducted in April 2018 to update existing biological conditions within the Study Area. The initial rare plant survey in 2014 was conducted during a significant drought that may have limited some species' seeds from germinating and blooming. The above average rainfall in 2019 made conditions more amenable for blooming for the rare plant species that have been recorded in the Project vicinity. Additionally, the above average rainfall in the 2016-2017 and 2018-2019 rain seasons may have altered the drainage features that were mapped in 2014, so an update to the jurisdictional waters delineation was conducted. The 2014, 2018 and 2019 biological surveys included documenting vegetation communities and land covers present within the approximate 27-acre property boundary, including the approximate 11 acres zoned for single-family residences and 16 acres zoned for open space, delineation of jurisdictional wetlands or waters, and an evaluation of the potential for special-status plant and wildlife species to occur within the 27-acre property boundary. An additional survey was conducted in January 2022 to update the existing conditions since over two years had elapsed since the previous surveys. Table 3, Survey Dates and Conditions, lists the dates, conditions, and survey focus for each survey.

Table 3. Survey Dates and Conditions

Date	Hours	Survey Focus	Conditions	Personnel*
5/12/2014	0815-1615	Habitat Assessment Special-Status Plant Survey (1st pass) Vegetation Mapping	68˚-90˚F, 0-10% cloud cover, 1–2 mph wind	BAS, JCP
7/22/2014	0730-1600	Special-Status Plant Survey (2nd pass) Jurisdictional Delineation	67˚-93˚F, clear skies, 1–2 mph wind	HLM, JCP
4/20/2018	0920-1320	Biological Reconnaissance-level Survey	60˚-73˚F, overcast-0% cloud cover, 1–4 mph wind	JCP, TKP
5/13/2019	1000-1700	Habitat Assessment Special-Status Plant Survey (1st pass) Vegetation Mapping	67˚-77˚F, overcast-0% cloud cover, 0–1 mph wind	MC
5/15/2019	0800-1030	California Gnatcatcher Protocol Survey	58°F-62°F, clear skies, 0-1 mph wind	TM
5/22/2019	0800-1045	California Gnatcatcher Protocol Survey	55°F-58°F, clear skies, 0-2 mph wind	TM
5/29/2019	0900-1100	California Gnatcatcher Protocol Survey	60°F-62°F, clear skies, 0-1 mph wind	TM
6/11/2019	0830-1030	California Gnatcatcher Protocol Survey	68°F-75°F, clear skies, 1-2 mph wind	TM
6/21/2019	0900-1100	California Gnatcatcher Protocol Survey	70°F-75°F, clear skies, 0-1 mph wind	MB
6/28/2019	0845-1030	California Gnatcatcher Protocol Survey	68°F-72°F, clear skies, 1-2 mph wind	MB
7/18/2019	1000-1700	Special-Status Plant Survey (2nd pass) Jurisdictional Delineation	72°F-92°F, clear skies, 1-2 mph wind	MC
1/21/2022	1001-1046	Biological Reconnaissance-level Survey	59°F-63°F, clear skies, 0-4 mph wind	MC

Notes: Conditions: °F = degrees Fahrenheit; mph = miles per hour;
Personnel: BAS = Britney A. Strittmater, HLM = Heather L. Moine, JCP = Johanna C. Page, TKP = Tracy K. Park; MC = Michael Cady; TM = Tommy Molioo; MB = Melissa Blundell

4.2.1 Vegetation Community and Land Cover Mapping

Vegetation communities on the property were mapped using the List of Vegetation Alliances and Associations (Natural Communities List; CDFW 2022b), which is based on the *Manual of California Vegetation, Second Edition* (MCV2; Sawyer et al. 2009). As shown in Table 2, the vegetation mapping efforts were initially conducted in May 2014 by Dudek biologists Johanna Page and Britney Strittmater. The vegetation mapping was updated in April 2018 by Dudek biologists Johanna Page and Tracy Park to record any changes to vegetation communities since the 2014 surveys (Table 3). Dudek biologist Michael Cady updated the vegetation mapping in May 13, 2019, and confirmed existing conditions in January 21, 2022.

Vegetation communities were mapped in the field directly onto a 200-scale (1 inch = 200 feet) aerial map of the property. Community classifications were selected based on site factors, descriptions, distribution, and characteristic species present within an area. Information such as dominant species and their associated cover,

aspect, and visible disturbance factors were recorded. To create the vegetation community map, Dudek Geographic Information Systems (GIS) technicians digitized the delineated vegetation boundaries from field maps using ArcGIS software. Holland (1986) was consulted as a resource for constituent plant species but was not used for mapping.

4.2.2 Flora and Fauna

All plant species encountered during the field surveys were identified and recorded. Latin and common names for plant species with a California Rare Plant Rank (formerly CNPS List) follow the California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2022b). For plant species without a California Rare Plant Rank, Latin names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2022), and common names follow the USDA NRCS PLANTS Database (USDA NRCS 2022b). A cumulative list of plant species observed on the Project site is presented in Appendix B.

Wildlife species detected during the initial field surveys by sight, calls, tracks, scat, or other signs were recorded. Binoculars (10 x 42 magnifications) were used to aid in the identification of observed wildlife. In addition to species actually detected, expected wildlife use of the site was determined by known habitat preferences of local species and knowledge of their relative distributions in the area. Society for the Study of Amphibians and Reptiles (2017) for reptiles and amphibians, American Ornithologists Society (2019) for birds, Wilson and Reeder (2005) for mammals, and Moyle (2002) for fish. A list of wildlife species observed within the Project site is presented in Appendix C.

4.2.3 Focused Special-Status Plant Survey

Dudek Senior Biologist Michael Cady conducted focused surveys for rare and/or special-status plant species with a potential to occur within the Study Area in 2019. Two surveys were conducted, one in the spring and one in the summer, in order to cover the blooming period of the target species. Prior to the start of focused surveys, nearby reference populations were checked to verify that target species were in bloom.

The Study Area was surveyed with meandering transects searching for federally and/or state-listed plants known to occur or with the potential to occur within the Study Area. The surveys conformed to CNPS Botanical Survey Guidelines (CNPS 2001); Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities (CDFW 2018); and Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 1996). All plant species encountered during the field surveys were identified to subspecies or variety, if applicable, to determine sensitivity status. Moreover, all plant species encountered in the field were recorded. If target species were encountered, data points were mapped in the field using a GPS unit.

4.2.4 California Gnatcatcher Protocol Surveys

The presence/absence focused survey for coastal California gnatcatcher (CAGN) (*Polioptila californica californica*) was conducted for the Project between May 15 and June 28, 2019. The survey was conducted within weather conditions and time frames appropriate for the detection of gnatcatchers. Weather conditions and survey dates are provided in Table 3. The survey routes focused on moderate to high quality habitat that dominates most of the study area. No portions of the survey routes encroached into USFWS designated critical habitat for the species.

The survey was conducted following the currently accepted protocol of the USFWS, Coastal *California Gnatcatcher (Polioptila californica californica) Presence/Absence Survey Protocol* (USFWS 1997). The Project site does not occur within an approved Natural Community Conservations Plan (NCCP) area, and therefore six surveys were conducted at a minimum of 7-day intervals during the breeding season (March 15 through June 30). In accordance with the protocol, no more than 80 acres of suitable habitat were surveyed by a single permitted biologist during each site visit conducted. Survey routes completely covered all areas of suitable CAGN habitat within the survey area and allowed for complete audible and visual coverage of all suitable CAGN habitat on site.

A 200-scale topographic map (1 inch = 200 feet) overlain with vegetation polygons and the survey area was utilized during the survey. Additionally, digital mobile maps were utilized during the surveys to assist in navigating each survey area. Appropriate binoculars (e.g., 8x42 through 10x50 magnification) were used to aid in detecting and identifying bird species. A recording of gnatcatcher vocalizations was played approximately every 50–100 feet to induce responses from potentially present gnatcatchers. Vocalization-playback would have been terminated immediately upon detection of any gnatcatchers to minimize the potential for harassment.

4.2.5 Jurisdictional Delineation

A formal (routine) jurisdictional delineation of features within the Study Area was first conducted by Dudek biologists Heather L. Moine and Johanna C. Page on July 22, 2014. The Study Area was surveyed on foot for waters of the United States, including wetlands, under the jurisdiction of the USACE, pursuant to Section 404 of the federal CWA, RWQCB, pursuant to the Section 401 of the CWA and Porter-Cologne Water Quality Control Act, and under the jurisdiction of the CDFW pursuant to Section 1602 of the California Fish and Game Code. Although an additional jurisdictional delineation was not conducted for the Project in 2018, jurisdictional features were assessed for further modifications and updated accordingly during the 2018 reconnaissance-level field survey.

A second formal (routine) jurisdictional delineation was conducted for the Study Area in 2019 following the above average rainfall in 2018-2019 rain season. The survey methodology also incorporated recent CDFW determinations on the limits that the agency takes jurisdiction over. The limits of the jurisdictional waters were checked for changes during the January 2022 site visit.

Non-wetland waters of the United States are delineated based on the presence of an OHWM as determined utilizing the methodology in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States, A Delineation Manual* (USACE 2008a). Wetland waters of the United States are delineated based on methodology described in the 1987 *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008b). The USACE and U.S. Environmental Protection Agency (EPA) Rapanos Guidance states that the USACE will regulate: (i) traditional navigable waters of the United States and (ii) their adjacent wetlands as well as (iii) non-navigable tributaries to traditional navigable waters that are relatively permanent and (iv) wetlands that directly about such tributaries (USACE and EPA 2008). In addition, if a significant nexus has been determined, the USACE may also assert jurisdiction over (i) non-navigable tributaries that are not relatively permanent and (ii) their adjacent wetlands, as well as (iii) wetlands that are adjacent to but that do not directly about a relatively permanent non-navigable tributary (USACE and EPA 2008).

The CDFW jurisdiction is defined to the bank of the streams/channels or to the limit of the adjacent riparian vegetation. For shallow drainages and washes that do not support riparian vegetation, the top of bank measurement may be the same as the OHWM measurement. Areas regulated by the RWQCB are generally concurrent with the USACE, but may include features isolated from navigable waters of the U.S. that have evidence of surface water inundation.

Features were delineated using a Trimble GeoXT handheld Global Positioning System (GPS) unit with submeter accuracy. Features were also documented directly onto a 200-scale field map (1 inch = 200 feet) with an aerial base. To assist in the determination of jurisdictional areas on site, data was collected at 59 locations (i.e., data stations). Hydrology, vegetation, and soils were assessed and data were collected and summarized. The location of data stations were collected using a Trimble GeoXT handheld GPS unit with sub-meter accuracy. Plant species were characterized as either obligate, facultative wetland, facultative, facultative upland, and/or upland per *The National Wetland Plant List: 2016 Wetland Ratings (Lichvar 2016). Due to the absence of hydrophytic vegetation, soil pits were not excavated.*

4.2.6 Survey Limitations

Special-status plant surveys were conducted in May and July of 2014, which resulted in detection and identification of most annual and perennial plant species that occur in the area. Additionally, all plants observed during the April 2018 vegetation mapping effort were recorded. The timing of the surveys coincided with the blooming periods for special-status plant species with a moderate to high potential to occur in the vicinity of the Project. Lower-than-average rainfall occurred in winter 2013 and 2014, which may have limited the number of plant individuals that germinated that year and limited the blooming period of those that did (WRCC 2014). However, the above average rainfall that occurred in the winter of 2018 and 2019 provided conditions that were conducive for the detection of most plant species. A weather station at Big Dalton Dam has recorded 33.43 inches of precipitation since the beginning of the current rainy season (October 1, 2018), which is above the normal of 26.21 inches (LACDPW 2019).

Limitations of the surveys included a diurnal bias and the absence of trapping for small mammals, reptiles, and amphibians. The surveys were conducted during the daytime to maximize the detection of most animals. Birds represent the largest component of the vertebrate fauna, and because most birds are active in the daytime, diurnal surveys maximize the number of bird observations. Conversely, diurnal surveys usually result in few observations of mammals, many of which may only be active at night. In addition, many species of reptiles and amphibians are secretive in their habits and are difficult to observe using standard meandering transects. The purpose of the field surveys was to determine the likelihood of occurrence of any special-status plant or wildlife species based on the presence/absence of suitable habitat and other natural history elements that might predict their occurrence.

4.3 Special-Status Species Habitat Assessment

Endangered, rare, or threatened plant species as defined in Section 15380(b) of the CEQA Guidelines (14 CCR 15000 et seq.) are referred to as “special-status plant species” in this BRTR and include endangered or threatened plant species recognized in the context of CESA and FESA (CDFW 2019b) and plant species with a CRPR 1 through 4 (CNPS 2019b). Species with CRPR 3 or 4 may, but generally do not, qualify for protection under this provision. Species with CRPR 3 and 4 are those that require more information to determine status and plants of limited distribution. Thus, only CRPR 3 and 4 plant species that were also locally recognized by the City of Glendora tree protection ordinance were analyzed further.

Endangered, rare, or threatened wildlife species as defined in CEQA Guidelines, Section 15380(b) (14 CCR 15000 et seq.), are referred to as “special-status wildlife species” and, as used in this report, include (1) endangered or threatened wildlife species recognized in the context of CESA and FESA (CDFW 2022c); (2) California Species of

Special Concern as designated by CDFW (2022d); and (3) mammals and birds that are fully protected species as described in the California Fish and Game Code, Sections 4700 and 3511.

The CNDDB and CNPS database queries conducted during the literature review resulted in a list of plant and wildlife species that have recorded occurrences within the Project vicinity. For each species evaluated, a determination was made regarding the potential for the species to occur in the Study Area based on information gathered during the field reconnaissance, including the location of the site, habitats present, current site conditions, known range, habitat associations, preferred soil substrate, life form, elevation, and blooming period.

5 Results

This chapter describes the results of the literature review, field surveys, and habitat assessments within the Study Area. Representative site photographs of the Project site are provided in Appendix A of this BRTR.

5.1 Vegetation Communities, Land Covers, and Floral Diversity

Six vegetation communities and land covers (including disturbed forms) were mapped in the Study Area based on general physiognomy and species composition. These vegetation communities and land cover types are described, their acreages are presented in Table 4, Vegetation Communities and Land Covers within the Study Area, and their spatial distribution are presented within Figure 4, Biological Resources.

Table 4. Vegetation Communities and Land Covers within the Study Area

Vegetation Community or Land Cover	California Natural Community Codes[a]	Nature-Serve Global-State Rarity Ranks[b]	Acres in Study Area
Native Vegetation Communities			
Coast Live Oak Woodland Alliance (CLOW)*	71.060.00	G5/S4	10.87
California Walnut Groves (CWG)*	72.100.00	G3/G3	1.40
Disturbed California Sagebrush Scrub (dCSS)*	32.010.00	G5/S5	2.24
Naturalized Vegetation Communities			
California Annual Non-Native Grassland (NNG)	42.027.00	–	6.42
Non-Natural Land covers			
Urban/Developed (DEV)	–	–	2.42
Developed-Concrete Channel (DEV-CC)	–	–	0.28
Disturbed Habitat (DH)	–	–	0.97
Parks and Ornamental Plantings (ORN)	–	–	2.41
Total	–	–	**27.02**

Notes: Numbers may not sum due to rounding.

[a] Unique codes assigned to alliances and associations.

[b] NatureServe Global and State rarity ranks per Faber-Langendoen et al. (2012). Natural communities with global or state ranks of 1–3 are considered Sensitive Natural Communities by CDFW (2018) and are to be addressed in the environmental review processes of CEQA.

* Special-status vegetation community per the City of Glendora (2006).

5.1.1 Coast Live Oak Woodland

Coast live oak woodland includes coast live oak as the dominant or co-dominant tree in the canopy. Coast live oak woodland has a continuous to open canopy less than 30 meters (98 feet) in height with a sparse to intermittent shrub canopy and sparse or grassy ground layer (Sawyer et al. 2009). Species associated with the coast live oak woodland alliance include bigleaf maple (*Acer macrophyllum*), blue oak (*Quercus douglasii*), box elder (*Acer*

negundo), California bay (*Umbellularia californica*), Engelmann oak (*Quercus engelmannii*), California sycamore (*Platanus racemosa*), California black walnut (*Juglans californica*), valley oak (*Quercus lobata*), arroyo willow (*Salix lasiolepis*), California black oak (*Quercus kelloggii*), and madrone (*Arbutus menziesii*) (Sawyer et al. 2009).

The coast live oak woodlands within the Study Area are located within the northern portion of the property within areas designated as open space, and along the eastern and western perimeters of the property boundary where development is proposed to occur. The coast live oak woodlands within the northern portion of the property were previously burned during the 2014 Colby fire (discussed in Section 3.8); however, the community in this portion of the site seems to be recovering well. Coast live oak woodland occurring along the eastern and western boundaries of the property remained untouched by the fire.

This community is dominated by coast live oak, though California sycamore (*Platanus racemosa*), southern California black walnut, and Washington fan palm (*Washingtonia robusta*) are also scattered throughout this vegetation community. The understory within the coast live oak woodland mapped within the eastern perimeter of the Project site and within the areas zoned as Open Space - Natural (north of the Project site) include bromes (*Bromus* spp.), sowthistles (*Sonchus* spp.), ragweeds (*Ambrosia* spp.), Pacific poison oak, tree tobacco (*Nicotiana glauca*) annual yellow sweetclover (*Melilotus indicus*), Cucamonga manroot (*Marah macrocarpa*), Bermuda buttercup (*Oxalis pes-caprae*), Alefeld's pea (*Lathyrus vestitus* var. *alefeldii*), narrowleaf bedstraw (*Galium angustifolium*), distant phacelia (*Phacelia distans*), and wild canterbury bells (*Phacelia minor*). The understory within the coast live oak woodland mapped within the western perimeter of the Study Area is associated with non-native and landscaped species dominated by English ivy (*Hedera helix*), field bindweed (*Convolvulus arvensis*), tree tobacco, ornamental fig trees (*Ficus* sp.), and smilo grass (*Stipa miliacea*).

The coast live oak woodland alliance is ranked by the CDFW (2018) as a G5S4 alliance. This ranking indicates that globally the alliance is widespread, abundant, and is considered secure and within California the alliance is apparently secure (CDFW 2019b). Although this alliance is not considered a special-status vegetation community by CDFW (CDFW 2022b), woodlands are recognized as a special-status vegetation community by the City of Glendora (2006).

5.1.2 California Walnut Groves

California walnut groves include California black walnut as the dominant or co-dominant tree species in the canopy. This community has a continuous to open canopy less than 15 meters (49 feet) in height with a sparse or grassy ground layer (Sawyer et al. 2009). Species associated with California walnut groves alliance include white alder (*Alnus rhombifolia*), California ash (*Fraxinus dipetala*), toyon (*Heteromeles arbutifolia*), coast live oak, valley oak, arroyo willow, red willow (*Salix laevigata*), blue elderberry (*Sambucus nigra*), and California bay (Sawyer et al. 2009).

California walnut groves on site were burned during the 2014 Colby fire as discussed in Section 3.6. Many of the California walnut trees burned during the fire were observed to be re-sprouting during the 2018 site visit. Several California walnut saplings are emergent throughout canyons and hills within the northern open space portion of the property. One community dominated by California walnut groves is located within the north-central portion of the Study Area, within the designated open space area. California walnut groves on site are dominated by California black walnut and contain a grassy understory comprised of various bromes (*Bromus* spp.) and wild oat (*Avena* spp.). Other species present include coast live oak, California sycamore (*Artemisia californica*), Pacific poison oak (*Toxicodendron diversilobum*), white sage (*Salvia apiana*), and black mustard (*Brassica nigra*).

The California walnut grove alliance has a rank of G3S3 in CDFW (2018), meaning that it is vulnerable to extirpation or extinction both globally and within the state; and is therefore a special-status vegetation community and a high priority for inventory according to CDFW (2022b). Additionally, woodlands are recognized as a special-status vegetation community by the City of Glendora (2006).

5.1.3 Disturbed California Sagebrush Scrub

California sagebrush scrub is a community dominated or co-dominated by California sagebrush (*Artemisia californica*) with a continuous or intermittent shrub canopy less than two meters (seven feet) in height with a variable ground layer (Sawyer et al. 2009). This native plant community characterized by a variety of soft, low, aromatic, drought-deciduous shrubs, such as California sagebrush (*Artemisia californica*), coyote bush (*Baccharis pilularis*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), brittlebush (*Encelia farinosa*), chaparral yucca (*Hesperoyucca whipplei*), coastal pricklypear (*Opuntia littoralis*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon. It typically develops on steep, south-facing slopes and at times, though rarely, occurs on flooded low-gradient deposits along streams in which are scattered willows (*Salix* spp.) and mulefat (*Baccharis salicifolia*), depending on the site conditions.

This community was burned during the 2014 Colby fire, discussed further in Section 2.7. Within the Study Area, this community contains a high cover of non-native species including bromes, wild oat, castorbean (*Ricinus communis*), and black mustard as a result of the Colby fire. Emergent California sagebrush species including California sagebrush, laurel sumac, white sage, and common deerweed have become reestablished. Sprouting of coastal sage scrub habitats within inland areas is dependent almost entirely upon seed germination, whereas most sage scrub species re-sprout from below ground root crowns in coastal areas. Therefore, coastal sage scrub assemblages that regenerate primarily by seeding may be more vulnerable to the effects of non-natives compared with stands that regenerate by sprouting (O'Leary 1990a, 1990b). Essentially, it may take a number of years before this habitat type will reestablish, especially given the drought years preceding and following the 2014 Colby fire. This community previously dominated hillsides throughout the northern open space portion of the Study Area; however, California sagebrush scrub is now limited approximately 1.6 acres, occurring as patches along extremely steep slopes.

California sagebrush scrub alliance has a rank of G5S5 (Faber-Langendoen et al. 2012), meaning it is globally secure and secure in the state. Although this alliance is not considered a special-status vegetation community by CDFW (2022b), coastal sage scrub habitats are recognized as a special-status vegetation community by the City of Glendora (2006).

5.1.4 California Annual (Non-Native) Grassland

California annual grassland (also referred to as non-native grassland in this report) is characterized by a mixture of weedy, introduced annuals, primarily grasses (Sawyer et al. 2009; Holland 1986). California annual grassland typically includes wild oats, bromes, black mustard, stork's bill (*Erodium* spp.), dove weed (*Croton setiger*), Russian thistle (*Salsola tragus*), and Maltese star-thistle (*Centaurea melitensis*). It may occur where disturbance by maintenance (e.g., mowing, scraping, disking, and spraying), grazing, repetitive fire, agriculture, or other mechanical disruption has altered soils and removed native seed sources from areas formerly supporting native vegetation (Holland 1986).

California annual grassland is located throughout the central portion of the Study Area (within northern portion of where the Project development is proposed), as well as within the northern portion of the property within areas zoned as Open Space - Natural. This vegetation community is dominated by bromes (*Bromus* spp.), wild oat (*Avena fatua*), black mustard, castorbean, redstem stork's bill (*Erodium cicutarium*), Cucamonga manroot (*Marah macrocarpa*), and dove weed (*Croton setiger*). Other native species found within the eastern portion of this grassland community include sugar sumac (*Rhus ovata*) and hollyleaf cherry (*Prunus ilicifolia* ssp. *ilicifolia*). This area appears to have been heavily altered by regular discing activities. Tree removal activities have also occurred in this area based on past aerial maps of the area. California annual grassland also dominates slopes and ridgelines throughout the northern portion of the Study Area, within the designated open space. Following the 2014 Colby fire (discussed in Section 3.6), California annual grassland has re-vegetated hillsides previously dominated by coastal sage scrub communities. A low cover of trees and shrubs remain emergent; however, these hillsides are dominated by bromes, as well as weedy, introduced annuals such as redstem stork's bill, prickly Russian thistle, and shortpod mustard (*Hirschfeldia incana*). Other native species found scattered within this grassland community include laurel sumac, California sagebrush, brittlebush, and California four o'clock (*Mirabilis laevis* var. *crassifolia*).

The California annual (non-native) grassland alliance has a rank of G4S4 (Faber-Langendoen et al. 2012), meaning that it is apparently secure both globally and within the state, and is therefore not a special-status vegetation community according to CDFW (2019b). Additionally, California annual grassland is not recognized as a special-status vegetation community by the City of Glendora (City of Glendora 2006a).

5.1.5 Urban/Developed

Developed land refers to areas supporting by man-made structures including homes, yards, roadways, sidewalks, and other highly modified lands supporting structures associated with dwellings or other permanent structures. Vegetation in these areas, if present at all, is typically associated with development landscaping. Within the Study Area, developed land is limited to the southwestern portion of the proposed development, consisting of an existing private resident and associated landscaping.

Developed land is not included in the Natural Communities List (CDFW 2022b). This community is not considered a special-status vegetation community by CDFW or the City of Glendora (City of Glendora 2006a).

5.1.6 Developed-Concrete Channel

Developed-concrete channel is characterized by barren or sparsely vegetated concrete-lined channels. On site, this land cover type is largely unvegetated and conveys run-off from adjacent hillside areas into a storm drain inlet near the intersection of Palm Drive and Grand Avenue immediately south of the project site. One concrete channel was mapped within the eastern portion of the property. The concrete channel on-site is ephemeral supporting little, if any, vegetation. The channel was approximately 4 to 5 feet wide along the channel bottom and between 3 and 4 feet tall.

Developed-concrete channel is not included in the Natural Communities List (CDFW 2022b). This community is not considered a special-status vegetation community by CDFW or the City of Glendora (City of Glendora 2006a).

5.1.7 Disturbed Land

Disturbed land includes areas that experience or have experienced high levels of human disturbance and as a result are generally lacking vegetation. Areas mapped as disturbed land may include unpaved roads, trails, and graded areas. Vegetation in these areas, if present at all, is usually sparse and dominated by non-native weedy herbaceous species. Within the study area, disturbed land includes dirt roads, and bare, open areas with less than 5% vegetative cover. Disturbed land is found throughout the proposed development area. Disturbed land is minimal within the areas designated for open space and includes a portion of a dirt road.

Disturbed land is not included in the Natural Communities List (CDFW 2022b). This community is not considered a special-status vegetation community by CDFW or the City of Glendora (City of Glendora 2006a).

5.1.8 Special-Status Vegetation Communities

During the vegetation mapping, three vegetation communities were mapped in the Study Area that are considered sensitive under CEQA by CDFW (2019b) and/or the City of Glendora (2006): California walnut groves, disturbed coastal sage scrub, and coast live oak woodlands.

Table 4 provides the acreage of each mapped vegetation community or land cover. Figure 4 shows the distribution of vegetation communities and land covers mapped within the Study Area.

5.2 Floral Diversity

A total of 129 plant species were recorded in the Study Area during 2014, 2018, 2019, and 2022 surveys, including 64 native species (50%) and 65 non-native species (50%). The cumulative list of plant species observed in the Study Area is provided in Appendix B.

5.3 Faunal Diversity

A total of 49 wildlife species were recorded in the Study Area during 2014, 2018, 2019, and 2022 surveys including 48 native species (98%) and one non-native species (2%). A full list of wildlife species observed in the Study Area is provided in Appendix C.

5.3.1 Amphibians and Reptiles

No amphibian species were observed during surveys; however, black-bellied slender salamander (*Batrachoseps nigriventris*) and garden slender salamander (*Batrachoseps major major*) have the potential to occur. Two reptile species have been observed within the Study Area, Great Basin fence lizard (*Sceloporus occidentalis longipes*) and California striped racer (*Coluber lateralis lateralis*). Additional species that are likely to occur within the Study Area include gopher snake (*Pituophis catenifer annectens*) and southern Pacific rattlesnake (*Crotalus oreganus helleri*).

5.3.2 Birds

Thirty-seven (37) bird species were observed or heard within the Study Area. Most bird species observed are common, disturbance-adapted species typical of urban and suburban settings such as house finch (*Carpodacus*

mexicanus), mourning dove (*Zenaida macroura*), northern mockingbird (*Mimus polyglottos*), acorn woodpecker (*Melanerpes formicivorus*), and European starling (*Sturnus vulgaris*). One Cooper's hawk (*Accipiter cooperii*) was observed within the coast live oak woodland habitat along the western perimeter of the property. A red-tailed hawk (*Buteo jamaicensis*) was audibly detected north of the property during the site visit conducted in July 2014 and visually detected soaring over the Project site during the site visit conduced in April 2018. A red-shouldered hawk (*Buteo lineatus*) was heard calling from the ornamental vegetation in the south of the Study Area in 2019.

5.3.3 Mammals

Four mammal species were detected in the Study Area during the surveys: coyote (*Canis latrans*), western gray squirrel (*Sciurus griseus*), California ground squirrel (*Spermophilus* [*Otospermophilus*] *beecheyi*), and mule deer (*Odocoileus hemionus*). Other common species that are likely to occur include common raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginica*).

5.4 Special-Status Biological Resources

5.4.1 Special-Status Plant Species

No special-status plant species were documented in previous surveys of the Study Area. No special-status plants species were observed during Dudek's 2014 and 2019 focused plant surveys, which were conducted during the blooming period and under conditions that would have allowed identification for species potentially present. Therefore, no special-status plant species were determined to have a moderate or high potential to occur in the Study Area. Appendix D, Special-Status Plant Species with Recorded Occurrences in the Project Vicinity and Their Potential to Occur in the Study Area, lists the special-status plants with potential to occur at the Project site. Species that are either not expected to occur or have a low potential to occur are identified in Appendix D and are not analyzed further in this BRTR, with the exception of thread-leaved brodiaea (*Brodiaea filifolia*), since it is a federally and State-listed species with local records.

Thread-Leaved Brodiaea

Thread-leaved brodiaea is federally listed as threatened and State-listed as endangered. Critical habitat for the species has been designated approximately 1.4 miles east of the Study Area (USFWS 2022a). The species is a member of the brodiaea family (Themidaceae) and is a perennial bulbiferous herb. It produces several linear leaves from an underground corm, and blue to red-purple flowers on a leafless stalk. Thread-leaved brodiaea is usually found in herbaceous plant communities such as valley needlegrass grassland, valley sacaton grassland, nonnative grassland, alkali playa, southern interior basalt vernal pools, San Diego mesa hardpan vernal pools, and San Diego mesa claypan vernal pools in association with coastal sage scrub in some locations (USFWS 2009). These herbaceous communities occur in open areas on clay soils, soil with clay subsurface, or clay lenses within loamy, silty loam, loamy sand, silty deposits with cobbles or alkaline soils. These soil and habitat conditions do not occur in the Study Area, so thread-leaved brodiaea is not expected to occur on site. Additionally, the reference population for the species along Colby Trail, approximately 1.5 miles to the east of the Study Area, was confirmed to be in bloom during the focused rare plant survey conducted in May 2019, and the species was not observed in the Study Area.

5.4.2 Special-Status Wildlife Species

One special-status wildlife species, yellow warbler (*Setophaga petechia*), was observed during the surveys in the Study Area. Three species has a moderate potential to occur in the Study Area: Southern California legless lizard (Anniella stebbinsi), coastal whiptail (*Aspidoscelis tigris stejnegeri*), and hoary bat (*Lasiurus cinereus*). Table 5, Special-Status Wildlife Species Present or with Moderate or High Potential to Occur within the Study Area, summarizes the species that occur or have a moderate or high potential to occur. Species that are either not expected to occur or have a low potential to occur are indicated in Appendix E, Special-Status Wildlife Species with Recorded Occurrences in the Project Vicinity and Their Potential to Occur in the Study Area, and are not analyzed further in this BRTR, with the exception of CAGN, since focused surveys were conducted for the species.

Table 5. Special-Status Wildlife Species Present or with Moderate or High Potential to Occur within the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
Reptiles				
Anniella stebbinsi	Southern California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Moderate potential to occur. This species could occur within the coast live oak woodland, California walnut groves, and coastal sagebrush scrub habitats within the Study Area.
Aspidoscelis tigris stejnegeri	coastal whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas	Moderate potential to occur. This species could occur within the coast live oak woodland, California walnut groves, and coastal sagebrush scrub habitats within the Study Area.
Birds				
Setophaga petechia (nesting)	yellow warbler	None/SSC	Riparian plant associations in close proximity to water; frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders	Present. Observed during the 2018 surveys in the Study Area; however, the species is not expected to nest on site due to the lack of riparian habitat.

Table 5. Special-Status Wildlife Species Present or with Moderate or High Potential to Occur within the Study Area

Scientific Name	Common Name	Status (Federal/ State)	Habitat	Potential to Occur
Mammals				
Lasiurus cinereus	hoary bat	None/None	Forest, woodland riparian, and wetland habitats; also juniper scrub, riparian forest, and desert scrub in arid areas; generally roosts in dense foliage of medium to large trees; preferred sites are hidden from above, with few branches below, and have ground cover of low reflectivity; females and young tend to roost at higher sites in trees	Moderate potential to occur. Suitable associated day/night roosting, maternity roosts, and foraging habitat for the individuals of the species occurs within the Study Area, and there are records of the species from the San Gabriel Mountains.
Puma concolor	cougar	None/None	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	High potential to occur in the study area as a transient. The species is expected to occur in the Study Area, specifically the hills southeast of the project site, as a transient during foraging, movement through its home range, or during the dispersal of young; however, the fences around the property would limit it use by the species. Natal dens of the species are not expected since females typically avoid areas of human activity (Center for Biological Diversity and the Mountain Lion Foundation 2019).

Coastal California Gnatcatcher

CAGN is a small songbird that is federally listed as threatened and a CDFW SSC species. This species is a year-round resident found below 2,500 feet in elevation within Southern California. This subspecies occurs from northwest Baja California, Mexico to Ventura County. The highest densities for CAGN occur in coastal areas of Orange and San Diego Counties (Mock 2004), with small, now disjunct populations documented for Ventura and Los Angeles Counties (Atwood et al. 1998). CAGN generally prefer open sage scrub habitats with California sagebrush as a dominant or co-dominant species. Nest placement is typically in areas with less than 40% slope gradient (Mock 2004).

No CAGN (i.e., individuals and/or nests) were detected within the Study Area during any of the surveys, including the protocol surveys conducted in 2019 (see Appendix F, 2019 Focused California Gnatcatcher Survey 45-Day Report for the Silent Ranch Hillside Subdivision Project, City of Glendora, California). Therefore, the Study Area is currently considered absent of the species. This species generally has a low potential to occur within the limited coastal scrub habitat in the Study Area. The burned coastal sagebrush scrub formerly dominating the northern portion of the Study Area is now mainly re-vegetated with non-native grasslands, with only remnant patches of coastal scrub present in the northeastern corner and central portion of the Study Area.

The closest documented occurrence of this species is 3.1 miles southeast of the Study Area, approximately 0.3-mile northeast of the intersection of E. Foothill Boulevard and S. Amelia Avenue, north of San Dimas Canyon, as shown in Figure 5, Coastal California Gnatcatcher. The potential for CAGN to occur within the Study Area prior to the burn is thought to be low based on the small, disjunct populations known to occur within Los Angeles and Ventura Counties (Atwood et al. 1998; Atwood and Bontrager 2001), the terrain within the Study Area is steeper than typically preferred by this species, and there is a poor connection to existing known populations.

Mountain Lion

Pursuant to the provisions of Section 2074.2 of the Fish and Game Code, the California Fish and Game Commission ("Commission"), at its April 15-16, 2020 meeting, accepted for consideration the petition submitted to list an evolutionarily significant unit (ESU) of mountain lion (*Puma concolor*) in southern and central coastal California as threatened or endangered under CESA. As such, the Southern California/Central Coast ESU mountain lion population is given the protection of a listed species until its listing is permanently confirmed or denied. The species requires large areas of relatively undisturbed habitats with adequate connectivity to allow for dispersal and gene flow. Mountain lion have large home ranges that include heterogenous habitats. In the United States these often consist of pine forests, riparian and oak woodlands, streams, chaparral, and grasslands, though they are also known to occur in desert habitats (Center for Biological Diversity and the Mountain Lion Foundation 2019). Nocturnal patterns of movement and stasis suggest that mountain lions generally avoid areas with human disturbance (i.e., residential developments and two-lane paved roads) and use a variety of habitats to stalk and pursue their prey (Center for Biological Diversity and the Mountain Lion Foundation 2019). Studies have shown that when traveling or hunting, the species preferred canyon bottoms and gentle slopes and used steeper slopes and ridgelines to a lesser extent (Center for Biological Diversity and the Mountain Lion Foundation 2019). Females keep their young in dens located in rocky terrain or in dense vegetation that provide cover, but avoid roads and stay at a distance from human disturbance four times greater (approximately 600 meters) than non-reproductive mountain lions (Center for Biological Diversity and the Mountain Lion Foundation 2019)

Mountain lion are expected to use the study area for foraging, movement through its home range, or during the dispersal of young, with most movement occurring at night. Natal dens are not expected since the study area sustains a relatively high level of human activities due to the adjacent residential properties.

5.5 Critical Habitat

There is no USFWS-designated critical habitat within the Study Area. There is critical habitat for CAGN approximately 4.8 miles southeast of the Study Area, southwestern willow flycatcher (*Empidonax traillii extimus*) critical habitat is approximately 0.9 miles northwest of the Study Area., and thread-leaved brodiaea critical habitat is approximately 1.4 miles east of the Study Area (USFWS 2022a).

5.6 Wildlife Corridors and Habitat Linkages

Wildlife corridors are linear features that connect large patches of natural open space and provide avenues for dispersal or migration of animals and dispersal of plants (e.g., through wildlife vectors). Wildlife corridors contribute to population viability by assuring continual exchange of genes between populations, which helps maintain genetic diversity; providing access to adjacent habitat areas representing additional territory for foraging and mating; allowing for a greater carrying capacity; and providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes (i.e., the rescue effect).

Habitat linkages are small patches that join larger blocks of habitat and help reduce the adverse effects of habitat fragmentation. They serve as connections between habitat patches and help reduce the adverse effects of habitat fragmentation. Although individual animals may not move through a habitat linkage, the linkage is a potential route for gene flow and long-term dispersal. Habitat linkages may serve as both habitat and avenues of gene flow for small animals such as reptiles, amphibians, and rodents. Habitat linkages may be represented by continuous patches of habitat or by nearby habitat "islands" that function as steppingstones for dispersal and movement (especially for birds and flying insects). Wildlife corridors and habitat linkages provide avenues for dispersal or migration of animals that also contribute to population viability in several ways, including (1) ensuring continual exchange of genes between populations to aid in maintaining genetic diversity, (2) providing habitat for some species, (3) providing access to adjacent habitat areas representing additional territory for foraging and mating, (4) allowing for a greater carrying capacity, and (5) providing routes for colonization of habitat lands following local population extinctions or habitat recovery from ecological catastrophes.

The Study Area does not reside within any designated wildlife corridors and/or habitat linkages identified in the South Coast Missing Linkages analysis project (South Coast Wildlands 2008) or California Essential Habitat Connectivity project (Spencer et al. 2010). Although the Study Area is not located within a designated wildlife corridor or habitat linkage, the northern portion of the property contains drainage and oak woodland habitat that likely facilitates local wildlife movement. Mule deer were observed on the property during the field surveys, and are likely to use the hillsides, drainages and canyons on-site for wildlife movement. The site is also likely to support local movement of more common urban adapted species including coyote, striped skunk, and raccoon. On occasion, the canyons and drainages within the northern portion of the property may also facilitate movement for American black bear (*Ursus americanus*) and bobcat (*Lynx rufus*). However, the southern portion of the Project site and areas south and west of the Project site are dominated by residential development; and thus, is less likely to support wildlife movement. In summary, while there is potential for local wildlife movement to occur along the streambeds, canyons, ridgelines and hillsides within the northern portion of the Study Area, there is less suitable habitat for wildlife movement along the southern portion of the property where the majority of Project development is proposed.

5.7 Jurisdictional Delineation

With respect to USACE-jurisdictional waters of the U.S., including wetlands, the USACE makes the jurisdictional determination. The USACE issues two types of jurisdictional determinations—preliminary and approved.[1] Both

[1] The USACE issues two types of JDs—preliminary and approved. A preliminary JD is an expedited process typically initiated at the time that a 404 permit is requested for impacts to federal jurisdictional waters; the preliminary JD is non-binding and does not involve USACE review. This process is used when the permittee does not wish to request a determination that some or all of the potentially jurisdictional waters on the Project site are isolated (under the Rapanos decision) or otherwise not subject to federal jurisdiction. An approved JD is requested through submittal of a JD report and the accompanying form. It requires USACE review of the report and application of the criteria used to request a non-federal JD.

types of determinations require a submittal of a formal jurisdiction delineation report. CDFW and RWQCB also may request a site visit to review the jurisdictional delineation and may potentially change the limits of delineation. Therefore, the jurisdiction determinations provided in this technical report are preliminary and only identify the potential for jurisdictional areas to be affected by the Project in accordance with the CEQA thresholds.

There are three main drainages within the Study Area and several swale/erosional features. One of the drainages (Drainage E) flows into a concrete channel and is located in the southeastern portions of the site. Each channel segment has been labeled with a letter (A-E) and is shown on Figure 5, Potential Jurisdictional Waters. A total of 59 data stations were recorded. Detailed notes including the OHWM (if present), feature name, general area, feature notes, dominant plant species, hydrology notes, and photographs of the data stations and associated drainages for each data station are provided in Appendix G, Jurisdictional Delineation Data.

Each drainage is described in more detail in the remainder of this section.

Drainage A

Drainage A is ephemeral and flows northwest to southeast. Data stations 01-08 were collected for this feature. Within the northern extent of Drainage A, a natural spring is present with surface water and a small amount of water flow. No hydrophytic vegetation was observed within the natural spring. Downstream of the natural spring, the OHWM is well defined with scouring, exposed roots, and drift deposits. Drainage A does not support hydrophytic vegetation in or adjacent to the channel.

Within the downstream portion of this feature is an approximately 20-foot tall concrete weir filled with rocks and mesh wiring. A USFS placard on the weir notes “1970 Los Angeles Flood Control District”. The function at this structure is to reduce the erosion of the stream bed thus conserving soil and water and encouraging plant growth. It was constructed in cooperation with the United States Forest Service. For your safety please stay off." The OHWM end just downstream of the weir, making Drainage A an isolated feature.

Due to the absence of hydric soils and hydrophytic vegetation, there are no wetlands present within Drainage A. However, Drainage A exhibits evidence of surface flow and the OHWM varies between 2-26 feet with OHWM indicators consisting of absence of vegetation, sediment deposition, and shelving. The feature is mostly vegetated with scattered shrubs, forbs, and non-native grasses, within an overstory canopy from coast live oak woodland. Additional information recorded for Drainage A is provided in Appendix G.

Drainages B, C, and D

Drainages B, C and D are ephemeral drainages within the north-central portion of the site. Drainages B and C are tributaries to Drainage D. Drainage D generally flows north to the south. Data stations 09-25 were collected for these three features. All three drainages have steep slopes and lack hydrophytic vegetation within the OHWM or adjacent to the channel. The features are vegetated with a dense understory dominated by poison oak, edible fig, blue elderberry, and non-native grasses. The uppermost portions of Drainage C and D are within California walnut groves and the remainder is within coast live oak woodlands.

Due to the absence of hydric soils and hydrophytic vegetation, there are no wetlands present within Drainages B, C or D, but they do exhibit evidence of surface flow and the OHWM varies between 1-12 feet wide. OHWM indicators consist of absence of vegetation, sediment deposition, debris deposition, exposed roots, and shelving. However, Drainages B, C, and D are isolated features, with no observable connection to downstream waters.

Drainage E

Drainage E is ephemeral and flows north to south. The upstream portion is earthen-lined and flows into a concrete-lined trapezoidal channel. Data stations 42-51 were collected for the earthen-lined portion of this drainage. It is earthen-lined for approximately 7,193 linear feet and then flows are contained within a concrete-lined trapezoidal channel. Because the channel is concrete-lined, it lacks vegetation and there is no hydrophytic vegetation adjacent to the channel. No surface water was observed during the site visit. Data stations 52–57 were collected in the concrete-lined portion of Drainage E. The bottom of the concrete channel, measured as the OHWM, varies between 4 and 5 feet. The slopes of the concrete channel are between 3 and 4 feet tall.

The upstream earthen-lined portion of Drainage E is densely vegetated within a coast live oak woodland and understory dominated by black mustard, castorbean, greenspot nightshade (*Solanum douglasii*), and non-native grasses. The concrete channel has a disturbed California sagebrush scrub, non-native grasslands, and ornamental vegetation adjacent to the top of bank.

Due to the absence of hydric soils and hydrophytic vegetation in this portion of the channel, there are no wetlands present within Drainage E. However, the earthen-lined portion of Drainage E exhibits evidence of surface flow and the OHWM varies between 2 and 25 feet wide with OHWM indicators consisting of sediment deposition, debris deposition, exposed roots, and shelving. Drainage E flows into a storm drain inlet near the intersection of Palm Drive and Grand Avenue located immediately south of the Study Area site. It is assumed that this storm drain flows into the closest drainage, Little Dalton Wash (concrete channel), based upon the general topography of the region. Little Dalton Wash is connected downstream to Big Dalton Wash, which is connected to the San Gabriel River. Waters from the San Gabriel River flow into the Pacific Ocean.

5.7.1 Summary of Jurisdictional Delineation Results

Due to the absence of hydric soils and hydrophytic vegetation, there are no wetlands present within the Project site. Evidence of flow and presence of an OHWM was documented in Drainages A–E; however, Drainages A-D are isolated linear features which are typically not waters of the U.S. but are waters of the State and CDFW jurisdictional resources.

Based upon the data gathered during the site visit, Drainages A–E may be under the jurisdiction of the USACE, RWQCB, and/or CDFW. Table 6, Potential Jurisdictional Waters within the Study Area, lists the acreage of the three potential jurisdictional waters types. It is anticipated that this BRTR would support the applications for a Section 404 Permit from the USACE, a Section 401 Water Quality Certification from the Los Angeles RWQCB, and a California Fish and Game Code Section 1602 Streambed Alteration Agreement from the CDFW.

Table 6. Potential Jurisdictional Waters within the Study Area

Jurisdictional Waters Type	Acres
USACE waters of the United States	0.45
RWQCB waters of the state	0.47
CDFW streambed and bank, with coast live oak woodland	2.18
CDFW streambed and bank, with non-riparian habitat*	0.36

* Parks and ornamental plantings, disturbed habitat, and developed-concrete channel

5.8 Regional Resource Planning

The proposed Project does not occur within any adopted Habitat Conservation Plans (HCP), NCCP, or any other approved local, regional, or state conservation plans. Trees that are protected under the City Tree Preservation Ordinance No. 1768 are found in the Study Area.

5.8.1 City of Glendora Tree Preservation Ordinance No. 1768

A tree survey for the Project was completed in February 2014 (Bennett 2014) following the Colby Fire, which burned some of the trees in the open space portion of the Study Area. A second tree survey was conducted on August 15, 2018 (Bennett 2018). A large number of the trees including native oaks were damaged by the Colby Fire have succumbed to their injuries in the four and a half years since the fire. In August 2019, the trees surveyed in 2018 were checked to determine if any other mortality occurred. In August 2020, a third and final tree survey was performed. The results of this survey are included as Appendix H, Tree Report (peer reviewed), along with the report issued in August 2019. The below discussion includes the results of the most recent (August 2020) tree survey.

A total of 835 trees were surveyed and mapped within the Study Area. Of these 835 trees, 639 are considered protected per the City of Glendora, and are listed in Table 7, Protected Trees in the Study Area. Four native trees species were identified: California black walnut, California sycamore, coast live oak, and toyon. An additional 24 non-native or non-natural native species (native to California but planted for ornamental landscaping) were identified in the Study Area. Approximately 85 of the trees were assessed as having poor health (see Appendix H).

Table 7. Protected Trees in the Study Area

Scientific Name	Common Name	Number of Trees
Native Trees		
Heteromeles arbutifolia	toyon	1
Juglans californica	California black walnut	28
Platanus racemosa	California sycamore	10
Quercus agrifolia	coast live oak	398
	Subtotal	437
Non-Native or Non-Natural Native Trees*		
Araucaria bidwillii	bunya	2
Casuarina cunninghamiana	river she-oak	9
Cedrus atlantica 'glauca'	blue atlas cedar	1
Cedrus deodara	deodar cedar	7
Ceratonia siliqua	carob	2
Citrus spp.	citrus tree	3
Corymbia maculata	spotted gum	4
Eucalyptus cladocalx	sugar gum	4
Eucalyptus robusta	swamp mahogany	3
Ficus benjamina	weeping fig	2
Ficus elastica	rubber tree	1
Grevillea robusta	silk oak	9
Jacaranda mimosifolia	jacaranda	2

Table 7. Protected Trees in the Study Area

Scientific Name	Common Name	Number of Trees
Juglans regia	English walnut	1
Olea europaea	fruitless olive	28
Phoenix canariensis	Canary Island date palm	19
Pinus canariensis	Canary Island pine	28
Pinus pinea	Italian Stone Pine	3
Pittosporum undulatum	Victorian box	1
Pseudotsaya menziesii	Douglas-fir	1
Sambucus canadensis	American elderberry	1
Schinus molle	Peruvian pepper	8
Schinus terebinthifolia	Brazilian pepper	1
Washingtonia robusta	Mexican fan palm	62
	Subtotal	202
	Total	**639**

Notes:

* Non-Natural Native Trees are species that are native to California, but the Study Area is outside the natural range of the species and are assumed to have been planted for landscaping.

6 Project Impacts

This chapter addresses direct and indirect impacts to biological resources that would result from implementation of the proposed Project, along with the significance determinations for the proposed or potential impacts. Figure 7, Impacts to Biological Resources, illustrates the permanent and temporary impacts to biological resources in the Study Area.

6.1 Definition of Impacts

This section defines the types of impacts that would occur as are result of Project implementation, including direct permanent impacts, direct temporary impacts, and indirect impacts.

6.1.1 Direct Permanent Impacts

Direct permanent impacts refer to the absolute and permanent physical loss of a biological resource due to clearing and grading associated with implementation of the Project and are analyzed in four ways: (1) permanent loss of vegetation communities, land covers, and general wildlife and their habitat; (2) permanent loss of or harm to individuals of special-status plant and wildlife species; (3) permanent loss of suitable habitat for special-status species; and (4) permanent loss of wildlife movement and habitat connectivity in the Project area. Direct impacts associated with the proposed Project include the designed residential development and the footprint of proposed flood/debris control infrastructure (e.g., elevated storm drain inlets, debris basin, and access road).

6.1.2 Direct Temporary Impacts

Direct temporary impacts refer to a temporal loss of vegetation communities and land covers resulting from vegetation and land cover clearing and grading associated with construction of proposed temporary haul roads and construction of proposed permanent new access roads, slope remediation, grade control structures, installation of culverts, and other improvements required for the Project. The main criterion for direct temporary impacts is that impacts would occur for a short period of time and would be reversible. Areas temporarily disturbed by construction activities would be restored and revegetated with a native species mix similar to that which existed prior to disturbance following completion of work in the area such that full biological function can be restored. Direct temporary impacts associated with the proposed Project include temporary access, staging, and other work areas associated with installation of the flood/debris control infrastructure.

6.1.3 Indirect Impacts

Indirect impacts are reasonably foreseeable effects caused by Project implementation on remaining or adjacent biological resources outside the direct construction disturbance zone that may occur during construction (i.e., short-term construction related indirect impacts) or later in time as a result of the development (i.e., long-term, or operational, indirect impacts). Indirect impacts may affect areas within the defined Project area but outside the construction disturbance zone, including open space and areas outside the Project area, such as downstream effects. Indirect impacts include short-term effects immediately related to construction activities and long-term or chronic effects related to the human occupation of developed areas (i.e., development-related long-term effects) and/or routine maintenance of infrastructure.

For the proposed Project, it is assumed that the potential short-term indirect impacts resulting from construction activities include dust, chemical pollution, noise, and general human presence that may temporarily disrupt species and habitat vitality, as well construction-related soil erosion and runoff that could affect downstream resources. With respect to potential downstream impacts, all Project grading will be subject to the typical restrictions and requirements that address erosion and runoff, including the federal CWA, National Pollution Discharge Elimination System (NPDES), and preparation of a Storm Water Pollution Prevention Plan (SWPPP). The project would also result in long-term indirect impacts resulting from an increase in residential developed uses and routine maintenance of flood/debris control infrastructure. Such long-term indirect impacts include potential discharges of chemical pollutants, presence of non-native, invasive plant and animal species, increased human activity, construction equipment noise, and altered fire regime.

6.1.4 Explanation of Findings of Significance

Impacts to sensitive vegetation communities or riparian habitat, special-status plant species, special-status wildlife species, wildlife corridors and habitat connectivity, and regional resource planning must be analyzed to determine whether such impacts are significant. CEQA Guidelines Section 15064(b) states that an ironclad definition of "significant" effect is not possible because the significance of an activity may vary with the setting. However, CEQA Guidelines Section 15065(a) lists impacts that are helpful in defining whether a project may have a significant effect on the environment. Mandatory findings of significance, which require preparation of an EIR, occur when there is substantial evidence that a project could: (1) substantially degrade the quality of the environment, (2) substantially reduce the habitat of a fish or wildlife species, (3) cause a fish or wildlife population to drop below self-sustaining levels, (4) threaten to eliminate a plant or animal community, or (5) reduce the number or restrict the range of a rare or endangered plant or animal.

The following are the significance thresholds for biological resources provided in the CEQA Appendix G environmental checklist, which states that a project would potentially have a significant effect if it:

- Impact BIO-1. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as being a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS?
- Impact BIO-2. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS?
- Impact BIO-3. Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including but not limited to marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- Impact BIO-4. Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedes the use of native wildlife nursery sites?
- Impact BIO-5. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?
- Impact BIO-6. Would the project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?

The evaluation of whether or not an impact to a particular biological resource is significant must consider both the resource itself and the role of that resource in a regional context. Substantial impacts are those that contribute to, or result in, permanent loss of an important resource, such as a population of a rare plant or animal. Impacts may be important locally because they result in an adverse alteration of existing site conditions but considered not significant because they do not contribute substantially to the permanent loss of that resource regionally. The severity of an impact and the offsetting benefits of mitigation are the primary determinants of whether or not that impact can be mitigated to a less-than-significant level.

6.2 Impacts to Special-Status Species

No special-status plant species were observed during the focused surveys and none have a medium or high potential to occur. Therefore, neither direct temporary or permanent impacts, nor indirect impacts, are expected and impacts would be less than significant. No mitigation is required.

6.2.1 Impacts to Special-Status Wildlife Species

Appendix E indicates the special-status wildlife species that were detected or have high or moderate potential to occur within the Study Area. Direct impacts to special-status wildlife species were quantified by comparing the limits of the proposed Project footprint with suitable habitat for these wildlife species and are further discussed below.

6.2.1.1 Direct Impacts

Special-Status Amphibians and Reptiles

No special-status amphibians or reptiles were detected during the 2014, 2018 and 2019 field surveys. Two special-status reptile species have moderate potential to occur in the Study Area: Southern California legless lizard and coastal whiptail. These species are both designated as CDFW SSC. Due to the presence of suitable habitat, and/or documented occurrences for these species within the vicinity of the Project site, there is potential for these species to occur on site. If these species are determined to occur on the Project site prior to construction, Project-related impacts could be considered significant if the impact causes the greater population of either species to drop below self-sustaining levels. These species are vulnerable to mortality or injury if struck by moving vehicles or equipment if present on-site during construction. These species are also vulnerable to mortality or injury during vegetation and ground disturbing activities associated with construction because they tend to be cryptic, slow moving, and below ground or under rocks or debris during cooler periods. No direct temporary impacts would occur; however, because habitat loss and/or mortality or injury to individual species is a reasonable possibility, direct permanent impacts would be considered potentially significant.

Project implementation of **MM-BIO-1** would reduce potential direct impacts special-status wildlife (Southern California legless lizard and coastal whiptail) to a less-than-significant level through pre-construction surveys, avoidance, and potential relocation.

Special-Status Birds

One special-status bird species (yellow warbler) has a moderate potential to nest and forage within the open shrublands throughout the Project site. This species is a CDFW SSC and there is a potential for this species to nest and/or forage within or immediately adjacent to the proposed development footprint. If this species is determined

to occur on the Project site prior to construction, Project-related direct impacts would occur particularly if construction would result in direct impacts to nesting and foraging habitat for yellow warbler.

Additionally, the trees and shrubs within the Project site provides suitable nesting habitat for bird species (i.e., yellow warbler and raptors) protected under the Migratory Bird Treaty Act (MBTA; 16 USC 703-712) and California Fish and Game Code Sections 3503.5, 3503, and 3513. Trimming, pruning, and/or removal of trees and shrubs may occur as a result of construction of the Project, and could disrupt breeding activity. There would be no direct temporary impacts; however, there may be a potential for a direct permanent impact to occur to nesting birds (i.e., direct impacts to individuals, active nests, eggs, or young), particularly during the general nesting season of February 1 through August 31. Construction activities that could result in direct impacts to nesting birds include vegetation and tree removal during grading activities. Project implementation of **MM-BIO-2** (i.e., seasonal recommendations, pre-construction survey, avoidance buffers, and monitoring) would reduce potential direct impacts to a less-than-significant level.

Special-Status Mammals

No special-status mammals were detected during the 2014 and 2018 field surveys. No special- One special-status bat species (hoary bat) has a moderate potential for day/night roosting, maternity roosts, and foraging habitat within the Study Area. If this species is determined to occur on the Project site prior to construction, it is highly unlikely that short-term construction activities could cause the greater population of this special-status species to drop below self-sustaining levels due to the relatively small area of construction activity and the short-term nature of the construction schedule. No direct temporary impacts would occur; however, because habitat loss and/or mortality or injury to individual species is a reasonable possibility, direct permanent impacts would be considered potentially significant.

Project implementation of **MM-BIO-3** (i.e., seasonal recommendations, pre-construction survey, avoidance buffers, and monitoring) would reduce potential direct impacts to a less-than-significant level. Direct impacts to day roosts occupied by individual special-status bat species would be less than significant as the impact would not be expected to reduce populations to below self-sustaining levels.

6.2.1.2 Indirect Impacts

Potential short-term indirect impacts to special-status wildlife could result from fugitive dust and increased human activity. Noise generated by construction activities, including vegetation removal and grading, that would be conducted during the avian breeding season (February 1 through August 31), could result in indirect impacts to nesting birds. Noise related to these activities has the potential to disrupt reproductive and feeding activities. Nighttime construction is not expected for the Project, so indirect impacts on potentially foraging special-status bats is not expected. Potential temporary indirect impacts during construction may cause mortality due to the abandonment of an active nest and would be considered significant, absent mitigation. Project implementation of MM-BIO-2 would reduce these potential indirect impacts to a less-than-significant level. Long-term indirect impacts to special-status wildlife are not expected.

6.3 Impacts to Vegetation Communities and Land Covers

6.3.1 Direct Impacts

Direct permanent and temporary impacts to vegetation communities and land covers within the Study Area are summarized in Table 8, Permanent and Temporary Direct Impacts to Vegetation Communities and Land Covers, and illustrated on Figure 5, Impacts to Biological Resources, Direct impacts were quantified by calculating the Project impact area, which was delineated based on engineering plans that identified the limits of grading, within the boundaries of the vegetation communities mapped in the Study Area.

Table 8. Permanent and Temporary Direct Impacts to Vegetation Communities and Land Covers

Vegetation Community/ Land Cover Type	Direct Permanent Impacts (acres)	Direct Temporary Impacts (acres)	Remaining within the Property Boundary (acres)
Native Vegetation Communities			
Coast Live Oak Woodland Alliance (CLOW)*	7.71	—	3.17
California Walnut Groves (CWG)*	—	0.01	1.39
Disturbed California Sagebrush Scrub (dCSS)*	0.20	0.71	0.65
Naturalized Vegetation Communities			
California Annual Non-Native Grassland (NNG)	2.02	1.47	2.93
Non-Natural Land Cover Types			
Urban/Developed (DEV)	0.47	—	2.42
Developed-Concrete Channel (DEV-CC)	0.28	—	—
Disturbed Habitat (DH)	0.87	0.10	—
Parks and Ornamental Plantings (ORN)	1.77	—	—
Total**	**13.32**	**2.29**	**10.30**

Notes:
* Special-status vegetation community per CDFW and/or the City of Glendora (2006).
** Total may not sum due to rounding.

Direct impacts to vegetation communities would occur as a result of earthwork and/or vegetation removal activities. Direct permanent impacts would occur in the areas proposed for the development of graded pads and a private street in the southern section of the Project site, and for proposed flood/debris control improvements and access road in the northern section of the Project site. Direct temporary impacts to vegetation communities and land covers would occur only within the northern section of the Project site associated with the proposed flood/debris control improvements. As part of the proposed Project design, the affected areas would be hydroseeded with native seeds to facilitate the reestablishment of vegetative cover. Additionally, container trees and shrubs will be installed in the minimal grading/grooming areas per the Project's approved landscaping plan.

The proposed Project would have 7.91 acres of direct permanent impacts to two sensitive vegetation communities (City of Glendora 2006a): coast live oak woodland and disturbed California sagebrush scrub. The Project would have 0.72 acres of direct temporary impacts to the two sensitive vegetation communities: California walnut woodland and disturbed California sagebrush scrub. Permanent and temporary direct impacts to coast live oak

woodland, California walnut grove woodland, and disturbed California sagebrush scrub would be considered significant absent mitigation. Project implementation of **MM-BIO-4** (i.e., preparation and implementation of a Habitat Restoration Plan) would reduce potential direct impacts to a less-than-significant level. Direct impacts to annual non-native grassland and non-natural land cover types are less than significant because these communities/land cover types are not considered sensitive by CDFW and/or the City of Glendora.

6.3.2 Indirect Impacts

Potential short-term indirect impacts to special-status vegetation communities in the Study Area would primarily result from construction activities and include impacts related to or resulting from the generation of fugitive dust, and increased human activity, the introduction of pollutants from construction equipment. Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other Project-related materials) may affect special-status vegetation communities. The use of chemical pollutants can decrease the number of plant pollinators, increase the existence of non-native plants, and cause damage to and destruction of native plants. These potential short-term, construction-related indirect impacts could affect the special-status vegetation communities in the Study Area.

Potential construction-related indirect impacts to special-status vegetation communities would be less than significant with the implementation of **MM-BIO-5** (i.e., demarcation of disturbance limits and biological monitoring during vegetation removal).

Long-term indirect impacts to sensitive vegetation communities could result from Project implementation due activities associated with the residential development that includes chemical pollutants; non-native, invasive plant and animal species; increased human activity; and altered fire regime. Potential long-term indirect impacts to sensitive vegetation communities outside of the impact area would be significant absent mitigation. However, it is expected that the Project development will be subject to Glendora municipal codes and will have a homeowners association (HOA) that will be responsible for implementing Covenants, Conditions & Restrictions (CC&Rs) that must be reviewed by the City Attorney. It is expected that CC&Rs will contain restrictions on the use of chemicals that could pollute waters; ban the use of invasive species that are found on the California Invasive Plant Council's (Cal-IPC) Inventory (Cal-IPC 2022); fencing between the development and preserved open space areas to limit human intrusion, and rules regarding fuel modification to limit the threat of fires. Therefore, long-term indirect impacts to sensitive vegetation communities would be less than significant based on compliance with regulations that would reduce the severity of potential indirect impacts such that sensitive vegetation communities would be expected to persist and have similar function to existing conditions, in areas adjacent to development.

6.4 Impacts to Jurisdictional Waters

6.4.1 Direct Impacts

The Project would result in both permanent and temporary direct impacts to jurisdictional waters during the construction the installation of the three debris basins (i.e., west, middle, and east basins) and the removal of the existing concrete channel, which occurs within the eastern portion of the property. The new debris basins and on site buried storm drain pipe system are proposed to be constructed to direct storm water flows south of the tract boundary where it will be released into the existing County Storm Drain system. Construction of the new buried

storm drain system will eliminate the need for the concrete channel within the southern portion of Drainage E. Temporary direct impacts will occur due to grading activities associated with the installation of the new debris basins. Table 9, Permanent and Temporary Direct Impacts to Potential Jurisdictional Waters, includes the acres of permanent and temporary impact, which are illustrated in Figure 7, Impacts to Biological Resources.

Table 9. Direct Impacts to Potential Jurisdictional Waters

Jurisdictional Waters Type	Direct Permanent Impacts (acres)	Direct Temporary Impacts (acres)	Remaining within the Property Boundary (acres)
USACE waters of the United States	0.38	0.07	<0.01
RWQCB waters of the state	0.50	0.11	0.02
CDFW streambed, bank, and riparian vegetation (coast live oak woodland*)	2.05	—	0.44

Notes:
* Includes 1.77 acres of coast live oak woodland

There are no jurisdictional wetlands in the Study Area. The natural drainages and the concrete channel are potentially regulated by the USACE, RWQCB, and/or CDFW. The proposed Project would result in direct temporary and/or permanent impacts to these potentially jurisdictional waters, as summarized above. Direct impacts include discharge of fill (i.e., grading and construction/reconstruction of structures) to potentially jurisdictional waters, which would alter the size, scope, and character of these aquatic resources and therefore would be significant, absent mitigation.

Potential permanent and/or temporary impacts to jurisdictional waters be reduced to less than significant with the implementation of MM-BIO-5 and **MM-BIO-6** (on-site restoration and/or land acquisition, mitigation program funding, and/or mitigation bank credits**)**. Consultation with, and permit issuance from, USACE, RWQCB, and CDFW may result in higher mitigation ratios and specific criteria for restoration beyond the minimum standards presented in this mitigation.

6.4.2 Indirect Impacts

Potential temporary indirect impacts to jurisdictional waters in the Study Area would primarily result from construction activities and would include impacts from the generation of fugitive dust and the introduction of chemical pollutants (including herbicides). Excessive dust can decrease the vigor and productivity of vegetation through effects on light, penetration, photosynthesis, respiration, transpiration, increased penetration of phytotoxic gaseous pollutants, and increased incidence of pests and diseases. Erosion and chemical pollution (releases of fuel, oil, lubricants, paints, release agents, and other construction materials) may affect wetlands/jurisdictional waters. The release of chemical pollutants can reduce the water quality downstream and degrade adjacent habitats. However, during construction, erosion-control measures would be implemented as part of the Storm Water Pollution Prevention Plan (SWPPP) for the Project. Prior to the start of construction activities, the Contractor is required to file a Permit Registration Document (PRD) with the State Water Resources Control Board (SWRCB) in order to obtain coverage under the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with the Construction and Land Disturbance Activities (Order No 2009-009-DWQ, NPDES No. CAS000002) or the latest approved general permit. This permit is required for earthwork that

result in the disturbance of one acre or more of total land area. The required SWPPP will mandate the implementation of best management practices (BMPs) to reduce or eliminate construction-related pollutants in the runoff, including sediment. Therefore, temporary indirect impacts would be less than significant based on compliance with regulations that would reduce the severity of potential short-term indirect impacts such that jurisdictional waters would be expected to persist and have similar function to existing conditions, in areas adjacent to development.

Long-term indirect impacts to jurisdictional waters could result from Project implementation due activities associated with the residential development that includes chemical pollutants; non-native, invasive plant and animal species; increased human activity; and altered fire regime. Potential long-term indirect impacts to jurisdictional waters outside of the impact area would be significant absent mitigation. However, it is expected that the Project development will be subject to Glendora municipal codes and will have an HOA that will be responsible for implementing CC&Rs that must be reviewed by the City Attorney. It is expected that CC&Rs will contain restrictions on the use of chemicals that could pollute waters; ban the use of invasive species that are found on the Cal-IPC Inventory (Cal-IPC 2019); fencing between the development and preserved open space areas to limit human intrusion, and rules regarding fuel modification to limit the threat of fires. Therefore, long-term indirect impacts to jurisdictional waters would be less than significant based on compliance with regulations that would reduce the severity of potential long-term indirect impacts such that jurisdictional waters would be expected to persist and have similar function to existing conditions, in areas adjacent to development.

6.5 Impacts to Wildlife Corridors and Habitat Connectivity

The Project site does not occur within any designated wildlife corridors or habitat linkages (South Coast Wildlands 2008, Spencer et al. 2010). The canyons and drainages within the designated open space areas in the northern portion of the property may facilitate local north-south wildlife movement through the area; however, the features do not provide a connection to other large open space areas to the south that may be used by wildlife. Therefore, neither direct temporary or permanent impacts, nor indirect impacts, are expected and impacts would be less than significant. No mitigation is required.

6.6 Regional Resource Planning

The Study Area does not occur within any proposed or approved HCP or NCCP (CDFW 2019c) and is outside the Angeles National Forest boundaries (USGS 2018). Trees that are protected under the City Tree Preservation Ordinance No. 1768 would be directly and indirectly impacted due to the construction of the Project.

6.6.1 Direct Impacts

It is anticipated that 455 protected trees would be removed as part of Project construction. These direct permanent impacts would be significant and there would be no temporary impacts. Project implementation of **MM-BIO-7** (i.e., tree replacement) would reduce potential direct impacts to a less-than-significant level.

6.6.2 Indirect Impacts

Indirect impacts to trees are the result of changes to the site that may cause tree decline, even when the tree is not directly injured. Site-wide changes affecting trees include diverting runoff and stormwater, creating retention

and detention ponds, relocating streams or making improvements to streams, lowering or raising water tables, altering the capacity for soil moisture recharge, removing vegetation, or damming underground water flow (Matheny and Clark 1998). Indirect tree impacts may potentially occur to trees that are within 25 feet of the proposed Project's limits of grading.

Indirect impacts could potentially result in tree mortality adjacent to the Project work areas, which would be significant, absent mitigation, under the City's Tree Ordinance. Project implementation of MM-BIO-8 (i.e., tree protection and monitoring) would reduce potential indirect impacts to a less-than-significant level.

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7 Mitigation

The following mitigation measures shall be implemented during the proposed Project to reduce the significant impacts identified in Chapter 6 to a less-than-significant level.

7.1 Impact BIO-1: Special-Status Species

Significant direct and indirect impacts to special-status species can be mitigated to less than significant with implementation of the following measures:

MM-BIO-1

Special-Status Wildlife Relocation Plan. The applicant shall contract with a qualified biologist, whom shall be selected subject to the City's approval, to prepare a Relocation Plan for Terrestrial Reptiles (Southern California legless lizard and coastal whiptail). The Plan shall at minimum include: identification of potentially occupied habitat, the timing and locations where surveys should be conducted; the habitat and conditions in the proposed relocation site(s); the methods that would be used for trapping and relocating the individual species; and requirements to provide the documentation/recordation of the species and number of animals relocated. The Plan shall be submitted to CDFW for review and must be approved by CDFW prior to commencement of any vegetation clearing or earthwork activities on the Project site.

Pre-Construction Surveys. Prior commencement of any vegetation clearing or earthwork activities on the Project site, a qualified biologist shall conduct a preconstruction survey within areas of suitable habitat identified in the Relocation Plan for Terrestrial Reptiles for special-status species wildlife (Southern California legless lizard and coastal whiptail). The biologist shall look for special-status species that may be located within or immediately adjacent to (within 100 feet) of the Project work areas, as permitted by access. Any individual special-status wildlife species observed within the Project work areas during the pre-construction survey shall be flushed and moved out of harm's way to avoid direct impacts to these species (with special-status reptiles documented and relocated as per the approved Relocation Plan).

Monitoring. A qualified biologist shall be present during initial ground-disturbing activities within the Project site. The qualified biologist shall possess an appropriate California scientific collecting permit to handle special-status species likely to occur in the Project area. If special-status species reptiles are detected in the work area during the surveys, the authorized biologist will capture and relocate individuals to nearby undisturbed areas with suitable habitat outside of the construction area, but as close to their origin as possible (consistent with the approved Relocation Plan). All wildlife moved or flushed during Project activities shall be documented by the biologist and CDFW shall be notified.

MM-BIO-2

Direct and Indirect Impacts to Special-Status and Nesting Birds.

Nesting Bird Avoidance. Initiation of construction activities, including initial vegetation clearing, should avoid the migratory bird nesting season (February 1 through August 31) in order to avoid any potential significant impact to birds that may be nesting on the Project site. If construction activities must be initiated during the migratory bird-nesting season, an avian nesting survey

of the Project site and contiguous habitat within 500 feet of all Project-related impact areas shall be conducted for protected migratory birds and active nests. The avian nesting survey shall be performed by a qualified wildlife biologist, subject to the City's approval, within 72 hours prior to the start of construction-related activity in accordance with the Migratory Bird Treaty Act (16 USC 703–712) and California Fish and Game Code Sections 3503, 3503.5, and 3513.

If an active bird nest is found, the nest shall be flagged and mapped on the construction plans along with an appropriate no disturbance buffer, which shall be determined by the qualified wildlife biologist based on the species' sensitivity to disturbance (minimum of 50 feet for common, urban-adapted species, 300 feet for other passerine species, and 500 feet for raptors and special-status species). The "no disturbance buffer" area shall be demarcated in the field with flagging and stakes or construction fencing and shall be avoided until the nest is vacated and the juveniles have fledged. The qualified biologist shall have the authority to stop work on the Project site and shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts on these nests occur.

MM-BIO-3 **Bat Roost Avoidance.** Initiation of construction activities, including initial vegetation clearing, should avoid the maternity roosting season (March through August), in order to avoid any potential significant impact to bat maternity roosts. If construction activities must be initiated during the maternity roosting season, a roost survey must be conducted by a qualified biologist, subject to the City's approval. The roost survey for roosting bats shall be conducted on the Project site, including all trees and structures within 300 feet of Project-related impact areas, and shall be conducted no less than 30 days prior to commencement of construction activities. If maternity roosting is identified, those trees and/or occupied structures shall not be removed during the bat maternity roost season (March to August) and a minimum 300-foot buffer shall be established. The "no disturbance buffer" area shall be demarcated in the field with flagging and stakes and the roost shall be monitored by a qualified biologist until roost is vacated and juveniles have fledged.

7.2 Impact BIO-2: Sensitive Vegetation Communities

Significant direct and indirect impacts to sensitive vegetation communities can be mitigated to less than significant with implementation of the following measures:

MM BIO-4 Mitigation for direct impacts to sensitive upland vegetation communities shall be implemented through on-site creation/enhancement of remaining sensitive upland vegetation communities and/or off-site acquisition, program funding, and/or mitigation bank credits. Mitigation acreages shall be implemented as shown in Table 10, Mitigation for Direct Impacts to Sensitive Vegetation Communities.

Table MM-BIO-4. Mitigation for Direct Impacts to Sensitive Upland Vegetation Communities

Sensitive Vegetation Community	Direct Impacts (acres)	Mitigation Ratio	Mitigation (acres)
Coast Live Oak Woodland Alliance*	7.71	3:1	23.13
California Walnut Grove	0.01	3:1	0.03
Disturbed California Sagebrush Scrub	0.91	1:1	0.91
Totals	**8.63**	—	**23.33**

* Excludes 1.78 acres of coast live oak woodland associated with jurisdictional waters

Prior to the issuance of a grading permit or any earthwork on the Project site, a qualified biologist, subject to the City's approval, shall prepare a Conceptual Restoration Plan (CRP) that sets forth the requirements for mitigating permanent and temporary impacts to sensitive upland vegetation communities (i.e., coast live oak woodland, California walnut grove woodland, and disturbed California sagebrush scrub) that is outside all jurisdictional water limits. Mitigation for sensitive vegetation communities associated with potential jurisdictional waters is identified in MM BIO-6. Areas of temporarily impacted sensitive vegetation communities on site shall be returned to similar conditions that existed prior to grading and/or ground-disturbing activities. Additional unimpacted areas in the Project site that support California annual non-native grassland may be enhanced to support existing sensitive native vegetation communities. The CRP shall include restoration of the following habitats:

- **Upland Woodlands.** Impacted areas of upland woodland (i.e., coast live oak woodland and California walnut grove woodland) shall be created/restored within and adjacent to the same on-site areas that the woodland currently existed prior to Project implementation, as well as other areas deemed to have appropriate soils and topography for successful establishment. Prior to vegetation removal activities, native acorns/nuts shall be collected. Understory areas shall be revegetated with a diversity of locally-collected seeds. Temporary irrigation shall be established and maintained, with irrigation suspensions in times of rainfall. Successful establishment of the woodland shall be determined only after removal of irrigation system and confirmed ability of the woodland to survive in the absence of irrigation. Mitigation for impacts to woodlands shall be implemented at a ratio of no less than 3:1 and shall be accomplished through a combination of on-site replacement and enhancement, on-site preservation, and off-site acquisition and/or mitigation bank credits. If feasible, woodlands would be created/restored at a minimum of 1:1 on-site, with the goal of increasing on-site restoration beyond 1:1.

- **Sagebrush Scrub.** Impacted areas of California sagebrush scrub shall be created within and adjacent to the same on-site areas that the scrub currently exist, as well as other areas deemed to have appropriate soils and topography for successful establishment. Prior to grading activities, native and locally collected seeds shall be collected be planted onsite within the mitigation areas. Irrigation shall be provided, as necessary, to assure establishment of the scrub. Based upon the disturbed, low quality nature of

the existing California sagebrush scrub on site, mitigation of scrub shall be implemented at a ratio of no less than 1:1 and shall be accomplished through a combination of on-site replacement and enhancement, on-site preservation, and off-site acquisition and/or mitigation bank credits.

The CRP shall include a monitoring schedule, minimum performance standard of success, estimated costs, and identification of responsible entities. At a minimum, the CRP shall require a one-time restoration effort followed by monitoring and invasive weed removal for a minimum of five (5) years following ground-disturbing activities to compensate the direct temporary impacts. The monitoring program shall ensure successful establishment of the mitigation land, and if establishment is not realized within five years, restoration activities and monitoring may continue until minimum ratios as outlined above are established. The CRP shall be submitted to the City for review and shall revised to the satisfaction of the City..

MM-BIO-5 **Indirect Impacts to Sensitive Vegetation Communities**

Flagging Limits. To prevent inadvertent disturbance to sensitive vegetation communities, including jurisdictional waters, outside the limits of work, the construction limits shall be clearly demarcated (e.g., installation of flagging or temporary high visibility construction fence) prior to ground disturbance activities. All construction activities including equipment staging and maintenance shall be conducted within the marked disturbance limits.

Monitoring. A qualified biologist, subject to the City's approval, shall be present during initial ground-disturbing activities within the Project site to ensure that Project activities stay within the demarcated limits.

7.3 Impact BIO-3: Jurisdictional Wetlands and Waters

Significant direct and indirect impacts to jurisdictional waters can be mitigated to less than significant with implementation of the following measures:

MM-BIO-6 Mitigation for direct impacts to jurisdictional waters shall be implemented through on-site enhancement of remaining jurisdictional waters and/or off-site acquisition, program funding, and/or mitigation bank credits. Mitigation ratios for each type of jurisdictional waters is shown in Table 11, Mitigation for Direct Impacts to Potential Jurisdictional Waters.

Table MM-BIO-6. Mitigation for Direct Impacts to Potential Jurisdictional Waters

Jurisdictional Waters Type	Direct Impacts (acres)	Mitigation Ratio	Mitigation (acres)
USACE waters of the United States	0.38	1:1	0.38
RWQCB waters of the state	0.50	1:1	0.50
CDFW streambed and bank, with coast live oak woodland	1.77	3:1	5.31
CDFW streambed and bank, with non-riparian habitat*	0.28	1:1	0.28

* Parks and ornamental plantings, disturbed habitat, and developed-concrete channel

On-site Mitigation. Prior to the issuance of a grading permit or any earthwork on the Project site, the Project Applicant shall prepare a (Habitat Mitigation and Monitoring Plan) HMMP for on-site mitigation for temporary and permanent impacts to jurisdictional resources (including coast live oak woodlands associated with the drainages), which shall include habitat enhancement and creation activities. The HMMP shall at a minimum include a feasible implementation structure, salvage/seeding details, invasive species eradication methods, irrigation system and schedule, a monitoring schedule, performance standard of success, estimated costs, and identification of responsible entities. The HMMP shall include restoration of the following habitats associated with the potential CDFW jurisdictional limits:

- **Riparian Coast Live Oak Woodland.** Impacted areas of coast live oak woodland within the CDFW jurisdictional limits shall be created/restored within and adjacent to the same on-site areas that the woodland currently existed prior to Project implementation, as well as other areas deemed to have appropriate soils and topography for successful establishment. Prior to vegetation removal activities, native acorns/nuts shall be collected. Understory areas shall be revegetated with a diversity of locally collected seeds. Temporary irrigation shall be established and maintained, with irrigation suspensions in times of rainfall. Successful establishment of the woodland shall be determined only after removal of irrigation system and confirmed ability of the woodland to survive in the absence of irrigation. If feasible, woodlands would be created/restored at a minimum of 1:1 on-site, with the goal of increasing on-site restoration beyond 1:1.

At a minimum, the HMMP shall require a one-time restoration effort followed by monitoring and invasive weed removal for a minimum of five (5) years following ground-disturbing activities to compensate the direct temporary impacts. The monitoring program shall ensure successful establishment of the mitigation land, and if establishment is not realized within five years, restoration activities and monitoring may continue until minimum ratios as outlined above are established. On-site land shall be preserved in perpetuity through a deed restriction or conservation easement, and the HMMP shall identify an approach for funding assurance for the long-term management of the conserved land. The HMMP shall be submitted to CDFW, USACE, and RWQCB for review and comment, and revised to the satisfaction of the City and the three agencies for their approval.

Off-site Mitigation. If mitigation is implemented off-site, the Project Applicant shall work with the CDFW, USACE, and RWQCB to ensure the purchase of land acquisition, mitigation program funding, and/or mitigation bank credits are appropriate to offset permanent impacts. Mitigation lands shall be comprised of similar or higher quality riparian woodland and preferably located in the vicinity of the site or watershed. Any off-site land acquisition shall be preserved in perpetuity through a deed restriction or conservation easement, and an HMMP shall be prepared that identifies an approach for funding assurance for the long-term management of the purchased land.

7.4 Impact BIO-4: Habitat Linkages and Wildlife Corridors

The Project site does not function as a wildlife corridor or habitat linkage and does not occur within any designated wildlife corridors of habitat linkages. Direct or indirect impacts to wildlife corridors and habitat connectivity are not anticipated; and would therefore, be less than significant.

7.5 Impact BIO-5: City of Glendora Protected Trees

Significant direct and indirect impacts to City protected trees can be mitigated to less than significant with implementation of the following measures:

MM-BIO-7 **On-site Mitigation.** Mitigation for City protected trees shall consider and overlap with any on-site compensation for special-status vegetation communities (MM-BIO-4 and MM-BIO-5) and jurisdictional waters (MM-BIO-6). Prior to the issuance of a grading permit or any earthwork on the Project site, a qualified arborist shall conduct a tree survey to confirm previous tree inventory data points and finalize the tree count for the purposes of replacement and shall prepare a protected Tree Planting And Maintenance Plan. The Plan shall be developed by a qualified arborist or landscape architect, subject to the City's approval, and it shall identify tree planting locations, planting stock requirements, planting techniques, maintenance standards, tree protection standards, tree survival criteria, monitoring protocols, and reporting standards. Minimum tree replacement to removal ratios shall be no less than the following for each trees diameter at breast height (dbh) in accordance with the City's 2018 Urban Forestry Manual:

Native 8"-15" dbh	2:1 replacement
Native 16"-36" dbh	3:1 replacement
Native 37"-48" dbh	5:1 replacement
Native 49"-60" dbh	6:1 replacement
Native 61" dbh and up	7:1 replacement
Other 10"-15" dbh	1:1 replacement
Other 16"-36" dbh	1:1 replacement
Other 37"-48" dbh	2:1 replacement
Other 49"-60" dbh	3:1 replacement
Other 61" dbh and up	5:1 replacement

The plan shall be approved by the City prior to implementation.

Offsite Mitigation. For protected trees that are not replaced on-site, an in-lieu fee for future tree replacement shall be collected and deposited into a tree replacement fund. The in-lieu fee is based on the City's cost to replant and set by City resolution.

MM-BIO-8 **During Construction.** Prior to issuance of the Project's grading permit, the Applicant shall coordinate with LACFCD to assess the feasibility of oak tree preservation within the minimal grading/grooming areas and determine whether select trees could be preserved in place while maintaining the health and safety requirements of the LACFCD debris/flood control facility functions. Trees identified as being feasibly preserved and trees within approximately 15 feet of proposed construction activity shall be temporarily fenced with chain link or other material

satisfactory to City planning staff throughout grading and construction activities. The fencing shall be installed three feet outside of the dripline of each tree (or edge of canopy for cluster of trees), be four-foot-tall, and staked every six (6) feet. The fenced area shall be considered the tree protection zone (TPZ) unless proximate construction required temporary removal. An International Society of Arboriculture Certified arborist shall monitor any construction activity taking place within or near to the TPZ and shall submit a Construction Observation letter to the City for approval, prior to final inspection, summarizing the results of the monitoring activity and resulting health of trees designated for preservation on-site.

Post-Construction. For a period of no less than five (5) years from the date of final inspection, an International Society of Arboriculture Certified arborist shall submit to the City a monitoring report annually. The report shall show compliance with the tree protection conditions of approval and verification that all trees are in good health. Further, all trees that have been substantially root pruned (30% or more of their root zone) during construction within the TPZ shall be monitored by an International Society of Arboriculture Certified arborist for the first five years after construction completion. The arborist shall submit an annual report, photograph each tree and compare tree health and condition to the original, pre-construction baseline.

7.6 Level of Significance After Mitigation

Implementation of these mitigation measures will reduce potential impacts to biological resources to below a level of significance.

Two special-status reptiles (Southern California legless lizard and coastal whiptail) have occurred in the Study Area. Construction activities associated with the proposed Project could cause direct mortality of these species. MM-BIO-1 requires the development of a special-status wildlife relocation plan, pre-construction focused special-status wildlife surveys, and monitoring during initial ground-disturbing activities. Potential direct impacts to Southern California legless lizard and coastal whiptail would be less than significant with implementation of MM-BIO-1.

Construction activities associated with the proposed Project could result in a loss of suitable habitat or direct take of birds and are considered significant. MM-BIO-2 requires nesting bird surveys within 300 feet (500 feet for raptors) of the proposed impact areas and if active nests are found, the biologist shall establish buffers and/or implement monitoring to avoid impacting avian nesting success. Potential direct impacts to protected nesting birds would be less than significant with implementation of MM-BIO-2.

One special-status bat (hoary bat) has a moderate potential to occur in the Study Area. Construction activities associated with the proposed Project could cause direct mortality of these species. MM-BIO-3 requires seasonal avoidance, pre-construction roost survey, and roost monitoring. Potential direct impacts to hoary bat would be less than significant with implementation of MM-BIO-3.

Significant direct and indirect temporary and permanent impacts to sensitive vegetation communities (coast live oak woodland alliance, California walnut woodland, and disturbed California sagebrush scrub) would occur due to implementation of the Project. MM-BIO-4 requires that habitat compensation be completed by the purchase of credits from an agency-approved mitigation bank or purchase of in lieu credits from an in-lieu fee program and/or through the preparation and implementation of on-site habitat restoration plan. MM-BIO-5 avoids indirect impacts to sensitive vegetation communities by requiring the demarcation of the disturbance limits. Impacts to sensitive vegetation communities and jurisdictional waters would be less than significant with implementation of MM-BIO-4 and MM-BIO-5.

Significant direct and indirect temporary and permanent impacts to potential jurisdictional waters would occur due to implementation of the Project. MM-BIO-6 requires that jurisdictional waters compensation be completed by the purchase of credits from an agency-approved mitigation bank or purchase of in lieu credits from an in-lieu fee program and/or through the preparation and implementation of on-site habitat restoration plan. MM-BIO-5 avoids indirect impacts to jurisdictional waters by requiring the demarcation of the disturbance limits. Impacts to jurisdictional waters would be less than significant with implementation of MM-BIO-5 and MM-BIO-6.

Direct impacts would occur, and indirect impacts may occur, to trees protected by the City. MM-BIO-7 requires the replacement of the removed trees per a City-defined ratio and the development of a planting and maintenance plan that will guide the maintenance and monitoring of the replacement trees. MM-BIO-8 requires fencing to shield protected trees located in close proximity to construction activities and requires monitoring of any construction activities taking place within or near to the TPZ. MM-BIO-8 also requires annual tree surveys and submission of an annual tree monitoring report for a period of no less than five years, with additional requirements for trees that have sustained substantial root zone pruning. Impacts to protected trees would be less than significant with implementation of MM-BIO-7 and MM-BIO-8.

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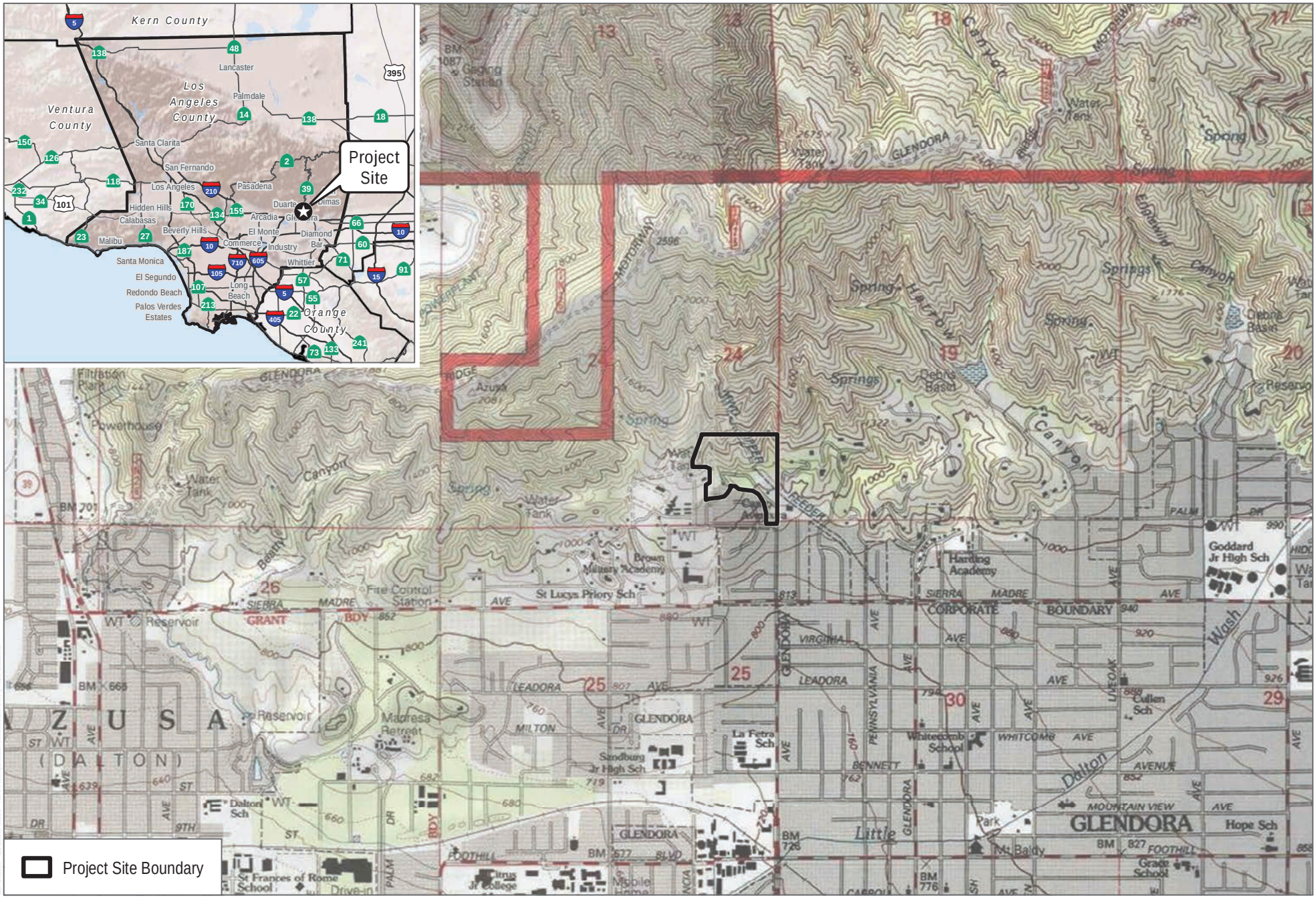
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SOURCE: USGS 7.5-Minute Quadrange, Azusa and Glendora CA
Township 01N, Range 10W, Section 24

DUDEK

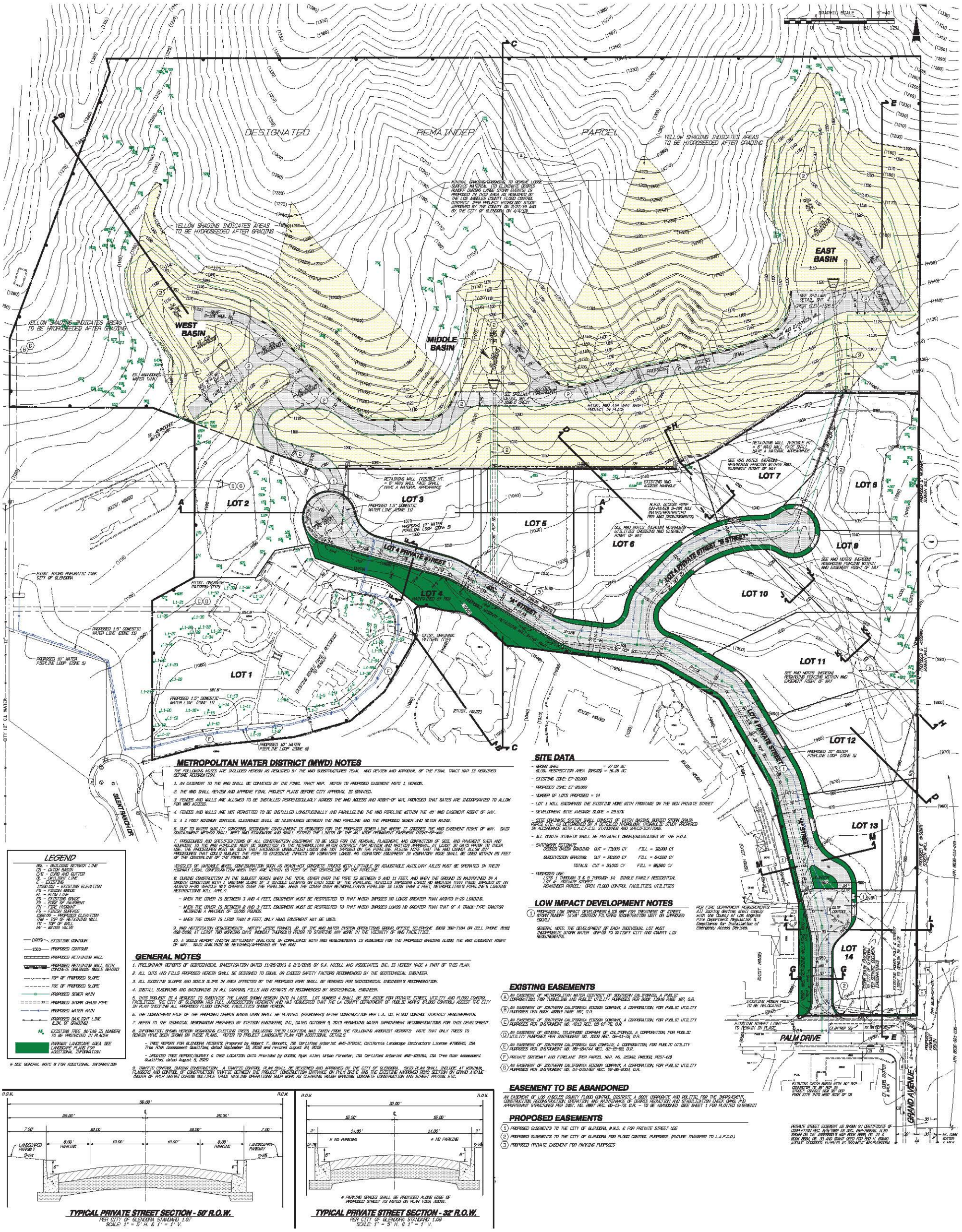
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FIGURE 1

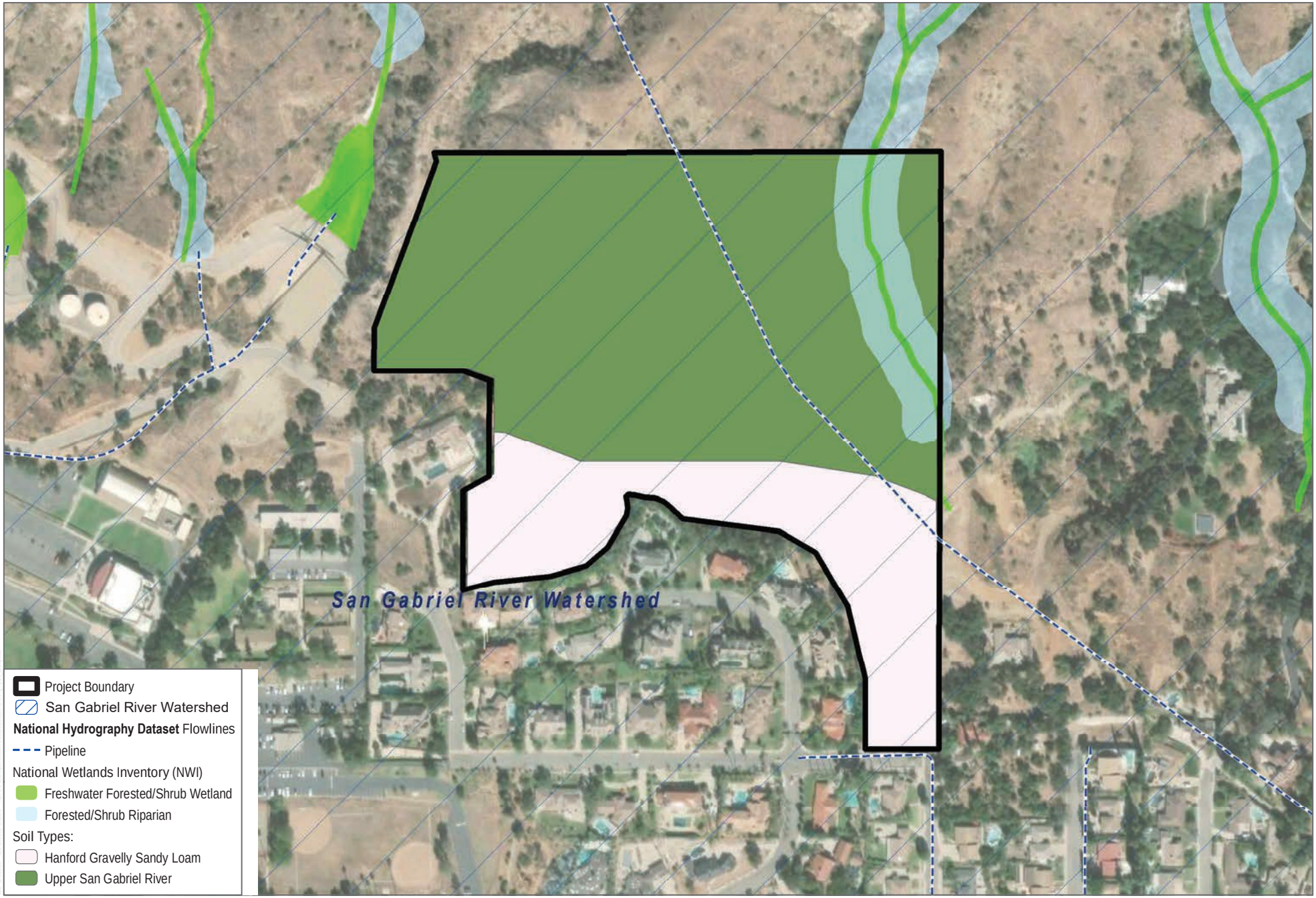
Project Location

Grand Estates Project

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DESIGNATED REMAINDER PARCEL
YELLOW SHADING INDICATES AREAS TO BE HYDROSEEDED AFTER GRADING
NOMINAL GRADING/GROOMING TO REMOVE LOOSE SURFACE MATERIAL, TO ELIMINATE DEBRIS RUNOFF DURING LARGE STORM EVENTS) IS PROPOSED IN THIS AREA AS REQUIRED BY THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT, OPEN PROJECT HYDROLOGY STUDY, APPROVED BY THE COUNTY ON 9/27/19 AND BY THE CITY OF GLENDORA ON 4/4/19.
WEST BASIN
MIDDLE BASIN
EAST BASIN
LOT 1
LOT 2
LOT 3
LOT 4 MAINTAINED BY HOA
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT A PRIVATE STREET "A STREET"
LOT A PRIVATE STREET "B STREET"
PROPOSED 10" WATER PIPELINE LOOP (ZONE 5)
PROPOSED 1.5" DOMESTIC WATER LINE (ZONE 1U)
EXIST. HYDRO PNEUMATIC TANK CITY OF GLENDORA
EX. ABANDONED WATER TANK
EXIST. HOUSES
EXIST. DRAINAGE PATTERN (TYP.)
EXISTING STONE EARTH RESTORE TO REMAIN
RETAINING WALL (VISIBLE HT. = 6' MAX) WALL FACE SHALL HAVE A NATURAL APPEARANCE
SEE M&O NOTES (HEREON) REGARDING FENCING WITHIN M&O EASEMENT RIGHT OF WAY
EXISTING M&O ACCESS MANHOLE
M.W.D. ACCESS RAMP (UNPAVED) S=10% MAX (GATED/RESTRICTED PER M&O REQUIREMENTS)
SEE M&O NOTES (HEREON) REGARDING UTILITIES CROSSING M&O EASEMENT RIGHT OF WAY
EXIST. M&O AIR VENT SHAFT PROTECT IN PLACE
PROPOSED 5' DESIGNATED SIDEWALK
PROPOSED 5' MEANDERING SIDEWALK
PROPOSED 6' MASONRY SCREEN WALL
EXIST. MASONRY SCREEN WALL
EXIST. 20' WIDE ACCESS ASPHALT ROAD
PROPOSED ACCESS ASPHALT ROAD
EXIST. 30' WIDE ACCESS ASPHALT ROAD
EXISTING POWER POLE TO BE RELOCATED
EXISTING STREET LIGHT TO REMAIN IN PLACE
PALM DRIVE
GRAND AVENUE
EXISTING CATCH BASIN WITH 30" RCP CONNECTOR TO 39" RCP IN STREET; CONNECT NEW 36" RCP FROM SITE INTO WEST SIDE OF CB
EX. CURB OUTLET
EX. 24" RCP
EX. 39" RCP
EX. 36" RCP
EX. 30" RCP
EX. 18" RCP
EX. 12" RCP
EX. 8" RCP
EX. 6" RCP
EX. 4" RCP
EX. 2" RCP
EX. 1" RCP
EX. 0.5" RCP
EX. 0.25" RCP
EX. 0.125" RCP
EX. 0.0625" RCP
EX. 0.03125" RCP
EX. 0.015625" RCP
EX. 0.0078125" RCP
EX. 0.00390625" RCP
EX. 0.001953125" RCP
EX. 0.0009765625" RCP
EX. 0.00048828125" RCP
EX. 0.000244140625" RCP
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SOURCE: County of Los Angeles 2018; USGS NHD 2018; USFWS NWI 2018; Bing Maps 2018

DUDEK

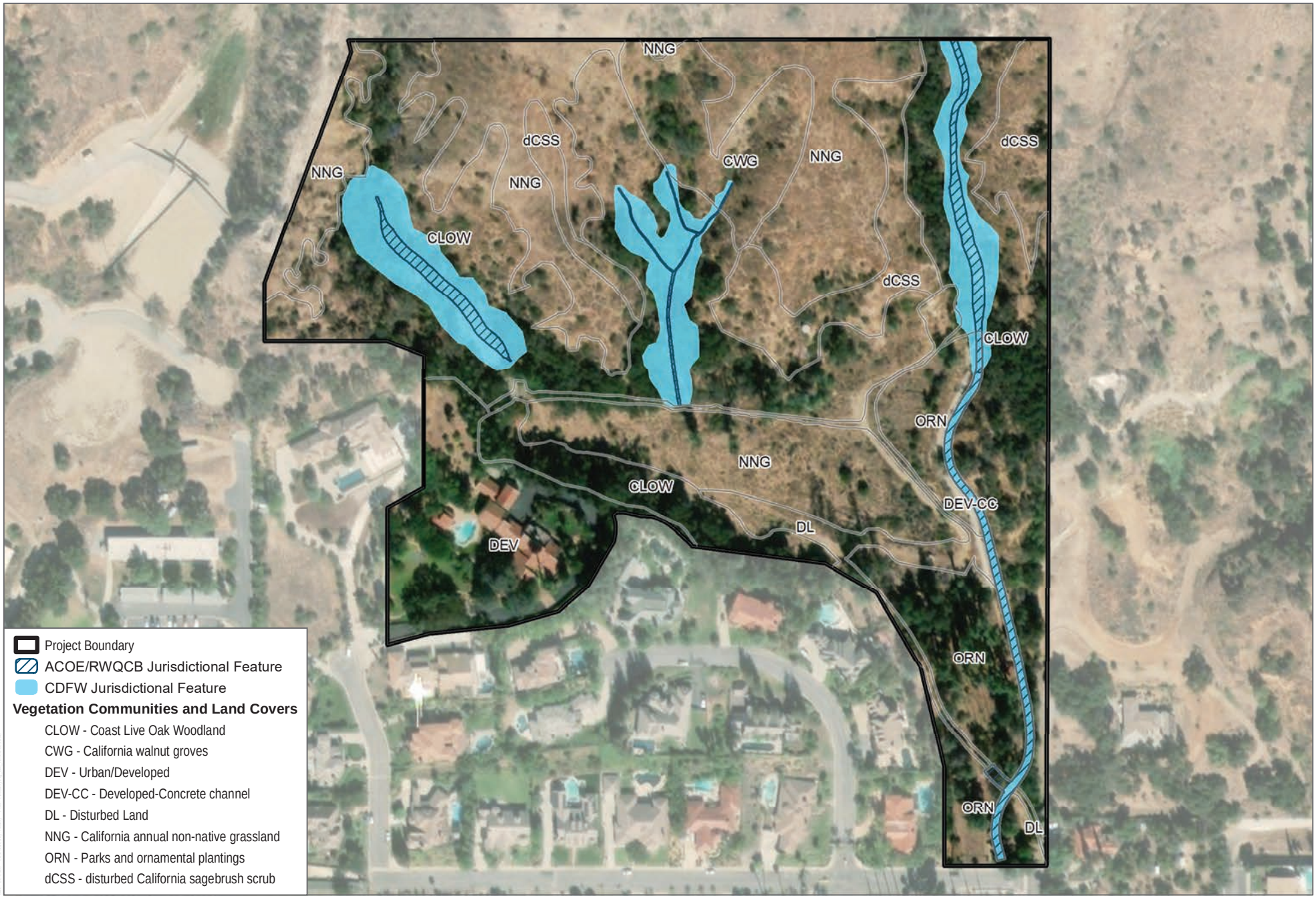
0 150 300 Feet

FIGURE **3**

Hydrogeologic Setting

Grand Estates Project

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SOURCE: Bing Maps 2018

DUDEK

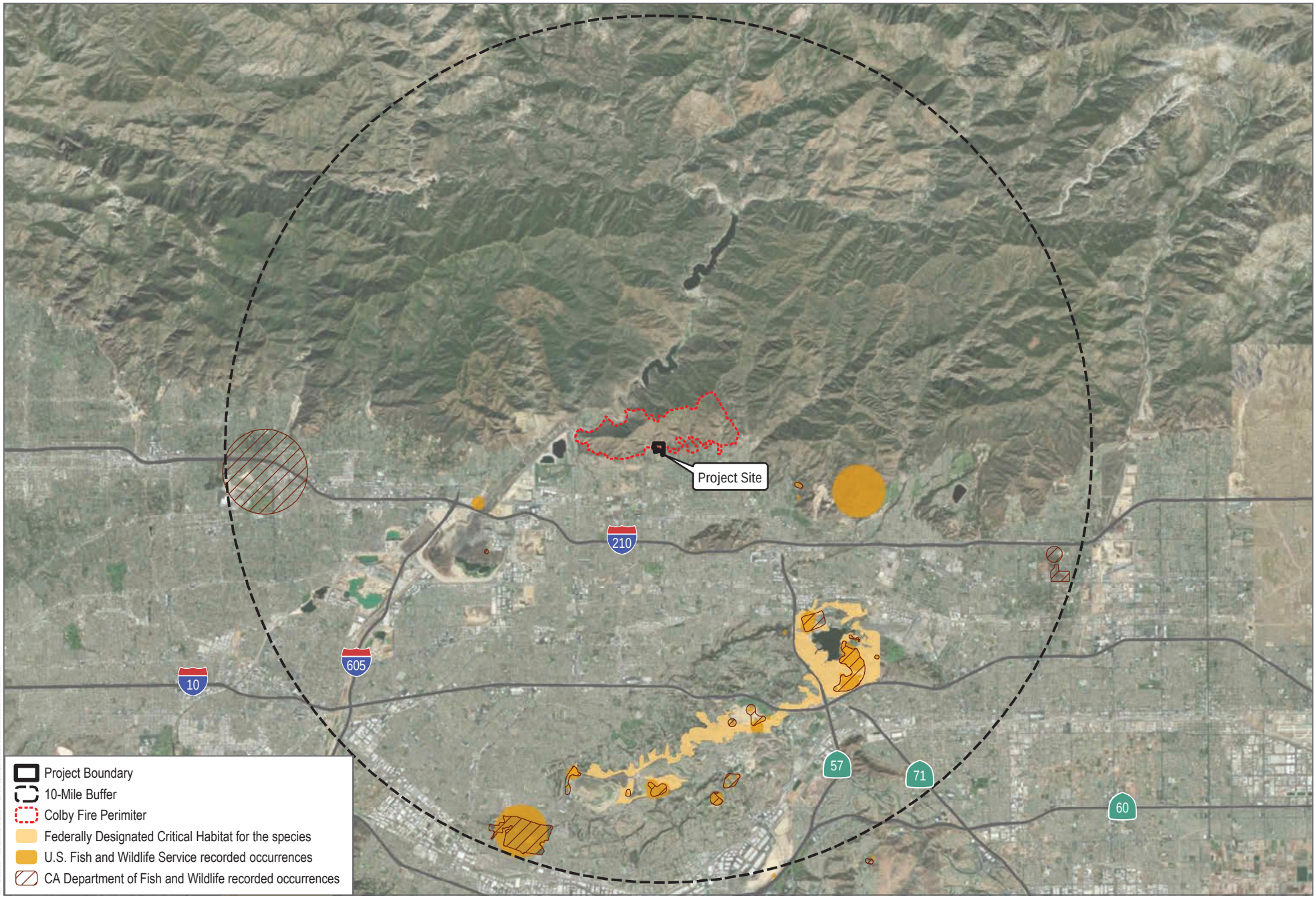
0 125 250 Feet

FIGURE 4

Biological Resources

Grand Estates Project

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SOURCE: USFWS 2018; CDFW 2018; County Los Angeles 2018; NAIP 2016

DUDEK

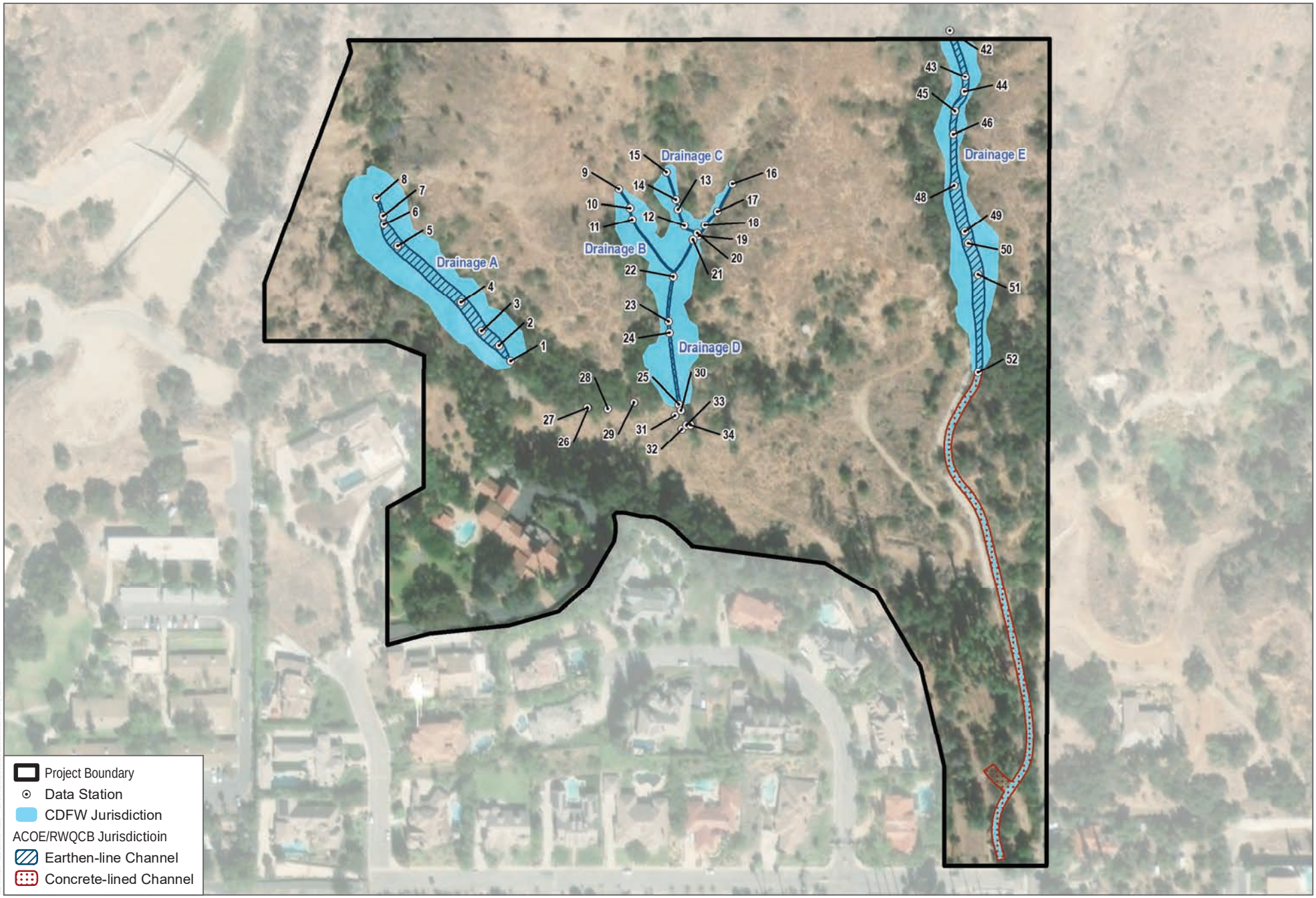
0 2.5 5 Miles

FIGURE **5**

Coastal California Gnatcatcher

Grand Estates Project

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SOURCE: Bing Maps 2018

DUDEK

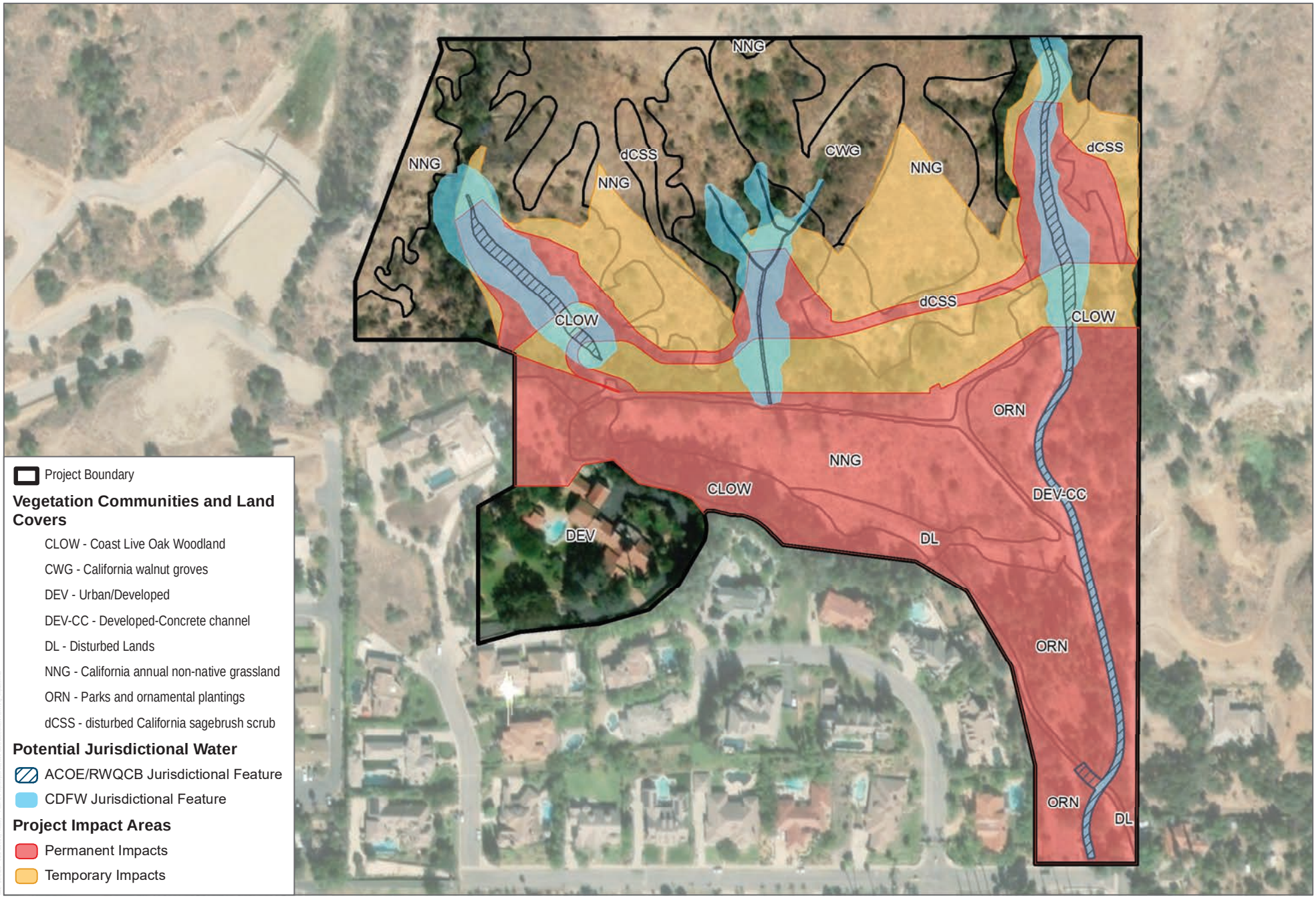
0 125 250 Feet

FIGURE 6

Potential Jurisdictional Waters

Grand Estates Project

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SOURCE: Bing Maps 2018

DUDEK

0 125 250 Feet

FIGURE 7

Impacts to Biological Resources

Grand Estates Project

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Appendix A
Representative Site Photographs



Photo 1. Coast live oak woodland in Drainage A.



Photo 2. California walnut grove in the foreground and coast live oak woodland in the background within Drainage B.



Photo 3. Disturbed California sagebrush scrub adjacent to the concrete Drainage E.



Photo 4. Non-native grassland in the open space portion of the Study Area with Drainage A and coast live oak woodland in the middle.



Photo 5. Non-native grassland in the area proposed for residential lots, with coast live oak woodland in the background.



Photo 6. Ornamental land cover adjacent to the concrete Drainage E.



Photo 7. Coast live oak woodland on the ridge between Drainage A and Drainage D.



Photo 8. The weir at the southern end of Drainage A.



Photo 9. The weir at the southern end of Drainage D.



Photo 10. The weir at the southern end of the earthen bottom portion of Drainage E.



Photo 11. Ornamental landscaping with a non-native grass understory in the southern end of the Study Area.



Photo 12. Non-native grassland in the central portion of the area proposed for residential lots.

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Appendix B
Plant Species Compendium

* signifies introduced (non-native) species

VASCULAR SPECIES

DICOTS

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra ssp. *caerulea*—blue elderberry

AMARANTHACEAE—AMARANTH FAMILY

Amaranthus blitoides—mat amaranth

Amaranthus californicus—California amaranth

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

* *Schinus molle*—Peruvian peppertree

Malosma laurina—laurel sumac

Rhus ovata—sugar sumac

Toxicodendron diversilobum—Pacific poison oak

APOCYNACEAE—DOGBANE FAMILY

* *Nerium oleander*—oleander

* *Vinca major*—bigleaf periwinkle

Funastrum cynanchoides var. *hartwegii*—Hartweg's twinevine

ARALIACEAE—GINSENG FAMILY

* *Hedera helix*—English ivy

ASTERACEAE—SUNFLOWER FAMILY

Ambrosia acanthicarpa—flatspine bur ragweed

Ambrosia confertiflora—weakleaf bur ragweed

Artemisia californica—coastal sagebrush

Artemisia douglasiana—Douglas' sagewort

Artemisia dracunculus—wild tarragon

Baccharis salicifolia—mule-fat

Brickellia californica—California brickellbush

* *Carduus pycnocephalus* ssp. *pycnocephalus*—Italian plumeless thistle

* *Centaurea melitensis*—Maltese star-thistle

Chaenactis glabriuscula—yellow pincushion

* *Cirsium vulgare*—bull thistle

Encelia farinosa—brittlebush

Erigeron canadensis—Canadian horseweed
Eriophyllum confertiflorum—golden-yarrow
Helianthus annuus—common sunflower
* *Helminthotheca echioides*—bristly oxtongue
Heterotheca grandiflora—telegraphweed
* *Lactuca serriola*—prickly lettuce
* *Logfia gallica*—narrowleaf cottonrose
Lepidospartum squamatum—scale broom
Malacothrix saxatilis—cliff desertdandelion
Pseudognaphalium biolettii—two-color rabbit-tobacco
Pseudognaphalium californicum—ladies' tobacco
* *Silybum marianum*—blessed milkthistle
* *Sonchus asper*—spiny sowthistle
* *Sonchus oleraceus*—common sowthistle
* *Taraxacum officinale*—common dandelion

BORAGINACEAE—BORAGE FAMILY

Phacelia cicutaria—caterpillar phacelia
Phacelia distans—distant phacelia
Phacelia minor—wild Canterbury bells
Pholistoma auritum—blue fiestaflower

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*—black mustard
* *Brassica rapa*—field mustard
* *Hirschfeldia incana*—shortpod mustard
* *Sisymbrium irio*—London rocket
* Sisymbrium officinale—hedgemustard

CACTACEAE—CACTUS FAMILY

* *Opuntia ficus-indica*—Barbary fig
Opuntia littoralis—coastal prickly pear

CARYOPHYLLACEAE—PINK FAMILY

* *Cerastium glomeratum*—sticky chickweed
* *Stellaria media*—common chickweed

CHENOPODIACEAE—GOOSEFOOT FAMILY

* *Chenopodium berlandieri—pitseed goosefoot*

Chenopodium californicum—California goosefoot
* *Chenopodium murale*—nettleleaf goosefoot
* *Salsola tragus*—prickly Russian thistle

CONVOLVULACEAE—MORNING-GLORY FAMILY

Calystegia macrostegia—island false bindweed
* *Convolvulus arvensis*—field bindweed
Cuscuta californica—chaparral dodder

CUCURBITACEAE—GOURD FAMILY

Marah macrocarpa—Cucamonga manroot

EUPHORBIACEAE—SPURGE FAMILY

Croton setiger—dove weed
Euphorbia melanadenia—red-gland spurge
* *Euphorbia prostrata*—prostrate sandmat
* *Euphorbia peplus*—petty spurge
* *Ricinus communis*—castorbean

FABACEAE—LEGUME FAMILY

Acmispon glaber var. *glaber*—common deerweed
Acmispon wrangelianus—Chilean bird's-foot trefoil
Lathyrus vestitus var. *alefeldii*—Alefeld's pea
Lupinus hirsutissimus—stinging annual lupine
Lupinus longifolius—longleaf bush lupine
Lupinus succulentus—hollowleaf annual lupine
* *Medicago polymorpha*—burclover
* *Melilotus albus*—yellow sweetclover
* *Melilotus indicus*—annual yellow sweetclover
* *Vicia villosa*—winter vetch

FAGACEAE—OAK FAMILY

Quercus agrifolia—California live oak

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

JUGLANDACEAE—WALNUT FAMILY

Juglans californica—Southern California black walnut

LAMIACEAE—MINT FAMILY

* *Marrubium vulgare*—horehound
Salvia apiana—white sage

LOASACEAE—LOASA FAMILY

Mentzelia micrantha—San Luis blazingstar

MALVACEAE—MALLOW FAMILY

* *Malva parviflora*—cheeseweed mallow

MORACEAE—MULBERRY FAMILY

* *Ficus carica*—edible fig

MYRSINACEAE—MYRSINE FAMILY

* *Anagallis arvensis*—scarlet pimpernel

MYRTACEAE—MYRTLE FAMILY

* *Eucalyptus camaldulensis*—river redgum
* *Eucalyptus citriodora*—lemonscented gum
* *Eucalyptus sideroxylon*—red ironbark

NYCTAGINACEAE—FOUR O'CLOCK FAMILY

* *Bougainvillea spectabilis*—great bougainvillea
Mirabilis laevis var. *crassifolia*—California four o'clock

OLEACEAE—OLIVE FAMILY

* *Olea europaea*—olive

OXALIDACEAE—OXALIS FAMILY

* *Oxalis pes-caprae*—Bermuda buttercup

PHRYMACEAE—LOPSEED FAMILY

Diplacus aurantiacus—orange bush monkeyflower

PHYTOLACCACEAE—POKEWEED FAMILY

* *Phytolacca americana*—American pokeweed

PLATANACEAE—PLANE TREE, SYCAMORE FAMILY

Platanus racemosa—California sycamore

POLYGONACEAE—BUCKWHEAT FAMILY

Eriogonum fasciculatum—Eastern Mojave buckwheat

PROTEACEAE—PROTEA FAMILY

* *Grevillea robusta*—silkoak

RHAMNACEAE—BUCKTHORN FAMILY

Frangula californica — California coffee berry

ROSACEAE—ROSE FAMILY

Heteromeles arbutifolia—toyon

Prunus ilicifolia ssp. *ilicifolia*—hollyleaf cherry

Rubus ursinus—California blackberry

RUBIACEAE—MADDER FAMILY

Galium angustifolium—narrowleaf bedstraw

Galium aparine—stickywilly

Galium porrigens—graceful bedstraw

SAPINDACEAE—SOAPBERRY FAMILY

Cupaniopsis anacardioides—carrotwood

SIMAROUBACEAE—QUASSIA OR SIMAROUBA FAMILY

* *Ailanthus altissima*—tree of heaven

SOLANACEAE—NIGHTSHADE FAMILY

Datura wrightii—sacred thorn-apple

* *Nicotiana glauca*—tree tobacco

Solanum douglasii—greenspot nightshade

Solanum parishii—Parish's nightshade

TROPAEOLACEAE—NASTURTIUM FAMILY

* *Tropaeolum majus*—nasturtium

URTICACEAE—NETTLE FAMILY

* *Urtica urens*—dwarf nettle

ZYGOPHYLLACEAE—CALTROP FAMILY

* *Tribulus terrestris*—puncturevine

FERNS AND FERN ALLIES

DRYOPTERIDACEAE—WOOD FERN FAMILY

Dryopteris arguta—coastal woodfern

GYMNOSPERMS AND GNETOPHYTES

PINACEAE—PINE FAMILY

* *Pinus pinea*—Italian stone pine
Pinus ponderosa—ponderosa pine

MONOCOTS

AGAVACEAE—AGAVE FAMILY

* *Agave americana*—American century plant
Hesperoyucca whipplei—chaparral yucca

ARECACEAE—PALM FAMILY

* *Phoenix canariensis*—Canary Island date palm
* *Washingtonia robusta*—Washington fan palm

POACEAE—GRASS FAMILY

* *Arundo donax*—giant reed
* *Avena barbata*—slender oat
* *Avena fatua*—wild oat
* *Bromus diandrus*—ripgut brome
* *Bromus hordeaceus*—soft brome
* *Bromus madritensis*—compact brome
* *Cynodon dactylon*—Bermudagrass
* *Digitaria sanguinalis*—hairy crabgrass
Elymus condensatus—giant wildrye
Elymus glaucus—blue wildrye
* *Hordeum murinum*—mouse barley
* *Lamarckia aurea*—goldentop grass
Melica imperfecta—smallflower melicgrass
* *Pennisetum setaceum*—crimson fountaingrass
* *Stipa miliacea*—no common name

Appendix C
Wildlife Species Compendium

* signifies introduced (non-native) species

REPTILE

LIZARDS

PHRYNOSOMATIDAE—IGUANID LIZARDS

Sceloporus occidentalis longipes—western fence lizard

SNAKES

COLUBRIDAE—COLUBRID SNAKES

Coluber lateralis lateralis—striped racer

BIRD

BLACKBIRDS, ORIOLES, AND ALLIES

ICTERIDAE—BLACKBIRDS

Icterus cucullatus—hooded oriole

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS AND BUSHTITS

Psaltriparus minimus—bushtit

CARDINALS, GROSBEAKS, AND ALLIES

CARDINALIDAE—CARDINALS AND ALLIES

Pheucticus melanocephalus—black-headed grosbeak

Piranga ludoviciana—western tanager

FINCHES

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Carpodacus mexicanus—house finch

Spinus psaltria—lesser goldfinch

FLYCATCHERS

TYRANNIDAE—TYRANT FLYCATCHERS

Contopus sordidulus—western wood-pewee

Empidonax difficilis—Pacific-slope flycatcher
Myiarchus cinerascens—ash-throated flycatcher
Tyrannus verticalis—western kingbird
Tyrannus vociferans—Cassin's kingbird

HAWKS

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Accipiter cooperii—Cooper's hawk
Buteo jamaicensis—red-tailed hawk
Buteo lineatus—red-shouldered hawk

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird
Calypte costae—Costa's hummingbird
Selasphorus sasin—Allen's hummingbird

JAYS, MAGPIES AND CROWS

CORVIDAE—CROWS AND JAYS

Aphelocoma californica—California scrub-jay
Corvus brachyrhynchos—American crow
Corvus corax—common raven

KINGLETS

REGULIDAE—KINGLETS

Regulus calendula—ruby-crowned kinglet

MOCKINGBIRDS AND THRASHERS

MIMIDAE—MOCKINGBIRDS AND THRASHERS

Mimus polyglottos—northern mockingbird

NEW WORLD VULTURES

CATHARTIDAE—CARDINALS AND ALLIES

Cathartes aura—turkey vulture

OLD WORLD WARBLERS AND GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

PIGEONS AND DOVES

COLUMBIDAE—PIGEONS AND DOVES

Patagioenas fasciata—band-tailed pigeon

Zenaida macroura—mourning dove

SILKY FLYCATCHERS

PTILOGONATIDAE—SILKY-FLYCATCHERS

Phainopepla nitens—phainopepla

STARLINGS AND ALLIES

STURNIDAE—STARLINGS

* *Sturnus vulgaris*—European starling

SWIFTS

APODIDAE—SWIFTS

Aeronautes saxatalis—white-throated swift

TITMICE

PARIDAE—CHICKADEES AND TITMICE

Baeolophus inornatus—oak titmouse

WOOD WARBLERS AND ALLIES

PARULIDAE—WOOD-WARBLERS

Oreothlypis ruficapilla—Nashville warbler

Oreothlypis celata—orange-crowned warbler

Cardellina pusilla—Wilson's warbler

Setophaga coronata—yellow-rumped warbler

Setophaga petechia—yellow warbler

WOODPECKERS

PICIDAE—WOODPECKERS AND ALLIES

Melanerpes formicivorus—acorn woodpecker

Picoides nuttallii—Nuttall's woodpecker

WRENS

TROGLODYTIDAE—WRENS

Thryomanes bewickii—Bewick's wren

Troglodytes aedon—house wren

WRENTITS

TIMALIIDAE—BABBLERS

Chamaea fasciata—wrentit

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Melospiza melodia—song sparrow

Melozone crissalis—California towhee

Pipilo maculatus—spotted towhee

MAMMAL

CANIDS

CANIDAE—WOLVES AND FOXES

Canis latrans—Coyote

SQUIRRELS

SCIURIDAE—SQUIRRELS

Sciurus griseus—Western gray squirrel

Spermophilus (Otospermophilus) beecheyi—California ground squirrel

UNGULATES

CERVIDAE—DEERS

Odocoileus hemionus—Mule deer

Appendix D

Assessment of Special-Status Plant Species Potentially Occurring in the Study Area

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Arctostaphylos glandulosa ssp. *gabrielensis*	San Gabriel manzanita	None/None/1B.2	Chaparral (rocky)/perennial evergreen shrub/Mar/1950–4920	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Astragalus brauntonii	Braunton's milk-vetch	FE/None/1B.1	Chaparral, Coastal scrub, Valley and foothill grassland; recent burns or disturbed areas, usually sandstone with carbonate layers/perennial herb/Jan–Aug/10–2100	Low potential to occur. Marginal habitat (coastal scrub) is present, but the species distribution is very limited in the San Gabriel Mountains (Monrovia Canyon). The species was not observed during the focused special-status plant species surveys in the Study Area.
Astragalus lentiginosus var. *antonius*	San Antonio milk-vetch	None/None/1B.3	Lower montane coniferous forest, Upper montane coniferous forest/perennial herb/Apr–July/4920–8530	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Astragalus leucolobus	Big Bear Valley woollypod	None/None/1B.2	Lower montane coniferous forest, Pebble (Pavement) plain, Pinyon and juniper woodland, Upper montane coniferous forest; rocky/perennial herb/May–July/3605–9465	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Berberis nevinii	Nevin's barberry	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Riparian scrub; sandy or gravelly/perennial evergreen shrub/(Feb)Mar–June/225–2705	Low potential to occur. Suitable associated habitat present and recent local records occur, but the conspicuous shrub was not observed during the focused special-status plant species survey in the Study Area.
Botrychium crenulatum	scalloped moonwort	None/None/2B.2	Bogs and fens, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps (freshwater), Upper montane coniferous forest/perennial rhizomatous herb/June–Sep/4160–10760	Not expected to occur. Suitable associated habitat is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools; often clay/perennial bulbiferous herb/Mar–June/80–3675	Not expected to occur. Associated habitat (coastal scrub) is present and recent local records occur, but this species is usually found in herbaceous plant communities such as valley needlegrass grassland, valley sacaton grassland, nonnative grassland, alkali playa, southern interior basalt vernal pools, San Diego mesa hardpan vernal pools, and San Diego mesa claypan vernal pools in association with coastal sage scrub in some locations. These herbaceous communities occur in open areas on clay soils, soil with clay subsurface, or clay lenses within loamy, silty loam, loamy sand, silty deposits with cobbles or alkaline soils (USFWS 2009). These conditions do not occur in the Study Area.
Calochortus clavatus var. *gracilis*	slender mariposa lily	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/Mar–June(Nov)/1045–3280	Low potential to occur. Suitable associated habitat is present, but the species was not observed during the focused special-status plant species surveys in the Study Area.
Calochortus palmeri var. *palmeri*	Palmer's mariposa lily	None/None/1B.2	Chaparral, Lower montane coniferous forest, Meadows and seeps; mesic/perennial bulbiferous herb/Apr–July/2325–7840	Not expected to occur. Suitable associated habitat is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Calochortus striatus	alkali mariposa lily	None/None/1B.2	Chaparral, Chenopod scrub, Mojavean desert scrub, Meadows and seeps; alkaline, mesic/perennial bulbiferous herb/Apr–June/225–5235	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the range of the species (western Mojave Desert).
Calochortus weedii var. *intermedius*	intermediate mariposa lily	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; rocky, calcareous/perennial bulbiferous herb/May–July/340–2805	Low potential to occur. Marginal habitat (coastal scrub) is present, but the species has a single record from the San Gabriel Mountains. Records for the species are primarily associated with the Puente Hills, the Santa Ana Mountains, and the Perris Basin. The species was not observed during the focused special-status plant species surveys in the Study Area.
Calystegia felix	lucky morning-glory	None/None/1B.1	Meadows and seeps (sometimes alkaline), Riparian scrub (alluvial); historically associated with wetland and marshy places, but possibly in drier situations as well; possibly silty loam and alkaline/annual rhizomatous herb/Mar–Sep/95–705	Not expected to occur. Only one record within the last 100 years in Los Angeles County, with the remaining recent occurrences from Chino in San Bernardino County.
Carex occidentalis	western sedge	None/None/2B.3	Lower montane coniferous forest, Meadows and seeps/perennial rhizomatous herb/June–Aug/5395–10285	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Castilleja gleasoni	Mt. Gleason paintbrush	None/SR/1B.2	Chaparral, Lower montane coniferous forest, Pinyon and juniper woodland; granitic/perennial herb (hemiparasitic)/May–June(Sep)/2180–7120	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools/annual herb/May–Nov/0–1575	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Centromadia pungens ssp. *laevis*	smooth tarplant	None/None/1B.1	Chenopod scrub, Meadows and seeps, Playas, Riparian woodland, Valley and foothill grassland; alkaline/annual herb/Apr–Sep/0–2100	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Chorizanthe parryi var. *parryi*	Parry's spineflower	None/None/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; sandy or rocky, openings/annual herb/Apr–June/900–4005	Low potential to occur. Marginally suitable habitat (coastal scrub) is present, but the species was not observed during the focused special-status plant species surveys in the Study Area.
Cladium californicum	California sawgrass	None/None/2B.2	Meadows and seeps, Marshes and swamps Alkaline or Freshwater/perennial rhizomatous herb/June–Sep/195–5250	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Claytonia peirsonii ssp. *peirsonii*	Peirson's spring beauty	None/None/1B.2	Subalpine coniferous forest, upper montane coniferous forest; granitic, metamorphic, scree, talus/perennial herb/(Mar) May–June/4,950–9,005	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan); sandy/annual herb/Apr–June/655–2495	Low potential to occur. Suitable associated habitat (coastal scrub) is present but the species is typically associated with large floodplain habitats categorized as alluvial scrub (CDFW 2014).
Drymocallis cuneifolia var. *ewanii*	Ewan's woodbeauty	None/None/1B.3	Lower montane coniferous forest (near seeps and springs), Meadows and seeps/perennial herb/June–July/6230–7875	Not expected to occur. Suitable associated habitat is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Dudleya cymosa ssp. *crebrifolia*	San Gabriel River dudleya	None/None/1B.2	Chaparral (granitic)/perennial herb/Apr–July/900–1500	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Dudleya densiflora	San Gabriel Mountains dudleya	None/None/1B.1	Chaparral, Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Riparian woodland; granitic, cliffs and canyon walls/perennial herb/Mar–June/800–2000	Not expected to occur. Suitable associated habitat (granitic, cliffs and canyon walls) is not present in the Study Area.
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2	Chaparral, Coastal scrub, Valley and foothill grassland; often clay/perennial herb/Apr–July/45–2590	Not expected to occur. Suitable associated habitat (clay soils) is not present in the Study Area.
Eriogonum kennedyi var. *alpigenum*	southern alpine buckwheat	None/None/1B.3	Alpine boulder and rock field, Subalpine coniferous forest; granitic, gravelly/perennial herb/July–Sep/8530–11485	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Eriogonum microthecum var. *johnstonii*	Johnston's buckwheat	None/None/1B.3	Subalpine coniferous forest, Upper montane coniferous forest; rocky/perennial deciduous shrub/July–Sep/6000–9600	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Fimbristylis thermalis	hot springs fimbristylis	None/None/2B.2	Meadows and seeps (alkaline, near hot springs)/perennial rhizomatous herb/July–Sep/360–4395	Not expected to occur. Suitable associated habitat (alkaline, near hot springs) is not present.
Galium grande	San Gabriel bedstraw	None/None/1B.2	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest/perennial deciduous shrub/Jan–July/1390–4920	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/225–2655	Low potential to occur. Suitable associated habitat (coastal scrub) is present, but the species was not observed during the focused special-status plant species surveys in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Imperata brevifolia	California satintail	None/None/2B.1	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps (often alkali), Riparian scrub; mesic/perennial rhizomatous herb/Sep–May/0–3985	Low potential to occur Suitable associated habitat present and recent local records occur, but the conspicuous shrub was not observed during the focused special-status plant species survey in the Study Area.
Juncus nodosus	knotted rush	None/None/2B.3	Meadows and seeps (mesic), Marshes and swamps (lake margins)/perennial rhizomatous herb/July–Sep/95–6495	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Lewisia brachycalyx	short-sepaled lewisia	None/None/2B.2	Lower montane coniferous forest, Meadows and seeps; mesic/perennial herb/(Feb)Apr–June(July)/4490–7545	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Lilium parryi	lemon lily	None/None/1B.2	Lower montane coniferous forest, Meadows and seeps, Riparian forest, Upper montane coniferous forest; mesic/perennial bulbiferous herb/July–Aug/4000–9005	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Linanthus concinnus	San Gabriel linanthus	None/None/1B.2	Chaparral, Lower montane coniferous forest, Upper montane coniferous forest; rocky, openings/annual herb/Apr–July/4985–9185	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Lupinus peirsonii	Peirson's lupine	None/None/1B.3	Joshua tree woodland, Lower montane coniferous forest, Pinyon and juniper woodland, Upper montane coniferous forest; gravelly or rocky/perennial herb/Apr–June/3280–8200	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Monardella macrantha ssp. *hallii*	Hall's monardella	None/None/1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/perennial rhizomatous herb/June–Oct/2395–7200	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Muhlenbergia utilis	aparejo grass	None/None/2B.2	Meadows and seeps, marshes and swamps, chaparral, coastal scrub, cismontane woodland; sometimes alkaline, sometimes serpentinite/perennial rhizomatous herb/Mar–Oct/82–7,625	Not expected to occur. The one record of the species from the region is from 1916, believed extirpated, and is an outlier of the other records in California (Coastal Range and Death Valley region).
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.1	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools; Mesic/annual herb/Apr–July/5–3970	Not expected to occur. The species is almost exclusively associated with vernal pools in southern California, which are not found onsite.
Nemacladus secundiflorus var. *robbinsii*	Robbins' nemacladus	None/None/1B.2	Chaparral, Valley and foothill grassland; openings/annual herb/Apr–June/1145–5575	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Opuntia basilaris var. *brachyclada*	short-joint beavertail	None/None/1B.2	Chaparral, Joshua tree woodland, Mojavean desert scrub, Pinyon and juniper woodland/perennial stem succulent/Apr–June(Aug)/1390–5905	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the range of the species (northern slopes of the San Gabriel and San Bernardino mountains.
Oreonana vestita	woolly mountain-parsley	None/None/1B.3	Lower montane coniferous forest, Subalpine coniferous forest, Upper montane coniferous forest; gravel or talus/perennial herb/Mar–Sep/5295–11485	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Orobanche valida ssp. *valida*	Rock Creek broomrape	None/None/1B.2	Chaparral, Pinyon and juniper woodland; granitic/perennial herb (parasitic)/May–Sep/4100–6560	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Oxytropis oreophila var. *oreophila*	rock-loving oxytrope	None/None/2B.3	Alpine boulder and rock field, Subalpine coniferous forest; gravelly or rocky/perennial herb/June–Sep/11,150–12,465	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Parnassia cirrata var. *cirrata*	San Bernardino grass-of-Parnassus	None/None/1B.3	Lower montane coniferous forest, Meadows and seeps, Upper montane coniferous forest; mesic, streamsides, sometimes calcareous/perennial herb/Aug–Sep/4,100–8,005	Not expected to occur. Suitable associated habitat is not present, and the Study Area is outside the elevation range of the species.
Phacelia stellaris	Brand's star phacelia	None/None/1B.1	Coastal dunes, Coastal scrub/annual herb/Mar–June/0–1310	Not expected to occur. Marginally suitable associated habitat (coastal scrub) is present, but the species is only known has no records less than 75 years old in Los Angeles County.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; sandy, gravelly/perennial herb/(July)Aug–Nov(Dec)/0–6890	Low potential to occur. Suitable habitat (coastal scrub and riparian woodland) is present, but the species has only one record within the last 75 year within the San Gabriel River. The species was not observed during the focused special-status plant species surveys in the Study Area.
Senecio aphanactis	chaparral ragwort	None/None/2B.2	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/45–2625	Low potential to occur. Suitable habitat (coastal scrub and streams) is present, but the species was not observed during the focused special-status plant species surveys in the Study Area.
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/Mar–June/45–5020	Not expected to occur. Suitable soil conditions are not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State/CRPR)	Primary Habitat Associations/ Life Form/ Blooming Period/ Elevation Range (feet)	Potential to Occur
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov(Dec)/5–6695	Low potential to occur. Suitable habitat (coastal scrub and streams) is present, but the species was not observed during the focused special-status plant species surveys in the Study Area.
Symphyotrichum greatae	Greata's aster	None/None/1B.3	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Riparian woodland; mesic/perennial rhizomatous herb/June–Oct/980–6595	Low potential to occur. Suitable habitat riparian woodland) is present, but the species was not observed during the focused special-status plant species surveys in the Study Area.
Thelypteris puberula var. *sonorensis*	Sonoran maiden fern	None/None/2B.2	Meadows and seeps (seeps and streams)/perennial rhizomatous herb/Jan–Sep/160–2000	Low potential to occur. Suitable habitat (seeps) is present, but the species was not observed during the focused special-status plant species surveys in the Study Area.
Thysanocarpus rigidus	rigid fringepod	None/None/1B.2	Pinyon and juniper woodland; Dry rocky slopes/annual herb/Feb–May/1965–7220	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Viola pinetorum ssp. *grisea*	grey-leaved violet	None/None/1B.2	Meadows and seeps, Subalpine coniferous forest, Upper montane coniferous forest/perennial herb/Apr–July/4920–11155	Not expected to occur. The Study Area is outside the elevation range of the species.

Table Notes:

[1] Status abbreviations:

FE: Federally Endangered

FT: Federally Threatened

SE: State Endangered

SR: State Rare

ST: State Threatened

CRPR: California Rare Plant Rank

1A: Plants presumed extirpated in California and either rare or extinct elsewhere

1B: Plants rare, threatened, or endangered in California and elsewhere

2A: Plants presumed extirpated in California but common elsewhere

2B: Plants rare, threatened, or endangered in California but more common elsewhere

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Appendix E

Assessment of Special-Status Wildlife Species Potentially Occurring in the Study Area

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Insects				
Euphydryas editha quino	quino checkerspot butterfly	FE/None	Annual forblands, grassland, open coastal scrub and chaparral; often soils with cryptogamic crusts and fine-textured clay; host plants include *Plantago erecta*, *Antirrhinum coulterianum*, and *Plantago patagonica*	Not expected to occur. Suitable associated habitat is not present in the Study Area and the host plants were not observed during the surveys for the Project.
Fish				
Catostomus santaanae	Santa Ana sucker	FT/None	Small, shallow, cool, clear streams less than 7 meters (23 feet) in width and a few centimeters to more than a meter (1.5 inches to more than 3 feet) in depth; substrates are generally coarse gravel, rubble, and boulder	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Gila orcuttii	arroyo chub	None/SSC	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths >40 centimeters (16 inches); substrates of sand or mud	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Rhinichthys osculus ssp. 3	Santa Ana speckled dace	None/SSC	Headwaters of the Santa Ana and San Gabriel Rivers; may be extirpated from the Los Angeles River system	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Amphibians				
Anaxyrus californicus	arroyo toad	FE/SSC	Semi-arid areas near washes, sandy riverbanks, riparian areas, palm oasis, Joshua tree, mixed chaparral and sagebrush; stream channels for breeding (typically third order); adjacent stream terraces and uplands for foraging and wintering	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Batrachoseps gabrieli	San Gabriel slender salamander	None/None	Talus slopes in forested areas, often near streams	Not expected to occur. Suitable associated habitat is not present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Rana boylii	foothill yellow-legged frog	None/SSC, PST	Rocky streams and rivers with open banks in forest, chaparral, and woodland	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Rana draytonii	California red-legged frog	FT/SSC	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Rana muscosa	mountain yellow-legged frog	FE/SE, WL	Lakes, ponds, meadow streams, isolated pools, and open riverbanks; rocky canyons in narrow canyons and in chaparral	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Spea hammondii	western spadefoot	None/SSC	Primarily grassland and vernal pools, but also in ephemeral wetlands that persist at least 3 weeks in chaparral, coastal scrub, valley–foothill woodlands, pastures, and other agriculture	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Taricha torosa	California newt	None/SSC	Wet forests, oak forests, chaparral, and rolling grassland	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Reptiles				
Anniella stebbinsi	southern California legless lizard	None/SSC	Coastal dunes, stabilized dunes, beaches, dry washes, valley–foothill, chaparral, and scrubs; pine, oak, and riparian woodlands; associated with sparse vegetation and moist sandy or loose, loamy soils	Moderate potential to occur. This species could occur within the coast live oak woodland, California walnut groves, and coastal sagebrush scrub habitats within the Study Area.
Arizona elegans occidentalis	California glossy snake	None/SSC	Arid scrub, rocky washes, grasslands, chaparral. Appears to prefer microhabitats of open areas and areas with soil loose enough for easy burrowing.	Low potential to occur. Marginal associated habitat is present in the Study Area, but there are few recent records of the species in Los Angeles County.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Aspidoscelis tigris stejnegeri	coastal whiptail	None/SSC	Hot and dry areas with sparse foliage, including chaparral, woodland, and riparian areas.	Moderate potential to occur. This species could occur within the coast live oak woodland, California walnut groves, and coastal sagebrush scrub habitats within the Study Area.
Crotalus ruber	red diamondback rattlesnake	None/SSC	Coastal scrub, chaparral, oak and pine woodlands, rocky grasslands, cultivated areas, and desert flats	Not expected to occur. The Study Area is outside of the range of the species.
Emys marmorata	western pond turtle	None/SSC	Slow-moving permanent or intermittent streams, ponds, small lakes, and reservoirs with emergent basking sites; adjacent uplands used for nesting and during winter	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Phrynosoma blainvillii	Blainville's horned lizard	None/SSC	Open areas of sandy soil in valleys, foothills, and semi-arid mountains including coastal scrub, chaparral, valley–foothill hardwood, conifer, riparian, pine–cypress, juniper, and annual grassland habitats	Low potential to occur. While suitable habitat for the species occurs in the Study, the high level of human activity has likely negatively affected the presence of the species in the area due to direct impacts or the introduction of non-native ants
Thamnophis hammondii	two-striped gartersnake	None/SSC	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools	Not expected to occur. Suitable associated aquatic habitat is not present in the Study Area.
Birds				
Athene cunicularia (burrow sites & some wintering sites)	burrowing owl	BCC/SSC	Nests and forages in grassland, open scrub, and agriculture, particularly with ground squirrel burrows	Not expected to occur. Suitable associated habitat for the species does not occur in the Study Area or within the immediate vicinity.
Buteo swainsoni (nesting)	Swainson's hawk	BCC/ST	Nests in open woodland and savanna, riparian, and in isolated large trees; forages in nearby grasslands and agricultural areas such as wheat and alfalfa fields and pasture	Not expected to occur (nesting). Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity. Species may be transient in the Study Area vicinity during migration.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Coccyzus americanus occidentalis (nesting)	western yellow-billed cuckoo	FT, BCC/SE	Inhabits extensive deciduous riparian thickets or forests, with dense, low-level understory foliage, and abuts slow-moving watercourses, backwaters, or seeps; willow usually a dominant component of the vegetation; densely foliaged, deciduous trees and shrubs, especially willows, required for roosting/nesting sites	Not expected to occur. Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity.
Cypseloides niger (nesting)	black swift	BCC/SSC	Nests in moist crevices, caves, and cliffs behind or adjacent to waterfalls in deep canyons; forages over a wide range of habitats	Not expected to occur. Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity.
Empidonax traillii extimus (nesting)	southwestern willow flycatcher	FE/SE	Nests in dense riparian habitats along streams, reservoirs, or wetlands; uses variety of riparian and shrubland habitats during migration	Not expected to occur. Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity.
Falco peregrinus anatum (nesting)	American peregrine falcon	FDL, BCC/FP, SDL	Nests on cliffs, buildings, and bridges; forages in wetlands, riparian, meadows, croplands, especially where waterfowl are present	Not expected to occur. Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity.
Icteria virens (nesting)	yellow-breasted chat	None/SSC	Nests and forages in dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush	Not expected to occur. Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity.
Laterallus jamaicensis coturniculus	California black rail	BCC/FP, ST	Tidal marshes, shallow freshwater margins, wet meadows, and flooded grassy vegetation; suitable habitats are often supplied by canal leakage in Sierra Nevada foothill populations	Not expected to occur. Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Polioptila californica californica	coastal California gnatcatcher	FT/SSC	Nests and forages in various sage scrub communities, often dominated by California sagebrush and buckwheat; generally avoids nesting in areas with a slope of greater than 40%; majority of nesting at less than 1,000 feet above mean sea level	Not expected to occur. Marginal nesting habitat for the species does occur in the Study Area; however, the focused survey for the species was negative for the Study Area.
Riparia riparia (nesting)	bank swallow	None/ST	Nests in riparian, lacustrine, and coastal areas with vertical banks, bluffs, and cliffs with sandy soils; open country and water during migration	Not expected to occur. Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity.
Setophaga petechia (nesting)	yellow warbler	None/SSC	Riparian plant associations in close proximity to water. Also nests in montane shrubbery in open conifer forests in Cascades and Sierra Nevada. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	Present. Observed during the surveys in the Study Area; however, the species is not expected to nest in the Study Area due to the absence of suitable riparian habitat.
Strix occidentalis occidentalis	California spotted owl	BCC/SSC	Nests and forages in dense, old-growth, multi-layered mixed-conifer, redwood, and Douglas-fir habitats	Not expected to occur. Suitable associated nesting habitat for the species does not occur in the Study Area or within the immediate vicinity.
Vireo bellii pusillus (nesting)	least Bell's vireo	FE/SE	Nests and forages in low, dense riparian thickets along water or along dry parts of intermittent streams; forages in riparian and adjacent shrubland late in nesting season	Not expected to occur. Suitable nesting habitat for the species does occur in the Study Area; however, the focused survey for the species was negative for the Study Area.
Mammals				
Antrozous pallidus	pallid bat	None/SSC	Grasslands, shrublands, woodlands, forests; day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings; night roosts may be in more open sites, such as porches and open buildings; few hibernation and maternity sites are known, but probably uses rock crevices	Low potential to occur. Suitable associated day/night roosts and foraging habitat for the individuals of the species occurs within the Study Area, but hibernation and maternity sites are not expected to occur.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None/SSC	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon–juniper, and annual grassland	Not expected to occur. The Study Area is outside of the range of the species.
Dipodomys merriami parvus	San Bernardino kangaroo rat	FE/SSC	Sparse scrub habitat, alluvial scrub/coastal scrub habitats on gravelly and sandy soils near river and stream terraces	Not expected to occur. The Study Area is outside of the range of the species.
Eumops perotis californicus	western mastiff bat	None/SSC	Chaparral, coastal and desert scrub, coniferous and deciduous forest and woodland; day and night roosts in crevices in rocky canyons and cliffs where the canyon or cliff is vertical or nearly vertical, trees, and tunnels; nursery roosts described as tight rock crevices	Low potential to occur. Suitable associated day/night roosts and foraging habitat for the individuals of the species occurs within the Study Area, but hibernation and maternity sites are not expected to occur.
Lasiurus cinereus	hoary bat	None/None	Forest, woodland riparian, and wetland habitats; also juniper scrub, riparian forest, and desert scrub in arid areas; generally roosts in dense foliage of medium to large trees; preferred sites are hidden from above, with few branches below, and have ground cover of low reflectivity; females and young tend to roost at higher sites in trees	Moderate potential to occur. Suitable associated day/night roosting, maternity roosts, and foraging habitat for the individuals of the species occurs within the Study Area, and there are records of the species from the San Gabriel Mountains.
Lasiurus xanthinus	western yellow bat	None/SSC	Valley–foothill riparian, desert riparian, desert wash, and palm oasis habitats; below 2,000 feet above mean sea level; day/night roosts in riparian trees and palms; may form small maternity groups in trees and palms	Low potential to occur. Suitable associated day/night roosts, maternity roosts, and foraging habitat for the individuals of the species occurs within the Study Area; however, there are few records of the species from the San Gabriel Mountains.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None/SSC	Arid habitats with open ground; grasslands, coastal scrub, agriculture, disturbed areas, and rangelands	Low potential to occur. Marginal associated habitat is present in the Study Area.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Microtus californicus stephensi	south coast marsh vole	None/SSC	Tidal marshes along the coast	Not expected to occur on the Study Area or upstream and downstream from the Study Area. Suitable associated habitat is not present in the Study Area, upstream, or downstream of the Study Area.
Myotis thysanodes	fringed myotis	None/None	Drier woodlands (oak, pinyon–juniper, and ponderosa pine), desert scrub, mesic coniferous forest, grassland, and sage–grass steppe; sea level to 9,350 feet; roosts in buildings, mines, rocks, cliff faces, bridges, and large, decadent trees and snags	Low potential to occur. Suitable associated day/night roosts and foraging habitat for the individuals of the species occurs within the Study Area, but hibernation and maternity sites are not expected to occur.
Myotis volans	long-legged myotis	None/None	Primarily coniferous forests, but also seasonally in riparian and desert habitats; roosts in crevices in cliffs, caves, mines, buildings, exfoliating tree bark, and snags	Low potential to occur. Suitable associated day/night roosts and foraging habitat for the individuals of the species occurs within the Study Area, but maternity roosts habitat is not present.
Myotis yumanensis	Yuma myotis	None/None	Riparian, arid scrublands and deserts, and forests associated with water (streams, rivers, tinajas); roosts in bridges, buildings, cliff crevices, caves, mines, and trees	Low potential to occur. Suitable associated day/night roosts and foraging habitat for the individuals of the species occurs within the Study Area, but maternity roosts habitat is not present.
Neotamias speciosus speciosus	lodgepole chipmunk	None/None	Lodgepole pine forests	Not expected to occur. The Study Area is outside of the range of the species.
Neotoma lepida intermedia	San Diego desert woodrat	None/SSC	Coastal scrub, desert scrub, chaparral, cacti, rocky areas	Low potential to occur. Marginal habitat is located within the Study Area, but the species is expected to occur in the upland areas of the Arroyo Seco Canyon slopes within rocky areas or densely vegetated areas.

Scientific Name	Common Name	Status[1] (Federal/State)	Habitat	Potential to Occur
Nyctinomops femorosaccus	pocketed free-tailed bat	None/SSC	Pinyon–juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oases; roosts in high cliffs or rock outcrops with drop-offs, caverns, and buildings	Low potential to occur. Suitable associated day/night roosts and foraging habitat for the individuals of the species occurs within the Study Area, but maternity roosts habitat is not present.
Nyctinomops macrotis	big free-tailed bat	None/SSC	Rocky areas; roosts in caves, holes in trees, buildings, and crevices on cliffs and rocky outcrops; forages over water; probably does not breed in California. In other areas, small nursery colonies are formed in rocky crevices in high cliffs.	Low potential to occur. Suitable associated day/night roosts and foraging habitat for the individuals of the species occurs within the Study Area, but maternity roosts habitat is not present.
Ovis canadensis nelsoni	Nelson's bighorn sheep	None/FP	Steep slopes and cliffs, rough and rocky topography, sparse vegetation; also canyons, washes, and alluvial fans	Not expected to occur. Suitable associated habitat is not present in the Study Area.
Puma concolor	cougar	None/None	Scrubs, chaparral, riparian, woodland, and forest; rests in rocky areas and on cliffs and ledges that provide cover; most abundant in riparian areas and brushy stages of most habitats throughout California, except deserts	High potential to occur in the study area as a transient. The species is expected to occur in the Study Area, specifically the hills southeast of the project site, as a transient during foraging, movement through its home range, or during the dispersal of young; however, the fences around the property would limit it use by the species. Natal dens of the species are not expected since females typically avoid areas of human activity (Center for Biological Diversity and the Mountain Lion Foundation 2019).
Taxidea taxus	American badger	None/SSC	Dry, open, treeless areas; grasslands, coastal scrub, agriculture, and pastures, especially with friable soils	Not expected to occur. Suitable associated habitat is not present in the Study Area and no diagnostic sign of the species (burrows and digs) were observed during the surveys.

Table Notes:

[1] Status abbreviations:

FE: Federally Endangered

FT: Federally Threatened

FDL: Federally Delisted

BCC: U.S. Fish and Wildlife Service Bird of Conservation Concern

SSC: California Species of Special Concern

FP: California Fully Protected Species

SE: State Endangered

ST: State Threatened

SDL: State Delisted

References:

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Center for Biological Diversity and the Mountain Lion Foundation. 2019. A Petition to List the Southern California/Central Coast Evolutionarily Significant Unit (ESU) of Mountain Lions as Threatened under the California Endangered Species Act (CESA). Accessed January 2021. https://fgc.ca.gov/CESA/index.

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Appendix F

2019 Focused California Gnatcatcher Survey 45-Day Report for the Grand Estates, City of Glendora, California

38 NORTH MARENGO AVENUE
PASADENA, CALIFORNIA 91101
T 626.204.9800 F 626.204.9834

August 16, 2019 8375

U.S. Fish and Wildlife Service
Attn: Recovery Permit Coordinator
Carlsbad Fish and Wildlife Office
2177 Salk Avenue, Ste. 250
Carlsbad, CA 92008

Subject: 2019 Focused California Gnatcatcher Survey 45-Day Report for the Silent Ranch Hillside Subdivision Project, City of Glendora, California

Dear Recovery Permit Coordinator:

This report documents the method and results of protocol-level presence/absence surveys conducted for the coastal California gnatcatcher (*Polioptila californica californica*; CAGN). Focused surveys were conducted throughout all areas of suitable habitat for the proposed Silent Ranch Hillside Subdivision Project located in the City of Glendora, Los Angeles County, California (Attachment A: Figure 1). Suitable habitat for CAGN is approximately 2.84 acres of coastal sage scrub vegetation (Disturbed California sagebrush scrub and disturbed deerweed scrub) within the study area (project site plus a 500-foot buffer). Dudek biologist Tommy Molioo (Authorized Individual under Brock Ortega, TE#813545-8.1) and Melissa Blundell (TE#97717A) conducted CAGN surveys from May through June 2019.

The CAGN is federally-listed as threatened and a California Department of Fish and Wildlife (CDFW) Species of Special Concern. It is closely associated with coastal sage scrub habitat and typically occurs below 950 feet elevation and on slopes less than 40% (Atwood 1990), but CAGN have also been observed at elevations greater than 2,000 feet. The species is primarily threatened by loss, degradation, and fragmentation of coastal sage scrub habitat, and is also impacted by brown-headed cowbird (*Molothrus ater*) nest parasitism (Braden et al. 1997).

LOCATION AND EXISTING CONDITIONS

The approximately 26.84-acre study area for the project is located within portions of an undeveloped hillside adjacent to an existing residential development in the City of Glendora, Los Angeles County, California (Attachment A: Figure 1). More specifically, the study area is physically located on privately owned land at 950 N. Silent Ranch Dr. The approximate centroid of the study area is at longitude -117.873400° West and latitude 34.152277° North within the U.S. Geological Survey (USGS) 7.5-minute Glendora and Azusa quadrangle maps, Township 10 North, Range 6 West, and Section 4 (USGS 1973). Elevations on site are approximately 1,000 feet to 1,100 feet above mean sea level.

VEGETATION COMMUNITIES

Six vegetation communities and land covers were identified within the study area, which are shown in Figure 2 and tabulated in Table 1. Suitable CAGN habitat within the study area includes disturbed California sagebrush scrub, which is described in detail below.

Table 1
Vegetation Communities and Land Covers within the Study Area

Vegetation Community or Land Cover	Map Code	Total Study Area (acres)[a]
Natural Vegetation Communities		
California Walnut Grove	CWG	0.65
Coast Live Oak Woodland	CLOW	8.35
Disturbed California Sagebrush Scrub	dCSS	2.84
Non-Natural and Unvegetated Land Covers		
California Annual (non-native) Grassland	NNG	10.78
Ornamental	ORN	2.28
Urban/Developed	DEV	1.94
	Total	**26.84**

[a] Totals may not sum due to rounding.

California Walnut Groves

California walnut groves include California black walnut (*Juglans californica*) as the dominant or co-dominant tree species in the canopy. This community has a continuous to open canopy less than 15 meters (49 feet) in height with a sparse or grassy ground layer (Sawyer et al. 2009). Species associated with California walnut groves alliance include white alder (*Alnus rhombifolia*), California ash (*Fraxinus dipetala*), toyon (*Heteromeles arbutifolia*), coast live oak (*Quercus agrifolia*), valley oak (*Quercus lobata*), arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), blue elderberry (*Sambucus nigra* ssp. *caerulea*), and California bay (*Umbellularia californica*) (Sawyer et al. 2009).

California walnut groves on site were burned during the 2014 Colby fire as discussed in Section 2.7. Many of the California walnut trees burned during the fire were observed to be re-sprouting during the 2018 site visit. Several California walnut saplings are emergent throughout canyons and hills within the northern open space portion of the property. One community dominated by California walnut groves is located within the north-central portion of the study area, within the designated open space area. California walnut groves on site are dominated by California black walnut and contain a grassy understory comprised of various bromes (*Bromus* spp.) and wild oat (*Avena* spp.). Other species present include coast live oak, California sycamore (*Artemisia californica*), Pacific poison oak (*Toxicodendron diversilobum*), white sage (*Salvia apiana*), and black mustard (*Brassica nigra*).

Coast Live Oak Woodland

Coast live oak woodland includes coast live oak as the dominant or co-dominant tree in the canopy. Coast live oak woodland has a continuous to open canopy less than 30 meters (98 feet) in height with a sparse to intermittent shrub canopy and sparse or grassy ground layer (Sawyer et al. 2009). Species associated with the coast live oak woodland alliance include bigleaf maple (*Acer macrophyllum*), blue oak (*Quercus douglasii*), box elder (*Acer negundo*), California bay, Engelmann oak (*Quercus engelmannii*), California sycamore (*Platanus racemosa*), southern California black walnut, valley oak, arroyo willow, California black oak (*Quercus kelloggii*), and madrone (*Arbutus menziesii*) (Sawyer et al. 2009).

The coast live oak woodlands within the study area are located within the northern portion of the property within areas designated as open space, and along the eastern and western perimeters of the property boundary where development is proposed to occur. The coast live oak woodlands within the northern portion of the property were previously burned during the 2014 Colby fire; however, the community in this portion of the site seems to be recovering well. Coast live oak woodland occurring along the eastern and western boundaries of the property remained untouched by the fire.

This community is dominated by coast live oak, though California sycamore (*Platanus racemosa*), southern California black walnut, and Washington fan palm (*Washingtonia robusta*) are also scattered throughout this vegetation community. The understory within the coast live oak woodland mapped within the eastern perimeter of the project site and within the areas zoned as Open Space (north of the project site) include bromes, sowthistles (*Sonchus* spp.), ragweeds (*Ambrosia* spp.), Pacific poison oak, tree tobacco (*Nicotiana glauca*) annual yellow sweetclover (*Melilotus indicus*), Cucamonga manroot (*Marah macrocarpa*), Bermuda buttercup (*Oxalis pes-caprae*), Alefeld's pea (*Lathyrus vestitus* var. *alefeldii*), narrowleaf bedstraw (*Galium angustifolium*), distant phacelia (*Phacelia distans*), and wild Canterbury bells (*Phacelia minor*). The understory within the coast live oak woodland mapped within the western perimeter of the project site is associated with non-native and landscaped species dominated by English ivy (*Hedera helix*), field bindweed (*Convolvulus arvensis*), Cucamonga manroot, tree tobacco, ornamental fig trees (*Ficus* sp.), and *Stipa miliaceae*.

Disturbed California Sagebrush Scrub

California sagebrush scrub is a community dominated or co-dominated by California sagebrush (*Artemisia californica*) with a continuous or intermittent shrub canopy less than two meters (seven feet) in height with a variable ground layer (Sawyer et al. 2009). This native plant community characterized by a variety of soft, low, aromatic, drought-deciduous shrubs, such as California sagebrush (*Artemisia californica*), coyote bush (*Baccharis pilularis*), Eastern Mojave buckwheat (*Eriogonum fasciculatum*), brittlebush (*Encelia farinosa*), chaparral yucca (*Hesperoyucca whipplei*), coastal prickly pear (*Opuntia littoralis*), and sages (*Salvia* spp.), with scattered evergreen shrubs, including lemonadeberry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and toyon. It typically develops on steep, south-facing slopes and at times, though rarely, occurs on flooded low-gradient deposits along streams in which are scattered willows (*Salix* spp.) and mulefat (*Baccharis salicifolia*), depending on the site conditions.

This community was burned during the 2014 Colby fire. Within the project area, this community contains a high cover of non-native species including bromes, wild oat, castor bean (*Ricinus communis*), and black mustard as a result of the Colby fire. Emergent California sagebrush species including California sagebrush, laurel sumac, white sage, common deerweed have become reestablished. This community previously dominated hillsides throughout the northern open space portion of the study area; however, California sagebrush scrub is now limited as patches along in the eastern portion of the study area.

California Annual (Non-Native) Grassland

California annual grassland (also referred to as non-native grassland in this report) is characterized by a mixture of weedy, introduced annuals, primarily grasses (Sawyer et al. 2009; Holland 1986). California annual grassland typically includes oats, bromes (*Bromus diandrus*, *B. madritensis*, *B. hordeaceus*), black mustard, stork's bill (*Erodium* spp.), dove weed (*Croton setiger*), prickly Russian thistle, and Maltese star-thistle (*Centaurea melitensis*). It may occur where disturbance by maintenance (e.g., mowing, scraping, disking, and

spraying), grazing, repetitive fire, agriculture, or other mechanical disruption has altered soils and removed native seed sources from areas formerly supporting native vegetation (Holland 1986).

California annual grassland is located throughout the central portion of the study area (within northern portion of where the project development is proposed), as well as within the northern portion of the property within areas zoned as Open Space. This vegetation community is dominated by bromes (*Bromus* spp.), wild oat (*Avena fatua*), black mustard, castorbean, redstem stork's bill (*Erodium cicutarium*), Cucamonga manroot, and dove weed (*Croton setiger*). Other native species found within the eastern portion of this grassland community include sugar sumac (*Rhus ovata*) and hollyleaf cherry (*Prunus ilicifolia* ssp. *ilicifolia*). This area appears to have been heavily altered by regular discing activities. Tree removal activities have also occurred in this area based on past aerial maps of the area. California annual grassland also dominates slopes and ridgelines throughout the northern portion of the study area, within the designated open space. Following the 2014 Colby fire, California annual grassland has re-vegetated hillsides previously dominated by coastal sage scrub communities. A low cover of trees and shrubs remain emergent; however, these hillsides are dominated by bromes, as well as weedy, introduced annuals such as redstem stork's bill, prickly Russian thistle, and shortpod mustard. Other native species found scattered within this grassland community include laurel sumac, California sagebrush, brittlebush, and California four o'clock (*Mirabilis laevis* var. *crassifolia*).

Ornamental

Ornamental plantings refer to areas where non-native ornamentals and landscaping have been installed. Ornamental planting occur immediately north of West Palm Drive within the southern portion of the study area. Ornamental species present include Peruvian peppertree, oleander (*Nerium oleander*), edible fig (*Ficus carica*), red ironbark (*Eucalyptus sideroxylon*), olive (*Olea europaea*), tree of heaven (*Ailanthus altissima*), Canary Island date palm (*Phoenix canariensis*), and ornamental pines. Planted natives observed within this land cover include coast live oak, southern California black walnut, and toyon.

Urban/Developed

Developed land refers to areas supporting by man-made structures including homes, yards, roadways, sidewalks, and other highly modified lands supporting structures associated with dwellings or other permanent structures. Vegetation in these areas, if present at all, is typically associated with development landscaping. Within the study area, developed land is limited to the southwestern portion of the proposed development, consisting of an existing private resident and associated landscaping.

METHODS

The presence/absence focused survey for CAGN was conducted for the project between May 15 and June 28, 2019. The survey was conducted within weather conditions and time frames appropriate for the detection of gnatcatchers. Weather conditions and survey dates are provided below in Table 2. Survey routes are shown in Attachment A: Figure 2. The survey routes focused on moderate to high quality habitat that dominates the majority of the study area. No portions of the survey routes encroached into USFWS designated Critical Habitat for the species.

Table 2 Survey Dates and Conditions

Survey Pass	Date	Time	Personnel[1]	Weather Conditions
1	May 15, 2019	0800-1030	TM	58°F-62°F, clear skies, 0-1 mph
2	May 22, 2019	0800-1045	TM	55°F-58°F, clear skies, 0-2 mph
3	May 29, 2019	0900-1100	TM	60°F-62°F, clear skies, 0-1 mph
4	June 11, 2019	0830-1030	TM	68°F-75°F, clear skies, 1-2 mph
5	June 21, 2019	0900-1100	MB	70°F-75°F, clear skies, 0-1 mph
6	June 28, 2019	0845-1030	MB	68°F-72°F, clear skies, 1-2 mph

1 **Personnel:** TM = Tommy Molioo, MB=Melissa Blundell
2 **Survey Conditions:** °F = degrees Fahrenheit; cc = cloud cover; mph = miles per hour

The survey was conducted following the currently accepted protocol of the U.S. Fish and Wildlife Service (USFWS), *Coastal California Gnatcatcher* (*Polioptila californica californica*) *Presence/Absence Survey Protocol* (USFWS 1997). The project site does not occur within an approved NCCP area, and therefore six surveys were conducted at a minimum of 7-day intervals during the breeding season (March 15 through June 30). In accordance with the protocol, no more than 80 acres of suitable habitat were surveyed by a single permitted biologist during each site visit conducted. Survey routes completely covered all areas of suitable CAGN habitat within the survey area and allowed for complete audible and visual coverage of all suitable CAGN habitat on site.

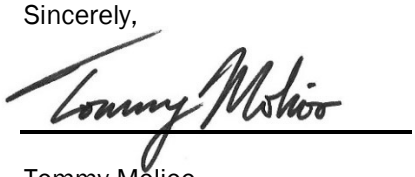
A 200-scale topographic map (1 inch = 200 feet) overlain with vegetation polygons and the survey area was utilized during the survey. Additionally, digital mobile maps were utilized during the surveys to assist in navigating each survey area. Appropriate binoculars (e.g., 8x42 through 10x50 magnification) were used to aid in detecting and identifying bird species. A recording of gnatcatcher vocalizations was played approximately every 50–100 feet to induce responses from potentially present gnatcatchers. Vocalization-playback would have been terminated immediately upon detection of any gnatcatchers to minimize the potential for harassment.

RESULTS

No CAGN (i.e., individuals and/or nests) were detected within the project's study area in 2019. Therefore, the study area is currently considered absent of CAGN. A full list of bird species observed during the survey and within proximity of the survey area is provided in Attachment B.

I certify that the information in this survey report and attached exhibits fully and accurately represent our work.

Sincerely,



Tommy Molioo
Permit # TE-813545-8.1

Att: A, Figure 1: Project Location
Figure 2: CAGN Survey Map
B, Compendium of Wildlife Species Observed or Detected

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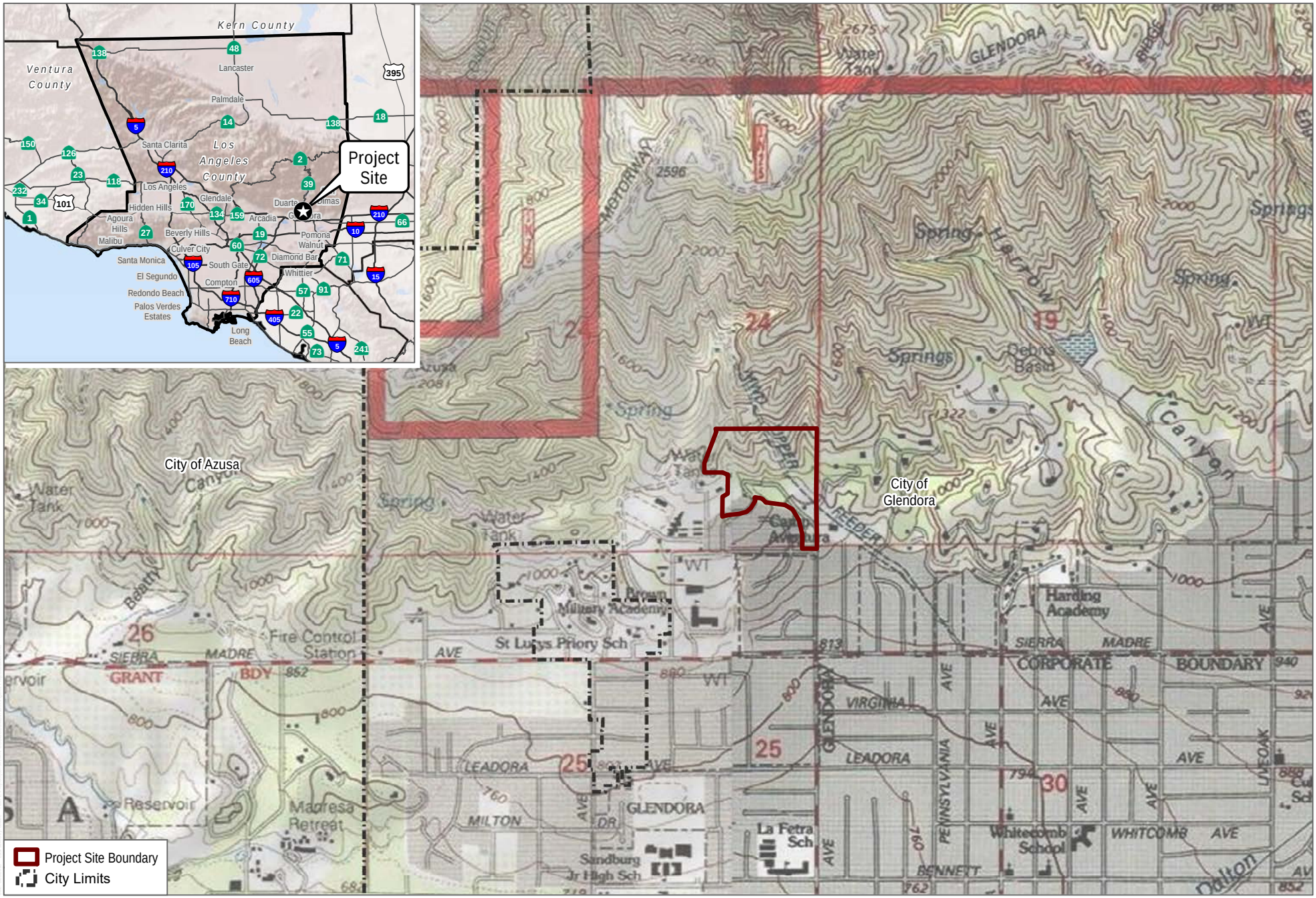
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Attachment A

Figures



SOURCE: NAIP 2016

DUDEK

0 750 1,500 Feet

FIGURE 1

Project Location

Silent Ranch Hillside Subdivision Project



SOURCE: Bing Maps 2018

DUDEK

0 100 200 Feet

FIGURE 2

CAGN Survey Map

Glendora Hillside Subdivision Project

Attachment B

Compendium of Wildlife Species Observed or Detected

Attachment B
Species Compendium

WILDLIFE

BIRD

BUSHTITS

AEGITHALIDAE—LONG-TAILED TITS & BUSHTITS

Psaltriparus minimus—bushtit

FINCHES

FRINGILLIDAE—FRINGILLINE & CARDUELINE FINCHES & ALLIES

Haemorhous mexicanus—house finch

HUMMINGBIRDS

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

JAYS, MAGPIES & CROWS

CORVIDAE—CROWS & JAYS

Aphelocoma californica—California scrub-jay

Corvus brachyrhynchos—American crow

MOCKINGBIRDS & THRASHERS

MIMIDAE—MOCKINGBIRDS & THRASHERS

Mimus polyglottos—northern mockingbird

OLD WORLD WARBLERS & GNATCATCHERS

SYLVIIDAE—SYLVIID WARBLERS

Polioptila caerulea—blue-gray gnatcatcher

PIGEONS & DOVES

COLUMBIDAE—PIGEONS & DOVES

Zenaida macroura—mourning dove

WOODPECKERS

PICIDAE—WOODPECKERS & ALLIES

Melanerpes formicivorus—acorn woodpecker

NEW WORLD SPARROWS

PASSERELLIDAE—NEW WORLD SPARROWS

Melospiza melodia—song sparrow

Pipilo maculatus—spotted towhee

* signifies introduced (non-native) species

Appendix G
Jurisdictional Delineation Data

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS01	2 ft	A	Western Weir (southeastern extent; downstream of weir)	Southeast of concrete weir on the western side of the project site. Where drainage narrows into the road. Natural drainage southeast of downslope of concrete weir.	Unvegetated, natural bottom	Drift and debris deposits, exposed roots, scouring
DS02	22 ft	A	Western Weir (southeastern extent; downstream of weir)	At base, downstream, of concrete weir, where concrete lining (apron) is prominent. Upstream (northwest) of DS01.	Unvegetated, concrete	Drift deposits
DS03	26 ft	A	Western Weir (southeastern extent)	Concrete weir is filled with rocks and mesh wiring. USFS 1970 W1. NOTE: "Los Angeles Flood Control District The function at this structure is to reduce the erosion of the stream bed thus conserving soil and water and encouraging plant growth. It was constructed in cooperation with the United States Forest Service. For your safety please stay off."	Unvegetated, concrete. Adjacent coastal sagebrush (*Artemisia californica*; NL; 2%), common sunflower (*Helianthus annuus*; FACU; 5%), and California live oak (*Quercus agrifolia*; NL; 20%)	Drift deposits
DS04	21 ft	A	Western Weir (southeastern extent; top of weir)	Northwest and upstream of concrete weir, natural bottom, steep slopes.	Natural bottom. California live oak (*Quercus agrifolia*; NL; 40%), Eucalyptus (*Eucalyptus* sp.; NL; 10%), coastal sagebrush (*Artemisia californica*; NL; 2%), common sunflower (*Helianthus annuus*; FACU; 5%), black mustard (*Brassica nigra*; NL; 5%), and field bindweed (*Convolvulus arvensis*; NL; 1%).	Scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS05	18 ft	A	Northwest (upstream) of western weir; natural drainage bottom; northwest (upstream) of DS04	Northwest and upstream of concrete weir, natural bottom, steep slopes.	Natural bottom. California live oak (*Quercus agrifolia*; NL; 40%), Eucalyptus (*Eucalyptus* sp.; NL; 10%), coastal sagebrush (*Artemisia californica*; NL; 2%), common sunflower (*Helianthus annuus*; FACU; 5%), black mustard (*Brassica nigra*; NL; 5%), and field bindweed (*Convolvulus arvensis*; NL; 1%).	Scouring
DS06	2 ft	A	Northwest (upstream) of western weir; natural drainage bottom; north (upstream) of DS05	Natural Spring (southern extent), water flow is present, though minimal water is present.	Natural bottom. Edible fig (*Ficus carica*; FACU; 10%)	Exposed roots, scouring
DS07	2 ft	A	Northwest (upstream) of western weir; natural drainage bottom; north (upstream) of DS06	Natural Spring (middle); water flow is present, though minimal water is present. Pipe leading to the southern extent of natural spring.	Natural bottom. Edible fig (*Ficus carica*; FACU; 5%)	Exposed roots, scouring
DS08	2 ft	A	Northwest (upstream) of western weir; natural drainage bottom; north (upstream) of DS07	Natural Spring (northern extent); water flow is present, though minimal water is present.	Natural bottom. Edible fig *(Ficus carica*; FACU; 5%)	Exposed roots, scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS09	1 ft	B	Canyon immediately east of western weir (DS01-DS08)	Drainage is not apparent north of this location (no OHWM). Drainage flows down the hillside (steep); however, there are no OHWM upslope of this location. First datapoint for Drainage B was taken here; where the terrain levels.	Natural bottom. Black mustard (*Brassica nigra*; NL; 3%), distant phacelia (*Phacelia distans*; OBL; >1%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 2%), giant wildrye (*Elymus condensatus*; NL; 2%), coastal sagebrush (*Artemisia californica*; NL; 2%); leaf litter (5%).	Exposed roots, scouring
DS10	3 ft	B	Canyon immediately east of western weir; south (downstream) of DS09	Downstream (south) of DS09; where the drainage evens out.	Natural bottom. Black mustard (*Brassica nigra*; NL; 3%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 2%), smilograss (*Stipa miliacea*; NL; 2%); Barbary fig (*Opuntia ficus-indica*; NL; 1% overstory of California live oak (*Quercus agrifolia*; NL; 40%); leaf litter (5%).	Exposed roots, scouring
DS11	1 ft	B	Canyon immediately east of western weir; south (downstream) of DS10	Drainage narrows slightly; confluence south of DS11.	Natural bottom. Understory California live oak (*Quercus agrifolia*; NL; 5%). Overstory California live oak (*Quercus agrifolia*; NL; 60%)	Scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS12	2 ft	C	Canyon immediately east of Drainage B (DS09-DS11)	Drainage flows down the canyon (steep) heading southward. OHWM not visible until the terrain levels. There are visible roots in soil at edge of bank here.	Natural bottom. Overstory dominated by Canary Island date palm (*Phoenix canariensis*; NL; 1%), Southern California black walnut (*Juglans californica*; FAC; 2%), edible fig (*Ficus carica*; FACU; 1%). Understory dominated by Pacific poison oak (*Toxicodendron diversilobum*; NL; 2%).	Exposed roots, scouring
DS13	2 ft	C	Canyon immediately east of Drainage B; upstream of DS12	Drainage flows down the canyon (steep) heading southward. OHWM not visible until the terrain levels. There are visible roots in soil at edge of bank here.	Natural bottom. Overstory California live oak (*Quercus agrifolia*; NL; 1%). Leaf litter (40%).	Exposed roots, scouring
DS14	1 ft	C	Canyon immediately east of Drainage B; upstream (north) of DS13	Same drainage narrows upstream, steep incline in canyon.	Natural bottom. Black mustard (*Brassica nigra*; NL; 3%)	Exposed roots, scouring
DS15	1 ft	C	Canyon immediately east of Drainage B; upstream (north) of DS14	Same drainage narrows upstream, steep incline in canyon. OHWM not visible upstream of this point.	Natural bottom. Black mustard (*Brassica nigra*; NL; 1%), Southern California black walnut (*Juglans californica*; FAC; 2%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 1%)	Exposed roots, scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS16	1.5 ft	D	New canyon immediately east of Drainage C (DS12-DS15)	Southern California black walnut (*Juglans californica*) in drainage, slowing the flow of drainage and creating a clear OHWM. No OHWM observed upstream of DS16, canyon is too steep.	Natural bottom. Back mustard (*Brassica nigra*; NL; 1%), laurel sumac (*Malosma laurina*; NL; 1%), Southern California black walnut (*Juglans californica*; FAC; 5%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 1%)	Exposed roots, scouring
DS17	1 ft	D	Same canyon as above (DS16) but further downstream (south) of drainage	Similar to DS16, Southern California black walnut (Juglans californica) in drainage, slowing the flow of drainage and creating a clear OHWM.	Natural bottom. Black mustard (*Brassica nigra*; NL; 1%), laurel sumac (*Malosma laurina*; NL; 1%), Southern California black walnut (*Juglans californica*; FAC; 1%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 1%)	Exposed roots, scouring
DS18	2 ft	D	Same canyon as above (DS17) but further downstream (south) of drainage	This drainage splits into a braided channel downstream.	Natural bottom. Tree tabacco (*Nicotiana glauca*; FAC; 1%), black mustard (*Brassica nigra*; NL; 8%), smilograss (*Stipa miliacea*; NL; 2%), distant phacelia (*Phacelia distans*; OBL; >1%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 1%), coastal sagebrush (*Artemisia californica*; NL; 2%), California live oak (*Quercus agrifolia*; NL; 5%), Southern California black walnut (*Juglans californica*; FAC; 5%), ripgut brome (*Bromus diandrus*; NL; 2%)	Scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS19	1 ft	D	Same canyon as above (DS18) but further downstream (south) of drainage	This drainage splits into a braided channel downstream. Branches with DS20, below; eastern portion of channel.	Natural bottom. Blue elderberry (*Sambucus nigra* ssp. *caerulea*; NL; 10%), Southern California black walnut (*Juglans californica*; FAC; 10%), black mustard (*Brassica nigra*; NL; 10%)	Exposed roots, scouring
DS20	1 ft	D	Same canyon as above (DS19) but further downstream (south) of drainage	This drainage splits into a braided channel downstream. Branches with DS19, above; western portion of channel.	Natural bottom. Blue elderberry (*Sambucus nigra* ssp. *caerulea*; NL; 10%), Southern California black walnut (*Juglans californica*; FAC; 10%), black mustard (*Brassica nigra*; NL; 10%)	Exposed roots, scouring
DS21	1 ft	D	Same canyon as above, at the confluence of the two braided channels (DS19 and DS20), just before it meets with Drainage C discussed above	Where both braids (DS19 and DS20) above come together; at confluence of two canyons (Drainages C and D). Drainages flow parallel downslope to connect into one canyon (Drainage D)	Natural bottom. Laurel sumac (*Malosma laurina*; NL; 10%), Southern California black walnut (*Juglans californica*; FAC; 10%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 10%)	Exposed roots, scouring
DS22	3 ft	D	Same canyon as above, where Drainage B meets Drainages C and D.	At confluence of two canyons and 3 drainages (B - D).	Natural bottom. Common sunflower (*Helianthus annuus*; FACU; 2%); black mustard (*Brassica nigra*; NL; 1%), Canary Island date palm (*Phoenix canariensis*; NL; 5%), tree tabacco (*Nicotiana glauca*; FAC; 1%)	Exposed roots, scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS23	12 ft	D	Downstream of the confluence of the canyons (Drainages B-D), immediately upstream of the middle concrete weir.	Downstream (south) of confluence of Drainages B, C, and D	Natural bottom. Canary Island date palm (*Phoenix canariensis*; NL; 5%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 5%), smilograss (*Stipa miliacea*; NL; 2%)	Exposed roots, scouring
DS24	8 ft	D	Downstream of the confluence of the canyons (Drainages B-D), immediately downstream of the middle concrete weir.	Below concrete weir. Sign reads,"The function of this structure is to reduce the erosion of thestreambed thus conserving soil and water and encouraging plant growth, It was constructed in cooperation with the United States Forest Service. For your safety please keep off."	Natrural bottom. Canary Island date palm (*Phoenix canariensis*; NL; 2%), tree tabacco (*Nicotiana glauca*; FAC; 1%), edible fig (*Ficus carica*; FACU; 5%), black mustard (*Brassica nigra*; NL; 1%), smilograss (*Stipa miliacea*; NL; 2%)	Scouring
DS25	3 ft	D	Downstream of the confluence of the canyons (Drainages B-D), downstream of the middle concrete weir.	Drainage confluence of B-D narrow onto a dirt road and open area which used to be coast live oak woodland (CLOW) and is now non-native grassland (NNG). Water flows from western drainage and follows the northern dirt road (along retaining wall) through the site.	Natural bottom. Oleander (*Nerium oleander*; NL: 10%)	Scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS26	N/A	Southern Features	Downstream (south) of the western weir; swale/erosional feature flows from west to east along a dirt road into the center of the project site. This is the westernmost data station point along this swale/erosion feature.	The swale/erosional feature flows from west to east along a dirt road located at the northern portion of the project site (central portion of the study area). The swale/erosional feature flows toward the center of the site.	Unvegetated, natural bottom. Leaf litter. Overstory California live oak (*Quercus agrifolia*; NL; 60%)	Swale/erosional
DS27	N/A	Southern Features	Downstream (south) of the western weir; swale/erosional feature flows from west to east along a dirt road into the center of the project site; east (downslope) of DS26.	The swale/erosional feature flows from west to east along a dirt road located at the northern portion of the project site (central portion of the study area). The swale/erosional feature flows toward the center of the site.	Unvegetated, natural bottom. Leaf litter. Overstory California live oak (*Quercus agrifolia*; NL; 60%)	Swale/erosional
DS28	N/A	Southern Features	Downstream (south) of the western weir; swale/erosional feature flows from west to east along a dirt road into the center of the project site; east (downslope) of DS27.	The swale/erosional feature flows from east to west along a dirt road (same as above). No herbaceous or shrub layer, just bare ground and leaf litter. California live oak (*Quercus agrifolia*) overhead. Compacted soil (along the northern road), road is rutted out.	Unvegetated, natural bottom. Leaf litter. Overstory California live oak (*Quercus agrifolia*; NL; 60%)	Swale/erosional

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS29	N/A	Southern Features	Downstream (south) of the western weir; swale/erosional feature flows from west to east along a dirt road into the center of the project site; east (downslope) of DS28.	The swale/erosional feature flows from east to west along a dirt road (same as above). No herbaceous or shrub layer, just bare ground and leaf litter. California live oak (*Quercus agrifolia*) overhead. Compacted soil (along the northern road), road is rutted out.	Unvegetated, natural bottom. Leaf litter. Overstory California live oak (*Quercus agrifolia*; NL; 60%)	Swale/erosional
DS30	N/A	Southern Features	Downstream (south) of the middle weir (B-D); swale/erosional feature is south of the northern road and flows into the center of the site at this location.	Rocky drop in elevation at a terraced area that leads into the center of the site at the confluence of the channels A-D. Scouring and erosion has created a terracing effect which is from north to south toward the center of the site. Swale/erosional feature also continues east to follow the northern road into the center of the site, further east of this location. Also continues down the road south and southeast (addressed later).	Natural bottom. Black mustard (*Brassica nigra*; NL; 5%), tree tobacco (*Nicotiana glauca*; FAC; 3%), ripgut brome (*Bromus diandrus*; NL; 2%)	Swale/erosional
DS31	N/A	Southern Features	Downstream (south) of the middle weir (B-D); swale/erosional feature is south of the northern road into the center of the site; south (downstream) of DS30.	Downstream of DS30 along the western fork of the feature. Some scouring is visible then it tapers off into a low point on the property sheet flow. This fork of the feature ends at this point.	Natural bottom. Castorbean (*Ricinus communis*; FACU; 5%), ripgut brome (*Bromus diandrus*; NL; 5%), smilograss (*Stipa miliacea*; NL; 2%)	Swale/erosional

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS32	N/A	Southern Features	Downstream (south) of the middle weir (B-D); swale/erosional feature is south of the northern road into the center of the site; south (downstream) of DS30.	Downstream of DS30 along the middle fork of the feature, parallel with DS31 and DS33. Some scouring is visible then it tapers off into a low point on the property sheet flow. This fork of the drainage ends at this point.	Natural bottom. Black mustard (*Brassica nigra*; NL; 8%), distant phacelia (*Phacelia distans*; OBL; 2%), Maltese star-thistle (*Centaurea melitensis*; NL; 1%), mat amaranth (*Amaranthus blitoides*; FACW; 2%), tree tobacco (*Nicotiana glauca*; FAC; 5%)	Swale/erosional
DS33	N/A	Southern Features	Downstream (south) of the middle weir (B-D); swale/erosional feature is south of the northern road into the center of the site; south (downstream) of DS30.	Downstream (south) of DS30 along the easternmost fork of the feature, parallel with DS31 and DS32. Continues further downstream to DS34.	Natural bottom. Black mustard (*Brassica nigra*; NL; 10%)	Swale/erosional
DS34	N/A	Southern Features	Downstream (south) of the middle weir (B-D); swale/erosional feature is south of the northern road into the center of the site; downstream (south) of DS33.	Downstream (south) of DS33 (DS33 continues here). DS34 continues through the center of the site.	Natural bottom. Black mustard (*Brassica nigra*; NL; 10%), tree tobacco (*Nicotiana glauca*; FAC; 5%)	Swale/erosional
DS35 (line)	N/A	Southern Features	Swale/erosional feature is through the center of the site and follows the dirt road south into the arizona crossing at the southern end of the site (entryway)	Swale/erosional feature is through the property and eventually down the dirt road.	Natural bottom. Ripgut brome (*Bromus diandrus*; NL; 30%), tree tabacco (*Nicotiana glauca*; FAC; 2%), black mustard (*Brassica nigra*; NL; 35%), Canary Island date palm (*Phoenix canariensis*; NL; 2%)	Swale/erosional

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS36-40 (line)	N/A	Southern Features	Swale/erosional feature is through the center of the site and follows the dirt road south into the arizona crossing at the southern end of the site (entryway)	Swale/erosional feature is through the property and down the dirt road (along the western side of the road then to the eastern side of the road). Looks like road ruts. Took a line point to illustrate this feature. Swale/erosional feature is towards southeast corner of project site.	Natural bottom. Very limited veg, compacted soil (dirt road).	Swale/erosional
DS41	N/A	Southern Features	Swale/erosional feature is east of the road and drainage A-D above (DS35-40 above)	Swale/erosional feature is through the property and down the site with ornamental veg. Swale/erosional feature is north to south, east of the road and Southern Features.	Natural bottom. Ornamental trees in general area surrounding drainage. Black mustard (*Brassica nigra*; NL; 10%), olive (*Olea europaea*; NL; 5%), Maltese star-thistle (*Centaurea melitensis*; NL; 1%), ripgut brome (*Bromus diandrus*; NL; 5%), glodentop grass (*Lamarckia aurea*; FACU; 2%), compact brome (*Bromus madritensis*; UPL; 3%).	Swale/erosional
DS42	3 ft	E	Upstream of easternmost weir/drainage; east of Drainages B-D.	Exposed root hairs in drianage, intact soil layer, upstream the erosion is more prominent and then it fades out.	Natural bottom. Edible fig (*Ficus carica*; FACU; 25%), tree tobacco (*Nicotiana glauca*; FAC; 1%), Pacific poison oak (*Toxicodendron diversilobum*; NL; 1%)	Exposed roots, scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS43	6 ft	E	Upstream of easternmost weir/drainage; south (downstream) of DS42.	Exposed root hairs in drianage, intact soil layer, upstream the erosion is more prominent and then it fades out.	Natural bottom. Edible fig (*Ficus carica*; FACU; 2%), Canary Island date palm (*Phoenix canariensis*; NL; 2%), California live oak (*Quercus agrifolia*; NL; 5%), tree tobacco (*Nicotiana glauca*; FAC; 1%), California sycamore (*Platanus racemosa*; FAC; 5%)	Exposed roots, scouring
DS44	12 ft	E	Upstream of easternmost weir/drainage; south (downstream) of DS43.	Exposed root hairs in drianage, intact soil layer, upstream the erosion is more prominent and then it fades out.	Natural bottom. Overstory edible fig (Ficus carica; FACU; 10%), Califonia sycamore (*Platanus racemosa*; FAC; 20%), California live oak (*Quercus agrifolia*; NL; 20%)	Exposed roots, scouring
DS45	14 ft	E	Upstream of easternmost weir/drainage; south (downstream) of DS44.	Exposed root hairs in drianage, intact soil layer	Natural bottom. Black mustard (*Brassica nigra*; NL; 1%), edible fig (*Ficus carica*; FACU; 5%), California live oak (*Quercus agrifolia*; NL; 5%)	Exposed roots, scouring
DS46	2 ft	E	Upstream of easternmost weir/drainage; south (downstream) of DS45.	Exposed root hairs in drianage, intact soil layer	Natual bottom. California live oak (*Quercus agrifolia*; NL; 10%); Southern California black walnut (*Juglans californica*; FAC; 10%)	Exposed roots, scouring
DS47	3.5 ft	E	Upstream of easternmost weir/drainage; south (downstream) of DS46.	Exposed root hairs in drianage, intact soil layer	Natual bottom. California live oak (*Quercus agrifolia*; NL; 10%); Southern California black walnut (*Juglans californica*; FAC; 10%)	Exposed roots, scouring
DS48	No visible OHWM	E	Upstream of easternmost weir/drainage; south (downstream) of DS47.	Exposed root hairs in drianage, intact soil layer	Natural bottom. Common sunflower (*Helianthus annuus*; FACU; 20%), Califonia sycamore (*Platanus racemosa*; FAC; 20%)	Exposed roots, scouring

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS49	No visible OHWM	E	Upstream of easternmost weir/drainage; south (downstream) of DS48.	Exposed root hairs in drianage, intact soil layer	Natural bottom. Overstory California live oak (*Quercus agrifolia*; NL; 50%). Understory common sunflower (*Helianthus annuus*; FACU; 20%), hollowleaf annual lupine (*Lupinus succulentus*; NL; 10%), distant phacelia (*Phacelia distans*; OBL; 1%), black mustard (*Brassica nigra*; NL; 10%), Chilean bird's-foot trefoil (*Acmispon wrangelianus*; NL; 10%)	Exposed roots, scouring
DS50	25 ft	E	At the Easternmost Concrete Weir; south (downstream) of DS49.	Concrete weir is filled with rocks and mesh wiring.	Concrete bottom of weir. Adjacent overstory California live oak (*Quercus agrifolia*; NL; 50%). Understory castorbean (*Ricinus communis*; FACU; 40%), common sunflower (*Helianthus annuus*; FACU; 5%), distant phacelia (*Phacelia distans*; OBL; 1%), black mustard (*Brassica nigra*; NL; 10%), Chilean bird's-foot trefoil (*Acmispon wrangelianus*; NL; 10%)	Drift deposits
DS51	23 ft	E	Concrete area, downstream (south) of the easternmost weir (DS50).	Concrete apron with cracks. Vegetation growing through cracks and adjacent to concrete.	Natural bottom. Canary Island date palm (*Phoenix canariensis*; NL; 5%), California live oak (*Quercus agrifolia*; NL; 10%), olive (*Olea europaea*; NL; 15%). Understory smilograss (Stipa miliacea; NL; 2%)	Drift deposits

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS52	5 ft	E	Concrete channel conveys water along the eastern side of the site; downstream (south) of concrete weir and DS51.	no vegetation within concrete drain (concrete basin), some leaf litter; no adjacent riparian vegetation	Concrete bottom. No vegetation.	Trapezoidal concrete channel
DS53	5 ft	E	Concrete channel conveys water along the eastern side of the site; downstream (south) of concrete weir.	no vegetation within concrete drain (concrete basin), some leaf litter; no adjacent riparian vegetation	Concrete bottom. No vegetation.	Trapezoidal concrete channel
DS54	4 ft	E	Concrete channel conveys water along the eastern side of the site; downstream (south) of concrete weir.	no vegetation within concrete drain (concrete basin), some leaf litter; no adjacent riparian vegetation	Concrete bottom. No vegetation.	Trapezoidal concrete channel
DS55-56	5 ft	E	Concrete channel conveys water along the eastern side of the site; downstream (south) of concrete weir (southern portion of the site).	no vegetation within concrete drain (concrete basin), some leaf litter; no adjacent riparian vegetation. Pruili observed along the concrete basin towards the southern portion of the site	Concrete bottom. No vegetation.	Trapezoidal concrete channel
DS57	12 ft (arizona crossing base)	E	Water flows from the middle drainage down the road to meet up with the concrete basin along the southern portion of the site	Dirt road, no vegetation, bare compacted ground. Concrete portions with no vegetation.	Concrete bottom. No vegetation.	Arizona crossing

Data Station (DS) No.	OHWM	Feature Name	General Area	Notes	Vegetation	Hydrology
DS58	1 ft	Southern Features	Eastern portion of the dirt road through the center of the site (east of DS30 - DS34).	Dirt road, no vegetation, bare compacted ground.	Natural bottom. No vegetation.	Swale/erosional
DS59	1 ft	Southern Features	Eastern portion of the dirt road through the center of the site (east of DS30 - DS34).	No vegetation, bare ground. Dirt road is compacted.	Natural bottom. No vegetation.	Swale/erosional

Legend:
NL = not listed
OBL = obligate wetland species
FACU = facultative upland species
FAC = facultative wetland species
FAC = facultative species

	
Overview of eastern portion of the site, southwest of DS52, facing northeast.	Overview of asphalt storage area south of DS01, facing northwest.
	
Asphalt storage area southeast of Drainage A.	Data Station (DS) 01. Drainage A facing north, upstream.

	
DS02. Drainage A facing northeast.	DS03. Drainage A concrete weir facing northwest, upstream.

	
Placard on Drainage A concrete weir.	DS03. Drainage A concrete weir facing southeast, downstream.

	
DS04. Drainage A facing northwest, upstream.	DS06. Drainage A facing northwest, upstream. Natural spring.
	
DS07. Drainage A facing northwest, upstream. Natural spring.	DS08. Drainage A facing southeast, downstream. Natural spring.

<table>
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DS20. Drainage D facing north, upstream.	DS21. Confluence of Drainage C, on the left, and Drainage D, on the right, facing north, upstream.

	
DS22. Confluence of Drainage B, on the left, and Drainage C/D, on the right, facing upstream.	DS23. Downstream of confluence of Drainage B, C, and D facing north, upstream.
	
DS24. Downstream of confluence of Drainage B, C, and D at concrete weir facing north.	DS25. Downstream of confluence of Drainage B, C, and D facing north, upstream.

	
DS26. Swale/Erosional Features facing east, downstream.	DS27. Swale/Erosional Features facing west, upstream.
	
DS28. Swale/Erosional Features facing east, downstream.	DS29. Swale/Erosional Features facing west, upstream.



DS30. Overview of Swale/Erosional Features facing southeast.



DS31. Swale/Erosional Features, western drainage downstream of DS30, facing north, upstream.



DS32. Swale/Erosional Features, central drainage downstream DS30, facing south, downstream.

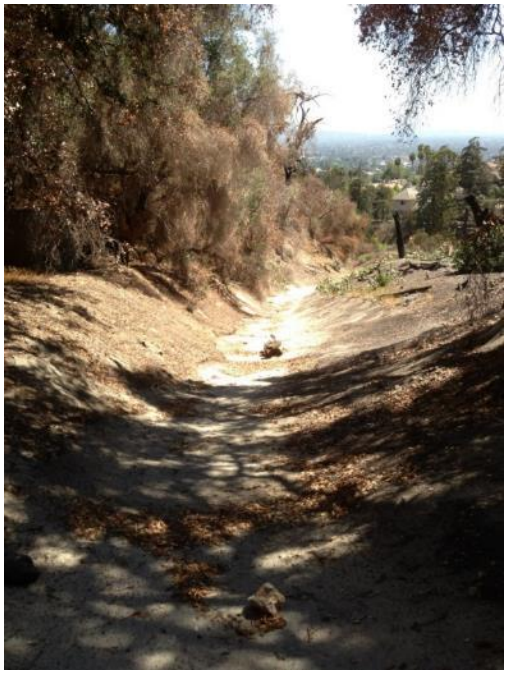
	
DS33. Swale/Erosional Features, eastern drainage downstream of DS30, facing north, upstream.	DS34. Swale/Erosional Features, downstream eastern drainage, facing south, downstream.
	
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DS36-DS40. Swale/Erosional Features along edge of dirt roads facing northwest, upstream.	DS36-DS40. Swale/Erosional Features along edge of dirt roads facing southeast, downstream.

	
DS41. Swale/Erosional Features east of DS36-40, also through the center of the site; facing southeast, downstream.	DS42. Drainage E facing southeast, downstream.
	
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DS47. Drainage E facing south, downstream.	DS48. Drainage E facing south, downstream.

	
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DS52. Drainage E facing north, upstream.	DS53. Drainage E facing south, downstream.
	
DS54. Drainage E facing north, upstream.	DS55. Drainage E facing south, downstream.

	
DS56. Drainage E at outfall Palm Drive and Grand Avenue facing south, downstream.	DS57. Drainage E Arizona crossing facing west, upstream.
	
DS58. Swale/Erosional Features facing south, downstream.	DS59. Swale/Erosional Features facing south, downstream.

Appendix H

Tree Information Matrix (2020), Tree Locations (2020), and Initial Tree Report (2019)

Tree Report
For
Glendora Heights

Prepared by

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Date: September 15, 2018
Revised : August 24, 2019

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Definitions of Tree Evaluation Terms

Site Location

Phase 1

The site is located at the north end of Grand Ave in the city of Glendora California.

Phase 2

This area is above the Glendora Heights project. The property line of the project runs in an East-West direction along the base of the hill.

Site Conditions

Phase 1

The property was planted with many non-native trees as well as native oaks and sycamores. None of the trees appeared to have ever been pruned.

The Beefwood trees exhibited very poor structure and form with broken branch wounds throughout the canopies.

The majority of Canary Island Pines were planted in a large grouping. These trees have depended upon each other for support during wind events. Many of the oaks on the Northwest section of the property as well as the Pines and Eucalyptus trees were removed and used for firewood.

The Colby fire burned through the oak woodland in the northeast portion of the property damaging many of the trees. Fire crews removed trees on the perimeter during the fire.

The majority of the trees are showing signs of drought stress.

Phase 2

There ae three neglected debris basins constructed in the late 1960's or early 1970's to control the debris that has washed down in the past 48 years.

At the time of the construction of the debris basins care was not taken to prevent the loss of oak trees. As the basins filled up with sand and debris, the roots and trunks of the existing Oaks were covered and the grades were raised to the detriment of the trees. Many trees have died due to the grade changes.

Fire has had a devastating effect on the health of the trees. Without mans' intervention most of the trees will slowly recover while many will succumb to their injuries. This will take many years to

ascertain. Some trees were removed in early 2014 because they were not protected as they were non-native trees on private property.

I. Objectives

The objective of this report is to locate, record and evaluate all trees that will or may be impacted by the construction project. This information will assist the city staff in calculating the number of trees to be mitigated by tree replacement. Trees identified on a site map provided by the engineering firm.

The trees will be evaluated for health, disease, pests, structural defects, fire damage, and vigor. The physical characteristics of the trees will be recorded including height, DBH and distance to the drip line (root protection zone).

II. Methods of Tree Analysis

I, Robert T Bennett, on August 15, 2019 performed a visual inspection and assessment of the trees.

- All trees within the area that were delineated by the plans were tagged with metal 1 ¼ inch tags placed on the trunk in a conspicuous position so they can be spotted easily from a distance.
- The trees were measured with a diameter tape developed for this purpose.
- The trees were evaluated for physical structure, species, disease, pests and health.

III. Tree Identification

List of Trees:

Native

- California Black Walnut (*Juglans californica)*
- California Sycamore (*Platanus racemosa)*
- Coast Live Oak *(Quercus agrifolia)*
- Douglas Fir (*Pseudotsuga macrocarpa*)
- Toyon (*Heteromeles arbutifolia*)

Non-Native

- Beefwood (*Casuarina Beefwood*)
- Bunya Bunya (*Araucaria bidwillii*)
- Canary Island Date Palm (*Phoenix canariensis*)
- Canary Island Pine (*Pinus canariensis*)
- Deodar Cedar (*Cedrus deodara*)
- *Douglas Fir (Pseudotsuga macrocarpa)*
- English Walnut (*Juglans regia*)
- Italian Stone Pine (*Pinus pinea*)
- Jacaranda (*Jacaranda mimosifolia*)
- Mexican Fan Palm (*Washingtonia robusta)*
- Olive (*Olea europaea*)
- Plum (*Prunus sap*)
- Red Iron Bark (*Eucalyptus sideroxylon*)
- Silk Oak (*Grevillea robusta*)

V. Results of Field Evaluation

Tree evaluation forms are provided with the report. The following information is in addition to tree evaluation forms:

1. Tree Numbers/Description of Health

VI. Summary of Field Evaluation

My original arborist report for this project was completed in February 2014. The Colby fire occurred during this time. Many trees were evaluated prior to the fire and others were evaluated after the fire. A large number of the trees including the native oaks were damaged by the fire have succumbed to their injuries in the 41/2 years since the fire.

The report for this project was required by the City of Glendora Planning Department staff and since the tree ordinance had been updated, more trees were added to the report.
The total number of trees on this report is approximately 600.
This report is divided in 2 sections:

Section/Phase 1 contains 266 trees in the updated original report.

Section/Phase 2 contains 330 trees which is the added requirement to evaluate for the flood control area above the original project.

Revision added to Section/Phase 2 on August 24, 2019

As of August 24, 2019 I reviewed and updated the Preliminary Site Development plan submitted as requested. The plan included a larger area of grading higher up on the slopes than originally required due to the increased flood control requirements of the project.

When I completed my Tree Evaluations of the original Phase 2 area, I had already included all of the trees up the slope to the tree line. The tree line is the point where trees of a qualifying size (6 inches

DBH) have stopped growing. Above this line the vegetation changes to small chaparral plants and grasses. Many of the trees documented in my original phase 2 report were outside of the area at that time, however they are now included per the revised map that was approved on April 4, 2019 by the City of Glendora which included a larger area for the Flood Control area as required by Los Angeles Flood Control District on this map.

2. Section/Phase 1 – Original Arborist in February 2014

The Canary Island Pines have grown depending upon each other for support during wind events. These pines should not be left individually in a landscape because they may be subject to wind throw.
The Beefwood trees are all poor candidates to be retained in a new landscape. These trees have grown adjacent to the stand of Canary Pines and have benefited from the wind protection they provided. The tall thin trees may have branch failure during wind events if the stand of trees is thinned.
The Mexican Fan Palms are very tall and are unable to be relocated and supported. The Canary Palm would be good candidates for relocation.
The Colby fire will need time to recover to determine the extent of the damage to the individual trees in the woodland.
The trees on this property have been ravaged by neglect, drought, fire, and firewood collection. During the Colby fire, firefighters fell dozens of trees intending to halt the advance of the fire by creating a fire break. Most of these trees were non-native species (Pine, Eucalyptus and Olives) and most of the felled wood was gathered and used for firewood. As noted on my tree evaluation forms, many trees have succumbed to the drought.

3. Section/Phase 2 – Updated Requirements

The second half of the report is focused on the hillside and debris basins to the north of the proposed housing project. This area above the project has had debris basins constructed in the late 1960's and 1970's to contain the debris after the devastating fires and floods. The basins are now full and no longer functional as designed.

The preliminary plans called for cleanout of the basins and grading and cleaning of the hillside surrounding the structures. In this report, trees numbered 270 through 600 are located, measured and evaluated in this area.
Many of the oaks are just now 4.5 years after the fire and are suffering catastrophic failure due to that fire that went through the property. Fire damage to trees takes years to manifest with native wood decay, pathogens and insects to degrade the structural integrity of the tree causing catastrophic failure of branches and trunks of trees. Dead trees in the bottom of the debris basin have died to the grade being raised around them along with drought and fire. The majority have failed at the soil level and all are decayed.

VIII. Recommendations

All of the non-native trees have grown for many, many years without proper pruning and care.
The Canary Pines have grown dependent on each other for support from the winds, for these reasons removing trees and leaving individual trees standing in a new landscape may create a condition where the remaining trees could fail in the case of a significant weather incident.
Creating hazardous conditions in a new landscape should be avoided at all costs.
Therefore I recommend that all of the non-native trees be removed.

The Canary Palms may be moved unless they can be incorporated into the new properties.
The majority of the trees in the Northeast corner of this phase have suffered catastrophic damage because of the fire. Now, after almost 5 years the effects of the fire are becoming evident. Total failure of main trunks is common as well as cavities forming and massive branch die-back.

Many of the trees throughout this project are in the same condition due to drought and fire damage.

The extreme poor health of the trees should be considered by the city when calculating tree replacement values.

A grading and construction plan for the rejuvenation of the three debris basins and the surrounding hillsides will be provided by Giron Engineering.

- IF all the trees in this planned area and debris basin restructuring are to be removed, here are the number of replacement trees per Glendora City Ordinance (page 21).

Oaks	**All Other Species**
1. 36” Box = 365	1. 24” Box = 84
2. 48” Box = 405	2. 36” Box = 115
	3. 48” Box = 11

- Tree replacement to be determined by the City Forester over 37” DBH

Oaks	**All Other Species**
1. 7 trees	1. 0 trees

PHASE 1

TREE EVALUATION FORM

	Tree Number	1	2	3	4	5	6	7	8	9	10
S	Coast Live Oak	✓									
P	Beefwood		✓	✓					✓		
E	Pinus Canariensis				✓			✓			
C	Jacaranda mimosifolia					✓					
I	Washingtonia robusta						✓				
E	Platanus racemosa									✓	
S	Cedrus deodara										✓
H	D.B.H	22.5"	6.5"	28.6"	26"	20"	13.7"	30.3"	19.0	0	0
E	NO. OF TRUNKS	1	1	1	1	3	1	1	1		
A	ROOT PROTECTION ZONE	20'	8	18	20	10	6'	20'	10		
L	HEIGHT	18'	22'	60	90'	18"	90'	90	50		
T	AESTHETIC QUALITY	G	G	G	P	P	A	A	P		
H	VIGOR	G	G	G	G	G	G	G	P		
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK			✓					✓		
	PESTS										
	CAVITIES	✓									
	STRUCTUAL DEFECTS	✓		✓	✓	✓			✓		
	FIRE DAMAGE										
	WOUNDWOOD DEV	P	P	P	A	A	A	A	P		
	HEALTH RATING	G	G	G	G	G	G	G	P		
	HAZARD RATING	3	3	3	4	3	3	3	3		

TREE EVALUATION FORM

	Tree Number	11	12	13	14	15	16	17	18	19	20
S	Jacaranda	✓									
P	Coast Live Oak		✓	✓			✓				
E	Washingtonia robusta				✓	✓		✓	✓		
C	Beefwood									✓	
I	Deodar Cedar										✓
E											
S											
H	D.B.H	18.2"	12.6"	15.4"	11.0"	8.0"	7.7"	14.7"	16.8"	13.8"	20"
E	NO. OF TRUNKS	2	1	2	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	18'	12	8'	6'	3'	5'	8	5	8	18
L	HEIGHT	18'	20'	8'	100'	10'	15'	95	14	50	50
T	AESTHETIC QUALITY	P	P	P	A	P	P	A	P	A	P
H	VIGOR	A	P	G	A	P	G	G	P	A	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE										
	WOUNDWOOD DEV	A	P	P	A	A	A	A	A	A	P
	HEALTH RATING	G	P	P	G	P	P	G	P	G	P
	HAZARD RATING	3	3	0	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	21	22	23	24	25	26	27	28	29	30
S	Phoenix Canariensis	✓			✓						
P	Deodar Cedar		✓	✓		✓	✓				
E	Beefwood							✓	✓		
C	Mexican Fan Palm										✓
I	Pinus Canariensis									✓	
E											
S											
H	D.B.H	20.2"	22.8"	Dead	18.0"	16.9"	Dead	10.3"	20.7"	23.7"	12
E	NO. OF TRUNKS	1	1		1	1		1	1	1	1
A	ROOT PROTECTION ZONE	10	20'		10	15		10'	15'	18	5
L	HEIGHT	48'	55'		35	35		30'	55'	65	40
T	AESTHETIC QUALITY	A	BA		A	P		P	BA	A	A
H	VIGOR	A	P		G	P		P	G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓			✓		✓			
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE										
	WOUNDWOOD DEV		P			P		P	G	G	—
	HEALTH RATING	G	P		G	P		P	G	G	G
	HAZARD RATING	3	3	Dead	3	3		3	3	3	3

TREE EVALUATION FORM

	Tree Number	31	32	33	34	35	36	37	38	39	40
S	Mexican Fan Palm	✓	✓					✓			✓
P	Beefwood			✓		✓	✓				
E	Grevilia Robusta/Silk Oak				✓				✓	✓	
C											
I											
E											
S											
H	D.B.H	12"	12"	14.8"	22.2"	14.6"	18.2"	12"	27.0"	25.3	12.5
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	5	5	6	10	8	15	5	12	18	5
L	HEIGHT	45	18	35	5	35	50	30	50	80	85
T	AESTHETIC QUALITY	A	P	P	P	P	BA	P	BA	BA	A
H	VIGOR	G	P	P	P	P	P	P	G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK			✓	✓	✓	✓				
	PESTS									✓	
	CAVITIES			✓	✓	✓				✓	
	STRUCTUAL DEFECTS			✓	✓	✓			✓	✓	
	FIRE DAMAGE										
	WOUNDWOOD DEV	-	-	P	P	P	P	-	G	G	-
	HEALTH RATING	G	G	P	G	P	G	P	G	G	G
	HAZARD RATING	3	3	5	3	3	3	3	3	5	3

TREE EVALUATION FORM

	Tree Number	41	42	43	44	45	46	47	48	49	50
S	Mexican Fan Palm	✓	✓	✓	✓	✓	✓	✓	✓		
P	Canary Island Date Palm									✓	✓
E											
C											
I											
E											
S											
H	D.B.H	12.2"	12.6"	12.9"	11.8"	14.0"	12.8"	13.6	14.1"	20"	20.5"
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	5'	5'	5'	5'	5'	5'	5'	5'	8'	8'
L	HEIGHT	85'	85'	85'	85'	85'	85'	85'	85'	25'	25'
T	AESTHETIC QUALITY	A	A	A	A	A	A	A	A	A	A
H	VIGOR	G	G	G	G	G	G	G	G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS			✓		✓	✓				
	FIRE DAMAGE										
	WOUNDWOOD DEV										
	HEALTH RATING	G	G	G	G	G	G	G	G	G	G
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	51	52	53	54	55	56	57	58	59	60
S	Canary Island Date Palm	✓									
P	Deodar Cedar		✓								
E	Canary Island Pine			✓	✓	✓	✓	✓	✓	✓	✓
C											
I											
E											
S											
H	D.B.H	9.3"	23.2"	17.0"	10.4"	26.8"	21.0"	19.8"	17.0"	19.0"	22.2"
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	—	20	10'	6'	15'	15'	15'	15'	15'	15'
L	HEIGHT	—	50	50	30	90	90	90	90	90	90
T	AESTHETIC QUALITY	—	P	P	P	BA	BA	BA	BA	BA	BA
H	VIGOR		P	G	P	P	P	P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓								
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS	✓						✓	✓	✓	
	FIRE DAMAGE										
	WOUNDWOOD DEV		P	G	G	G	G	G	G	G	G
	HEALTH RATING	Dead	P	G	G	G	G	G	G	G	G
	HAZARD RATING	-	3	3	3	3	3	3	4	4	5

TREE EVALUATION FORM

	Tree Number	61	62	63	64	65	66	67	68	69	70
S	Canary Island Pine	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	21.9	22.4	21.9	19.6	16.7	12.0	19.8	21	21.5	22.5
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	15'	15'	15'	15'	8'	6'	15'	15'	15'	15'
L	HEIGHT	90'	90'	90'	85'	85'	50'	85'	90'	85'	85'
T	AESTHETIC QUALITY	BA	BA	BA	BA	BA	BA	BA	BA	BA	BA
H	VIGOR	G	G	G	G	G	G	G	G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE										
	WOUNDWOOD DEV	G	G	G	G	G	G	G	G	G	G
	HEALTH RATING	G	G	G	G	G	G	G	G	G	G
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	71	72	73	74	75	76	77	78	79	80
S	Canary Island Pine	✓	✓	✓	✓						
P	Eucalyptus Syderoxilon					✓	✓				
E	Mexican Fan Palm							✓			
C	Olive (Olea europa)								✓		
I	Coast Live Oak (agrifolia)									✓	
E	Toyon (Heteromelies)										✓
S											
H	D.B.H	19.0	19.8"	21.6"	20.4"	Dead	15.3"	12.0"	12.0"	13.0"	17.1
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	15	15	15	15	Dead	6	5	8	10	10
L	HEIGHT	85	85	85	85		20	30	18	15	15
T	AESTHETIC QUALITY	BA	BA	BA	BA		P	P	P	P	P
H	VIGOR	G	G	G	G		P	P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK						✓				✓
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS						✓				
	FIRE DAMAGE										
	WOUNDWOOD DEV	G	G	G	G		P	—	P	G	P
	HEALTH RATING						P	G	P	G	P
	HAZARD RATING	3	3	3	3		3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	81	82	83	84	85	86	87	88	89	90
S	Coast Live Oak	✓				✓					
P	Silk Oak		✓		✓		✓	✓	✓		
E	Olive			✓						✓	✓
C	Deodar Cedar										
I											
E											
S											
H	D.B.H	Dead"	23.4"	26.1"	18.1"	Dead	20.0"	19.4	15.6	Dead	25.7
E	NO. OF TRUNKS		1	3	1		1	1	1		1
A	ROOT PROTECTION ZONE		15				12	12			20
L	HEIGHT		70'				60	50			60
T	AESTHETIC QUALITY		BA				A	A			BA
H	VIGOR		G				G	G			A
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS		✓				✓				
	FIRE DAMAGE										
	WOUNDWOOD DEV		G	G	G		G	G	G		G
	HEALTH RATING		G	G	G		G	G	G		P
	HAZARD RATING		3	3	3		3	3	3		3

TREE EVALUATION FORM

	Tree Number	91	92	93	94	95	96	97	98	99	100
S	Beefwood	✓	✓		✓	✓					
P	Deodar Cedar			✓				✓	✓		✓
E	Olive						✓				
C	Coast Live Oak									✓	
I											
E											
S											
H	D.B.H	11.2	9.0	Dead	12.9	Dead	20.1	25.2	Dead	Dead	Dead
E	NO. OF TRUNKS	1	1		1		2	1			
A	ROOT PROTECTION ZONE	8	6		10		10	15			
L	HEIGHT	40	40		40		20	60			
T	AESTHETIC QUALITY	P	P		P		P	P			
H	VIGOR	P	P		P		P	P			
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓		✓						
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE										
	WOUNDWOOD DEV	P	P		P		P	P			
	HEALTH RATING	P	P		P		P	P			
	HAZARD RATING	3	3		3		3	3			

TREE EVALUATION FORM

	Tree Number	101	102	103	104	105	106	107	108	109	110
S	Deodar Cedar	✓	✓			✓	✓				
P	Bunya Bunya			✓	✓						
E	Coast Live Oak							✓	✓	✓	✓
C											
I											
E											
S											
H	D.B.H	27.4	31.0	20.0	16.0	Dead	Dead	Dead	36.1	21.3	11.4
E	NO. OF TRUNKS	1	1	1	1				1	1	1
A	ROOT PROTECTION ZONE	20	25	12	12				30	40	30
L	HEIGHT	65	65	55	55				35	30	25
T	AESTHETIC QUALITY	BA	BA	BA	BA				BA	A	BA
H	VIGOR	P	P	P	P				G	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK									✓	✓
	PESTS										
	CAVITIES								✓	✓	✓
	STRUCTUAL DEFECTS								✓	✓	✓
	FIRE DAMAGE										
	WOUNDWOOD DEV	P	P	P	P				G	P	P
	HEALTH RATING	P	P	P	P				G	G	P
	HAZARD RATING	3	3	3	3				3	3	3

TREE EVALUATION FORM

	Tree Number	111	112	113	114	115	116	117	118	119	120
S	Coast Live Oak	✓	✓				✓	✓			
P	Deodar Cedar			✓							
E	Douglas fir				✓	✓					
C	Canary Island Date Palm									✓	✓
I	Plum (Prunus spp)								✓		
E											
S											
H	D.B.H	15.1"	34.5	10.9	Dead	12.3	17.7	11.0	8"	23"	17"
E	NO. OF TRUNKS	1	1	1		1	2	1	2	1	1
A	ROOT PROTECTION ZONE	15'	50"	15"		15"	18"	12	8'	8'	8'
L	HEIGHT	25'	35	45		45	35"	30	18	40'	40'
T	AESTHETIC QUALITY	A	BA	A		BA	BA	A	A	A	A
H	VIGOR	G	G	G		G	P	G	G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK						✓				
	PESTS										
	CAVITIES	✓	✓				✓				
	STRUCTUAL DEFECTS	✓	✓				✓				
	FIRE DAMAGE									✓	✓
	WOUNDWOOD DEV	G	G	G		G	P	G	G	G	G
	HEALTH RATING	G	G	G		G	P	G	G	G	G
	HAZARD RATING	5	5	3		3	5	3	3	3	3

TREE EVALUATION FORM

	Tree Number	121	122	123	124	125	126	127	128	129	130
S	Canary Island Date Palm	✓	✓	✓							
P	Mexican Fan Palm				✓	✓	✓	✓	✓	✓	✓
E											
C											
I											
E											
S											
H	D.B.H	20.2"	19.6"	19"	15.4"	15.3"	15.2"	14.4"	13.2"	14.0"	13.6"
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	8'	8'	8'	8	8	8	8	8	8	8
L	HEIGHT	38	42'	42'	90'	90'	90'	90'	90'	90'	90'
T	AESTHETIC QUALITY	A	A	A	A	A	A	A	A	A	A
H	VIGOR	G	G	G	G	G	G	G	G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE	✓	✓	✓							
	WOUNDWOOD DEV										
	HEALTH RATING	G	G	G	G	G	G	G	G	G	G
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	131	132	133	134	135	136	137	138	139	140
S	Mexican Fan Palm	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	15.2	16.1	14.6	15.7"	14.2"	15.2"	12.7"	13.2"	12.9"	13.5
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE										
L	HEIGHT										
T	AESTHETIC QUALITY										
H	VIGOR							P			
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE										
	WOUNDWOOD DEV										
	HEALTH RATING										
	HAZARD RATING										

TREE EVALUATION FORM

	Tree Number	141	142	143	144	145	146	147	148	149	150
S	Mexican Fan Palm	✓	✓	✓	✓	✓	✓	✓	✓		
P	Coast Live Oak									✓	✓
E											
C											
I											
E											
S											
H	D.B.H	15.5"	15.1"	16.9"	16.0"	13.9"	15.6"	18.0"	16.9"	40.0	15.9"
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE									40'	15'
L	HEIGHT									50'	28'
T	AESTHETIC QUALITY									A	A
H	VIGOR									G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE										
	WOUNDWOOD DEV									G	G
	HEALTH RATING									G	G
	HAZARD RATING									3	3

TREE EVALUATION FORM

	Tree Number	151	152	153	154	155	156	157	158	159	160
S	Coast Live Oak	✓	✓	✓	✓			✓		✓	✓
P	California Black Walnut					✓					
E	Brazilian Pepper						✓		✓		
C											
I											
E											
S											
H	D.B.H	25.2"	15.0"	9.5	13.8	Dead	10.8	28"	Dead	13.5	12.8
E	NO. OF TRUNKS	1	1	1	2		1	1		1	1
A	ROOT PROTECTION ZONE	25'	15'	10	14		10	25'		13	13'
L	HEIGHT	40'	20'	20	20'		15	50		22	25'
T	AESTHETIC QUALITY	A	A	A	A		P	A		A	A
H	VIGOR	G	G	G	G		P	G		G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE										
	WOUNDWOOD DEV	G	G	G	G		P	G		G	G
	HEALTH RATING	G	G	G	G		P	G		G	G
	HAZARD RATING	3	3	3	3		3	3		3	3

TREE EVALUATION FORM

	Tree Number	161	162	163	164	165	166	167	168	169	170
S	Coast Live Oak	✓		✓			✓	✓		✓	
P	Mexican Fan Palm		✓						✓		
E	Toyon				✓	✓					
C	OLive										✓
I											
E											
S											
H	D.B.H	25.9	16.4	23.0	Dead	Dead	23.5	Dead	11.0	29.0	18.2"
E	NO. OF TRUNKS	2	1	1			1		1	1	1
A	ROOT PROTECTION ZONE	25'	8	23'			23		8'	30'	18
L	HEIGHT	25'	90	30'			45		80"	45'	30
T	AESTHETIC QUALITY	A	A	A			P		A	A	BA
H	VIGOR	G	G	G			G		G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE		✓	✓			✓				
	WOUNDWOOD DEV	G		G			P		G	G	C
	HEALTH RATING	G	G	G			P		G	G	G
	HAZARD RATING	3	3	3			3		3	3	3

TREE EVALUATION FORM

	Tree Number	171	172	173	174	125	176	177	178	179	180
S	Olive	✓									
P	Coast Live Oak			✓		✓			✓	✓	✓
E	Mexican Fan Palm		✓								
C	Italian Stone Pine				✓						
I	English Walnut						✓	✓			
E											
S											
H	D.B.H	20.0	13.2	14.0	49.9	13.5	Dead	Dead	Dead	34.5	29.2
E	NO. OF TRUNKS	2	1	1	1	2				2	1
A	ROOT PROTECTION ZONE	10'	8'	13'	30'	12				35'	30
L	HEIGHT	20'	90'	35'	40	18				45	45
T	AESTHETIC QUALITY	BA	A	A	A	A				BA	P
H	VIGOR	G	G	G	G	G				P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE	2								2	
	WOUNDWOOD DEV	G		G	G	G				P	P
	HEALTH RATING	G	G	G	G	G				P	P
	HAZARD RATING	3	3	3	3	3				3	3

TREE EVALUATION FORM

	Tree Number	181	182	183	184	185	186	187	188	189	190
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	Dead	12.0	10"	12.5	26.0"	22.0	16.3	31.5	14.8	10.6
E	NO. OF TRUNKS		1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE		12'	10'	10'	25'	22'	15'	30	15	10'
L	HEIGHT		20	25	28'	50'	45'	50	50	50	25
T	AESTHETIC QUALITY		BA	BA	BA	BA	BA	A	A	BA	BA
H	VIGOR		P	P	G	G	P	G	G	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE		1	1	1	1	2			1	
	WOUNDWOOD DEV		P	P	P	P	P	G	G	P	G
	HEALTH RATING		P	P	P	P	P	G	G	P	G
	HAZARD RATING		3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	191	192	193	194	195	196	197	198	199	200
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	8.6"	30.2"	19.6"	17.4	13.3	14.4	Dead	16.5"	12.2	13.0
E	NO. OF TRUNKS	1	1	1	1	1	1		1	1	1
A	ROOT PROTECTION ZONE	8'	30'	20'	20'	15'	15'		15'	12'	13'
L	HEIGHT	25'	55'	50'	40'	40'	35'		35'	25'	45'
T	AESTHETIC QUALITY	A	A	P	BA	BA	A		BA	BA	A
H	VIGOR	G	G	P	G	P	G		G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE	1	1		1						
	WOUNDWOOD DEV	G	G	P	G	G			P	P	G
	HEALTH RATING	G	G	P	G	G			P	P	G
	HAZARD RATING	3	3	3	3	3			3	3	3

TREE EVALUATION FORM

	Tree Number	201	202	203	204	205	206	207	208	209	210
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	Dead	Dead	16"	19.5"	23.0	Dead	18.0	Dead	6.5	7.4
E	NO. OF TRUNKS			1	1	1		1		1	1
A	ROOT PROTECTION ZONE			16'	20	20		20'		5	8
L	HEIGHT			28'	45'	35		35'		8'	20
T	AESTHETIC QUALITY			P	P	P		P		P	P
H	VIGOR			P	P	P		P		P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS			✓	✓	✓		✓		✓	✓
	FIRE DAMAGE			✓	1	1		2		✓	✓
	WOUNDWOOD DEV			P	P	P		P		P	P
	HEALTH RATING			P	P	P		P		P	P
	HAZARD RATING			3	3	3		3		3	3

TREE EVALUATION FORM

	Tree Number	211	212	213	214	215	216	217	218	219	220
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	8.5	7.5	13.5	7.0	12.0	Dead	9.7	9.0	10.0	10.0
E	NO. OF TRUNKS	1	1	1	1	1	Dead	1	1	1	1
A	ROOT PROTECTION ZONE	8'	8'	10'	8'	20'		10'	9'	11'	10'
L	HEIGHT	25'	15'	25'	12'	25'		20'	28'	28'	30'
T	AESTHETIC QUALITY	P	P	P	P	BA		P	P	P	P
H	VIGOR	P	P	P	P	P		P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE	✓	✓	✓	✓	✓		✓	✓	✓	✓
	WOUNDWOOD DEV	P	P	P	P	P		P	P	P	P
	HEALTH RATING	P	P	P	P	P		P	P	P	P
	HAZARD RATING	3	3	3	3	3		3	3	3	3

TREE EVALUATION FORM

	Tree Number	221	222	223	224	225	226	227	228	229	230
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	7.5'	15.5	9.5	Dead	Dead	Dead	Dead	Dead	Dead	Dead
E	NO. OF TRUNKS	1	3	1							
A	ROOT PROTECTION ZONE	8'	16	10							
L	HEIGHT	28'	25	25							
T	AESTHETIC QUALITY	P	P	P							
H	VIGOR	P	P	P							
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE	3	3	3							
	WOUNDWOOD DEV	P	P	P							
	HEALTH RATING	P	P	P							
	HAZARD RATING	3	3	3							

TREE EVALUATION FORM

	Tree Number	231	232	233	234	235	236	237	238	239	240
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	Dead	22.0	Dead	Dead	9.0	11.0	Dead	18	Dead	11.5
E	NO. OF TRUNKS		1			1	1		1		1
A	ROOT PROTECTION ZONE		22			9'	10		18		12'
L	HEIGHT		15			20'	30		20		25'
T	AESTHETIC QUALITY		P			P	P		P		P
H	VIGOR		P			P	P		P		P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE					2	2		3		4
	WOUNDWOOD DEV		P			P	P		P		P
	HEALTH RATING		P			P	P		P		P
	HAZARD RATING		3			3	3		3		3

TREE EVALUATION FORM

	Tree Number	241	242	243	244	245	246	247	248	249	250
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	7.0"	11"	7"	8.8"	7.5"	9.5"	7.0"	18.5"	14"	6.5"
E	NO. OF TRUNKS	1	1	3	1	1	1	1	2	2	1
A	ROOT PROTECTION ZONE	7'	11'	7'	9'	8'	10'	7'	19'	8'	7'
L	HEIGHT	20'	25'	20'	20'	20'	20'	18'	23'	20'	20'
T	AESTHETIC QUALITY	A	A	A	BA	A	A	A	A	BA	A
H	VIGOR	G	G	G	G	G	G	G	G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE	3	4	3	3	3	3	3	3	3	3
	WOUNDWOOD DEV	G	G	G	G	G	G	G	G	G	G
	HEALTH RATING	G	G	G	G	G	G	G	G	G	G
	HAZARD RATING	3	3	3	3	3	3	G	3	3	3

TREE EVALUATION FORM

	Tree Number	251	252	253							
S	Coast Live Oak	✓	✓	✓							
P											
E											
C											
I											
E											
S											
H	D.B.H	7.2"	7.2"	6.4"							
E	NO. OF TRUNKS	1	1	1							
A	ROOT PROTECTION ZONE	7'	7'	7'							
L	HEIGHT	25	25	25							
T	AESTHETIC QUALITY	P	P	P							
H	VIGOR	P	P	P							
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE	4	4	4							
	WOUNDWOOD DEV	P	P	P							
	HEALTH RATING	P	P	P							
	HAZARD RATING	3	3	3							

TREE EVALUATION FORM

	Tree Number	251	252	253	254	255	256	257	258	259	260
S	Olive				✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H				12.0	21.9	18.2	22"	25"	14"	12.8
E	NO. OF TRUNKS				4	2	2	3	3	3	1
A	ROOT PROTECTION ZONE				12'	20	20"	22'	25'	15'	13'
L	HEIGHT				8'	20'	25'	25	25'	15'	20
T	AESTHETIC QUALITY				P	P	P	P	P	P	P
H	VIGOR				P	P	P	P	P	P	P
	FRUITING BODIES									✓	
	ARMILLARIA										
	BRANCH DIEBACK				✓	✓	✓	✓	✓	✓	✓
	PESTS										
	CAVITIES				✓		✓	✓	✓	✓	
	STRUCTUAL DEFECTS				✓		✓	✓	✓		✓
	FIRE DAMAGE				✓		✓	✓	✓	✓	✓
	WOUNDWOOD DEV				P	P	P	P	P	P	P
	HEALTH RATING				P	P	P	P	P	P	P
	HAZARD RATING				3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	261	262	263	264	265	266	267	268	269	270
S	Olive	✓	✓	✓	✓						
P	Carob					✓	✓				
E											
C											
I											
E											
S											
H	D.B.H	16½"	24"	39"	18.1	18.2	28"				
E	NO. OF TRUNKS	2	3	6	4	1	1				
A	ROOT PROTECTION ZONE	16'	24'	20'	18'	18'	28'				
L	HEIGHT	12'	12'	30	25	25'	35'				
T	AESTHETIC QUALITY	P	P	G	G	P	P				
H	VIGOR	P	G	G	G	G	G				
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓	✓	✓	✓	✓				
	PESTS										
	CAVITIES	✓	✓				✓				
	STRUCTUAL DEFECTS	✓	✓				✓				
	FIRE DAMAGE	✓	✓								
	WOUNDWOOD DEV	P	G	G	G	G	G				
	HEALTH RATING	P	F	G	G	G	G				
	HAZARD RATING	3	3	3	6	3	3				

Tree #	Description
	PHASE 1
1	Oak topped by Edison, accident damage on trunk
2	Young vigorous tree
3	Mature tree side pruned for utilities
4	This pine has an eastward lean at the top 40 feet, heavy trunk sprouting
5	Topped by utilities, diameter measured at base of tree
6	Single Palm (Tall)
7	Large Pine with high canopy
8	Poor specimen
9	Sycamore is dead due to drought conditions and Polyphagus Shot Hole Borer
10	Cedar is dead
11	Tree has 2 trunks and a lot of deadwood in canopy
12	Tree has a very thin canopy and was side pruned for road clearance
13	Both trunks (6.5" and 8.9") on the tree were cut down to 24" for road clearance are now regrowing with sprouts
14	Single Palm
15	Group of three Palms, are in poor health due to water deficiency
16	This tree was cut at 4 feet and is now resprouted
17	Single tall Palm in group of three
18	Palm trees have full skirts

19	The tree becomes co-dominant at 20 feet
20	Tree is in full decline, the top twenty feet is dead due to drought conditions and is in very poor health
21	Single Canary Island Date Palm
22	Next to proposed road, canopy has a lot of deadwood
23	This tree is dead
24	Single Palm
25	Canopy is crowded with deadwood
26	This tree is dead
27	Canopy is open and thin
28	Most branch growth is to the south due to competition for sunlight from the tree to the north
29	High canopy the top thirty feet is dead due to Pine Beetles
30	DBH is estimate, due to full skirt
31	DBH is estimate, due to full skirt
32	DBH is estimate, due to full skirt
33	Top half of tree is dead with Woodpecker holes, and cavity at base
34	Damage at base of tree with development of reaction wood on trunk from internal defect
35	Co-dominant with included bark and dead branches throughout the upper canopy
36	Odd branch structure
37	DBH is estimate, due to full skirt
38	Central leader is dead, broken side branches in canopy

39	Bees in trunk at 20', between co-dominant stems indicating extensive cavity in trunk. These bees wee present four years ago.
40-48	Tall Mexican Fan Palms are all similar. Most trees have structual defects in their trunks
49-50	Canopy was thin but is recovering due to rain runoff.
51	Dead trunk after head broke off, two seedlings are growing
52	A lot of deadwood in canopy, top is dead. Poor structure
53	The first in a group of 21 Canary Pines
54	Smallest tree
55-57	Canary Pines, all trees are very similar in structure. These trees are growing in a grouping where they all contribute to the structural support when the trees are subject to heavy wind loads
58	Very heavy branches and shoot development
59	This tree has a heavy lean to the south due to a trunk wound at three feet.
59-63	These trees are all similar in height and structure
64	Very heavy branches and shoot development
65-73	These trees are all similar in height and structure
74	Tree becomes co-dominant at 45 feet with lean of south branches to the south
75	This tree is dead due to Tortoise Beetle infestation
76	Very poor health, the main trunk is dead with live side branching and basal shoots.
77	Single Palm
78	Tree has Xyllela and is drought stressed
79	Multi-trunk Oak that is drought stressed
80	Toyon is drought stressed and heavy with sprouts from the base of the trunk

81	Oak is dead due to drought conditions
82	Dead wood through out the canopy and Co-dominant twice at 30 feet with broken branches out of crown
83	Olives, one branch and trunk have been uprooted by falling tree but is still alive.
84	Curving trunk is co-dominant at forty feet with deadwood throughout the canopy
85	Dead due to drought conditions
86	Poor structure
87	Co-dominant at twenty-five feet
88	Co-dominant at thirty feet with cavity on branches
89	This tree is dead
90	High canopy
91	Very thin canopy
92	Very thin canopy
93	This tree is dead
94	Very thin canopy
95	This tree is dead
96	Olive tree
97	Top twenty feet are dead due to drought conditions
98	This tree is dead
99	This tree is dead
100	This tree is dead

101	Sapsucker damage on entire lower trunk with the top twenty feet are dead due to drought conditions. A cable is wrapped aroune the tree to support the neighbors swing.
102	Extensive deadwood with the top fifteen feet dead to to drought conditions
103	Co-dominant at forty-five feet with dropping branches
104	Missing most lower branches with very thin canopy
105	This tree is dead due to drought conditions
106	This tree is dead due to drought conditions
107	The canopy is full of deadwood. There is a cavity high in the tree at a branch union which may pose a hazard in a future wind event
108	There is a large wound on the east side of the main trunk from where a large branch failed and tore down the side of the tree. Decay has formed a cavity that extends to the side where it meets a large section of the trunk that was damaged years ago. This past wound has grown closed and the branch failure was caused by decay from the previous wound. This tree should be removed or access to the area around this tree on the north side be restricted for safety reasons.
109	Large cavity in the base of the tree extending up into the trunk. There is poor closure.
110	Large cavity in the base of the tree is similar to Tree #109 but leans heavily to the northwest. There is poor closure.
111	This Oak is next to the road where the soil is compacted from vehicle traffic. A large branch nine inches in diameter has been removed for clearance.
112	A large Oak immediately uphill from an old restroom structure. This structure is completely under the canopy of the tree. Care should be taken if removal of the structure is to be undertaken without damaging the roots of the tree.
113	This tree is far enough from the road to have the compaction from the road not to have had a detrimental effect on the tree.
114	This tree is dead due to drought conditions
115	The top of this tree has die-back due to the drought conditions
116	This tree has one trunk remaining of the two original
117	Small oak in good health

118	Small Plum rootstock
119	Average Canary Palm
120	Average Canary Palm
121	The base of this Palm has burned, it appears unharmed-just black
122	The base of this Palm has burned, it appears unharmed-just black
123	The base of this Palm has burned, it appears unharmed-just black
124 to 148	Mexican Fan Palm between eighty-five and one hundred feet tall. Only a few on the north boundary have minor fire impact. All exhibit the same growth characteristics and visible water stress on several of the trees. The trees average DBH is 15.2
149	Very large Oak, this tree has been maintained due to being close to the house. A storage shed is under the canopy. The shed has a paver floor.
150	This tree leans heavily to the southwest. The tree leans on a Palm
151	Good tree with good structure
152	Growing close to a block retaining wall
153	Sharing a canopy with tree# 154
154	Sharing a canopy with tree# 153
155	This tree has two trunks that lean heavily to the southwest in search of sunlight
156	A Brazilian Pepper tree with multiple branching, a very poor specimen
157	A large Oak with a southward lean
158	This pepper is short with many trunk sprouts and multiple branches, also a poor specimen
159	The tree becomes co-dominant in its branch structure
160	Shared canopy with tree# 161

161	shared canopy with tree# 160
162	Palm is burned on north side to 15 feet high
163	Fire damage at base (minor) measured at 12 inches above grade
164	Toyon heavily damaged by fire, completely brown
165	Toyon heavily damaged by fire, completely brown
166	Large Oak unaffected by fire, old wounds at base
167	One half of tree is damaged by fire
168	Single Palm
169	Large Oak with two large trunks, one is upright and the other leans to the north
170	This tree has two major branches with very dense crown and deadwood
171	Olive tree with many suckers
172	Tall Palm
173	This Oak is growing within one foot of the road, 50% of root zone covered
174	This Pine had the dead wood burned out. Tree canopy is mostly south of trunk
175	Small Oak under canopy of neighboring Pine trees
176	Non-native Walnut with many suckers off root stock
177	Non-native Walnut with many suckers off root stock
178	This area is in the northeast corner of the property. This is a Oak woodland, the majority of the trees are growing in similar conditions. Fire has damaged the trees to various extents
179	Coast Live Oak - Fire Damaged and in poor health

180	Large Oak severly damaged by fire. Extensive die-back and bark shedding on both sides of tree. Main scafold branch fourteen inches in diameter is dead on southwest side
181	Dead due to Fire and drought conditions
182	Oak with very thin canopy
183	Heavy fire damage to trunk and canopy, there is some recovery
184	Heavy fire damage to lower trunk and under trunk as leaning to the southeast. It has good exocormic growth.
185	Minor fire damage to lower trunk. Bolts in trunk for use as a hunters tree stand
186	Fire damage to lower trunk and branches in the canopy
187	Minor fire damage, total tree leans to the west
188	Small deadwood in canopy
189	No issues found
190	High Canopy
191	Small Oak with minor fire damage
192	Large Oak with girdling root on south side of tree. Fire damage also on the south side extending from the base to twenty feet high. Bark is peeling off
193	Canopy is 80%
194	Heavy lean to the south but the canopy is recovering from fire damage
195	Leans to the south
196	Dead wood through out the canopy
197	This tree is dead and broken off at seven feet
198	Suffering from the effects of fire
199	Suffering from the effects of fire

200	Looks good despite fire
201	Dead and decayed due to Fire
202	Dead due to Fire kill
203	Fire damaged but recovering
204	Fire damaged but recovering
205	Fire damaged but recovering
206	This tree is dead - 24DBH
207	Half of the canopy was destroyed by fire. Broken branches litter the ground
208	This tree is dead - 24DBH
209	90% of this tree is dead with several green sprouts
210	Extensive fire damage. Poor recovery
211	Extensive fire damage. Poor recovery
212	Extensive fire damage. Poor recovery
213	Recovering well
214	Coast Live Oak - Fire Damaged and in poor health
215	Coast Live Oak - Fire Damaged and in poor health
216	Dead
217	Recovering
218	Dead and broken off at 7 feet
219	95 % dead from extreme fire. Some shoots on rotting trunk

220	Fire damage with poor recovery
221	Recovering from fire, top is dead
222	Extensive fire damage. Very poor recovery
223	Extensive fire damage. Poor recovery
224	Dead due to Fire kill
225	Dead due to Fire kill
226	Dead due to Fire kill
227	Dead due to Fire kill
228	Dead due to Fire kill
229	Dead due to Fire kill
230	Dead due to Fire kill
231	This tree is dead
232	Very little fire damage
233	Dead due to Fire kill
234	Still alive but with fire and drought damage
235	Still alive but with fire and drought damage
236	Still alive but with fire and drought damage
237	Still alive but with fire and drought damage
238	Still alive but with fire and drought damage
239	Still alive but with fire and drought damage

240	Still alive but with fire and drought damage
241	Heavy fire damage
242	Heavy fire damage
243	Heavy fire damage
244	Heavy fire damage
245	Top of tree is broken off due to fire damage
246	This tree is dead
247	Still alive but with extensive fire damage
248	Highly drought stressed
249	Heavy fire damage - recovering
250	This tree is dead
251	Not affected by fire
252	Almost dead
253	Almost dead
254	Heavy fire damage, 18 DBH with three trunks and poor recovery
255	Moderate fire damge, two trunks 9 DBH with fair recovery
256	Main trunks were killed by fire, only one inch basal sprouts are around the base
257	Multi-trunked Olive measured at 20 DBH above ground. Multi-trunk (4) with sucker sprouts all around the tree makes it difficult to make an accurate measurement. Heavy fire damage, barely recovering. Will never be to it sfull astetic value.
258	Single Trunk Olive measured at 12.9 DBH with heavy basal sprouts. Severe fire damage but recovering

259	Main two trunks almost completely killed by fire. Extensive basal sprouts prevent access to trunks. The tree tag is nailed to a 90% dead tree.
260	Large Olive on hill top measured at 8.3 - 11.4 -10.0-14.0-10.0-10.0
261	One trunk barely alvie, the rest is basal sprouts
262	Basal sprouts only
263	No fire damage, growing on point of hill
264	Basal sprouts on north side, deadwood throughout canopy
265	Extensive squirrel damage to branches, pallets stored underneath
266	Carob with major limb broken off to the south
267	Multi-trunked Olive measured at 14" DBH by firewood pad
268	Carob is multi-trunked, Retag of Carob, 26" DBH with broken trunk laying on the ground
269	Carob tree is multi-trunked -14 DBH
270	Fire damaged with bleached bark

PHASE 2

TREE EVALUATION FORM

	Tree Number	270	271	272	273	274	275	276	277	278	279
S	Canary Island Pine	✓		✓							
P	Coast Live Oak		✓		✓	✓	✓	✓	✓		✓
E	Arbutus unido									✓	
C											
I											
E											
S											
H	D.B.H	18.3"	17.3"	33"	17.6"	14.8"	8.1"	23.6"	21.6"	8.0"	23.0
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	18'	18'	33'	17'	15.0	8'	24'	22'	8'	23'
L	HEIGHT	88	35	90	30	15'	45'	45'	35'	12'	50'
T	AESTHETIC QUALITY	P	P	P	BA	P	P	G	G	P	G
H	VIGOR	P	P	P	P	P	P	G	G	P	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓		✓			✓			✓	
	PESTS	✓		✓							
	CAVITIES						✓		✓		
	STRUCTUAL DEFECTS		✓				✓		✓	✓	
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓				
	WOUNDWOOD DEV	G	P	P	G	P	P	G	G	P	G
	HEALTH RATING	G	P	P	G	P	P	G	G	P	G
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	280	281	282	283	284	285	286	287	288	289
S	Coast Live Oak	✓	✓	✓	✓	✓	✓				
P											
E											
C											
I											
E											
S											
H	D.B.H	8.0	22.6"	20.5	9.5'	20.2	19.3'				
E	NO. OF TRUNKS	1	1	1	1	1	2				
A	ROOT PROTECTION ZONE	8'	23'	20'		20					
L	HEIGHT	25	50'	45'							
T	AESTHETIC QUALITY	G	BA	BA		P	BA				
H	VIGOR	G	G	P		P	P				
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓	✓	✓		✓				
	PESTS		✓								
	CAVITIES										
	STRUCTUAL DEFECTS					✓					
	FIRE DAMAGE			✓	✓	✓	✓				
	WOUNDWOOD DEV	G	G	A	P	P	P				
	HEALTH RATING	G	G	A	P	P	P				
	HAZARD RATING	3	3	3	3	3	3				

TREE EVALUATION FORM

	Tree Number	281	282	283	284	285	286	287	288	289	290
S	Coast Live Oak						✓				✓
P	Mexican Fan Palm							✓	✓	✓	
E											
C											
I											
E											
S											
H	D.B.H						12.4"	12.8"	14.5"	18.0"	14.6"
E	NO. OF TRUNKS						1	1	1	1	1
A	ROOT PROTECTION ZONE						13'	12'	12	12	15'
L	HEIGHT						30'	90'	90'	90'	15'
T	AESTHETIC QUALITY						G	G	G	P	P
H	VIGOR						G	G	G	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE							✓	✓	✓	
	WOUNDWOOD DEV						G	G	G	P	P
	HEALTH RATING						G	G	G	P	P
	HAZARD RATING						3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	291	292	293	294	295	296	297	298	299	300
S	Mexican Fan Palm	✓		✓					✓		
P	Olive		✓								
E	Coast Live Oak				✓	✓	✓	✓		✓	✓
C											
I											
E											
S											
H	D.B.H	16.2	24.3	16.7	27.9	11.0	12.8	11.7	16.9	20.3	24.6
E	NO. OF TRUNKS	1	2	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	8	10	8	25'	5'	12'	12'	8	20'	25
L	HEIGHT	90	18'	90	30'	8	15'	30'	90	35'	35
T	AESTHETIC QUALITY	G	P	G	P	P	P	G	G	G	P
H	VIGOR	G	P	G	P	P	P	G	G	G	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓			✓	✓				
	PESTS										
	CAVITIES		✓								
	STRUCTUAL DEFECTS		✓		✓	✓					
	FIRE DAMAGE	✓	✓	✓	✓	✓					✓
	WOUNDWOOD DEV	G	P	G	P	P	P	G	G	G	P
	HEALTH RATING	G	P	G	P	P	P	G	G	G	P
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	301	302	303	304	305	306	307	308	309	310
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	10.9"	12.7	13.4	19.5	25.4	29"	10.5	14.8	14.9"	14.0"
E	NO. OF TRUNKS	1	1	1	1	1	Dead	1	1	1	1
A	ROOT PROTECTION ZONE	11.0	12'	14'	15'	25		10'	15'	15'	15'
L	HEIGHT	15'	15	25'	30	35		15'	30	30'	35
T	AESTHETIC QUALITY	P	P	P	P	P		P	P	P	P
H	VIGOR	P	P	P	P	P		P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK					✓					
	PESTS										
	CAVITIES			✓		✓					
	STRUCTUAL DEFECTS	✓	✓	✓	✓	✓					
	FIRE DAMAGE	✓	✓	✓	✓	✓		✓	✓	✓	✓
	WOUNDWOOD DEV	P	P	P	P	P		P	P	P	P
	HEALTH RATING	P	P	P	P	P		P	P	P	P
	HAZARD RATING	3	3	3	3	3		3	3	3	3

Dead

TREE EVALUATION FORM

	Tree Number	311	312	313	314	315	316	317	318	319	320
S	Coast Live Oak	✓	✓	✓			✓			✓	✓
P	Eucalyptus Sp.				✓	✓		✓			
E	Mexican Fan Palm								✓		
C											
I											
E											
S											
H	D.B.H	11.8	12.7	17.7	38"	12.9"	18.2	39.6	10.4	19.5	8.6
E	NO. OF TRUNKS		1	1	1		1		1	1	1
A	ROOT PROTECTION ZONE		13	18'	40'		19'		8'	20'	9.0
L	HEIGHT		20	28'	90		35		50	39'	35'
T	AESTHETIC QUALITY		P	P	P				G	P	P
H	VIGOR		P	P	P				G	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓	✓	✓		✓				
	PESTS										
	CAVITIES		✓	✓			✓				
	STRUCTUAL DEFECTS		✓	✓	✓		✓				
	FIRE DAMAGE		✓	✓	✓		✓		✓	✓	✓
	WOUNDWOOD DEV		P	P	P				G	P	P
	HEALTH RATING		P	P	P				G	P	P
	HAZARD RATING	Dead	3	3	3	Dead		Dead	3	3	3

TREE EVALUATION FORM

	Tree Number	321	322	323	324	325	326	327	328	329	330
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	23.2	57.8	9.6	15.2	9.4	8.7	16.3	10.9	12.9	9.1
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	23'	40'	12'	15'	10'	9'	17'	11'	13'	10'
L	HEIGHT	40	40'	15'	40'	30'	25'	30	25'	35'	30
T	AESTHETIC QUALITY	G	G	P	P	P	P	G	P	G	G
H	VIGOR	G	G	P	P	P	P	G	P	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK			✓	✓	✓					
	PESTS										
	CAVITIES	✓									
	STRUCTUAL DEFECTS										
	FIRE DAMAGE										
	WOUNDWOOD DEV	G	G	P	P	P	G	G	P	G	G
	HEALTH RATING	G	G	P	P	P	G	G	P	G	G
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	331	332	333	334	335	336	337	338	339	340
S	Coast Live Oak	✓		✓		✓	✓			✓	
P	California Black Walnut		✓		✓						✓
E	Eucalyptus							✓	✓		
C											
I											
E											
S											
H	D.B.H	12.7	10	12.2	21.4	9.7	11.7	39.0	43.6	16.0"	19.1"
E	NO. OF TRUNKS	1	2	1	2	1	1	2	1	1	3
A	ROOT PROTECTION ZONE	13'	30'	12'	15'	10'	12'	40'	40'	15'	19'
L	HEIGHT	40	40'	50	30	15'	20	60'	70'	20'	25'
T	AESTHETIC QUALITY	G	P	P	P	P	P	P	P	G	G
H	VIGOR	G	P	P	P	P	P	P	P	G	G
	FRUITING BODIES			✓							
	ARMILLARIA										
	BRANCH DIEBACK		✓		✓	✓		✓	✓	✓	
	PESTS										
	CAVITIES		✓		✓						
	STRUCTUAL DEFECTS		✓	✓	✓					✓	
	FIRE DAMAGE							✓	✓	✓	
	WOUNDWOOD DEV	G	P	P	P	P	P	P	P	P	G
	HEALTH RATING	G	P	P	P	P	P	P	P	P	G
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	341	342	343	344	345	346	347	348	349	350
S	Coast Live Oak	✓	✓	✓	✓	✓		✓	✓	✓	✓
P	Black Walnut										
E	Eucalyptus spp.						✓				
C											
I											
E											
S											
H	D.B.H	10.5	12.5	8.6	21.2	17.3	26.9	9.5	17.9	18"	19.0
E	NO. OF TRUNKS	2	1	1	2	1	1	1	1	1	2
A	ROOT PROTECTION ZONE	10	12'	9'	21'	18'		10'	18'	5'	19'
L	HEIGHT	15	25	15	30'	30		20	35	12'	25
T	AESTHETIC QUALITY	G	G	P	G	P		P	P	P	P
H	VIGOR	G	G	P	G	P		P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK			✓				✓	✓	✓	✓
	PESTS					✓					
	CAVITIES										
	STRUCTUAL DEFECTS			✓		✓		✓	✓	✓	✓
	FIRE DAMAGE			✓		✓				✓	✓
	WOUNDWOOD DEV	G	G	P	G	P		P	P	P	P
	HEALTH RATING	G	G	P	G	P		P	P	P	P
	HAZARD RATING	3	3	3	3	3	Dead	3	3	3	3

TREE EVALUATION FORM

	Tree Number	351	352	353	354	355	356	357	358	359	360
S	Coast Live Oak		✓	✓		✓	✓	✓	✓		✓
P	California Black Walnut	✓									
E	Eucalyptus				✓					✓	
C											
I											
E											
S											
H	D.B.H	7.4	8.0	10.7	41.0	9.8"	13.9	8.0	18.0	30.7	12.0
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	8'	8'	10'		10'	14'	8'	18'	30'	12.0'
L	HEIGHT	10'	20'	20'		20	25	15	10'	55'	30'
T	AESTHETIC QUALITY	P	P			P	P	P	P	G	P
H	VIGOR	P	P			G	P	P	P	G	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓			✓	✓		✓	✓	✓
	PESTS		✓								
	CAVITIES								✓	✓	
	STRUCTUAL DEFECTS	✓			✓	✓	✓	✓	✓	✓	✓
	FIRE DAMAGE				✓	✓	✓		✓	✓	✓
	WOUNDWOOD DEV	P	P	P		G	P	P	P	G	P
	HEALTH RATING	P	P	P		G	P	P	P	G	P
	HAZARD RATING	3	3	3	Dead	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	361	362	363	364	365	366	367	368	369	370
S	Coast Live Oak	✓	✓		✓	✓	✓	✓	✓	✓	✓
P	California Black Walnut			✓							
E											
C											
I											
E											
S											
H	D.B.H	10.4	15.4	13.5	16"	12.4	12.3	10.2	14.6"	9.5	15.3
E	NO. OF TRUNKS	1	1	3	2	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	11.0'	16'	14'	16'	13'	13'	10'	10'		14'
L	HEIGHT	25'	30'	20	25	30'	35'	35'	35		40'
T	AESTHETIC QUALITY	P	G	P	P	P	P	P	P		P
H	VIGOR	P	G	P	P	P	P	P	P		P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓			✓	✓	✓				✓
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS				✓				✓		✓
	FIRE DAMAGE				✓				✓		✓
	WOUNDWOOD DEV	P	G	P	P	P	P	P	P		P
	HEALTH RATING	P	G	P	P	P	P	P	P		P
	HAZARD RATING	3	3	3	3	3	3	3	3	Dead	3

TREE EVALUATION FORM

	Tree Number	371	372	373	374	375	376	377	378	379	380
S	Coast Live Oak	✓	✓		✓	✓	✓		✓	✓	✓
P	Black Walnut			✓				✓			
E											
C											
I											
E											
S											
H	D.B.H	17.9	10.7	10.5	14.8	18.0	8.5	16.3	14.8	12.3	10.1
E	NO. OF TRUNKS	2	1		1	1	1	3	1	1	1
A	ROOT PROTECTION ZONE	18'	10'		15'	18'	9'	10'	15'	12'	10'
L	HEIGHT	25'	25'		30	40	35	15'	40	40'	20'
T	AESTHETIC QUALITY	P	P		G	G	G	P	G	G	P
H	VIGOR	P	D		G	G	G	P	G	G	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK							✓	✓		
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS							✓			
	FIRE DAMAGE							✓			
	WOUNDWOOD DEV	P	P		G	G	G	P	P	G	P
	HEALTH RATING	P	P		G	G	G	P	P	G	P
	HAZARD RATING	3	3		3	3	3	3	3	3	3

Dead

TREE EVALUATION FORM

	Tree Number	381	382	383	384	385	386	387	388	389	390
S	Coast Live Oak			✓	✓	✓	✓	✓	✓	✓	✓
P	Black Walnut	✓	✓								
E											
C											
I											
E											
S											
H	D.B.H	18.0	12.8	8.6	8.0	16.5	11.3	9.2	8.8	13.0	9.2
E	NO. OF TRUNKS	2	2	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	18'	12	9'	8'	17'	12'	10'	9'	13'	10'
L	HEIGHT	20'	15'	35'	30'	40	35	30	35'	40	4'
T	AESTHETIC QUALITY	P	P	G	G	G	G	G	G	G	P
H	VIGOR	G	G	G	G	G	G	G	G	G	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK										
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS										
	FIRE DAMAGE	✓	✓								
	WOUNDWOOD DEV	G	G	G	G	G	G	G	G	G	P
	HEALTH RATING	G	G	G	G	G	G	G	G	G	P
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	391	392	393	394	395	396	397	398	399	400
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	8.1	9.1	11.3	16"	9.2	13.2	20.9	8.5	16.4	12.1
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	2	1
A	ROOT PROTECTION ZONE	8'	9.0'	14'	—	9'	14'	20'	8'	17'	12'
L	HEIGHT	40'	40'	40'	2'	40'	35	40'	35	35'	40'
T	AESTHETIC QUALITY	G	G	P	P	P	P	G	P	G	P
H	VIGOR	G	G	P	P	P	P	G	P	G	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK				✓						✓
	PESTS										
	CAVITIES				✓						✓
	STRUCTUAL DEFECTS				✓						✓
	FIRE DAMAGE			✓	✓	✓	✓		✓		✓
	WOUNDWOOD DEV	G	G	P	P	P	P	G	P	G	P
	HEALTH RATING	G	G	P	P	P	P	G	P	G	P
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	401	402	403	404	405	406	407	408	409	410
S	Coast Live Oak	✓	✓			✓	✓	✓	✓	✓	✓
P	Carob			✓							
E	Pine - Dead				✓						
C											
I											
E											
S											
H	D.B.H	10.2	17.0	37.8	13.4	16.2	8.6	10.2	13.3	11.1	9.5
E	NO. OF TRUNKS	1	1	4		1	1	1	1	1	1
A	ROOT PROTECTION ZONE	10'	17			16'	9'	10	13'	11'	10'
L	HEIGHT	35'	45	35		35'	35'	40	45	45	25'
T	AESTHETIC QUALITY	P	G	P		P	P	P	G	G	P
H	VIGOR	P	G	P		P	P	P	G	G	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓		✓		✓		✓			✓
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS	✓	✓	✓		✓		✓			✓
	FIRE DAMAGE	✓	✓	✓		✓	✓	✓	✓	✓	✓
	WOUNDWOOD DEV	P	P	P		P	P	P	P	G	P
	HEALTH RATING	P	P	P		P	P	P	P	G	P
	HAZARD RATING	3	3	3	Dead	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	411	412	413	414	415	416	417	418	419	420
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	20.0	10.5	21.5	11.4	9.9	10.0	13.0	8.6	20.5	13.8
E	NO. OF TRUNKS	2	1	3	1	1	1	1	1	2	1
A	ROOT PROTECTION ZONE	20'	10'	21'	12'	10'	10'	13	9'	20'	14'
L	HEIGHT	45'	40	35'	35'	40'	35'	40	25'	35'	40'
T	AESTHETIC QUALITY	G	P	P	P	P	P	P	P	P	P
H	VIGOR	G	P	P	P	P	P	P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓	✓				✓			✓
	PESTS										
	CAVITIES										✓
	STRUCTUAL DEFECTS			✓	✓						✓
	FIRE DAMAGE				✓		✓	✓	✓	✓	✓
	WOUNDWOOD DEV	G	P	P	P	P	P	P	P	P	P
	HEALTH RATING	G	P	P	P	P	P	P	P	P	P
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	421	422	423	424	425	426	427	428	429	430
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	12.1	8.4	11.0"	12.5	28.5	28.3	8.5	8.3	18.0	10.5"
E	NO. OF TRUNKS	1	1	1	1	3	4	1	1	2	1
A	ROOT PROTECTION ZONE	12'	9.0'	11	12'	28'	28'	8'	8'	18'	10'
L	HEIGHT	35'	40'	40	40	45	40'	18'	20'	35	30'
T	AESTHETIC QUALITY	P	P	P	P	P	P	P	P	P	P
H	VIGOR	P	P	P	P	P	P	P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK				✓		✓	✓	✓	✓	
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS	✓	✓	✓	✓	✓	✓	✓			
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	WOUNDWOOD DEV	P	P	P	P	P	P	P	P	P	P
	HEALTH RATING	P	P	P	P	P	P	P	P	P	P
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	431	432	433	434	435	436	437	438	439	440
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓			
P	Calif. Fan Palm								✓		✓
E	Calif Sycamore									✓	
C											
I											
E											
S											
H	D.B.H	10.9	24"	8.6	15.8	19.4	17.8	15.9	16.4	15.2	16.0
E	NO. OF TRUNKS	1	3	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	11.0'	24'	10'	16'	20'	18'	16'	8'		8'
L	HEIGHT	40'	35	30	45	45	45'	45'	80		85
T	AESTHETIC QUALITY	P	P	G	G	G	P	P	G		G
H	VIGOR	P	P	G	G	G	P	P	G		G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓								
	PESTS										
	CAVITIES		✓								
	STRUCTUAL DEFECTS		✓	✓			✓				
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓		✓
	WOUNDWOOD DEV	P	P	G	G	G	P	P	G		G
	HEALTH RATING	P	P	G	G	G	P	P	G		G
	HAZARD RATING	3	3	3	3	3	3	3	3	Dead	3

TREE EVALUATION FORM

	Tree Number	441	442	443	444	445	446	447	448	449	450
S	Coast Live Oak							✓	✓	✓	✓ 450
P	Calif Fan Palm		✓	✓	✓	✓					
E	Beefwood	✓									
C	California Sycamore						✓				
I											
E											
S											
H	D.B.H	23.9	12.0"	16"	14.0	10.0	10.3	11.0"	10.5	11.1	23.5
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE		8	8	8	8'		11'	12'	11'	25'
L	HEIGHT		85	85	85	85'		30	20	35'	35
T	AESTHETIC QUALITY		P	D	P	P		P	P	P	D
H	VIGOR		P	P	P	P		P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK							✓	✓	✓	✓
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS									✓	✓
	FIRE DAMAGE		✓	✓	✓	✓		✓	✓	✓	✓
	WOUNDWOOD DEV		P	P	P	P		P	P	P	P
	HEALTH RATING		P	P	P	P		P	P	P	P
	HAZARD RATING	Dead	3	3	3	3	Dead	3	3	3	3

TREE EVALUATION FORM

	Tree Number	451	452	453	454	455	456	457	458	459	460
S	Coast Live Oak	✓	✓	✓	✓	✓	✓				✓
P	Mexican Fan Palm								✓		
E	California Sycamore							✓			
C	English Walnut									✓	
I											
E											
S											
H	D.B.H	46.5	17.6	18.3	19.5	9.8	17.5	8.0	158	42.2"	23"
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	3	1
A	ROOT PROTECTION ZONE	47'	18'	18'	20'	10'	18'		8'	20'	-
L	HEIGHT	50'	20'	35'	40'	40	40		80'	25'	-
T	AESTHETIC QUALITY	G	P	P	G	P	P		P	P	G
H	VIGOR	G	P	P	G	P	P		P	P	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓	✓		✓	✓			✓	
	PESTS										
	CAVITIES									✓	
	STRUCTUAL DEFECTS			✓			✓			✓	
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓		✓	✓	✓
	WOUNDWOOD DEV	G	P	P	G	P	P		G	P	G
	HEALTH RATING	G	P	P	G	P	P		G	P	G
	HAZARD RATING	3	3	3	3	3	P	Dead	3	3	3

TREE EVALUATION FORM

	Tree Number	461	462	463	464	465	466	467	468	469	470
S	Coast Live Oak			✓		✓	✓	✓	✓	✓	✓
P	Canary Island date Palm	✓	✓								
E	English walnut										
C	Elderberry				✓						
I											
E											
S											
H	D.B.H	28,2	26	22,3	18.0	22.5	18,2	24,6	29,3	24,7	31,8
E	NO. OF TRUNKS	1	1	1	1	2	2	2	1	3	1
A	ROOT PROTECTION ZONE	8'	8'	22'	18'	20'	18'	25'	30'	25'	31'
L	HEIGHT	20	10'	35	15'	35	30'	35'	40	30	35'
T	AESTHETIC QUALITY	G	G	P	P	P	P	P	P	P	G
H	VIGOR	G	G	P	P	P	P	P	P	P	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK			✓	✓	✓	✓	✓	✓	✓	
	PESTS										
	CAVITIES			✓	✓						
	STRUCTUAL DEFECTS			✓	✓	✓	✓		✓	✓	
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	WOUNDWOOD DEV	G	G	P	P	P	P	P	P	P	G
	HEALTH RATING	G	G	P	P	P	P	P	P	P	G
	HAZARD RATING	2	3	3	3	3	3	3	2	3	3

TREE EVALUATION FORM

	Tree Number	471	472	473	474	475	476	477	478	479	480
S	Coast Live Oak					✓	✓	✓	✓	✓	✓
P	California Sycamore	✓									
E	English Walnut		✓	✓							
C	Calif Black Walnut				✓						
I											
E											
S											
H	D.B.H	13.6	36"	18"	9.4	15.4	19.5	16.0	13.6	13.0	40.0
E	NO. OF TRUNKS	1			1	1	1	1	1	1	6
A	ROOT PROTECTION ZONE	14'				15'	20	16'	14	13	20'
L	HEIGHT	15			15	40	40	35	15	25'	30'
T	AESTHETIC QUALITY	P			P	G	G	P	P	G	G
H	VIGOR	P			P	G	G	P	P	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓			✓			✓			
	PESTS										
	CAVITIES	✓									
	STRUCTUAL DEFECTS	✓			✓			✓			
	FIRE DAMAGE	✓			✓		✓	✓	✓	✓	✓
	WOUNDWOOD DEV	G			P	G	G	P	P	G	G
	HEALTH RATING	G			P	G	G	P	P	G	G
	HAZARD RATING	3	Dead	Dead	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	481	482	483	484	485	486	487	488	489	490
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	7.0	10.4	19.9^	8.6	41.7	17.7	16.8	9.6	26.9	12.(
E	NO. OF TRUNKS	1	1	2	1	4	1	2	1	2	1
A	ROOT PROTECTION ZONE	7'	11'	20'	9.0'	40'	18'	17.0	10'	27'	12.0'
L	HEIGHT	25	30	40'	30'	35'	35	40	35	40	25'
T	AESTHETIC QUALITY	G	G	G	P	P	P	G	P	P	P
H	VIGOR	G	G	G	P	P	P	G	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK					✓	✓		✓	✓	✓
	PESTS										
	CAVITIES					✓	✓				
	STRUCTUAL DEFECTS					✓	✓		✓	✓	✓
	FIRE DAMAGE					✓	✓		✓	✓	✓
	WOUNDWOOD DEV	G	G	G	G	P	P	G	P	P	P
	HEALTH RATING	G	G	G	G	P	P	G	P	P	P
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	491	492	493	494	495	496	497	498	499	500
S	Coast Live Oak	✓		✓	✓			✓	✓	✓	
P	Olive		✓								✓
E	Elderberry					✓					
C	Canary Island Pine						✓				
I											
E											
S											
H	D.B.H	12.5	16"	9.8	10.0	10.8	24.2	12.4	10.4	10.6	23"
E	NO. OF TRUNKS	1	4		1	1	1	1	1	1	2
A	ROOT PROTECTION ZONE	13'	16'		10'	10'		12'	11'	10'	23'
L	HEIGHT	25'	18'		25'	15		30'	30	25	15'
T	AESTHETIC QUALITY	P	G		G	P		P	P	P	P
H	VIGOR	P	G		G	P		P	P	P	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓			✓		✓	✓	✓	✓
	PESTS										
	CAVITIES	✓									
	STRUCTUAL DEFECTS	✓				✓		✓	✓	✓	
	FIRE DAMAGE	✓	✓		✓	✓		✓	✓	✓	✓
	WOUNDWOOD DEV	P	G		G	P		P	P	P	G
	HEALTH RATING	P	G		G	P		P	P	P	G
	HAZARD RATING	3	3	Dead	3	3	Dead	3	3	3	3

TREE EVALUATION FORM

	Tree Number	501	502	503	504	505	506	507	508	509	510
S	Coast Live Oak		✓			✓	✓			✓	✓
P	Olive	✓		✓				✓			
E	Calif Black Walnut				✓						
C	Canary Island Pine								✓		
I											
E											
S											
H	D.B.H	10.7	12.4	30"	12.4	24"	15.1	11.7	28.4	10"	20.4
E	NO. OF TRUNKS	1	1	5	2	2	1	2	1	1	1
A	ROOT PROTECTION ZONE	10'	13'	20'	12'	24'	15'	10'	30'		20'
L	HEIGHT	15'	30'	15'	12'	25'	30	15'	95'		35'
T	AESTHETIC QUALITY	P	P	P	P	P	P	P	G		G
H	VIGOR	P	P	G	P	P	P	P	G		G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓			✓	✓	✓			
	PESTS										
	CAVITIES	✓			✓	✓					
	STRUCTUAL DEFECTS	✓	✓	✓	✓	✓	✓	✓			
	FIRE DAMAGE	✓	✓		✓	✓	✓	✓	✓		✓
	WOUNDWOOD DEV	P	P	P	P	P	P	P	G		G
	HEALTH RATING	P	P	P	3	P	P	P	G		G
	HAZARD RATING	3	3	3	3	3	3	3	3	Dead	3

TREE EVALUATION FORM

	Tree Number	511	512	513	514	515	516	517	518	519	520
S	Coast Live Oak		✓	✓	✓	✓					
P	Canary Island Date Palm						✓	✓	✓	✓	✓
E	Olive	✓									
C											
I											
E											
S											
H	D.B.H	24"	20.10"	20.0	19.3	18.9	24.2"	27.3	27	27	27
E	NO. OF TRUNKS	2	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	20'	20'	20'	20'	19'	8'	8'	8'	8'	8'
L	HEIGHT	12'	25'	30'	18'	18'	25'				
T	AESTHETIC QUALITY	P	P	P	P	P	P	P	P	P	P
H	VIGOR	G	P	P	G	G	G	G	G	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓	✓							
	PESTS										
	CAVITIES		✓								
	STRUCTUAL DEFECTS	✓	✓	✓							
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	WOUNDWOOD DEV	G	P	P	G	G	G	G	G	G	G
	HEALTH RATING	G	P	P	G	G	G	G	G	G	G
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	521	522	523	524	525	526	527	528	529	530
S	Calif Sycamore		✓								
P	Coast Live Oak				✓	✓	✓		✓		✓
E	Canary Island Date Palm	✓		✓							
C	Eucalyptus Spp							✓			
I	Calif Black Walnut									✓	
E											
S											
H	D.B.H	22"	14.0	24"	10.5	18.0	46.5	16.8	13.5	12.0	9.9
E	NO. OF TRUNKS	1	1	1	1	1	4	1	1	1	1
A	ROOT PROTECTION ZONE	14'	14.0	24'	10'	18.0	45'	16	14.0	12'	10'
L	HEIGHT	40'	20	20'	10'	12'	45'	25'	20		15'
T	AESTHETIC QUALITY	P	P	P	P	P	P	P	P		P
H	VIGOR	G	G	G	P	G	G	P	P		P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK				✓		✓	✓	✓		✓
	PESTS										
	CAVITIES								✓		
	STRUCTUAL DEFECTS								✓		✓
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓		✓
	WOUNDWOOD DEV	G	G	G	P	G	G	P	P		P
	HEALTH RATING	G	G	G	P	G	G	P	P		P
	HAZARD RATING	3	3	3	3	3	3	3	3	Dead	3

TREE EVALUATION FORM

	Tree Number	531	532	533	534	535	536	537	538	539	540
S	Coast Live Oak		✓	✓	✓	✓	✓	✓	✓		
P	Canary Island Date Palm	✓									
E	Mexican Fan Palm									✓	✓
C											
I											
E											
S											
H	D.B.H	24"	10,9	10,5	61,5	8;1	25.8	28.9	8:7	10,7	13,7
E	NO. OF TRUNKS	1	1	1	4	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	8'	11'		30'	8'	25'	20'	9'	8'	8
L	HEIGHT	30'	15'		40'	15'	30'	40'	40'	25'	80'
T	AESTHETIC QUALITY	P	P		P	P	P	G	G	P	P
H	VIGOR	G	P		P	P	P	G	G	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓		✓	✓	✓				
	PESTS										
	CAVITIES				✓						
	STRUCTUAL DEFECTS		✓		✓						
	FIRE DAMAGE	✓	✓		✓	✓	✓	✓	✓	✓	✓
	WOUNDWOOD DEV	G	P		P	P	P	G	G	P	P
	HEALTH RATING	G	P		P	P	P	G	G	P	P
	HAZARD RATING	3	3	Dead	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	541	542	543	544	545	546	547	548	549	550
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	25.2	16.8	16.4	45.6	25.6	18.5	36.8	14.5	39.4	23.6
E	NO. OF TRUNKS	3	1	1	5	2	1	2	2	2	2
A	ROOT PROTECTION ZONE	25'	17'	16'	45'	25'	18'	36'	15'	40'	24'
L	HEIGHT	30'	35'	30	40"	20'	35'	35'	25'	40	35
T	AESTHETIC QUALITY	P	G	P	P	P	P	F	G	P	P
H	VIGOR	P	L	P	P	P	P	G	G	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓	✓	✓	✓	✓	✓		✓	✓
	PESTS										
	CAVITIES				✓		✓				
	STRUCTUAL DEFECTS			✓	✓	✓	✓			✓	✓
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	WOUNDWOOD DEV	P	P	P	P	P	P	G	G	P	P
	HEALTH RATING	P	P	P	P	P	P	G	G	P	P
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	551	552	553	554	555	556	557	558	559	560
S	Coast Live Oak	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
P											
E											
C											
I											
E											
S											
H	D.B.H	9.0"	14.5	14.0	19.2	9.9	18.3	9.1	34.5	10"	14.5
E	NO. OF TRUNKS	1	1	1	1	1	1	1	2	1	1
A	ROOT PROTECTION ZONE	9'	14.5	14	20'		18'	9'	35'		
L	HEIGHT	25'	20	40'	45		35	30	40		20'
T	AESTHETIC QUALITY	P	P	P	G		P	G	P		P
H	VIGOR	P	P	P	G		P	G	P		P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓	✓	✓		✓		✓		✓
	PESTS										
	CAVITIES	✓									
	STRUCTUAL DEFECTS	✓	✓	✓			✓		✓		✓
	FIRE DAMAGE	✓	✓	✓	✓		✓	✓	✓		✓
	WOUNDWOOD DEV	P	P	P	P		P	G	P		P
	HEALTH RATING	P	P	P	P		P	G	P		P
	HAZARD RATING	3	3	3	3	Dead	3	3	3	Dead	3

TREE EVALUATION FORM

	Tree Number	561	562	563	564	565	566	567	568	569	570
S	Coast live Oak	✓	✓					✓	✓	✓	✓
P	Calif Sycamore			✓		✓	✓				
E	Calif Black walnut				✓						
C											
I											
E											
S											
H	D.B.H	16.9	27.2	10.5	7.9	14.6	18.3	22.3	12.8	14.0	8.1
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	1	1
A	ROOT PROTECTION ZONE	17'	27'	10'	8	15'	18'	22.	13	14'	8'
L	HEIGHT	35'	50	15'	10'	30'	45'	35	30'	30	10'
T	AESTHETIC QUALITY	P	P	P	P	P	G	P	P	P	P
H	VIGOR	P	G	G	P	G	G	G	G	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓			✓	✓	✓		✓	✓	
	PESTS										
	CAVITIES						✓				
	STRUCTUAL DEFECTS	✓			✓	✓	✓			✓	✓
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	WOUNDWOOD DEV	P	G	G	P	G	G	G	P	P	P
	HEALTH RATING	P	G	G	P	G	G	G	P	P	P
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	571	572	573	574	575	576	577	578	579	580
S	Coast Live Oak	✓		✓	✓	✓		✓	✓	✓	✓
P	English Walnut		✓								
E	Calif Sycamore						✓				
C											
I											
E											
S											
H	D.B.H	8.0	11.0	31.2	27.8	22.7	13"	9.1	8.5	17.8	28"
E	NO. OF TRUNKS	1	1	1	1	1	1	1	1	2	3
A	ROOT PROTECTION ZONE	8'	11	31'	27'	23'	5'	9'	9'	18'	28'
L	HEIGHT	8'	15'	40	40	40	10'	30	30	25	30
T	AESTHETIC QUALITY	P	P	P	P	G	G	G	G		
H	VIGOR	G	G	P	P	G	G	G	G		
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK		✓	✓	✓	✓				✓	✓
	PESTS										
	CAVITIES				✓		✓				
	STRUCTUAL DEFECTS		✓		✓		✓				
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓		
	WOUNDWOOD DEV	P	P	P	P	G	G	G	G		
	HEALTH RATING	P	P	P	P	G	G	G	G		
	HAZARD RATING	3	3	3	3	3	3	3	3		

TREE EVALUATION FORM

	Tree Number	581	582	583	584	585	586	587	588	589	590
S	Coast Live Oak	✓		✓	✓	✓		✓	✓	✓	
P	Calif Sycamore		✓								
E	Calif Black Walnut						✓				✓
C											
I											
E											
S											
H	D.B.H	12.2	14.0	13.4	11.5	23.6	11.4	22.6	45	12.8	15"
E	NO. OF TRUNKS	1	1	1	1	1	2	1	2	1	2
A	ROOT PROTECTION ZONE	12	14'	13'	12'	24'	12'	23'	45'	13'	15'
L	HEIGHT	20'	25'	30	50	45	10'	45'	40'	15'	15'
T	AESTHETIC QUALITY	F	P	P	G	P	P	P	P	P	G
H	VIGOR	P	P	P	G	F	P	P	P	G	G
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	PESTS										
	CAVITIES		✓	✓						✓	✓
	STRUCTUAL DEFECTS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	FIRE DAMAGE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	WOUNDWOOD DEV	P	P	P	G	P	P	P	P	G	G
	HEALTH RATING	P	P	P	G	P	P	P	P	G	G
	HAZARD RATING	3	3	3	3	3	3	3	3	3	3

TREE EVALUATION FORM

	Tree Number	591	592	593	594	595	596	597	598	599	600
S	Coast Live Oak	✓	✓			✓	✓		✓		
P	Calif Sycamore				✓						
E	Cal Black Walnut			✓							
C	Olive							✓		✓	✓
I											
E											
S											
H	D.B.H	12.0"	17.5	8.2	19.2	36.8	46.2	9.5	36.9	17	12.6
E	NO. OF TRUNKS	1	1	1	1	4	Dead	1	2	2	2
A	ROOT PROTECTION ZONE	12'	18'	8'	20'	37'		10'	36'	17'	12'
L	HEIGHT	25	30	20'	50'	45'		12'	40	12'	8'
T	AESTHETIC QUALITY	G	P	G	P	P		P	P	P	P
H	VIGOR	G	P	G	P	P		P	P	P	P
	FRUITING BODIES										
	ARMILLARIA										
	BRANCH DIEBACK	✓	✓	✓	✓	✓		✓	✓	✓	✓
	PESTS										
	CAVITIES										
	STRUCTUAL DEFECTS				✓	✓		✓	✓	✓	✓
	FIRE DAMAGE	✓	✓	✓	✓	✓		✓	✓	✓	✓
	WOUNDWOOD DEV	G	P	G	P	P		P	P	P	P
	HEALTH RATING	G	P	G	P	P		P	P	P	P
	HAZARD RATING	3	3	3	3	3	Dead	3	3	3	3

Tree #	Description
	PHASE 2
271	Heavy fire damage on lower bark, dead and broken branches on ground from canopy. 6" DBH
272	Bleached bark and dead branches in canopy
273	Heavy fire damage on bark, recovering slowly
274	Fire damage
275	Severe fire damage, leaning on tree #276. If tree #276 is removed Tree #275 will fail.
276	Close to the road, Root damage could occur during road construction
277	Close to the road, root damage could occur during road construction. Structural defect is being compartmentlized.
278	Very poor specimin due to extended drought
279	Lean to south with no fire damage
280	Small tree with no damage
281	Signs of Phytopthora on trunk
282	Fire damage due to proximity to road
283	Moderate fire damage
284	Fire damage with bark peeling
285	Very thin canopy, extreme fire damage to trunk
286	No fire damage even though its close to the road or Fire damage on south side on trunk. Good recovery
287	Fire damage on trunk
288	Fire damage on trunk
289	Fire damage on trunk

290	Fire damage oin upper canopy, very slow recovery
291	Minor fire damage
292	Extensive fire damage, 95% dead from fire and drought
293	Fire damage
294	Extensive die-back from fire and drought conditions
295	Extensive fire damage, 99% and will die soon
296	Fire damaged with poor recovery
297	Fire damaged with poor recovery
298	No fire damage
299	Tree is in good condition
300	Fire damaged on north side
301	Tree has uprooted and fallen to the south. Starting to regrow
302	Tree has uprooted and fallen to the south. Starting to regrow
303	Extensive fire damage, major twelve inch limb broke off at six feet high. Tree will fail at wound from branch loss
304	Extensive fire damage
305	Extensive fire damage with major branch failure (14" DBH)
306	This tree was dead prior to the fire. The fire hallowed out the inside of the tree.
307	Heavy lean to the East and in poor health
308	Lean to the East
309	Fire damage in upper canopy with a heavy lean to the North
310	Fire damage in upper canopy

	Description
311	This tree is dead
312	Top of tree is broken out due to fire damage, it is re-sprouting from the trunk
313	This tre is in good health
314	Fire damaged with 3/4 of the trunk dead and bark removal. Die-back in canopy with major structural defects
315	This tree has been dead for the last 10 plus years
316	Heavy fire damage, tree is declining with grade raised by debris buildup in basin
317	This tree is dead by Eucalpytus ong Horn Beetle after fire and drought conditions
318	Fire damaged
319	Fire damaged with deadwood throughout the canopy
320	Fire and drought damaged
321	Minor fire damage
322	Very large tree on the edge of grading line. This tree should be preserved, deadwood in the canopy is natural. This presence of deadwood indicates that the fire did not enty the canopy of this tree
323	No defect, tree is on the side of the hill
324	Branches from other trees are laying on the canopy
325	No defect, Oak tree
326	No defect, Oak tree
327	Lower branches were removed by Cal-Fire
328	Poison Oak throughout the canopy
329	Tree leans to the North
330	Tree leans to the South

	Description
331	Oak tree leans tot the South
332	Black Walnut has two trunks (16.5 & 10.3 DBH) with dead branches
333	Trunk fell across stream bed with one branch growing vertical from base
334	Black Walnut has 2 trunks (13.8 & 9.7 DBH), this is a very old tree
335	Oak tree is hanging over the stream bed
336	This tree has a heavy lean to the south
337	Heavy lean to the south, trunk is broken at forty feet
338	Heavy fire damage, large deadwood amount in canopy
339	Heavy fire damage at base, cavities will develop in the trunk
340	Black Walnut with three trunks (6, 8.6, 4.5 DBH)
341	Oak Tree with 6.3.4.2 = 105 DBH
342	Oak tree with no Fire damage
343	Heavy fire damage in upper canopy with branch failure
344	No defect, very good condition
345	Very heavy fire damage to upper canopy with lost branches
346	Dead eucalyptus due to drought and Eucalyptus Long Horn Beetle infestation
347	Oak tree (young) suffering from drought
348	Massive deadwood in lower canopy
349	Catastrophic failure at the main trunk at eight feet. The entire tree failed and left a stump eight feet tall
350	Oak has heavy damage to the upper canopy (17 DBH)
351	Catastrophic failure from the Oak up hill that failed and destroyed this tree

	Description
352	Deadwood in upper canopy
353	Fire damage in upper canopy and deadwood
354	Extreme fire damage
355	Heavy fire damage to lower trunk. Canopy is recovering
356	Very thin canopy
357	Very thin canopy
358	Failure of twelev inch diameter branch at five feet high from fire damage
359	Fire damage at base from previous injury, fire damaged branches throughout canopy
360	Fire damaged at base with very thin upper canopy
361	Canopy is feeling the effects of drought conditions
362	No fire issues
363	Walnut has multi-trunks. Main trunks are dea with only basal sprouts are alive
364	Westerly trunk in the process of failing at six feet
365	Very thin canopy
366	Very thin canopy
367	Tall with very thin canopy
368	80% dead with lower branches that have live foliage
369	Tree broke in half at five feet with catastrophic failure due to fire damage
370	Odd branch and trunk structure
371	Multi-trunk Oak (17.9 DBH)
372	No fire damage

	Description
373	Dead Walnut
374	Healthy tree with no signs of fire damage although it does have a thin canopy
375	Tree is next to old road with no visible signs of damage
376	Small tree with no visible signs of damage
377	Black Walnut mulit-trunk (16.3 DHB) fire has destroyed this tree
378	Average Oak under drought stress
379	Average Oak under drought stress
380	Average Oak under drought stress
381	Black Walnut (17.7 DBH) with heavy drought damage
382	Black Walnut (12.8 DBH) with heavy drought damage
383	Tall skinny Oak, part of the upper canopy is entwined in other trees
384	Oak woodland, this tree is a member of a band of trees along the base of the hill
385	Oak woodland, this tree is a member of a band of trees along the base of the hill
386	Oak woodland, this tree is a member of a band of trees along the base of the hill
387	Oak woodland, this tree is a member of a band of trees along the base of the hill
388	Oak woodland, this tree is a member of a band of trees along the base of the hill
389	Good health
390	This tree has only a four foot stump with some twenty-four inch sprouts
391	Fire damage with bark peeling
392	Fire damage with bark peeling
393	Severe fire damage

	Description
394	Tree has suffered catastrophic failure at two feet high due to fire damage which caused the entire tree to break off
395	Although this tree survived the fire it has a thin canopy
396	Very thin canopy
397	Very thin canopy
398	This tree is laying on Tree #282 and is very thin
399	Multi trunk (17.8 DBH)
400	Extreme fire damage to lower trunk, catastrophic failure of te main trunk will occur in the near future
401	Extreme fire damage to lower trunk, expectation of failure is high
402	Extreme fire damage to lower trunk, expectation of failure is high
403	Carob is multi-trunked with four trunks (37.8 DBH)
404	Dead Pine laying on Tree #405
405	Tree # 404 Dead Pine is leaning on this tree
406	Fire damage on trunk
407	Fire damage on trunk
408	Fire damage on trunk
409	Fire damage on trunk
410	Extreme fire damage, Tree # 404 has fallen and pinned the tree against Tree # 405
411	Canopy is very high
412	Multi-trunked and thin canopy
413	Oak woodland, this tree is a member of a band of trees along the base of the hill
414	Oak woodland, this tree is a member of a band of trees along the base of the hill

	Description
415	Oak woodland, this tree is a member of a band of trees along the base of the hill
416	Heavy fire damage to the lower trunk, and Poison Ivy is noticeable
417	Very thin canopy
418	Extensive exocormic shoots due to fire damage
419	Oak tree, 20.5" DBH
420	Extreme fire damage, potential point of failure
421	This tree is on the fire edge but was protected by Poison Oak
422	Part of an Oak woodland
423	Part of an Oak woodland
424	Part of an Oak woodland, This tree has fire damage at the base and future cavity
425	Multi-trunk (2) with a 28.5" DBH at the base of the tree
426	Extreme fire damage, multi-trunk tree (4) measured at ground level
427	Heavy lean to the east, top of tree is dead with sprouts on branches
428	Fire and drought damage
429	Heavy fire damage to 2 trunks
430	Thin tree with canopy in upper branches of another tree
431	Heavy lean to the south with Poison Oak in the tree
432	Heavy branch die-back, this tree is in decline
433	Fire damage at base with a heavy lean to the southeast
434	Tree looks good despite the fire and drought damage
435	Tree looks good despite the fire and drought damage

	Description
436	This tree has signs of structural damage to the base
437	Heavy lean to the south with fire damage at the base and structural damage
438	The trunk is completely black due to the fire
439	This tree has a dead main trunk with some basal sprouts
440	The trunk is black
441	This tree is dead
442	The trunk is black
443	The trunk is black
444	The trunk is black
445	The trunk is black
446	Main trunk is dead due to fire there is up to 5 small two to three inch suckers forming from the roots
447	This Oak sustained heavy fire damage, almost all foliage is epicormic shoots
448	This Oak sustained heavy fire damage, almost all foliage is epicormic shoots
449	Extreme fire damage. All lower branches are dead and the upper canopy is in decline
450	Lots of new growth despite fire damage
451	Lots of new growth despite fire damage
452	Very heavy lean on Tree #453
453	95% dead, tree is in obivious decline and will not survive through the end of the year
454	Tree is recovering from fire damage
455	thin, tall tree with no foliage on lower twenty feet
456	Extreme fire damage

457	Main trunk is dead, only one to two inch basal sprouts remain
458	The trunk is black
459	English Walnut has heavy fire damage on lower trunks with large dead branches in canopy
460	Minor fire damage
461	Palm tree lower trunk is blackend
462	Palm tree lower trunk is blackend and this one is lying in the ravine
463	Extreme fire damage and major branches have all died back
464	The tree's main trunk is dead, there are only three inch live basal sprouts
465	Bark loss due to fire on smaller trunk
466	Extreme fire damage and branch die-back
467	Bark peeling from fire
468	Bark peeling from fire along with heavy deadwood throughout the canopy
469	Heavy fire damage, deadwood throughout canopy
470	Large Oak on upper edge of woodland
471	Sycamore with main trunk leaning uphill next to ground
472	Three main trunks that are dead and broken off
473	Main trunk is dead and broken at six feet high with three 3 inch sprouts growing up around the base
474	This tree is about 90% dead with new shoots starting up
475	Tree leans to the south with good foliage in the canopy
476	Upper canopy was not affected by the fire
477	This tree has extreme fire damage to the base of tree

	Description
478	Fire damage to the base of the tree
479	Minor fire damage despite being two feet from Tree #478
480	Minor fire damage to this multi-trunked tree (6 trunks)
481	Small tree with no visible signs of damage
482	Dead lower branches
483	Fire damage on south side of the trunk
484	Tree #485 has a broken trunk leaning on the canopy
485	Severe fire damage to the lower trunk. One 12"diameter trunk of four main trunks failed and is laying on itself and Tree #484
486	Fire damage with bark peeling
487	Minor fire damage on deadwood in upper canopy
488	Very heavy fire damage, it is 85% dead
489	Very heavy fire damage in upper canopy on the south side of tree
490	Very heavy fire damage, very thin canopy and failing branches
491	Very thin canopy
492	Fire damage, burned and re-sprouting from base of tree
493	This tree is dead and decaying, considered hazardous
494	Minor fire damage in upper north side of the canopy
495	Main trunk is dead with heavy sprouting from the base
496	Dead due to Fire and drought conditions
497	Heavy fire damage to upper canopy
498	Heavy fire damage to upper canopy

	Description
499	Heavy fire damage to upper canopy
500	Olive with beehive in a cluster of basal sprouts. Use extreme caution on the north side of the tree. Measurement is an approximite due to bees
501	Olive tree has suffered catastrophic failure of othe trunks with some roots being uplited
502	Major fire damage to lower trunk and scafolds
503	Main trunk killed by fire, only basal sprouts remaining
504	Extreme fire damage to lower trunks with decay started in the trunks. Failure of upper branches on northern main trunk
505	Fire damaged
506	Heavy fire damage to lower trunk and upper canopy
507	Two main trunk killed by fire, only basal sprouts remaining
508	Blackened trunk
509	Dead with a few small suckers
510	Tree looks good despite the fire
511	Two main trunk killed by fire, only basal sprouts remaining
512	Canopy has been completely killed by the fire
513	Fire damage to the entire tree
514	Tree was topped at four feet by Cal Fire for a fire break, sprouts at top of stump
515	Tree was topped at six feet by Cal Fire for a fire break, sprouts at top of stump
516	Canary Island Date Palm, blackened by fire but the health of the palm is good
517	Canary Island Date Palm, blackened by fire but the health of the palm is good
518	Canary Island Date Palm, blackened by fire but the health of the palm is good
519	Canary Island Date Palm, blackened by fire but the health of the palm is good

	Description
520	Canary Island Date Palm, blackened by fire but the health of the palm is good
521	Canary Island Date Palm, blackened by fire but the health of the palm is good
522	Tree cut off by Cal Fire and has new growth
523	Palm
524	Tree cut off for fire break by Cal Fire
525	Tree cut off for fire break by Cal Fire
526	Older multi-trunked tall Oak with fire damage to upper canopy, it lost a branch due to fire with a cavity within the trunk
527	Tree was killed by the fire and has basal sprouts
528	Extreme fire damage, expectation of a total failure soon
529	The trunk is dead with very small basal sprouts
530	Total canopy was destroyed by fire, epicormic sprouts are only foliage
531	Palm with blackend trunk
532	Top of tree trunk is broken off due to fire damage
533	Dead Oak
534	Old declining tree wit fire damage t all four trunks. Branch dieback throughout the canopy and the trunk to the west is extremely damaged
535	Small Oak, this tree is recovering
536	Heavy fire damage to the base of the tree
537	Fire damage is only at the base of the tree
538	Tall thin tree
539	Blackened trunk
540	Blackened trunk

	Description
541	Tree is growing where Gunnite is covering the entire rootzone on the side of the debris basin
542	Tree is now exposed on north side due to a dead Oak falling that was covering it
543	Heavy fire damage
544	Large multi-trunk tree with heavy fire damage at the base and large dead branches throughout the canopy
545	Broke main branch
546	95% dead
547	Bark peeling off and has a heavy lean to the east
548	Minor fire damage
549	Sixteen inch diameter branch broken off
550	Growing on the edge of the Oak woodland
551	Severe fire damage to the base of the tree
552	Severe fire damage to the base of the tree and the underside of the leaning trunk all the way to the end of the tree
553	Heavy fire damage to trunk
554	Heavy fire damage to trunk
555	Dead, this tree just died recently
556	Deadwood throughout the canopy
557	Fire damage on west side of the tree
558	Fire damage on west side of the tree on;y
559	Fire damage on west side of the tree on;y
560	Moderate fire damage to trunk
561	Heavy branch die-back throughout the canopy

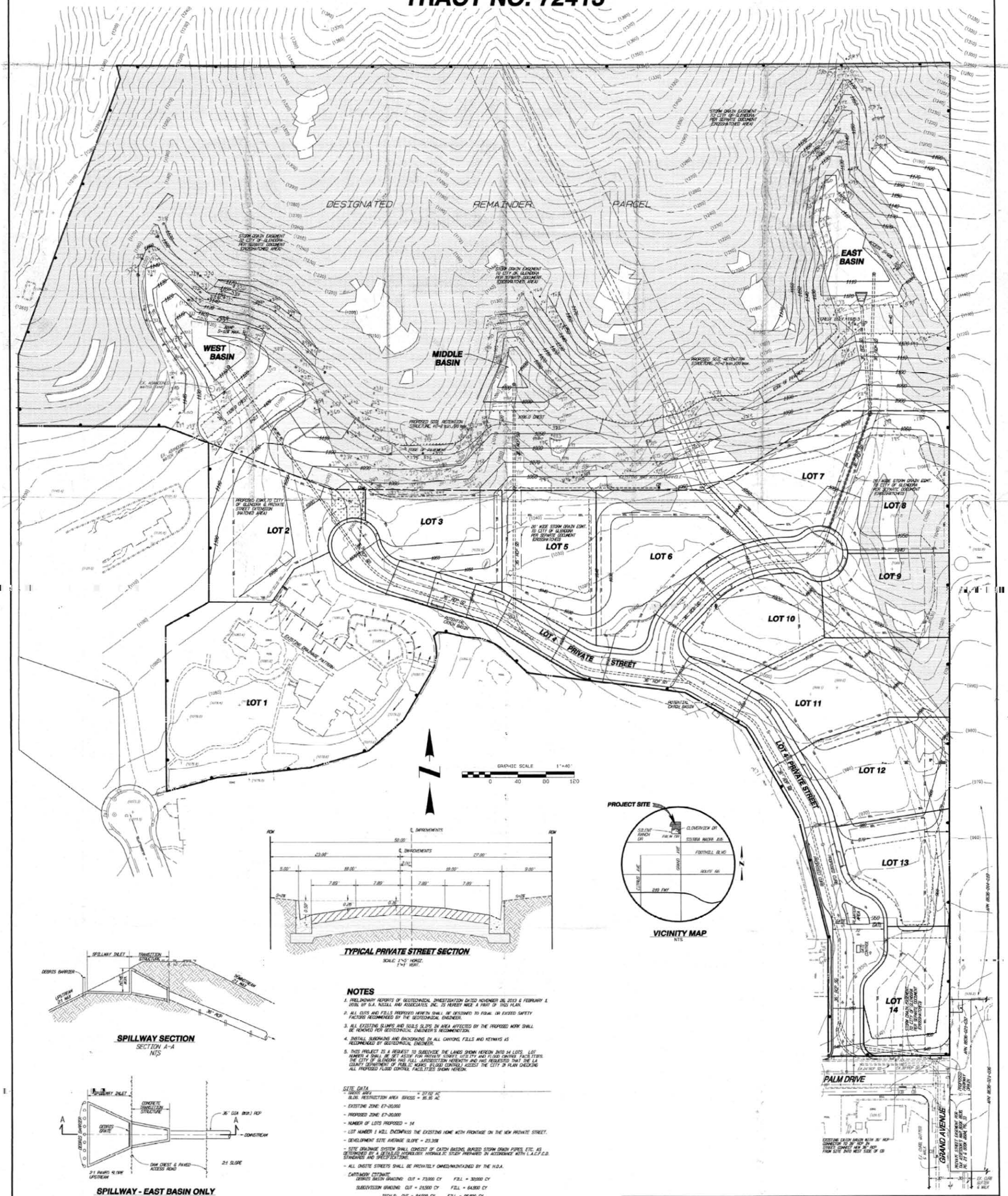
Description

562	Main trunk is dead with heavy sprouting all around the tree
563	Main trunk is dead with heavy sprouting all around the tree
564	Main trunk is dead with heavy sprouting all around the tree
565	Main trunk is dead with heavy sprouting all around the tree
566	Heavy fire damage to base an dcavity starting in the trunk on the south side
567	Canopy is very thin
568	Canopy is leaning
569	Broken upper canopy by failure of Tree # 572
570	Tree was crushed by Tree # 58
571	Large Oak - Poor health but recovering
572	Three major trunks are dea and fell onto other trees. One trunk with sprouts and some basal sprouts are all tha is alive on this tree
573	Large Oak with heavy fire damage to trunk
574	Large Oak with heavy fire damage to trunk
575	Minor fire damage to lower trunk
576	Main thirteen inch trunk is dead, five inch basal shoots are growing
577	Minor fire damage at base
578	Minor fire damage at base
579	Heavy fire damage and Poison Oak
580	Heavy fire damage and Poison Oak
581	Extreme fire damage, top of the tree has failed. Epicormic shoots are the only growth
582	Extreme fire damage to Sycamore and it has uprooted and fallen with some sprouting on the trunk

	Description
583	Extreme fire damage, 90% dead
584	Fire damage at the base of tree
585	Heavy fire damage to the tee, major branch failure in canopy
586	Trunk is dead with basal sprouts
587	Heavy fire damage
588	Two of four trunks are dead and have broken away from the tree
589	Tree is recovering from fire damage
590	Black Walnut trunks are dead with many basal sprouts
591	Oak on the edge of a dropoff - use caution
592	Tree is growing in a debris basin. The grade has been raised by an unknow depth by sand and debris. Tree will eventually die if grade is not returned to normal
593	Main trunk dead with basal sprouts around the base of the tree
594	Fire damage to trunk, one-half of the tree is without bark at the base
595	Growing on the east side of the debris basin with Gunnite
596	This tree is dead
597	Main branch is dead with basal sprouts
598	Very heavy fire damage, branches have broken off
599	Main branch is dead with basal sprouts
600	Main branch is dead with basal sprouts

PRELIMINARY SITE DEVELOPMENT PLAN

TRACT NO. 72413



TYPICAL PRIVATE STREET SECTION

SCALE: 1"=5' HORIZ.
1"=1 VERT.

VICINITY MAP

NTS

SPILLWAY SECTION

SECTION A-A
NTS

SPILLWAY - EAST BASIN ONLY

PLAN VIEW
NTS

NOTES

1. PRELIMINARY REPORTS OF GEOTECHNICAL INVESTIGATION DATED NOVEMBER 26, 2013 & FEBRUARY 3, 2016, BY D.A. NICOLL AND ASSOCIATES, INC. IS HEREBY MADE A PART OF THIS PLAN.
2. ALL CUTS AND FILLS PROPOSED HEREIN SHALL BE DESIGNED TO EQUAL OR EXCEED SAFETY FACTORS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
3. ALL EXISTING SLUMPS AND SOILS SLIPS IN AREA AFFECTED BY THE PROPOSED WORK SHALL BE REMOVED PER GEOTECHNICAL ENGINEER'S RECOMMENDATION.
4. INSTALL SUBDRAINS AND BACKDRAINS IN ALL CANYONS, FILLS AND KEYWAYS AS RECOMMENDED BY GEOTECHNICAL ENGINEER.
5. THIS PROJECT IS A REQUEST TO SUBDIVIDE THE LANDS SHOWN HEREIN INTO 14 LOTS. LOT NUMBER 4 SHALL BE SET ASIDE FOR PRIVATE STREET, UTILITY AND FLOOD CONTROL FACILITIES. THE CITY OF GLENDORA HAS FULL JURISDICTION HEREWITH AND HAS REQUESTED THAT THE LA COUNTY DEPARTMENT OF PUBLIC WORKS (FLOOD CONTROL) ASSIST THE CITY IN PLAN CHECKING ALL PROPOSED FLOOD CONTROL FACILITIES SHOWN HEREIN.

SITE DATA

- GROSS AREA = 27.92 AC
  BLDG. RESTRICTION AREA GROSS = 15.15 AC
- EXISTING ZONE: E7-20,000
- PROPOSED ZONE: E7-20,000
- NUMBER OF LOTS PROPOSED = 14
- LOT NUMBER 1 WILL ENCOMPASS THE EXISTING HOME WITH FRONTAGE ON THE NEW PRIVATE STREET.
- DEVELOPMENT SITE AVERAGE SLOPE = 23.3%
- SITE DRAINAGE SYSTEM SHALL CONSIST OF CATCH BASINS, BURIED STORM DRAIN PIPES, ETC. AS DETERMINED BY A DETAILED HYDROLOGY, HYDRAULIC STUDY PREPARED IN ACCORDANCE WITH L.A.C.F.C.D. STANDARDS AND SPECIFICATIONS.
- ALL ONSITE STREETS SHALL BE PRIVATELY OWNED/MAINTAINED BY THE H.O.A.

EARTHWORK ESTIMATE:
DEBRIS BASIN GRADING: CUT = 73,000 CY FILL = 32,000 CY
SUBDIVISION GRADING: CUT = 21,500 CY FILL = 64,800 CY
TOTALS: CUT = 94,500 CY FILL = 96,800 CY

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CITY OF GLENDORA — ENGINEERING DIVISION

PRELIMINARY SITE DEVELOPMENT PLAN
TRACT NO. 72413

Scale: AS SHOWN
Drawn By: ALB
Sheet 1 Of 1 Sheets

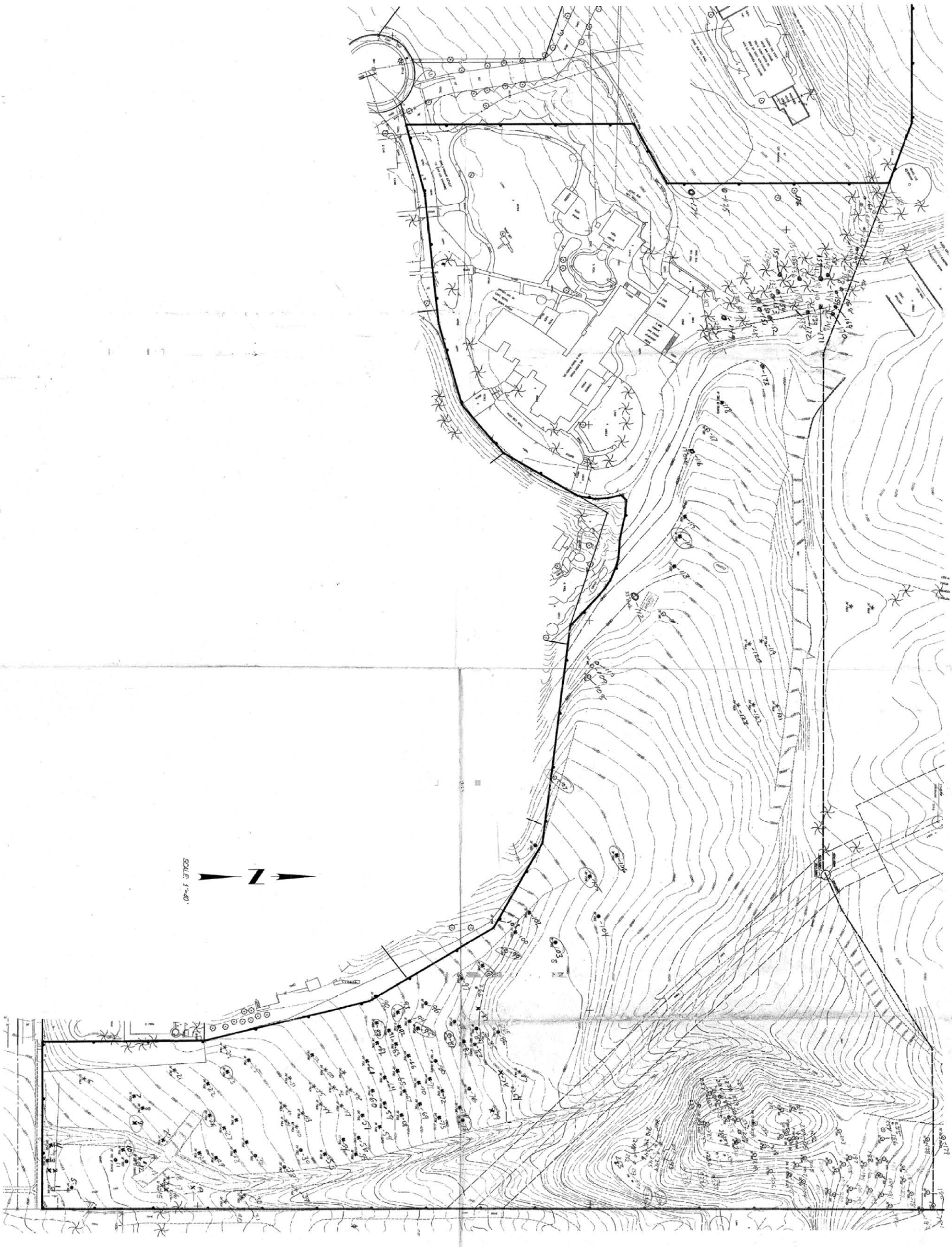
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(909) 287-0668
alan@dreamlandinvestments11c.com

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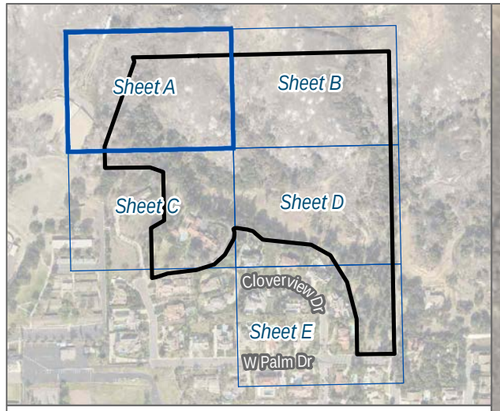
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1850 N. 52nd Street, Suite 210
Phoenix, AZ 85034
ph. (480) 345-2155
btrevino@WESTconsultants.com

GABRIEL T. GIRON No. 27986 REGISTERED PROFESSIONAL ENGINEER STATE OF CALIFORNIA CIVIL

JOB No. 2084 PLOTTED: 6/26/2018



Tree Plan 12.13.13 Bob Bennett Copy



Tree Locations

- California sycamore *(Platanus racemosa)*
- Mexican fan palm *(Washingtonia robusta)*
- Southern California black walnut *(Juglans californica)*
- coast live oak *(Quercus agrifolia)*
- fruitless olive *(Olea europaea)*
- spotted gum *(Corymbia maculata)*
- swamp mahogany *(Eucalyptus robusta)*

Match Line - Sheet B

Match Line - Sheet C

SOURCE: County of Los Angeles 2018; Bing Maps 2018; NHD 2018

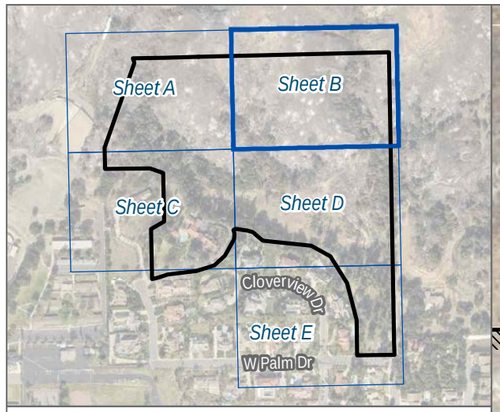
DUDEK

0 30 60 Feet

SHEET A

Tree Locations

Silent Ranch Hillside Subdivision Project



Tree Locations

- California sycamore *(Platanus racemosa)*
- Canary Island date palm *(Phoenix canariensis)*
- Mexican fan palm *(Washingtonia robusta)*
- Southern California black walnut *(Juglans californica)*
- coast live oak *(Quercus agrifolia)*
- fruitless olive *(Olea europaea)*
- jacaranda *(Jacaranda mimosifolia)*

Match Line - Sheet A

Match Line - Sheet D

SOURCE: County of Los Angeles 2018; Bing Maps 2018; NHD 2018

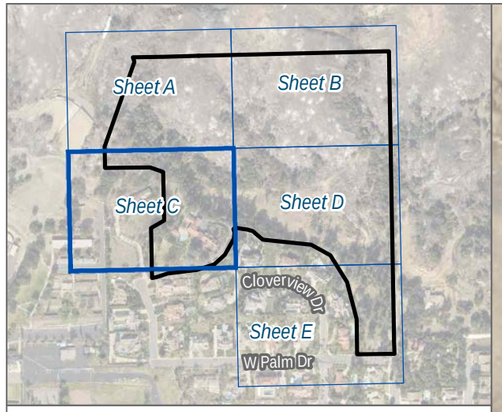
DUDEK

0 30 60 Feet

SHEET B

Tree Locations

Silent Ranch Hillside Subdivision Project



Tree Locations

- Brazilian pepper *(Schinus terebinthifolia)*
- California sycamore *(Platanus racemosa)*
- Canary Island pine *(Pinus canariensis)*
- English walnut *(Juglans regia)*
- Italian stone pine *(Pinus pinea)*
- Mexican fan palm *(Washingtonia robusta)*
- Peruvian pepper *(Schinus molle)*
- Southern California black walnut *(Juglans californica)*
- Victorian box *(Pittosporum undulatum)*
- blue atlas cedar *(Cedrus atlantica 'glauca')*
- citrus tree *(Citrus spp.)*
- coast live oak *(Quercus agrifolia)*
- fruiting plum *(Prunus domestica)*
- fruitless olive *(Olea europaea)*
- spotted gum *(Corymbia maculata)*
- strawberry madrone *(Arbutus unedo)*
- swamp mahogany *(Eucalyptus robusta)*
- toyon *(Heteromeles arbutifolia)*
- weeping fig *(Ficus benjamina)*

SOURCE: County of Los Angeles 2018; Bing Maps 2018; NHD 2018

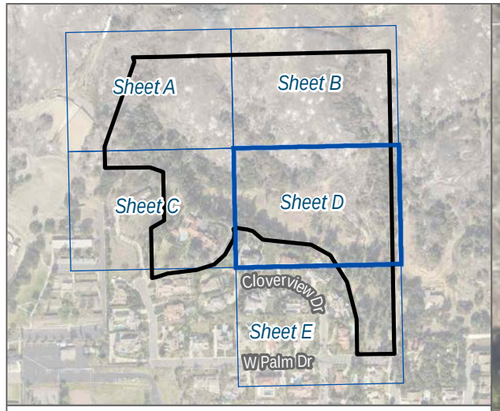
DUDEK

0 30 60 Feet

SHEET C

Tree Locations

Silent Ranch Hillside Subdivision Project



Tree Locations

- Unknown Species
- American elderberry *(Sambucus canadensis)*
- California sycamore *(Platanus racemosa)*
- California sycamore *(Platauna racemosa)*
- Canary Island date palm *(Phoenix canariensis)*
- Canary Island pine *(Pinus canariensis)*
- Douglas-fir *(Pseudotsaya menziesii)*
- English walnut *(Juglans regia)*
- Mexican fan palm *(Washingtonia robusta)*
- Peruvian pepper *(Schinus molle)*
- Southern California black walnut *(Juglans californica)*
- bunya-bunya *(Arucaria bidwillii)*
- carob *(Ceratonia siliqua)*
- carob tree *(Ceratonia siliqua)*
- coast live oak *(Quercus agrifolia)*
- deodar cedar *(Cedrus deodora)*
- fruitless olive *(Olea europaea)*
- jacaranda *(Jacaranda mimosifolia)*
- river she-oak *(Casuarina cunninghamiana)*
- rubber tree *(Ficus elastica)*
- silk oak *(Grevillea robusta)*
- sugar gum *(Eucalyptus cladocalx)*
- swamp mahogany *(Eucalyptus robusta)*
- swamp mahogny *(Eucalyptus robusta)*
- toyon *(Heteromeles arbutifolia)*

SOURCE: County of Los Angeles 2018; Bing Maps 2018; NHD 2018

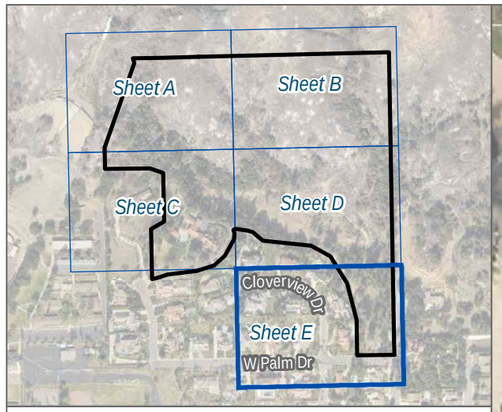
DUDEK

0 30 60 Feet

SHEET D

Tree Locations

Silent Ranch Hillside Subdivision Project



Tree Locations

- California sycamore *(Platanus racemosa)*
- Canary Island date palm *(Phoenix canariensis)*
- Canary Island pine *(Pinus canariensis)*
- Mexican fan palm *(Washingtonia robusta)*
- coast live oak *(Quercus agrifolia)*
- deodar cedar *(Cedrus deodora)*
- fruitless olive *(Olea europaea)*
- jacaranda *(Jacaranda mimosifolia)*
- river she-oak *(Casuarina cunninghamiana)*
- silk oak *(Grevillea robusta)*
- silk oak *(Grevillea robusta)*
- toyon *(Heteromeles arbutifolia)*

SOURCE: County of Los Angeles 2018; Bing Maps 2018; NHD 2018

DUDEK

0 30 60 Feet

SHEET E

Tree Locations

Silent Ranch Hillside Subdivision Project

2020 Grand Estates Tree Information Matrix (ALL TREES)																
Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
1	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	22	25	Fair	Poor	tree is topped, growing under power lines	34.150459	-117.872638
2	*cunninghamiana*	river she-oak	No	7	1	7	0	0	0	0	22	12	Good	Good		34.150423	-117.872667
3	*cunninghamiana*	river she-oak	Yes	29	1	29	0	0	0	0	60	20	Good	Good		34.150417	-117.87273
4	*Pinus canariensis*	Canary Island pine	Yes	26	1	26	0	0	0	0	70	20	Good	Poor		34.150429	-117.872762
5	*Jacaranda mimosifolia*	jacaranda	Yes	20	3	10	5	5	0	0	18	18	Fair	Poor	tree is topped, growing under power lines	34.15048	-117.872633
6	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	90	15	Good	Fair		34.150509	-117.872972
7	*Pinus canariensis*	Canary Island pine	Yes	30	1	30	0	0	0	0	90	30	Good	Fair		34.150649	-117.872937
8	*cunninghamiana*	river she-oak	Yes	19	1	19	0	0	0	0	35	25	Fair	Fair	top of tree is dead	34.150678	-117.87289
9	*Platanus racemosa*	California sycamore	No	0	1	0	0	0	0	0	0	0	Dead	Dead		34.150686	-117.872848
10	*Cedrus deodora*	deodar cedar	No	15	1	15	0	0	0	0	45	20	Dead	Dead		34.150612	-117.87275
11	*Jacaranda mimosifolia*	jacaranda	Yes	18	2	10	8	0	0	0	30	30	Fair	Fair		34.150597	-117.87272
12	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	18	Poor	Fair		34.150632	-117.872705
13	*Quercus agrifolia*	coast live oak	Yes	15	2	8	7	0	0	0	10	10	Fair	Poor		34.150677	-117.87271
14	*Washingtonia robusta*	Mexican fan palm	Yes	11	1	11	0	0	0	0	75	15	Good	Fair		34.150672	-117.872732
15	*Washingtonia robusta*	Mexican fan palm	No	8	1	8	0	0	0	0	10	8	Good	Good		34.150716	-117.872648
16	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	15	10	Good	Poor		34.15072	-117.872659
17	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	95	15	Good	Fair		34.15072	-117.872661
18	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	20	10	Good	Good		34.150739	-117.87267
19	*cunninghamiana*	river she-oak	Yes	14	1	14	0	0	0	0	50	20	Fair	Good		34.150788	-117.872658
20	*Cedrus deodora*	deodar cedar	Yes	20	1	20	0	0	0	0	50	30	Fair	Fair		34.150746	-117.87279
21	*Phoenix canariensis*	Canary Island date palm	Yes	20	1	20	0	0	0	0	60	20	Good	Good		34.150766	-117.872992
22	*Cedrus deodora*	deodar cedar	Yes	23	1	23	0	0	0	0	55	25	Fair	Fair		34.150853	-117.872992
23	*Cedrus deodora*	deodar cedar	No	24	1	24	0	0	0	0	55	25	Dead	Dead		34.150905	-117.873016
24	*Phoenix canariensis*	Canary Island date palm	Yes	18	1	18	0	0	0	0	45	18	Good	Good		34.150911	-117.873094
25	*Cedrus deodora*	deodar cedar	Yes	17	1	17	0	0	0	0	40	20	Fair	Fair		34.150973	-117.873058
26	*Cedrus deodora*	deodar cedar	No	18	1	18	0	0	0	0	45	15	Dead	Dead		34.150876	-117.872862
27	*Casuarina*	river she-oak	Yes	10	1	10	0	0	0	0	30	15	Poor	Poor	mostly dead	34.150911	-117.872833
28	*cunninghamiana*	river she-oak	Yes	21	1	21	0	0	0	0	55	18	Fair	Poor		34.150833	-117.872744
29	*Pinus canariensis*	Canary Island pine	Yes	24	1	24	0	0	0	0	55	20	Fair	Fair	top of tree is dead	34.150877	-117.872735
30	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	40	10	Fair	Good		34.150892	-117.872617
31	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	45	12	Good	Good		34.150938	-117.872606
32	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	25	10	Good	Good		34.150959	-117.872609
33	*cunninghamiana*	river she-oak	Yes	15	1	15	0	0	0	0	35	20	Fair	Fair	top of tree is dead	34.150933	-117.87275
34	*Grevillea robusta*	silk oak	Yes	22	1	22	0	0	0	0	50	20	Good	Fair		34.150985	-117.872734
35	*cunninghamiana*	river she-oak	Yes	15	1	15	0	0	0	0	35	15	Fair	Fair	top of tree is dead	34.150947	-117.872792
36	*cunninghamiana*	river she-oak	Yes	18	1	18	0	0	0	0	50	20	Good	Fair		34.150948	-117.872857
37	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	30	10	Fair	Good		34.15109	-117.872625
38	*cunninghamiana*	river she-oak	Yes	20	1	20	0	0	0	0	55	25	Good	Fair		34.151083	-117.872707
39	*Grevillea robusta*	silk oak	Yes	25	1	25	0	0	0	0	55	25	Poor	Poor		34.151115	-117.872748
40	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	50	15	Good	Good		34.151104	-117.872832
41	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	50	15	Good	Good		34.151081	-117.872853
42	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	45	15	Good	Poor		34.151076	-117.872906
43	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	55	12	Good	Poor		34.151114	-117.872879
44	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	60	12	Good	Fair		34.151178	-117.872927

45	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	60	12	Good	Fair		34.151145	-117.872971
46	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	60	12	Good	Fair		34.151209	-117.872978
47	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	60	12	Good	Fair		34.151225	-117.872912
48	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	60	12	Good	Fair		34.151255	-117.872967
49	*Phoenix canariensis*	Canary Island date palm	Yes	20	1	20	0	0	0	0	25	15	Good	Good		34.151237	-117.87302
50	*Phoenix canariensis*	Canary Island date palm	Yes	21	1	21	0	0	0	0	30	20	Good	Good		34.151175	-117.87302
51	*Phoenix canariensis*	Canary Island date palm	No	19	1	19	0	0	0	0	20	0	Dead	Dead	main stem is dead, stump sprout at base	34.151089	-117.872996
52	*Cedrus deodora*	deodar cedar	Yes	23	1	23	0	0	0	0	50	30	Fair	Fair		34.151141	-117.873076
53	*Pinus canariensis*	Canary Island pine	Yes	17	1	17	0	0	0	0	55	20	Fair	Poor		34.151166	-117.872741
54	*Pinus canariensis*	Canary Island pine	Yes	11	1	11	0	0	0	0	30	15	Fair	Fair		34.151243	-117.872795
55	*Pinus canariensis*	Canary Island pine	Yes	27	1	27	0	0	0	0	70	30	Fair	Fair		34.15127	-117.872748
56	*Pinus canariensis*	Canary Island pine	Yes	21	1	21	0	0	0	0	70	30	Fair	Fair		34.151273	-117.87282
57	*Pinus canariensis*	Canary Island pine	Yes	20	1	20	0	0	0	0	70	20	Fair	Fair		34.151293	-117.872866
58	*Pinus canariensis*	Canary Island pine	Yes	17	1	17	0	0	0	0	60	15	Poor	Fair		34.15133	-117.872845
59	*Pinus canariensis*	Canary Island pine	Yes	19	1	19	0	0	0	0	65	15	Fair	Poor		34.151334	-117.872927
60	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	70	20	Fair	Fair		34.151296	-117.872945
61	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	65	20	Good	Fair		34.151295	-117.873071
62	*Pinus canariensis*	Canary Island pine	Yes	23	1	23	0	0	0	0	65	20	Fair	Fair		34.15133	-117.873115
63	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	65	20	Poor	Fair		34.151392	-117.873112
64	*Pinus canariensis*	Canary Island pine	Yes	20	1	20	0	0	0	0	60	15	Fair	Poor		34.151353	-117.87303
65	*Pinus canariensis*	Canary Island pine	Yes	17	1	17	0	0	0	0	55	10	Poor	Poor		34.151381	-117.873028
66	*Pinus canariensis*	Canary Island pine	Yes	12	1	12	0	0	0	0	40	10	Fair	Poor		34.151408	-117.87308
67	*Pinus canariensis*	Canary Island pine	Yes	20	1	20	0	0	0	0	60	15	Fair	Fair		34.151403	-117.872953
68	*Pinus canariensis*	Canary Island pine	Yes	21	1	21	0	0	0	0	60	15	Fair	Fair		34.15139	-117.872894
69	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	60	15	Fair	Fair		34.151435	-117.872937
70	*Pinus canariensis*	Canary Island pine	Yes	23	1	23	0	0	0	0	60	15	Fair	Fair		34.15143	-117.872984
71	*Pinus canariensis*	Canary Island pine	Yes	19	1	19	0	0	0	0	75	15	Fair	Fair		34.151476	-117.873008
72	*Pinus canariensis*	Canary Island pine	Yes	20	1	20	0	0	0	0	75	15	Fair	Fair		34.151505	-117.872961
73	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	75	20	Fair	Poor		34.151498	-117.87286
74	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	70	15	Fair	Poor		34.151557	-117.872898
75	*Eucalyptus robusta*	swamp mahogany	No	20	1	20	0	0	0	0	20	10	Dead	Dead		34.151564	-117.872847
76	*Eucalyptus robusta*	swamp mahogany	Yes	15	1	15	0	0	0	0	15	20	Good	Poor		34.15157	-117.872935
77	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	30	12	Good	Good		34.151731	-117.873021
78	*Olea europaea*	fruitless olive	Yes	12	1	12	0	0	0	0	20	20	Good	Fair		34.151655	-117.873041
79	*Quercus agrifolia*	coast live oak	Yes	26	4	9	9	4	4	0	20	20	Good	Fair		34.151621	-117.872866
80	*Heteromeles*	toyon	Yes	21	5	7	5	5	4	0	15	15	Poor	Fair		34.151508	-117.873067
81	*Quercus agrifolia*	coast live oak	No	8	1	8	0	0	0	0	0	0	Dead	Dead	laying on ground	34.151519	-117.8731
82	*Grevillea robusta*	silk oak	Yes	24	1	24	0	0	0	0	65	30	Fair	Fair		34.15155	-117.873121
83	*Olea europaea*	fruitless olive	Yes	26	3	10	10	6	0	0	30	30	Good	Poor		34.151585	-117.873099
84	*Grevillea robusta*	silk oak	Yes	18	1	18	0	0	0	0	55	20	Fair	Fair		34.151607	-117.87315
85	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	8	0	Dead	Dead		34.15163	-117.873137
86	*Grevillea robusta*	silk oak	Yes	20	1	20	0	0	0	0	55	15	Good	Good		34.15167	-117.873145
87	*Grevillea robusta*	silk oak	Yes	19	1	19	0	0	0	0	50	15	Fair	Fair		34.151595	-117.873218
88	*Grevillea robusta*	silk oak	Yes	16	1	16	0	0	0	0	45	15	Fair	Fair		34.151534	-117.87318
89	*Cedrus deodora*	deodar cedar	No	13	1	13	0	0	0	0	35	15	Dead	Dead		34.151339	-117.873174
90	*Cedrus deodora*	deodar cedar	Yes	26	1	26	0	0	0	0	55	30	Fair	Fair		34.151316	-117.873162
91	*Grevillea robusta*	silk oak	Yes	11	1	11	0	0	0	0	40	15	Good	Fair		34.151366	-117.873156

92	*Grevillea robusta*	silk oak	No	9	1	9	0	0	0	0	30	10	Fair	Fair		34.151379	-117.873171
93	*Cedrus deodora*	deodar cedar	No	16	1	16	0	0	0	0	45	20	Dead	Dead	fell into adjacent tree, presents hazard, should be removed	34.151378	-117.87322
94	*cunninghamiana*	river she-oak	Yes	14	1	14	0	0	0	0	35	15	Fair	Fair		34.151415	-117.873195
95	*Casuarina*	river she-oak	No	13	1	13	0	0	0	0	35	10	Dead	Dead		34.151439	-117.873151
96	*Olea europaea*	fruitless olive	Yes	20	2	10	10	0	0	0	30	30	Good	Fair		34.151449	-117.87328
97	*Cedrus deodora*	deodar cedar	No	26	1	26	0	0	0	0	55	20	Dead	Dead		34.151563	-117.873318
98	*Cedrus deodora*	deodar cedar	No	16	1	16	0	0	0	0	40	20	Dead	Dead		34.151628	-117.873393
99	*Quercus agrifolia*	coast live oak	No	0	1	0	0	0	0	0	0	0	Dead	Dead	laying on ground	34.151722	-117.873455
100	*Cedrus deodora*	deodar cedar	No	21	1	21	0	0	0	0	55	20	Dead	Dead		34.151699	-117.873489
102	*Cedrus deodora*	deodar cedar	Yes	31	1	31	0	0	0	0	65	30	Fair	Good		34.151757	-117.873573
103	*Arucaria bidwillii*	bunya-bunya	Yes	20	1	20	0	0	0	0	55	20	Fair	Fair		34.151827	-117.873463
104	*Arucaria bidwillii*	bunya-bunya	Yes	16	1	16	0	0	0	0	55	15	Fair	Fair		34.151884	-117.873501
105	*Cedrus deodora*	deodar cedar	No	30	1	30	0	0	0	0	65	30	Dead	Dead		34.151977	-117.873743
107	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	30	35	Good	Fair		34.151819	-117.87401
108	*Quercus agrifolia*	coast live oak	Yes	36	1	36	0	0	0	0	35	40	Good	Poor		34.151867	-117.874158
109	*Quercus agrifolia*	coast live oak	Yes	21	1	21	0	0	0	0	35	30	Good	Fair		34.151924	-117.874379
110	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	15	Good	Fair		34.15193	-117.874396
111	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	25	20	Good	Fair		34.152112	-117.874571
112	*Quercus agrifolia*	coast live oak	Yes	35	1	35	0	0	0	0	45	40	Good	Fair		34.152039	-117.874605
113	*Cedrus deodora*	deodar cedar	Yes	11	1	11	0	0	0	0	45	15	Fair	Fair		34.152157	-117.874717
114	*Pseudotsaya menziesii*	Douglas-fir	Yes	13	1	13	0	0	0	0	40	10	Dead	Dead		34.152179	-117.874815
115	*Pseudotsaya menziesii*	Douglas-fir	Yes	12	1	12	0	0	0	0	40	8	Poor	Poor		34.1522	-117.874874
116	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	35	25	Good	Fair		34.15222	-117.87506
117	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	20	Good	Fair		34.15225	-117.875191
118	*Prunus domestica*	fruiting plum	No	8	1	8	0	0	0	0	20	15	Good	Fair		34.152294	-117.87526
119	*Phoenix canariensis*	Canary Island date palm	Yes	23	1	23	0	0	0	0	35	20	Good			34.152379	-117.874487
120	*Phoenix canariensis*	Canary Island date palm	Yes	17	1	17	0	0	0	0	30	15	Good	Fair		34.152361	-117.874464
121	*Phoenix canariensis*	Canary Island date palm	Yes	20	1	20	0	0	0	0	40	15	Good	Good		34.152427	-117.874258
122	*Phoenix canariensis*	Canary Island date palm	Yes	20	1	20	0	0	0	0	40	15	Fair	Good		34.152361	-117.87427
123	*Phoenix canariensis*	Canary Island date palm	Yes	19	1	19	0	0	0	0	40	15	Fair	Good		34.152323	-117.874265
124	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152242	-117.875529
125	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152308	-117.875561
126	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.15228	-117.875594
127	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.152284	-117.875651
128	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	80	15	Good	Fair		34.152347	-117.875561
129	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.15233	-117.875641
130	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.15235	-117.87568
131	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152386	-117.875671
132	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152387	-117.875708
133	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152429	-117.875676
134	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152435	-117.875744
135	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.152484	-117.875745
136	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152486	-117.875724
137	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	80	15	Good	Fair		34.152483	-117.875676
138	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	80	15	Good	Fair		34.152513	-117.8756
139	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	55	15	Fair	Fair	shares tag with #172	34.152574	-117.875609

140	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.152521	-117.875673
141	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152555	-117.875744
142	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152539	-117.875775
143	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	80	15	Good	Fair		34.152594	-117.875837
144	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152624	-117.875768
145	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.152657	-117.875771
146	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152668	-117.875861
147	*Washingtonia robusta*	Mexican fan palm	Yes	18	1	18	0	0	0	0	80	15	Good	Fair		34.152681	-117.875998
148	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	80	15	Good	Fair		34.152678	-117.875969
149	*Quercus agrifolia*	coast live oak	Yes	40	1	40	0	0	0	0	45	50	Good	Good		34.15229	-117.875558
150	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	35	20	Good	Fair		34.152403	-117.875662
151	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	45	35	Fair	Good		34.152435	-117.875635
152	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	25	20	Fair	Fair		34.152446	-117.875581
153	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Fair	Fair		34.152467	-117.875682
154	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	25	20	Fair	Fair		34.152484	-117.875701
155	*Juglans californica*	Southern California	No	6	1	6	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152484	-117.875729
156	*Schinus terebinthifolia*	Brazilian pepper	No	6	1	6	0	0	0	0	25	20	Fair	Fair		34.152522	-117.875725
157	*Quercus agrifolia*	coast live oak	Yes	28	1	28	0	0	0	0	50	35	Fair	Fair		34.152548	-117.875712
158	*Schinus terebinthifolia*	Brazilian pepper	No	28	2	14	14	0	0	0	15	15	Dead	Dead		34.152584	-117.875738
159	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	20	25	Fair	Fair		34.152645	-117.875756
160	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Fair	Fair		34.152724	-117.875971
161	*Quercus agrifolia*	coast live oak	Yes	26	2	13	13	0	0	0	30	30	Fair	Fair		34.152693	-117.875994
162	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	60	15	Fair	Fair		34.152747	-117.875981
163	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	40	30	Fair	Fair		34.152743	-117.875962
164	*Heteromeles*	toyon	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152731	-117.875884
165	*Heteromeles*	toyon	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152709	-117.875877
166	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	40	35	Fair	Fair		34.152706	-117.875804
167	*Quercus agrifolia*	coast live oak	No	0	1	0	0	0	0	0	0	0	Dead	Dead	laying on ground	34.1527	-117.87569
168	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	80	15	Good	Fair		34.152664	-117.875656
169	*Quercus agrifolia*	coast live oak	Yes	29	2	15	14	0	0	0	30	30	Fair	Poor		34.152625	-117.87564
170	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	30	Fair	Fair		34.152619	-117.875592
171	*Olea europaea*	fruitless olive	Yes	20	2	10	10	0	0	0	30	25	Good	Poor		34.152596	-117.87561
172				0											Shares tag with #139		
173	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	45	30	Fair	Fair		34.152496	-117.875526
174	*Pinus pinea*	Italian stone pine	Yes	50	1	50	0	0	0	0	40	40	Fair	Poor		34.152215	-117.876008
175	*Quercus agrifolia*	coast live oak	Yes	20	2	11	9	0	0	0	20	20	Good	Fair		34.152305	-117.876006
176	*Juglans californica*	Southern California black walnut	No	0	1	0	0	0	0	0	0	0	Dead	Dead	main stem is dead, stump sprout at base	34.152445	-117.875996
177	*Juglans californica*	walnut	No	4	5	4	0	0	0	0	10	10	Fair	Poor	Stems of 3,3,2,1	34.152476	-117.876013
178	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152849	-117.872777
179	*Quercus agrifolia*	coast live oak	Yes	35	1	35	0	0	0	0	35	35	Fair	Fair	laying on ground	34.152909	-117.872791
180	*Quercus agrifolia*	coast live oak	Yes	30	1	30	0	0	0	0	40	25	Poor	Poor		34.152865	-117.872593
181	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	10	0	Dead	Dead		34.152876	-117.872569
182	*Quercus agrifolia*	coast live oak	Yes	10	2	6	4	0	0	0	18	10	Fair	Poor		34.152847	-117.872536
183	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	20	Fair	Poor		34.152818	-117.872569
184	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Fair	Poor		34.152793	-117.872633
185	*Quercus agrifolia*	coast live oak	Yes	26	1	26	0	0	0	0	50	35	Fair	Fair		34.152794	-117.872681
186	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	45	30	Fair	Fair		34.152731	-117.872793

187	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	50	20	Fair	Fair		34.152754	-117.87272
188	*Quercus agrifolia*	coast live oak	Yes	32	1	32	0	0	0	0	55	35	Fair	Fair		34.152749	-117.872723
189	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	40	25	Fair	Fair		34.152743	-117.872642
190	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	10	Fair	Fair		34.152723	-117.872656
191	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	15	Good	Fair		34.15273	-117.872578
192	*Quercus agrifolia*	coast live oak	Yes	30	1	30	0	0	0	0	45	35	Fair	Fair		34.152757	-117.872544
193	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	50	20	Fair	Fair		34.152696	-117.872583
194	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	40	25	Fair	Fair		34.152692	-117.872674
195	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	40	20	Fair	Fair		34.152644	-117.87257
196	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	35	25	Fair	Fair		34.152644	-117.872604
197	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	7	0	Dead	Dead		34.152642	-117.872695
198	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	35	20	Fair	Fair		34.152631	-117.872689
199	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	15	Fair	Fair		34.152606	-117.872674
200	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	45	20	Good	Fair		34.152587	-117.872589
201	*Quercus agrifolia*	coast live oak	No	5	1	5	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152544	-117.872688
202	*Quercus agrifolia*	coast live oak	No	5	1	5	0	0	0	0	0	0	Dead	Dead	laying on ground	34.15258	-117.872698
203	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	25	Fair	Fair		34.152612	-117.872801
204	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	35	30	Fair	Fair		34.152513	-117.872686
205	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	40	40	Fair	Fair		34.152471	-117.872664
206	*Quercus agrifolia*	coast live oak	No	20	1	20	0	0	0	0	15	0	Dead	Dead	no tag	34.152512	-117.87273
207	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	35	25	Fair	Poor		34.152497	-117.872683
208	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152486	-117.87269
209	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	10	6	Fair	Poor		34.152499	-117.872745
210	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	15	10	Fair	Fair		34.152497	-117.872777
211	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	15	Fair	Fair		34.152496	-117.872794
212	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	15	10	Fair	Fair		34.152484	-117.872785
213	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	20	Good	Fair		34.152463	-117.872777
214	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	15	10	Good	Poor		34.152449	-117.872783
215	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	15	Good	Fair		34.152475	-117.872815
216	*Quercus agrifolia*	coast live oak	No	8	1	8	0	0	0	0	15	0	Dead	Dead		34.152491	-117.872866
217	*Quercus agrifolia*	coast live oak	Yes	28	2	16	12	0	0	0	20	15	Good	Fair		34.152459	-117.872865
218	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Fair	Poor		34.152392	-117.872701
219	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	8	Fair	Poor		34.152384	-117.872711
220	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Fair	Fair		34.152332	-117.872756
221	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	13	Fair	Fair		34.152318	-117.872761
222	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152363	-117.87284
223	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152312	-117.872885
224	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.15229	-117.872851
225	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152248	-117.87289
226	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152246	-117.872889
227	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152245	-117.872891
228	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152246	-117.872891
229	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152224	-117.872881
230	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.15223	-117.872849
231	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152252	-117.872835
232	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	20	20	Fair	Poor		34.152239	-117.872832
233	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	0	0	Dead	Dead	laying on ground	34.15224	-117.872861
234	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	10	0	Dead	Dead		34.152263	-117.872822
235	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	20	Fair	Fair		34.152362	-117.872642

236	*Quercus agrifolia*	coast live oak		0										unable to locate		
237	*Quercus agrifolia*	coast live oak	No	15	1	15	0	0	0	0	0	0	Dead	Dead	laying on ground	34.152248	-117.872579
238	*Quercus agrifolia*	coast live oak	Yes	38	3	12	13	13	0	0	30	30	Good	Fair		34.152219	-117.8727
239	*Quercus agrifolia*	coast live oak	No	12	1	12	0	0	0	0	10	0	Dead	Dead		34.152179	-117.872697
240	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	20	Fair	Fair		34.152154	-117.87285
241	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	20	15	Fair	Fair		34.152159	-117.872822
242	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Poor		34.152165	-117.872817
243	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	20	15	Fair	Fair		34.152166	-117.872795
244	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	12	Fair	Fair		34.152151	-117.872802
245	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	12	Fair	Fair		34.152145	-117.872799
246	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	6	10	Fair	Poor		34.152122	-117.872841
247	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	18	10	Fair	Fair		34.152042	-117.872651
248	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	15	10	Fair	Fair		34.152085	-117.872799
249	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	20	15	Fair	Fair		34.152114	-117.872655
250	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	5	0	Dead	Dead		34.152239	-117.87262
251	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	20	20	Fair	Fair		34.152076	-117.872732
252	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	15	6	Fair	Poor		34.15209	-117.872778
253	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	20	10	Poor	Poor		34.152052	-117.872751
254	*Olea europaea*	fruitless olive	No	0	4	0	0	0	0	0	10	5	Poor	Poor	stump sprout, stems of 3,3,3,3	34.152743	-117.872819
255	*Olea europaea*	fruitless olive	Yes	22	2	22	0	0	0	0	35	25	Fair	Fair		34.152769	-117.872841
256	*Olea europaea*	fruitless olive	Yes	18	1	18	0	0	0	0	30	20	Fair	Poor		34.152581	-117.872744
257	*Olea europaea*	fruitless olive	Yes	22	3	22	0	0	0	0	20	15	Fair	Poor		34.152295	-117.872785
258	*Olea europaea*	fruitless olive	Yes	25	3	25	0	0	0	0	30	25	Fair	Poor		34.152312	-117.872683
259	*Olea europaea*	fruitless olive	Yes	14	3	14	0	0	0	0	15	15	Fair	Poor		34.152327	-117.872715
260	*Olea europaea*	fruitless olive	Yes	13	1	13	0	0	0	0	15	20	Poor	Poor		34.152286	-117.872692
261	*Olea europaea*	fruitless olive	Yes	16	2	16	0	0	0	0	15	15	Fair	Poor		34.152322	-117.873081
262	*Olea europaea*	fruitless olive	Yes	24	3	24	0	0	0	0	25	30	Fair	Poor		34.152244	-117.873053
263	*Olea europaea*	fruitless olive	Yes	50	5	10	10	10	10	10	25	30	Fair	Poor		34.152031	-117.872723
264	*Olea europaea*	fruitless olive	Yes	18	4	18	0	0	0	0	25	30	Good	Poor		34.151664	-117.872945
265	*Olea europaea*	fruitless olive	Yes	18	1	18	0	0	0	0	30	20	Good	Poor		34.151654	-117.87316
266	*Ceratonia siliqua*	carob	Yes	28	1	28	0	0	0	0	30	50	Fair	Fair		34.15157	-117.873313
267				0											Not on arborist map, no inventory information		
268				0											Not on arborist map, no inventory information		
269				0											Not on arborist map, no inventory information		
270	*Pinus canariensis*	Canary Island pine	Yes	18	1	18	0	0	0	0	65	15	Poor	Poor		34.152701	-117.875494
271	*Quercus agrifolia*	coast live oak	No	17	1	17	0	0	0	0	10	2	Dead	Dead		34.15274	-117.875433
272	*Pinus canariensis*	Canary Island pine	Yes	33	1	33	0	0	0	0	70	35	Fair	Poor		34.152695	-117.875429
273	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	30	Fair	Fair		34.152693	-117.875472
274	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	15	Fair	Fair		34.152713	-117.875384
275	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	30	15	Fair	Poor		34.152691	-117.875335
276				0											unable to locate		
277	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	45	30	Good	Fair		34.152598	-117.875291
278	*Arbutus unedo*	strawberry madrone	No	7	1	7	0	0	0	0	12	10	Good	Fair		34.152563	-117.875281
279	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	50	30	Fair	Fair		34.152538	-117.875163
280	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	30	20	Good	Fair		34.152569	-117.875079

281	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	50	30	Poor	Fair		34.152535	-117.875093
282	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	25	Fair	Fair		34.152551	-117.875026
283	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Fair	Poor		34.152544	-117.874848
284				0											unable to locate		
285	*Quercus agrifolia*	coast live oak	Yes	20	2	20	0	0	0	0	35	30	Fair	Fair		34.152559	-117.874573
286				0											unable to locate		
287				0											unable to locate		
288	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	75	15	Fair	Fair		34.152826	-117.875749
289	*Washingtonia robusta*	Mexican fan palm	Yes	18	1	18	0	0	0	0	75	15	Fair	Fair		34.152747	-117.875938
290	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	20	20	Fair	Fair		34.152748	-117.875939
291	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	75	15	Fair	Fair		34.152808	-117.875918
292	*Olea europaea*	fruitless olive	Yes	24	2	24	0	0	0	0	20	15	Poor	Poor		34.152835	-117.875938
293	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	75	15	Fair	Fair		34.15287	-117.875938
294	*Quercus agrifolia*	coast live oak	Yes	28	1	28	0	0	0	0	30	30	Poor	Poor		34.152909	-117.875945
295	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	10	10	Fair	Poor		34.15289	-117.875995
296	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	20	20	Fair	Fair		34.152847	-117.876094
297	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	15	Fair	Fair		34.15286	-117.876102
298	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	75	15	Fair	Fair		34.152765	-117.876073
300	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	35	40	Fair	Fair		34.152833	-117.876238
303	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	6	4	Good	Poor	stump sprout	34.152896	-117.876214
304	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	20	Poor	Poor		34.152988	-117.876181
305	*Quercus agrifolia*	coast live oak	No	25	1	25	0	0	0	0	0	0	Dead	Dead		34.153016	-117.876141
306	*Quercus agrifolia*	coast live oak	No	29	1	29	0	0	0	0	0	0	Dead	Dead		34.1531	-117.87619
307	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	15	10	Fair	Fair		34.153127	-117.876209
308	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair		34.153161	-117.87621
309	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	30	Fair	Fair		34.153193	-117.876233
310	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	35	15	Fair	Fair		34.153132	-117.87616
311	*Quercus agrifolia*	coast live oak	no	12	1	12	0	0	0	0	10	0	Dead	Dead		34.153134	-117.876158
312	*Quercus agrifolia*	coast live oak		13	1	13	0	0	0	0	10	10	Poor	Poor		34.153133	-117.876159
313				0											unable to locate		
314	*Corymbia maculata*	spotted gum	Yes	38	1	38	0	0	0	0	90	45	Poor	Poor		34.153041	-117.875942
315	*Corymbia maculata*	spotted gum	No	13	1	13	0	0	0	0	40	10	Dead	Dead		34.152919	-117.87588
316	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	20	Poor	Poor		34.152913	-117.875847
317	*Corymbia maculata*	spotted gum	No	40	1	40	0	0	0	0	50	20	Dead	Dead		34.152826	-117.875777
318	*Washingtonia robusta*	Mexican fan palm	Yes	10	1	10	0	0	0	0	75	15	Fair	Fair		34.152814	-117.875748
319	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	30	Fair	Fair		34.153339	-117.876312
320	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	20	Fair	Fair		34.15333	-117.876311
321	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	40	35	Fair	Fair		34.153346	-117.876303
322	*Quercus agrifolia*	coast live oak	Yes	58	1	58	0	0	0	0	40	40	Fair	Fair		34.153447	-117.876347
323	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	15	Fair	Fair		34.153473	-117.876336
324	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	35	20	Fair	Fair		34.153447	-117.876292
325	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	15	Fair	Fair		34.153514	-117.876323
326	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	15	Fair	Fair		34.153513	-117.876323
327	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	20	Fair	Fair		34.153639	-117.876215
328	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	20	Fair	Fair		34.153665	-117.876267
329	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	35	30	Fair	Fair		34.153496	-117.876255
330	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	18	Fair	Fair		34.15349	-117.876181
331	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	40	20	Fair	Fair		34.15348	-117.876208

332	*Juglans californica*	walnut	Yes	10	2	10	0	0	0	0	40	30	Fair	Fair		34.153492	-117.876198
333	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	30	Fair	Poor		34.153478	-117.876282
334	*Juglans californica*	walnut	Yes	21	2	21	0	0	0	0	30	30	Fair	Poor		34.153435	-117.876186
335	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	40	20	Fair	Fair		34.153433	-117.8762
336	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	20	Fair	Fair		34.153447	-117.876166
337	*Corymbia maculata*	spotted gum	Yes	39	2	39	0	0	0	0	50	40	Fair	Fair		34.153336	-117.876254
338	*Corymbia maculata*	spotted gum	Yes	44	1	44	0	0	0	0	55	50	Fair	Fair		34.153279	-117.876211
339	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	15	Fair	Poor		34.153264	-117.876115
340	*Juglans californica*	walnut	Yes	19	3	19	0	0	0	0	25	20	Fair	Fair		34.15325	-117.87598
341	*Quercus agrifolia*	coast live oak	Yes	11	2	11	0	0	0	0	20	15	Fair	Fair		34.153246	-117.875961
342	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Fair	Fair		34.153193	-117.875921
343	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Good	Poor		34.153172	-117.875897
344	*Quercus agrifolia*	coast live oak	Yes	21	2	21	0	0	0	0	30	23	Good	Fair		34.153155	-117.875826
345	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	30	15	Poor	Poor		34.153128	-117.875914
346	*Eucalyptus robusta*	swamp mahogany	No	27	1	27	0	0	0	0	55	40	Dead	Dead		34.153093	-117.875917
347	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	20	Fair	Fair		34.153029	-117.875732
348	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	35	30	Fair	Fair		34.153084	-117.875778
349	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	15	15	Fair	Poor		34.153136	-117.875708
350	*Quercus agrifolia*	coast live oak	No	19	2	19	0	0	0	0	25	15	Dead	Dead		34.15312	-117.875718
351	*Juglans californica*	walnut	Yes	8	1	8	0	0	0	0	30	15	Fair	Poor		34.153059	-117.875488
352	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	25	15	Fair	Fair		34.153056	-117.875681
353	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	15	Fair	Fair		34.153023	-117.875672
354	*Eucalyptus robusta*	swamp mahogany	No	41	1	41	0	0	0	0	35	25	Dead	Dead		34.152967	-117.875613
355	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Fair	Poor		34.153005	-117.875521
356	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	35	20	Fair	Fair		34.152896	-117.875492
357	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	15	20	Fair	Fair		34.152856	-117.875505
358	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	12	9	Good	Poor		34.152829	-117.87547
359	*Corymbia maculata*	spotted gum	Yes	31	1	31	0	0	0	0	50	40	Poor	Poor		34.152862	-117.875482
360	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	20	Fair	Fair		34.152809	-117.875488
361	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	15	Fair	Fair		34.152868	-117.875458
362	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	40	20	Fair	Fair		34.152858	-117.875424
363	*Juglans californica*	Southern California	Yes	10	2	5	5	0	0	0	20	10	Poor	Poor	stem of 3	34.152821	-117.875322
364	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	10	20	Poor	Poor	broke in half	34.152818	-117.875302
365	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	20	Fair	Fair		34.152811	-117.875356
366	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	15	Fair	Fair		34.152808	-117.875364
367	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	15	Fair	Fair		34.152801	-117.87537
368	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	15	9	Good	Poor		34.152776	-117.875421
369	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	6	4	Poor	Poor	stump sprout	34.152767	-117.875366
370	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	25	20	Fair	Fair		34.152759	-117.875356
371	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	20	Fair	Fair		34.152754	-117.875273
372	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	15	Fair	Fair		34.152751	-117.875264
373	*Juglans californica*	Southern California	Yes	11	1	11	0	0	0	0	15	7	Dead	Dead		34.152731	-117.875313
374	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	20	Good	Fair		34.15274	-117.875208
375	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	40	30	Good	Fair		34.152721	-117.875189
376	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	20	Good	Fair		34.152732	-117.875168
377	*Juglans californica*	walnut	Yes	16	3	6	5	5	0	0	15	15	Fair	Poor		34.152737	-117.875123
378	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	40	25	Good	Fair		34.152668	-117.875156
379	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	15	Good	Fair		34.152682	-117.875226

380	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	20	Good	Fair		34.152685	-117.87526
381	*Juglans californica*	walnut	Yes	24	4	8	8	4	4	0	15	15	Fair	Fair		34.153116	-117.875335
382	*Juglans californica*	walnut	Yes	20	4	6	6	4	4	0	15	15	Fair	Fair		34.153095	-117.875392
383	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	10	Good	Fair		34.152646	-117.875254
384	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	30	14	Good	Fair		34.15261	-117.875248
385	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	40	20	Good	Fair		34.152599	-117.875249
386	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	20	Good	Fair		34.152643	-117.875217
387	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	15	Good	Fair		34.152615	-117.875171
388	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	15	Fair	Fair		34.15257	-117.875169
389	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	40	25	Good	Fair		34.152589	-117.875136
390	*Quercus agrifolia*	coast live oak	No	0	1	0	0	0	0	0	6	4	Poor	Poor	broke below dbh	34.152563	-117.875155
391	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	10	Good	Fair		34.152566	-117.875092
392	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	10	Good	Fair		34.152643	-117.875105
393	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	35	20	Fair	Fair		34.152688	-117.875039
394	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	12	10	Good	Poor		34.152689	-117.875082
395	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	40	20	Fair	Fair		34.152622	-117.87499
396	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Fair	Fair		34.152612	-117.874987
397	*Quercus agrifolia*	coast live oak	Yes	21	1	21	0	0	0	0	45	30	Good	Fair		34.152598	-117.875008
398	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	15	Fair	Poor		34.15259	-117.875034
399	*Quercus agrifolia*	coast live oak	Yes	17	2	9	8	0	0	0	35	20	Fair	Poor		34.15257	-117.874984
400	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	20	Fair	Poor		34.152591	-117.874926
401	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	20	Fair	Fair		34.152574	-117.874935
402	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	40	30	Good	Fair		34.152568	-117.874952
403	*Ceratonia siliqua*	carob	Yes	48	4	16	16	10	6	0	30	20	Good	Fair		34.152621	-117.874893
404			No	14	1	14	0	0	0	0	20	0	Dead	Dead		34.152594	-117.874834
405	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	15	Fair	Poor		34.152595	-117.874874
406	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	15	Fair	Fair		34.152596	-117.874878
407	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	40	20	Good	Fair		34.152548	-117.874745
408	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	45	20	Good	Fair		34.152563	-117.874757
409	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	15	Fair	Good		34.15258	-117.87477
410	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Poor	Poor		34.152615	-117.874772
411	*Quercus agrifolia*	coast live oak	Yes	20	2	20	0	0	0	0	40	15	Fair	Poor		34.152655	-117.874789
412	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	45	15	Fair	Poor		34.152672	-117.874794
413				0											unable to locate		
414	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	15	Fair	Poor		34.152689	-117.87479
415	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	40	15	Fair	Poor		34.152699	-117.874759
416	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	35	15	Fair	Poor		34.152684	-117.874733
417	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	40	15	Fair	Poor		34.152724	-117.874791
418	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	15	Fair	Poor		34.152724	-117.874787
419	*Quercus agrifolia*	coast live oak	Yes	21	2	21	0	0	0	0	40	20	Fair	Poor		34.152746	-117.874776
420	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	40	15	Fair	Poor		34.152798	-117.874783
421	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	25	Fair	Fair		34.152794	-117.874809
422	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	35	30	Fair	Fair		34.152839	-117.874754
423	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	30	Fair	Fair		34.152844	-117.874754
424	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	45	30	Good	Fair		34.152852	-117.874738
425	*Quercus agrifolia*	coast live oak	Yes	29	3	29	0	0	0	0	45	30	Fair	Fair		34.152821	-117.87469
426	*Quercus agrifolia*	coast live oak	Yes	28	4	28	0	0	0	0	40	40	Fair	Fair		34.152805	-117.874706

427	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Fair	Poor		34.152808	-117.874714
428	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	40	15	Fair	Poor		34.152741	-117.874749
429	*Quercus agrifolia*	coast live oak	Yes	18	2	18	0	0	0	0	35	15	Fair	Poor		34.152717	-117.874755
430	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	10	Fair	Poor		34.152729	-117.874775
431	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	15	Fair	Poor		34.152718	-117.874705
432	*Quercus agrifolia*	coast live oak	Yes	24	3	24	0	0	0	0	30	15	Fair	Poor		34.152701	-117.874656
433	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Fair	Poor		34.152632	-117.874666
434	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	15	Fair	Poor		34.152627	-117.874674
435	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	25	Fair	Fair		34.152632	-117.874701
436	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	45	30	Good	Fair		34.152602	-117.874694
437	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	35	20	Good	Fair		34.152562	-117.874715
438	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	70	15	Fair	Fair		34.152649	-117.874586
439	*Platanus racemosa*	California sycamore	No	15	1	15	0	0	0	0	15	10	Dead	Dead	main stem is dead, stump sprout at base	34.152681	-117.874566
440	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	65	15	Fair	Fair		34.15271	-117.874589
441	*Casuarina*	river she-oak	No	24	1	24	0	0	0	0	40	20	Dead	Dead		34.152737	-117.874567
442	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	55	15	Fair	Fair		34.152777	-117.874596
443	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	55	15	Fair	Fair		34.152807	-117.874638
444	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	65	15	Fair	Fair		34.152913	-117.874621
445	*Washingtonia robusta*	Mexican fan palm	Yes	10	1	10	0	0	0	0	55	15	Fair	Fair		34.152939	-117.874619
446	*Platanus racemosa*	California sycamore	Yes	10	1	10	0	0	0	0	18	15	Fair	Poor	stump sprout	34.153132	-117.874819
447	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	15	Fair	Poor	stump sprout	34.153127	-117.874747
448	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	18	Good	Poor	stump sprout	34.153096	-117.874723
449	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	18	Good	Poor	stump sprout	34.153106	-117.874707
450	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	35	20	Fair	Poor	stump sprout	34.153248	-117.874787
451	*Quercus agrifolia*	coast live oak	Yes	47	1	47	0	0	0	0	40	40	Fair	Fair	stump sprout	34.153279	-117.874872
452	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	20	30	Poor	Poor	stump sprout	34.153282	-117.874904
453	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	35	18	Poor	Poor	stump sprout	34.15332	-117.874874
454	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	20	Fair	Poor	stump sprout	34.15331	-117.874828
455	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	40	15	Fair	Poor	stump sprout	34.153338	-117.874805
456	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	40	45	Fair	Poor	stump sprout	34.153371	-117.87476
457	*Platanus racemosa*	California sycamore	No	8	1	8	0	0	0	0	0	0	Dead	Dead		34.153355	-117.874758
458	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	60	15	Good	Fair		34.153369	-117.874514
459	*Juglans californica*	walnut	Yes	42	3	42	0	0	0	0	25	30	Fair	Poor		34.153446	-117.874664
460	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	45	30	Fair	Fair		34.153465	-117.874497
461	*Phoenix canariensis*	Canary Island date palm	Yes	28	1	28	0	0	0	0	30	20	Fair	Fair		34.153342	-117.874494
462	*Phoenix canariensis*	Canary Island date palm	Yes	26	1	26	0	0	0	0	10	15	Good	Fair		34.153352	-117.874514
463	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	14	Good	Good		34.153556	-117.874486
464	*Quercus agrifolia*	coast live oak	Yes	21	1	21	0	0	0	0	30	30	Poor	Poor		34.153271	-117.874447
465	*Quercus agrifolia*	coast live oak	Yes	22	2	14	8	0	0	0	40	20	Fair	Fair		34.153156	-117.874447
466	*Quercus agrifolia*	coast live oak	Yes	19	2	11	8	0	0	0	30	20	Fair	Fair		34.153162	-117.874455
467	*Quercus agrifolia*	coast live oak	Yes	26	2	13	13	0	0	0	40	20	Fair	Fair		34.153106	-117.87443
468	*Quercus agrifolia*	coast live oak	Yes	32	1	32	0	0	0	0	40	30	Fair	Poor		34.153085	-117.874403
469				0											unable to locate		
470	*Quercus agrifolia*	coast live oak	Yes	32	1	32	0	0	0	0	45	35	Fair	Fair		34.152917	-117.874505
471	*Juglans californica*	walnut	Yes	18	1	18	0	0	0	0	20	30	Fair	Poor		34.153134	-117.874458
472				0											unable to locate		
473				0											unable to locate		

474				0										unable to locate		
475	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	50	20	Fair	Fair		34.152891	-117.874513
476	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	20	Fair	Fair		34.152904	-117.874519
477				0										unable to locate		
478	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	45	25	Fair	Fair		34.152849	-117.874368
479	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	25	20	Good	Good		34.152849	-117.874377
480	*Quercus agrifolia*	coast live oak	Yes	43	7	7	9	9	9	9	30	40	Fair	Poor	additonal stems 7,7	34.152807	-117.87433
481				0										unable to locate		
482	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	14	Good	Fair		34.152765	-117.874388
483	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	18	Good	Fair		34.152753	-117.874416
484	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	14	Good	Poor		34.152724	-117.874349
485	*Quercus agrifolia*	coast live oak	Yes	41	4	41	0	0	0	0	40	35	Fair	Fair		34.152793	-117.874448
486	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	20	Good	Fair		34.152814	-117.874405
487	*Quercus agrifolia*	coast live oak	Yes	17	3	17	0	0	0	0	50	30	Good	Fair		34.152835	-117.874547
488	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	50	25	Fair	Fair		34.152825	-117.874557
489	*Quercus agrifolia*	coast live oak	Yes	27	2	27	0	0	0	0	35	30	Fair	Poor		34.152806	-117.874549
490	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	8	Good	Poor		34.152646	-117.874352
491	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Good	Fair		34.152609	-117.874309
492	*Olea europaea*	fruitless olive	Yes	16	4	16	0	0	0	0	20	20	Good	Poor		34.152587	-117.874374
493	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	0	0	Dead	Dead		34.152633	-117.874268
494	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	25	Fair	Fair		34.15259	-117.874462
495	*Sambucus canadensis*	American elderberry	Yes	11	2	11	0	0	0	0	15	20	Fair	Fair		34.152537	-117.874398
496	*Pinus canariensis*	Canary Island pine	No	24	1	24	0	0	0	0	75	15	Dead	Dead		34.152546	-117.874211
497	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	12	10	Fair	Poor		34.152605	-117.874256
498	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	35	15	Fair	Poor		34.152621	-117.874208
499	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	12	Fair	Poor		34.152604	-117.874221
500	*Olea europaea*	fruitless olive	Yes	23	2	23	0	0	0	0	20	25	Good	Poor		34.152495	-117.874281
501	*Olea europaea*	fruitless olive	Yes	11	1	11	0	0	0	0	40	20	Fair	Fair		34.152677	-117.874138
502	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	25	20	Fair	Fair		34.152746	-117.87416
503	*Olea europaea*	fruitless olive	Yes	30	5	30	0	0	0	0	35	30	Good	Poor		34.152759	-117.874242
504	*Juglans californica*	walnut	Yes	12	2	12	0	0	0	0	15	15	Fair	Fair		34.152768	-117.874175
505	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	35	20	Fair	Fair		34.152695	-117.874086
506	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	20	Fair	Fair		34.152627	-117.874055
507	*Olea europaea*	fruitless olive	Yes	12	2	12	0	0	0	0	20	20	Fair	Poor		34.152597	-117.874081
508	*Pinus canariensis*	Canary Island pine	Yes	28	1	28	0	0	0	0	70	25	Fair	Poor		34.152535	-117.87406
509	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	16	8	Poor	Poor	stump sprout	34.152564	-117.874061
510	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	20	Fair	Fair		34.152643	-117.874016
511	*Olea europaea*	fruitless olive	No	20	2	20	0	0	0	0	30	20	Dead	Dead	main stem is dead, stump sprout at base	34.152618	-117.873918
512	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	30	Poor	Poor		34.152618	-117.873907
513	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	30	Fair	Good		34.15253	-117.873984
514	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	15	Good	Poor	#514_#515 tagged on same tree	34.152501	-117.873898
515				0											#514_#515 tagged on same tree		
516	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	25	15	Good	Poor		34.152502	-117.873895
517	*Phoenix canariensis*	Canary Island date palm	Yes	27	1	27	0	0	0	0	30	20	Fair	Good		34.152559	-117.873919
518	*Phoenix canariensis*	Canary Island date palm	Yes	27	1	27	0	0	0	0	50	20	Fair	Good		34.152582	-117.873889

519	*Phoenix canariensis*	Canary Island date palm	Yes	27	1	27	0	0	0	0	45	15	Fair	Good		34.152568	-117.873836
520	*Phoenix canariensis*	Canary Island date palm	Yes	27	1	27	0	0	0	0	30	15	Fair	Fair		34.152561	-117.87381
521	*Phoenix canariensis*	Canary Island date palm	Yes	22	1	22	0	0	0	0	45	15	Fair	Good		34.152561	-117.873762
522	*Platauna racemosa*	California sycamore	Yes	14	1	14	0	0	0	0	25	20	Fair	Fair		34.152585	-117.873656
523	*Phoenix canariensis*	Canary Island date palm	Yes	24	1	24	0	0	0	0	30	15	Good	Good		34.152659	-117.873792
524	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	14	10	Good	Poor	stump sprout	34.152731	-117.873624
525	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	15	20	Good	Poor	stump sprout	34.152731	-117.873623
526	*Quercus agrifolia*	coast live oak	Yes	47	4	47	0	0	0	0	45	35	Fair	Poor		34.15278	-117.873668
527	*Eucalyptus robusta*	swamp mahogany	Yes	17	1	17	0	0	0	0	25	30	Good	Poor		34.152772	-117.87363
528	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	20	12	Good	Poor		34.152831	-117.873702
529	*Juglans californica*	walnut	Yes	12	1	12	0	0	0	0	25	15	Fair	Poor	stump sprout	34.152843	-117.873705
530	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	15	Good	Fair		34.152843	-117.873703
531	*Phoenix canariensis*	Canary Island date palm	Yes	11	1	11	0	0	0	0	30	18	Good	Good		34.1529	-117.873356
532	*Phoenix canariensis*	Canary Island date palm	Yes	11	1	11	0	0	0	0	30	18	Good	Good		34.152818	-117.873226
533	*Quercus agrifolia*	coast live oak	No	11	1	11	0	0	0	0	20	5	Dead	Dead	main stem is dead, stump sprout at base	34.152816	-117.873224
534	*Quercus agrifolia*	coast live oak	Yes	62	1	62	0	0	0	0	45	45	Poor	Fair		34.15298	-117.872929
535	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	10	Fair	Fair		34.152997	-117.87297
536	*Quercus agrifolia*	coast live oak	Yes	26	1	26	0	0	0	0	35	30	Fair	Fair		34.153081	-117.872978
537	*Quercus agrifolia*	coast live oak	Yes	21	1	21	0	0	0	0	50	30	Good	Fair		34.153094	-117.87301
538	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	20	Fair	Fair		34.153115	-117.873034
539	*Washingtonia robusta*	Mexican fan palm	Yes	11	1	11	0	0	0	0	30	15	Good	Good		34.153179	-117.872947
540	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	55	15	Good	Fair		34.153193	-117.872953
541	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	30	30	Fair	Fair		34.153131	-117.872991
542	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	25	20	Poor	Fair		34.153183	-117.873052
543	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	20	30	Fair	Poor		34.153267	-117.873064
544	*Quercus agrifolia*	coast live oak	Yes	46	5	46	0	0	0	0	50	30	Poor	Poor		34.153298	-117.873141
545	*Quercus agrifolia*	coast live oak	Yes	26	2	26	0	0	0	0	30	20	Fair	Poor		34.153384	-117.873104
546	*Quercus agrifolia*	coast live oak	No	19	1	19	0	0	0	0	30	10	Dead	Dead		34.1534	-117.873087
547	*Quercus agrifolia*	coast live oak	Yes	37	2	37	0	0	0	0	35	30	Fair	Poor		34.153459	-117.873105
548	*Quercus agrifolia*	coast live oak	Yes	15	2	15	0	0	0	0	25	20	Fair	Poor		34.153454	-117.873159
549	*Quercus agrifolia*	coast live oak	Yes	40	2	40	0	0	0	0	40	25	Fair	Poor		34.153453	-117.873163
550	*Quercus agrifolia*	coast live oak	Yes	24	2	24	0	0	0	0	30	20	Fair	Poor		34.153477	-117.873148
551	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Fair	Poor		34.153504	-117.873165
552	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	20	15	Fair	Poor		34.153504	-117.873166
553	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	20	Fair	Poor		34.1535	-117.873202
554	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	30	20	Fair	Poor		34.153506	-117.8732
555	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	10	0	Dead	Dead		34.153509	-117.873209
556	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	25	20	Poor	Fair		34.153535	-117.87323
557	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	10	Fair	Fair		34.153587	-117.873226
558	*Quercus agrifolia*	coast live oak	Yes	35	2	35	0	0	0	0	35	25	Fair	Fair		34.153554	-117.873136
559	*Quercus agrifolia*	coast live oak	No	10	1	10	0	0	0	0	12	5	Dead	Dead		34.153585	-117.873129
560	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	20	15	Poor	Poor		34.153596	-117.873124
561	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	30	20	Poor	Poor		34.153692	-117.873233
562	*Quercus agrifolia*	coast live oak	Yes	27	1	27	0	0	0	0	50	30	Fair	Fair		34.15375	-117.873278
563	*Platanus racemosa*	California sycamore	Yes	11	1	11	0	0	0	0	25	20	Poor	Poor		34.153751	-117.87328
564	*Juglans californica*	Southern California black walnut	Yes	8	1	8	0	0	0	0	20	15	Poor	Poor	main stem is dead, stump sprout at base	34.153751	-117.873245

565	*Platanus racemosa*	California sycamore	No	16	1	16	0	0	0	0	25	15	Dead	Dead	main stem is dead, stump sprout at base	34.153752	-117.873244
566	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	45	30	Poor	Poor		34.153778	-117.873142
567	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	30	20	Poor	Poor		34.153793	-117.873145
568	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	15	Poor	Poor		34.153808	-117.873148
569	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	35	15	Fair	Poor		34.153816	-117.873174
570	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	10	6	Fair	Poor		34.153878	-117.87319
571	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	15	Fair	Fair		34.153856	-117.87324
572	*Juglans californica*	walnut	Yes	11	1	11	0	0	0	0	20	30	Good	Poor	stump sprout	34.153903	-117.8732
573	*Quercus agrifolia*	coast live oak	Yes	31	1	31	0	0	0	0	45	35	Fair	Fair		34.153906	-117.873135
574	*Quercus agrifolia*	coast live oak	Yes	28	1	28	0	0	0	0	45	30	Fair	Fair		34.153917	-117.873108
575	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	40	35	Fair	Fair		34.15394	-117.87311
576	*Platanus racemosa*	California sycamore	No	13	1	13	0	0	0	0	20	0	Dead	Dead		34.153955	-117.873099
577	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	15	Fair	Fair		34.154033	-117.873125
578	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	15	Fair	Good		34.154045	-117.873128
579	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	25	15	Fair	Poor		34.154123	-117.873128
580	*Quercus agrifolia*	coast live oak	Yes	28	4	28	0	0	0	0	25	30	Fair	Poor		34.154149	-117.873116
581	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	15	Fair	Poor		34.154167	-117.873051
582	*Platanus racemosa*	California sycamore	No	30	1	30	0	0	0	0	0	0	Dead	Dead	laying on ground	34.15411	-117.872984
583	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	35	30	Poor	Poor		34.154061	-117.872914
584	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	20	Fair	Poor		34.154173	-117.873004
585	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	45	30	Poor	Fair		34.154161	-117.87295
586	*Juglans californica*	walnut	Yes	11	2	11	0	0	0	0	15	15	Fair	Poor		34.154035	-117.87289
587	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	40	30	Fair	Poor		34.15399	-117.872878
588	*Quercus agrifolia*	coast live oak	Yes	45	2	45	0	0	0	0	40	30	Good	Fair		34.153863	-117.872928
589	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	15	Fair	Fair		34.15376	-117.872995
590	*Juglans californica*	Southern California	Yes	15	2	15	0	0	0	0	20	30	Poor	Poor		34.153737	-117.873001
591	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	30	Good	Fair		34.153674	-117.872931
592	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	20	Fair	Poor		34.153566	-117.872991
593	*Juglans californica*	walnut	Yes	8	1	8	0	0	0	0	15	20	Good	Poor		34.153608	-117.87297
594	*Platanus racemosa*	California sycamore	Yes	20	1	20	0	0	0	0	45	30	Fair	Poor		34.153522	-117.872964
595	*Quercus agrifolia*	coast live oak	Yes	37	4	37	0	0	0	0	45	40	Fair	Fair		34.153203	-117.872798
596	*Quercus agrifolia*	coast live oak	No	25	1	25	0	0	0	0	0	0	Dead	Dead	main stem is dead, stump sprout at base	34.153017	-117.872626
597	*Olea europaea*	fruitless olive	Yes	10	1	10	0	0	0	0	12	12	Good	Poor		34.153072	-117.872792
598	*Quercus agrifolia*	coast live oak	Yes	37	2	37	0	0	0	0	45	30	Poor	Poor		34.152975	-117.872707
599	*Olea europaea*	fruitless olive	Yes	17	2	17	0	0	0	0	15	15	Good	Poor	stump sprout	34.153003	-117.872647
600	*Olea europaea*	fruitless olive	Yes	13	2	13	0	0	0	0	12	15	Good	Poor		34.152969	-117.872716
601	*Quercus agrifolia*	coast live oak	Yes	28	1	28	0	0	0	0	45	15	Poor	Poor	behind fence on adjacent property, no tag	34.150671	-117.872954
602	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	20	15	Poor	Poor	behind fence on adjacent property, no tag	34.151077	-117.873176
603	*Juglans californica*	walnut	No	4	4	4	0	0	0	0	15	15	Fair	Poor	stems of 3,2,2	34.151701	-117.873417
604	*Olea europaea*	fruitless olive	Yes	15	2	8	7	0	0	0	25	20	Fair	Fair		34.151806	-117.873834
607	*Platanus racemosa*	California sycamore	No	9	4	5	4	0	0	0	15	18	Fair	Poor	stems of 3,3	34.152172	-117.874606
608	*Juglans regia*	English walnut	Yes	11	2	6	5	0	0	0	20	15	Fair	Fair		34.152226	-117.874961
609	*Platanus racemosa*	California sycamore	No	0	4	0	0	0	0	0	10	15	Fair	Poor	stems of 3,3,2,2	34.152342	-117.874945
610	*Platanus racemosa*	California sycamore	Yes	16	4	4	4	4	4	0	15	15	Fair	Poor		34.152358	-117.87523
611	*Juglans regia*	English walnut	No	0	4	0	0	0	0	0	20	15	Fair	Poor	stems of 3,3,3,2	34.152336	-117.875387

612	*Platanus racemosa*	California sycamore	Yes	18	4	6	4	4	4	0	25	15	Fair	Poor		34.152498	-117.875345
613	*Platanus racemosa*	California sycamore	No	0	3	0	0	0	0	0	25	10	Fair	Poor	stems of 3,3,2	34.152447	-117.875411
614	*Quercus agrifolia*	coast live oak	No	5	1	5	0	0	0	0	16	10	Fair	Fair		34.152386	-117.875517
615	*Pittosporum undulatum*	Victorian box	Yes	21	9	5	4	4	4	4	20	15	Fair	Poor	additional stems of 3, 5, 4, 4	34.152209	-117.875452
616	*Quercus agrifolia*	coast live oak	Yes	42	2	21	21	0	0	0	35	30	Poor	Poor		34.15222	-117.875404
617	*Quercus agrifolia*	coast live oak	Yes	49	2	25	24	0	0	0	45	30	Poor	Poor		34.152215	-117.87541
618	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	55	40	Poor	Fair		34.152191	-117.875312
619	*Quercus agrifolia*	coast live oak	Yes	38	1	38	0	0	0	0	60	50	Fair	Fair		34.152187	-117.875259
620	*Quercus agrifolia*	coast live oak	Yes	23	2	12	11	0	0	0	40	30	Fair	Fair		34.152177	-117.875122
621	*Schinus molle*	Peruvian pepper	Yes	17	1	17	0	0	0	0	18	20	Fair	Fair		34.15223	-117.87568
622	*Citrus spp.*	citrus tree	No	4	5	4	0	0	0	0	12	12	Fair	Fair	stems of 3,3,2,2	34.152269	-117.875763
623	*Ficus benjamina*	weeping fig	Yes	63	6	14	12	10	14	13	45	50	Fair	Poor	additional stem of 7	34.152185	-117.875776
624	*Pinus pinea*	Italian stone pine	Yes	25	1	25	0	0	0	0	45	50	Fair	Fair		34.152174	-117.875888
625	*Citrus spp.*	citrus tree	No	8	6	4	4	0	0	0	15	12	Fair	Fair	additional stems of 3,3,2, 2	34.152247	-117.875913
626	Cedrus atlantica 'glauca'	blue atlas cedar	Yes	16	3	6	5	5	0	0	30	15	Fair	Poor		34.152072	-117.876108
627	*Pinus pinea*	Italian stone pine	Yes	38	1	38	0	0	0	0	60	40	Fair	Poor		34.152047	-117.876152
629	*Citrus spp.*	citrus tree	Yes	12	3	4	4	4	0	0	10	9	Fair	Fair		34.152277	-117.875957
630	*Citrus spp.*	citrus tree	Yes	10	4	5	5	0	0	0	10	9	Fair	Fair	stem of 3	34.152304	-117.875912
631	*Citrus spp.*	citrus tree	Yes	18	3	9	5	4	0	0	10	9	Fair	Fair		34.152325	-117.875849
632	*Citrus spp.*	citrus tree	No	9	4	5	4	0	0	0	10	9	Poor	Poor	stems of 3,3	34.152362	-117.875832
633	*Citrus spp.*	citrus tree	No	0	5	0	0	0	0	0	10	9	Poor	Poor	stems of 3,3,3,3,3	34.152368	-117.875817
634	*Ficus benjamina*	weeping fig	Yes	13	2	7	6	0	0	0	25	15	Good	Poor		34.152465	-117.875872
635	*Schinus terebinthifolia*	Brazilian pepper	No	4	4	4	0	0	0	0	10	6	Poor	Poor	stems of 3,3,3	34.15257	-117.875812
636	*Schinus terebinthifolia*	Brazilian pepper	Yes	14	4	8	6	0	0	0	20	20	Fair	Poor	stems of 3,3	34.152585	-117.875801
637	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	55	12	Fair	Fair		34.152742	-117.876043
641	*Quercus agrifolia*	coast live oak	Yes	15	2	9	6	0	0	0	30	18	Fair	Fair		34.15287	-117.876106
642	*Olea europaea*	fruitless olive	No	0	5	0	0	0	0	0	15	18	Fair	Poor	stems of 3,2,1,1,1	34.153047	-117.876171
643	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	15	Poor	Poor		34.153006	-117.87618
644	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	65	12	Poor	Fair		34.153	-117.876262
645	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	18	15	Poor	Poor		34.152989	-117.876269
646	*Quercus agrifolia*	coast live oak	Yes	18	3	9	5	4	0	0	25	15	Fair	Poor		34.152993	-117.876316
647	*Quercus agrifolia*	coast live oak	Yes	19	2	11	8	0	0	0	20	15	Fair	Poor		34.152964	-117.876346
648	*Quercus agrifolia*	coast live oak	Yes	14	3	10	4	0	0	0	15	12	Poor	Poor	stem of 3	34.152932	-117.876346
649	*Quercus agrifolia*	coast live oak	Yes	18	2	10	8	0	0	0	15	10	Poor	Poor		34.152903	-117.876357
650	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Poor	Poor		34.152895	-117.876375
651	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	10	Poor	Poor		34.15289	-117.876372
652	*Quercus agrifolia*	coast live oak	Yes	16	2	9	7	0	0	0	25	10	Poor	Poor		34.152861	-117.876405
653	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	12	Fair	Poor		34.15282	-117.876388
654	*Quercus agrifolia*	coast live oak	Yes	17	2	9	8	0	0	0	10	8	Poor	Poor		34.15288	-117.876457
655	*Quercus agrifolia*	coast live oak	Yes	24	2	14	10	0	0	0	25	10	Fair	Poor		34.15288	-117.876458
656	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	10	8	Fair	Poor	broke trunk	34.152884	-117.876492
657	*Quercus agrifolia*	coast live oak	Yes	32	4	12	7	7	6	0	18	15	Fair	Poor		34.152923	-117.87655
658	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	8	8	Fair	Poor		34.152947	-117.87652
659	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	25	10	Poor	Poor		34.153133	-117.87663
660	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	12	8	Poor	Poor		34.153153	-117.876607
661	*Quercus agrifolia*	coast live oak	Yes	18	2	10	8	0	0	0	25	10	Poor	Poor		34.153155	-117.876627
662	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	10	10	Poor	Poor		34.153157	-117.876694
666	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	18	Fair	Fair	Steep, no access estimated dbh	34.153892	-117.876433

667	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	18	Fair	Fair	Steep, no access estimated dbh	34.153869	-117.876367
669	*Quercus agrifolia*	coast live oak	Yes	14	0	6	8	0	0	0	20	15	Poor	Poor		34.15317	-117.876432
670	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Poor	Poor		34.153134	-117.876419
671	*Olea europaea*	fruitless olive	Yes	56	5	21	13	9	6	7	20	10	Poor	Poor		34.153085	-117.87643
672	*Quercus agrifolia*	coast live oak	Yes	13	2	8	5	0	0	0	20	8	Fair	Poor		34.153078	-117.876405
673	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair		34.153078	-117.876388
674	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	15	8	Fair	Poor		34.153106	-117.876357
675	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	25	20	Poor	Poor		34.153074	-117.876299
676	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	15	Poor	Poor		34.153044	-117.876301
677	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	15	Poor	Fair		34.15318	-117.876321
678	*Quercus agrifolia*	coast live oak	Yes	24	1	7	11	6	0	0	30	20	Fair	Poor		34.153211	-117.876297
679	*Quercus agrifolia*	coast live oak	Yes	24	1	7	11	6	0	0	30	20	Fair	Poor		34.153362	-117.8763
679	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	15	Poor	Poor	Steep, no tag, estimate dbh	34.153447	-117.876492
680	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	35	Fair	Fair	Steep, no tag, estimate dbh	34.153456	-117.876435
681	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	45	35	Fair	Fair	Steep, no tag, estimate dbh	34.153454	-117.876399
682	*Quercus agrifolia*	coast live oak	Yes	22	2	16	6	0	0	0	50	30	Fair	Fair	Steep, no tag, estimate dbh	34.153477	-117.876414
683	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair	Steep, no tag, estimate dbh	34.153519	-117.876426
684	*Quercus agrifolia*	coast live oak	Yes	28	2	14	14	0	0	0	25	30	Poor	Fair	Steep, no tag, estimate dbh	34.153525	-117.876399
685	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	15	15	Fair	Poor		34.153704	-117.876303
686	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	15	Fair	Fair		34.153658	-117.876226
687	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	10	10	Fair	Poor	sprout off fallen tree no tag access	34.153714	-117.876144
688	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	17	12	Fair	Fair	Steep, no tag, estimate dbh	34.153846	-117.876307
689	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	10	18	Fair	Poor		34.153828	-117.876292
690	*Quercus agrifolia*	coast live oak	Yes	12	1	7	5	0	0	0	15	18	Fair	Poor		34.153842	-117.876236
691	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	15	6	Poor	Poor	Steep, no tag, estimate dbh	34.153742	-117.876126
692	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	25	15	Good	Fair	Steep, no tag, estimate dbh	34.153768	-117.876111
693	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	10	Fair	Fair		34.153822	-117.876096
694	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	18	10	Poor	Poor		34.153838	-117.876129
695	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	23	18	Fair	Poor		34.153852	-117.876207
696	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair		34.15388	-117.876145
697	*Platanus racemosa*	California sycamore	Yes	20	1	20	0	0	0	0	45	20	Poor	Poor		34.15393	-117.876182
699	*Juglans californica*	Southern California black walnut	Yes	8	1	8	0	0	0	0	20	18	Good	Fair	Steep, no access estimated dbh	34.154082	-117.876273
700	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	18	Fair	Poor		34.15399	-117.876173
701	*Juglans californica*	walnut	Yes	9	1	9	0	0	0	0	20	15	Fair	Poor	no tag, couldn't access	34.154056	-117.876118
702	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	15	Fair	Fair		34.154095	-117.876137
703	*Quercus agrifolia*	coast live oak	Yes	26	2	13	13	0	0	0	30	30	Fair	Poor		34.154158	-117.876146
704	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	45	20	Fair	Poor	no tag, couldn't access	34.15416	-117.876152
707	*Juglans californica*	Southern California black walnut	No	0	5	0	0	0	0	0	12	10	Poor	Fair	no tag, couldn't access, stems estimated at 3,2,1,1,1	34.154169	-117.876044
708a	*Platanus racemosa*	California sycamore	Yes	11	1	11	0	0	0	0	30	10	Poor	Poor		34.154152	-117.876163
708b	*Juglans californica*	Southern California black walnut	Yes	9	4	5	4	0	0	0	10	10	Fair	Poor	no tag, couldn't access, stems of 3,2	34.153741	-117.875946

709	*Juglans californica*	Southern California black walnut	No	0	5	0	0	0	0	0	9	9	Fair	Fair	no tag, couldn't access, stems of 3,3,2,2,2	34.153839	-117.875768
710	*Juglans californica*	Southern California black walnut	No	7	3	7	0	0	0	0	11	11	Poor	Poor	no tag, couldn't access, stems of 2,2	34.153961	-117.875821
711	*Juglans californica*	Southern California	Yes	24	3	9	7	8	0	0	25	20	Poor	Poor	no tag, couldn't access	34.153412	-117.875994
712	*Juglans californica*	Southern California	Yes	16	2	9	7	0	0	0	25	15	Poor	Poor	no tag, couldn't access	34.153514	-117.876049
713	*Quercus agrifolia*	coast live oak	No	0	4	0	0	0	0	0	15	10	Fair	Poor	stump sprout, stems of 2,2,2,1	34.15341	-117.876049
714	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	25	10	Fair	Fair		34.152602	-117.875217
715	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	15	10	Fair	Fair		34.15262	-117.87521
716	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	15	6	Fair	Poor		34.152624	-117.875216
717	*Platanus racemosa*	California sycamore	No	0	2	0	0	0	0	0	18	10	Fair	Poor	stems of 3,2	34.152441	-117.874079
718	*Platanus racemosa*	California sycamore	No	0	5	0	0	0	0	0	15	12	Fair	Poor	stems of 3,3,2,2,2	34.152335	-117.874007
719	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	25	20	Fair	Fair		34.150829	-117.872622
720	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	25	20	Fair	Fair		34.150796	-117.872626
721	*Quercus agrifolia*	coast live oak	Yes	12	5	4	4	4	0	0	20	10	Fair	Fair	stems of 3,3	34.150927	-117.872632
722	*Grevillea robusta*	silk oak	Yes	10	2	5	5	0	0	0	30	23	Fair	Fair		34.151096	-117.872629
723	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	20	Fair	Fair		34.151289	-117.872646
724	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	10	Poor	Fair		34.151299	-117.872648
725	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	25	10	Poor	Fair		34.151296	-117.872638
726	*Quercus agrifolia*	coast live oak	Yes	11	2	7	4	0	0	0	20	10	Poor	Poor		34.15131	-117.872645
727	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	25	10	Fair	Poor		34.151339	-117.872644
728	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair		34.15135	-117.872639
729	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	20	10	Fair	Poor		34.151375	-117.872627
730	*Quercus agrifolia*	coast live oak	Yes	14	2	7	7	0	0	0	18	22	Fair	Fair		34.151395	-117.872653
731	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	15	8	Fair	Poor		34.151424	-117.87265
732	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	15	Poor	Fair		34.151452	-117.872658
733	*Olea europaea*	fruitless olive	No	7	3	7	0	0	0	0	15	20	Fair	Poor	stems of 3,2	34.151467	-117.872681
734	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	15	Fair	Fair		34.151476	-117.872682
735	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	10	Fair	Fair		34.151501	-117.87267
736	*Schinus molle*	Peruvian pepper	Yes	27	5	8	9	6	4	0	15	15	Fair	Poor	stem of 3	34.15201	-117.87305
737	*Ficus elastica*	rubber tree	Yes	34	1	34	0	0	0	0	25	25	Good	Fair		34.152164	-117.873453
738	*Ceratonia siliqua*	carob tree	No	0	5	0	0	0	0	0	18	20	Fair	Poor	stems of 3,3,3,3,3	34.152165	-117.87357
739	*Olea europaea*	fruitless olive	No	0	5	0	0	0	0	0	20	20	Fair	Poor	stems of 3,3,3,3,3	34.152364	-117.87332
740	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	15	Fair	Poor		34.152426	-117.87381
741	*Quercus agrifolia*	coast live oak	No	5	2	5	0	0	0	0	30	10	Fair	Poor	stem of 3	34.152661	-117.874751
742	*Quercus agrifolia*	coast live oak	No	4	2	4	0	0	0	0	20	5	Fair	Poor	stem of 3	34.152657	-117.874788
743	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	25	8	Fair	Poor		34.152659	-117.874791
744	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	35	15	Fair	Poor		34.152733	-117.87478
745	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	30	10	Fair	Poor		34.152762	-117.874743
746	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	15	5	Poor	Poor		34.152736	-117.874742
747	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	15	7	Poor	Poor		34.152775	-117.874716
748	*Quercus agrifolia*	coast live oak	No	4	2	4	0	0	0	0	18	8	Fair	Poor	stem of 3	34.152842	-117.874771
749	*Platanus racemosa*	California sycamore	Yes	12	2	6	6	0	0	0	30	15	Fair	Fair	no tag, couldn't access	34.153071	-117.874703
750	*Juglans californica*	walnut	Yes	8	2	4	4	0	0	0	20	18	Fair	Fair	no tag, couldn't access	34.15296	-117.874721
751	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	15	10	Fair	Fair		34.153116	-117.874669
752	*Juglans californica*	walnut	Yes	9	1	9	0	0	0	0	12	15	Fair	Poor	stump sprout	34.153204	-117.874846
753	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	13	9	Fair	Poor		34.153357	-117.875034
754	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	12	Fair	Fair		34.153384	-117.875125

755	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	15	8	Poor	Fair		34.153401	-117.875127
756	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	12	Fair	Fair	no tag, couldn't access	34.153611	-117.874851
757	*Juglans californica*	Southern California black walnut	No	6	1	6	0	0	0	0	20	12	Fair	Fair	Steep, no tag, estimated dbh	34.153796	-117.874679
758	*Juglans californica*	Southern California black walnut	Yes	18	3	6	6	6	0	0	30	15	Fair	Fair	Steep, no tag, estimated dbh	34.153759	-117.874611
759	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	30	15	Fair	Fair	Steep, no tag, estimated dbh	34.153778	-117.874627
760	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	30	15	Fair	Fair	Steep, no tag, estimated dbh	34.153791	-117.874643
761	*Platanus racemosa*	California sycamore	No	6	1	6	0	0	0	0	30	15	Fair	Fair	Steep, no tag, estimated dbh	34.153908	-117.874693
762	*Juglans californica*	Southern California black walnut	No	4	1	4	0	0	0	0	30	15	Fair	Fair	Steep, no tag, estimated dbh	34.153946	-117.874666
763	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	15	Fair	Fair	Steep, no tag, estimated dbh	34.153962	-117.87461
764	*Juglans californica*	Southern California black walnut	No	7	7	7	0	0	0	0	30	20	Fair	Poor	Steep, no tag, estimated dbh, stems of 3,3,3,3	34.153873	-117.874553
766	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	20	10	Fair	Fair	Steep, no tag, estimated dbh	34.153825	-117.874565
767	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	15	Fair	Poor		34.153522	-117.874702
768	*Juglans californica*	walnut	No	0	5	0	0	0	0	0	18	20	Fair	Poor	stems of 3,3,3,3,3	34.15357	-117.874594
769	*Platanus racemosa*	California sycamore	Yes	15	2	10	5	0	0	0	30	10	Poor	Poor		34.153538	-117.874503
770	*Juglans californica*	Southern California black walnut	No	0	3	0	0	0	0	0	20	40	Good	Poor	Stump regrowth, stems of 3,3,3	34.153107	-117.874526
771	*Juglans californica*	walnut	Yes	16	4	4	4	4	4	0	20	40	Good	Poor	Stump regrowth	34.153129	-117.874516
772	*Quercus agrifolia*	coast live oak	Yes	32	3	11	11	10	0	0	30	20	Fair	Poor	no tag, couldn't access	34.153024	-117.87434
773	*Juglans californica*	walnut	Yes	9	1	9	0	0	0	0	30	20	Good	Poor	no tag, couldn't access	34.153103	-117.874453
773	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	20	10	Fair	Poor		34.152933	-117.874444
774	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	20	10	Fair	Poor		34.152843	-117.874529
775	*Juglans californica*	walnut	No	6	1	6	0	0	0	0	20	10	Fair	Poor	no tag, couldn't access	34.152929	-117.87459
775	*Juglans californica*	walnut	No	6	1	6	0	0	0	0	20	10	Fair	Poor	no tag, couldn't access	34.152929	-117.87459
776	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	30	10	Fair	Fair	no tag, couldn't access	34.152934	-117.874605
777	*Quercus agrifolia*	coast live oak	No	0	4	0	0	0	0	0	15	15	Fair	Poor	stems of 3,2,2,2	34.152734	-117.874233
778	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	30	Fair	Fair	no tag, couldn't access	34.152935	-117.873896
779	*Quercus agrifolia*	coast live oak	No	0	4	0	0	0	0	0	11	7	Fair	Poor	stems of 3,2,2,2	34.152765	-117.873923
780	*Platanus racemosa*	California sycamore	No	9	5	5	4	0	0	0	25	20	Fair	Poor	stump sprout from fire, stems of 3,3,3	34.152644	-117.873672
781	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	10	Fair	Fair		34.152839	-117.873108
782	*Eucalyptus robusta*	swamp mahogny	Yes	26	5	6	5	5	4	6	25	25	Fair	Poor	stump sprout	34.152832	-117.87311
783	*Quercus agrifolia*	coast live oak	No	0	3	0	0	0	0	0	12	12	Fair	Poor	stump sprout, stems of 2,2,2	34.152876	-117.873086
784	*Quercus agrifolia*	coast live oak	No	5	1	5	0	0	0	0	20	8	Fair	Poor		34.153621	-117.873221
785	*Quercus agrifolia*	coast live oak	No	5	1	5	0	0	0	0	20	8	Fair	Poor		34.153636	-117.873227
786	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	20	8	Fair	Poor		34.153645	-117.873205
787	*Juglans californica*	walnut	No	7	1	7	0	0	0	0	15	15	Good	Poor		34.153674	-117.873281
788	*Quercus agrifolia*	coast live oak	No	5	1	5	0	0	0	0	17	5	Fair	Poor		34.15365	-117.873178
789	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	10	7	Fair	Poor		34.153777	-117.873149
790	*Quercus agrifolia*	coast live oak	No	4	2	4	0	0	0	0	10	7	Fair	Poor	stems of 2,2	34.153795	-117.873093
791	*Quercus agrifolia*	coast live oak	No	4	2	4		0	0	0	10	2	Poor	Poor	stem of 3	34.154004	-117.873126
792	*Quercus agrifolia*	coast live oak	No	7	1	7	0	0	0	0	18	10	Fair	Fair		34.154073	-117.873165

793	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	35	15	Fair	Fair		34.154194	-117.873197
793	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	15	8	Fair	Poor	no tag, couldn't access	34.153889	-117.873497
795	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	12	10	Poor	Poor		34.153876	-117.873101
796	*Quercus agrifolia*	coast live oak	Yes	10	0	10	0	0	0	0	45	18	Fair	Fair	no tag, couldn't access	34.153769	-117.872557
797	*Juglans californica*	walnut	Yes	10	0	10	0	0	0	0	30	30	Fair	Fair	no tag, couldn't access	34.15352	-117.872542
798	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	35	15	Poor	Poor		34.153254	-117.872672
800	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	25	12	Poor	Poor		34.152791	-117.872535
801	*Quercus agrifolia*	coast live oak	No	5	1	5	0	0	0	0	9	3	Poor	Poor		34.152656	-117.872585
802	*Quercus agrifolia*	coast live oak	Yes	8	2	4	4	0	0	0	8	1	Poor	Poor		34.152602	-117.87257
803	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	8	Fair	Poor	located on adjacent property, did not tag	34.152516	-117.872554
804	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	35	15	Fair	Fair	located on adjacent property, did not tag	34.152507	-117.872554
805	*Quercus agrifolia*	coast live oak	Yes	44	2	28	16	0	0	0	40	20	Fair	Fair	located on adjacent property, did not tag	34.152507	-117.872554
806	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	25	Fair	Fair	located on adjacent property, did not tag	34.152425	-117.872583
807	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	10	Fair	Fair		34.152273	-117.872595
808	*Quercus agrifolia*	coast live oak	No	6	1	6	0	0	0	0	20	10	Fair	Fair		34.152262	-117.872603
809	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	10	Fair	Poor		34.152241	-117.872602
810	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	18	15	Fair	Fair		34.152154	-117.872632
811	*Quercus agrifolia*	coast live oak	Yes	10	2	5	5	0	0	0	20	15	Poor	Fair		34.152052	-117.872663
812	*Quercus agrifolia*	coast live oak	Yes	10	2	5	5	0	0	0	12	10	Fair	Poor		34.152002	-117.872674
813	*Schinus molle*	Peruvian pepper	Yes	24	5	10	9	5	0	0	20	20	Fair	Fair	stems of 3,3	34.152037	-117.872593
814	*Schinus molle*	Peruvian pepper	Yes	33	5	10	8	6	5	4	20	20	Fair	Fair		34.152086	-117.872561
815	*Quercus agrifolia*	coast live oak	Yes	18	2	9	9	0	0	0	15	10	Poor	Poor		34.152089	-117.87257
816	*Quercus agrifolia*	coast live oak	No	4	1	4	0	0	0	0	15	8	Fair	Fair		34.152103	-117.872555
817	*Schinus molle*	Peruvian pepper	Yes	16	2	8	8	0	0	0	15	20	Fair	Poor		34.152142	-117.872577
818	*Schinus molle*	Peruvian pepper	Yes	16	2	8	8	0	0	0	15	20	Fair	Poor		34.151958	-117.87268
819	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	25	30	Fair	Fair		34.15186	-117.872617
820	*Quercus agrifolia*	coast live oak	Yes	8	4	4	4	0	0	0	25	15	Fair	Poor	stems of 3,3	34.15189	-117.872611
821	*Schinus molle*	Peruvian pepper	Yes	35	3	12	12	11	0	0	25	10	Fair	Poor		34.15185	-117.872584
822	*Schinus molle*	Peruvian pepper	Yes	34	2	12	12	10	0	0	30	15	Poor	Poor		34.151734	-117.872653
823	*Quercus agrifolia*	coast live oak	Yes	21	5	6	5	5	5	0	25	15	Fair	Poor	stem of 3	34.151735	-117.872634
824	*Quercus agrifolia*	coast live oak	Yes	21	3	8	6	7	0	0	35	15	Fair	Poor		34.151751	-117.872561
825	*Quercus agrifolia*	coast live oak	No	0	5	0	0	0	0	0	12	10	Fair	Poor	stems of 3,3,2,2,2	34.151766	-117.872565
826	*Quercus agrifolia*	coast live oak	Yes	13	5	5	4	4	0	0	25	15	Fair	Poor	stems of 2,2	34.151739	-117.872555
827	*Quercus agrifolia*	coast live oak	Yes	19	5	6	5	4	4	0	20	15	Fair	Poor	stem of 3	34.15171	-117.872556
828	*Olea europaea*	fruitless olive	Yes	36	5	14	9	8	5	0	30	20	Fair	Poor	stem of 3	34.152233	-117.873084
829	*Eucalyptus cladocalx*	sugar gum	Yes	14	3	6	4	4	0	0	40	12	Fair	Poor		34.152504	-117.873121
830	*Eucalyptus cladocalx*	sugar gum	Yes	16	5	3	4	5	4	0	40	12	Fair	Poor	stem of 3	34.152511	-117.873136
831	*Eucalyptus cladocalx*	sugar gum	Yes	11	2	6	5	0	0	0	40	18	Fair	Poor		34.152533	-117.873146
832	*Eucalyptus cladocalx*	sugar gum	Yes	20	4	6	5	5	4	0	40	25	Fair	Poor		34.152555	-117.873121
833	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	15	Fair	Poor		34.152698	-117.872819
834	*Quercus agrifolia*	coast live oak	No	4	1	4	0	0	0	0	10	5	Poor	Poor		34.152697	-117.872819
835	*Olea europaea*	fruitless olive	Yes	15	2	8	7	0	0	0	30	20	Fair	Poor		34.152793	-117.872793

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
1	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	22	25	Fair	Poor	tree is topped, growing under power lines	34.150459	-117.87264
3	*Casuarina cunninghamiana*	river she-oak	Yes	29	1	29	0	0	0	0	60	20	Good	Good		34.150417	-117.87273
4	*Pinus canariensis*	Canary Island pine	Yes	26	1	26	0	0	0	0	70	20	Good	Poor		34.150429	-117.87276
5	*Jacaranda mimosifolia*	jacaranda	Yes	20	3	10	5	5	0	0	18	18	Fair	Poor	tree is topped, growing under power lines	34.15048	-117.87263
6	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	90	15	Good	Fair		34.150509	-117.87297
7	*Pinus canariensis*	Canary Island pine	Yes	30	1	30	0	0	0	0	90	30	Good	Fair		34.150649	-117.87294
8	*Casuarina cunninghamiana*	river she-oak	Yes	19	1	19	0	0	0	0	35	25	Fair	Fair	top of tree is dead	34.150678	-117.87289
11	*Jacaranda mimosifolia*	jacaranda	Yes	18	2	10	8	0	0	0	30	30	Fair	Fair		34.150597	-117.87272
12	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	18	Poor	Fair		34.150632	-117.87271
13	*Quercus agrifolia*	coast live oak	Yes	15	2	8	7	0	0	0	10	10	Fair	Poor		34.150677	-117.87271
14	*Washingtonia robusta*	Mexican fan palm	Yes	11	1	11	0	0	0	0	75	15	Good	Fair		34.150672	-117.87273
16	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	15	10	Good	Poor		34.15072	-117.87266
17	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	95	15	Good	Fair		34.15072	-117.87266
18	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	20	10	Good	Good		34.150739	-117.87267
19	*Casuarina cunninghamiana*	river she-oak	Yes	14	1	14	0	0	0	0	50	20	Fair	Good		34.150788	-117.87266
20	*Cedrus deodora*	deodar cedar	Yes	20	1	20	0	0	0	0	50	30	Fair	Fair		34.150746	-117.87279
21	*Phoenix canariensis*	Canary Island date palm	Yes	20	1	20	0	0	0	0	60	20	Good	Good		34.150766	-117.87299
22	*Cedrus deodora*	deodar cedar	Yes	23	1	23	0	0	0	0	55	25	Fair	Fair		34.150853	-117.87299
24	*Phoenix canariensis*	Canary Island date palm	Yes	18	1	18	0	0	0	0	45	18	Good	Good		34.150911	-117.87309
25	*Cedrus deodora*	deodar cedar	Yes	17	1	17	0	0	0	0	40	20	Fair	Fair		34.150973	-117.87306
28	*Casuarina cunninghamiana*	river she-oak	Yes	21	1	21	0	0	0	0	55	18	Fair	Poor		34.150833	-117.87274
29	*Pinus canariensis*	Canary Island pine	Yes	24	1	24	0	0	0	0	55	20	Fair	Fair	top of tree is dead	34.150877	-117.87274

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
30	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	40	10	Fair	Good		34.150892	-117.87262
31	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	45	12	Good	Good		34.150938	-117.87261
32	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	25	10	Good	Good		34.150959	-117.87261
33	*Casuarina cunninghamiana*	river she-oak	Yes	15	1	15	0	0	0	0	35	20	Fair	Fair	top of tree is dead	34.150933	-117.87275
34	*Grevillea robusta*	silk oak	Yes	22	1	22	0	0	0	0	50	20	Good	Fair		34.150985	-117.87273
35	*Casuarina cunninghamiana*	river she-oak	Yes	15	1	15	0	0	0	0	35	15	Fair	Fair	top of tree is dead	34.150947	-117.87279
36	*Casuarina cunninghamiana*	river she-oak	Yes	18	1	18	0	0	0	0	50	20	Good	Fair		34.150948	-117.87286
37	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	30	10	Fair	Good		34.15109	-117.87263
38	*Casuarina cunninghamiana*	river she-oak	Yes	20	1	20	0	0	0	0	55	25	Good	Fair		34.151083	-117.87271
39	*Grevillea robusta*	silk oak	Yes	25	1	25	0	0	0	0	55	25	Poor	Poor		34.151115	-117.87275
40	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	50	15	Good	Good		34.151104	-117.87283
41	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	50	15	Good	Good		34.151081	-117.87285
42	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	45	15	Good	Poor		34.151076	-117.87291
43	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	55	12	Good	Poor		34.151114	-117.87288
44	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	60	12	Good	Fair		34.151178	-117.87293
45	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	60	12	Good	Fair		34.151145	-117.87297
46	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	60	12	Good	Fair		34.151209	-117.87298
47	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	60	12	Good	Fair		34.151225	-117.87291
48	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	60	12	Good	Fair		34.151255	-117.87297
49	*Phoenix canariensis*	Canary Island date palm	Yes	20	1	20	0	0	0	0	25	15	Good	Good		34.151237	-117.87302
50	*Phoenix canariensis*	Canary Island date palm	Yes	21	1	21	0	0	0	0	30	20	Good	Good		34.151175	-117.87302
52	*Cedrus deodora*	deodar cedar	Yes	23	1	23	0	0	0	0	50	30	Fair	Fair		34.151141	-117.87308

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
53	*Pinus canariensis*	Canary Island pine	Yes	17	1	17	0	0	0	0	55	20	Fair	Poor		34.151166	-117.87274
54	*Pinus canariensis*	Canary Island pine	Yes	11	1	11	0	0	0	0	30	15	Fair	Fair		34.151243	-117.8728
55	*Pinus canariensis*	Canary Island pine	Yes	27	1	27	0	0	0	0	70	30	Fair	Fair		34.15127	-117.87275
56	*Pinus canariensis*	Canary Island pine	Yes	21	1	21	0	0	0	0	70	30	Fair	Fair		34.151273	-117.87282
57	*Pinus canariensis*	Canary Island pine	Yes	20	1	20	0	0	0	0	70	20	Fair	Fair		34.151293	-117.87287
58	*Pinus canariensis*	Canary Island pine	Yes	17	1	17	0	0	0	0	60	15	Poor	Fair		34.15133	-117.87285
59	*Pinus canariensis*	Canary Island pine	Yes	19	1	19	0	0	0	0	65	15	Fair	Poor		34.151334	-117.87293
60	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	70	20	Fair	Fair		34.151296	-117.87295
61	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	65	20	Good	Fair		34.151295	-117.87307
62	*Pinus canariensis*	Canary Island pine	Yes	23	1	23	0	0	0	0	65	20	Fair	Fair		34.15133	-117.87312
63	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	65	20	Poor	Fair		34.151392	-117.87311
64	*Pinus canariensis*	Canary Island pine	Yes	20	1	20	0	0	0	0	60	15	Fair	Poor		34.151353	-117.87303
65	*Pinus canariensis*	Canary Island pine	Yes	17	1	17	0	0	0	0	55	10	Poor	Poor		34.151381	-117.87303
66	*Pinus canariensis*	Canary Island pine	Yes	12	1	12	0	0	0	0	40	10	Fair	Poor		34.151408	-117.87308
67	*Pinus canariensis*	Canary Island pine	Yes	20	1	20	0	0	0	0	60	15	Fair	Fair		34.151403	-117.87295
68	*Pinus canariensis*	Canary Island pine	Yes	21	1	21	0	0	0	0	60	15	Fair	Fair		34.15139	-117.87289
69	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	60	15	Fair	Fair		34.151435	-117.87294
70	*Pinus canariensis*	Canary Island pine	Yes	23	1	23	0	0	0	0	60	15	Fair	Fair		34.15143	-117.87298
71	*Pinus canariensis*	Canary Island pine	Yes	19	1	19	0	0	0	0	75	15	Fair	Fair		34.151476	-117.87301
72	*Pinus canariensis*	Canary Island pine	Yes	20	1	20	0	0	0	0	75	15	Fair	Fair		34.151505	-117.87296
73	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	75	20	Fair	Poor		34.151498	-117.87286
74	*Pinus canariensis*	Canary Island pine	Yes	22	1	22	0	0	0	0	70	15	Fair	Poor		34.151557	-117.8729
76	*Eucalyptus robusta*	swamp mahogany	Yes	15	1	15	0	0	0	0	15	20	Good	Poor		34.15157	-117.87294

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
77	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	30	12	Good	Good		34.151731	-117.87302
78	*Olea europaea*	fruitless olive	Yes	12	1	12	0	0	0	0	20	20	Good	Fair		34.151655	-117.87304
79	*Quercus agrifolia*	coast live oak	Yes	26	4	9	9	4	4	0	20	20	Good	Fair		34.151621	-117.87287
80	*Heteromeles arbutifolia*	toyon	Yes	21	5	7	5	5	4	0	15	15	Poor	Fair		34.151508	-117.87307
82	*Grevillea robusta*	silk oak	Yes	24	1	24	0	0	0	0	65	30	Fair	Fair		34.15155	-117.87312
83	*Olea europaea*	fruitless olive	Yes	26	3	10	10	6	0	0	30	30	Good	Poor		34.151585	-117.8731
84	*Grevillea robusta*	silk oak	Yes	18	1	18	0	0	0	0	55	20	Fair	Fair		34.151607	-117.87315
86	*Grevillea robusta*	silk oak	Yes	20	1	20	0	0	0	0	55	15	Good	Good		34.15167	-117.87315
87	*Grevillea robusta*	silk oak	Yes	19	1	19	0	0	0	0	50	15	Fair	Fair		34.151595	-117.87322
88	*Grevillea robusta*	silk oak	Yes	16	1	16	0	0	0	0	45	15	Fair	Fair		34.151534	-117.87318
90	*Cedrus deodora*	deodar cedar	Yes	26	1	26	0	0	0	0	55	30	Fair	Fair		34.151316	-117.87316
91	*Grevillea robusta*	silk oak	Yes	11	1	11	0	0	0	0	40	15	Good	Fair		34.151366	-117.87316
94	*Casuarina cunninghamiana*	river she-oak	Yes	14	1	14	0	0	0	0	35	15	Fair	Fair		34.151415	-117.8732
96	*Olea europaea*	fruitless olive	Yes	20	2	10	10	0	0	0	30	30	Good	Fair		34.151449	-117.87328
102	*Cedrus deodora*	deodar cedar	Yes	31	1	31	0	0	0	0	65	30	Fair	Good		34.151757	-117.87357
103	*Arucaria bidwillii*	bunya-bunya	Yes	20	1	20	0	0	0	0	55	20	Fair	Fair		34.151827	-117.87346
104	*Arucaria bidwillii*	bunya-bunya	Yes	16	1	16	0	0	0	0	55	15	Fair	Fair		34.151884	-117.8735
107	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	30	35	Good	Fair		34.151819	-117.87401
108	*Quercus agrifolia*	coast live oak	Yes	36	1	36	0	0	0	0	35	40	Good	Poor		34.151867	-117.87416
109	*Quercus agrifolia*	coast live oak	Yes	21	1	21	0	0	0	0	35	30	Good	Fair		34.151924	-117.87438
110	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	15	Good	Fair		34.15193	-117.8744
111	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	25	20	Good	Fair		34.152112	-117.87457
112	*Quercus agrifolia*	coast live oak	Yes	35	1	35	0	0	0	0	45	40	Good	Fair		34.152039	-117.87461
113	*Cedrus deodora*	deodar cedar	Yes	11	1	11	0	0	0	0	45	15	Fair	Fair		34.152157	-117.87472

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
115	*Pseudotsaya menziesii*	Douglas-fir	Yes	12	1	12	0	0	0	0	40	8	Poor	Poor		34.1522	-117.87487
116	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	35	25	Good	Fair		34.15222	-117.87506
117	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	20	Good	Fair		34.15225	-117.87519
119	*Phoenix canariensis*	Canary Island date palm	Yes	23	1	23	0	0	0	0	35	20	Good			34.152379	-117.87449
120	*Phoenix canariensis*	Canary Island date palm	Yes	17	1	17	0	0	0	0	30	15	Good	Fair		34.152361	-117.87446
121	*Phoenix canariensis*	Canary Island date palm	Yes	20	1	20	0	0	0	0	40	15	Good	Good		34.152427	-117.87426
122	*Phoenix canariensis*	Canary Island date palm	Yes	20	1	20	0	0	0	0	40	15	Fair	Good		34.152361	-117.87427
123	*Phoenix canariensis*	Canary Island date palm	Yes	19	1	19	0	0	0	0	40	15	Fair	Good		34.152323	-117.87427
124	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152242	-117.87553
125	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152308	-117.87556
126	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.15228	-117.87559
127	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.152284	-117.87565
128	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	80	15	Good	Fair		34.152347	-117.87556
129	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.15233	-117.87564
130	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.15235	-117.87568
131	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152386	-117.87567
132	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152387	-117.87571
133	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152429	-117.87568
134	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152435	-117.87574
135	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.152484	-117.87575
136	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152486	-117.87572
137	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	80	15	Good	Fair		34.152483	-117.87568
138	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	80	15	Good	Fair		34.152513	-117.8756

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
139	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	55	15	Fair	Fair	shares tag with #172	34.152574	-117.87561
140	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.152521	-117.87567
141	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152555	-117.87574
142	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	80	15	Good	Fair		34.152539	-117.87578
143	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	80	15	Good	Fair		34.152594	-117.87584
144	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152624	-117.87577
145	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	80	15	Good	Fair		34.152657	-117.87577
146	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	80	15	Good	Fair		34.152668	-117.87586
147	*Washingtonia robusta*	Mexican fan palm	Yes	18	1	18	0	0	0	0	80	15	Good	Fair		34.152681	-117.876
148	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	80	15	Good	Fair		34.152678	-117.87597
149	*Quercus agrifolia*	coast live oak	Yes	40	1	40	0	0	0	0	45	50	Good	Good		34.15229	-117.87556
150	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	35	20	Good	Fair		34.152403	-117.87566
151	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	45	35	Fair	Good		34.152435	-117.87564
152	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	25	20	Fair	Fair		34.152446	-117.87558
153	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Fair	Fair		34.152467	-117.87568
154	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	25	20	Fair	Fair		34.152484	-117.8757
157	*Quercus agrifolia*	coast live oak	Yes	28	1	28	0	0	0	0	50	35	Fair	Fair		34.152548	-117.87571
159	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	20	25	Fair	Fair		34.152645	-117.87576
160	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Fair	Fair		34.152724	-117.87597
161	*Quercus agrifolia*	coast live oak	Yes	26	2	13	13	0	0	0	30	30	Fair	Fair		34.152693	-117.87599
162	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	60	15	Fair	Fair		34.152747	-117.87598
163	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	40	30	Fair	Fair		34.152743	-117.87596
166	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	40	35	Fair	Fair		34.152706	-117.8758
168	*Washingtonia robusta*	Mexican fan palm	Yes	13	1	13	0	0	0	0	80	15	Good	Fair		34.152664	-117.87566

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
169	*Quercus agrifolia*	coast live oak	Yes	29	2	15	14	0	0	0	30	30	Fair	Poor		34.152625	-117.87564
170	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	30	Fair	Fair		34.152619	-117.87559
171	*Olea europaea*	fruitless olive	Yes	20	2	10	10	0	0	0	30	25	Good	Poor		34.152596	-117.87561
173	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	45	30	Fair	Fair		34.152496	-117.87553
174	*Pinus pinea*	Italian stone pine	Yes	50	1	50	0	0	0	0	40	40	Fair	Poor		34.152215	-117.87601
175	*Quercus agrifolia*	coast live oak	Yes	20	2	11	9	0	0	0	20	20	Good	Fair		34.152305	-117.87601
179	*Quercus agrifolia*	coast live oak	Yes	35	1	35	0	0	0	0	35	35	Fair	Fair	laying on ground	34.152909	-117.87279
180	*Quercus agrifolia*	coast live oak	Yes	30	1	30	0	0	0	0	40	25	Poor	Poor		34.152865	-117.87259
182	*Quercus agrifolia*	coast live oak	Yes	10	2	6	4	0	0	0	18	10	Fair	Poor		34.152847	-117.87254
183	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	20	Fair	Poor		34.152818	-117.87257
184	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Fair	Poor		34.152793	-117.87263
185	*Quercus agrifolia*	coast live oak	Yes	26	1	26	0	0	0	0	50	35	Fair	Fair		34.152794	-117.87268
186	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	45	30	Fair	Fair		34.152731	-117.87279
187	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	50	20	Fair	Fair		34.152754	-117.87272
188	*Quercus agrifolia*	coast live oak	Yes	32	1	32	0	0	0	0	55	35	Fair	Fair		34.152749	-117.87272
189	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	40	25	Fair	Fair		34.152743	-117.87264
190	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	10	Fair	Fair		34.152723	-117.87266
191	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	15	Good	Fair		34.15273	-117.87258
192	*Quercus agrifolia*	coast live oak	Yes	30	1	30	0	0	0	0	45	35	Fair	Fair		34.152757	-117.87254
193	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	50	20	Fair	Fair		34.152696	-117.87258
194	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	40	25	Fair	Fair		34.152692	-117.87267
195	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	40	20	Fair	Fair		34.152644	-117.87257
196	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	35	25	Fair	Fair		34.152644	-117.8726
198	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	35	20	Fair	Fair		34.152631	-117.87269

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
199	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	15	Fair	Fair		34.152606	-117.87267
200	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	45	20	Good	Fair		34.152587	-117.87259
203	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	25	Fair	Fair		34.152612	-117.8728
204	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	35	30	Fair	Fair		34.152513	-117.87269
205	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	40	40	Fair	Fair		34.152471	-117.87266
207	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	35	25	Fair	Poor		34.152497	-117.87268
211	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	15	Fair	Fair		34.152496	-117.87279
212	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	15	10	Fair	Fair		34.152484	-117.87279
213	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	20	Good	Fair		34.152463	-117.87278
215	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	15	Good	Fair		34.152475	-117.87282
217	*Quercus agrifolia*	coast live oak	Yes	28	2	16	12	0	0	0	20	15	Good	Fair		34.152459	-117.87287
218	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Fair	Poor		34.152392	-117.8727
219	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	8	Fair	Poor		34.152384	-117.87271
220	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Fair	Fair		34.152332	-117.87276
221	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	13	Fair	Fair		34.152318	-117.87276
232	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	20	20	Fair	Poor		34.152239	-117.87283
235	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	20	Fair	Fair		34.152362	-117.87264
238	*Quercus agrifolia*	coast live oak	Yes	38	3	12	13	13	0	0	30	30	Good	Fair		34.152219	-117.8727
240	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	20	Fair	Fair		34.152154	-117.87285
242	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Poor		34.152165	-117.87282
244	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	12	Fair	Fair		34.152151	-117.8728
245	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	12	Fair	Fair		34.152145	-117.8728
246	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	6	10	Fair	Poor		34.152122	-117.87284
248	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	15	10	Fair	Fair		34.152085	-117.8728
255	*Olea europaea*	fruitless olive	Yes	22	2	22	0	0	0	0	35	25	Fair	Fair		34.152769	-117.87284
256	*Olea europaea*	fruitless olive	Yes	18	1	18	0	0	0	0	30	20	Fair	Poor		34.152581	-117.87274

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
257	*Olea europaea*	fruitless olive	Yes	22	3	22	0	0	0	0	20	15	Fair	Poor		34.152295	-117.87279
258	*Olea europaea*	fruitless olive	Yes	25	3	25	0	0	0	0	30	25	Fair	Poor		34.152312	-117.87268
259	*Olea europaea*	fruitless olive	Yes	14	3	14	0	0	0	0	15	15	Fair	Poor		34.152327	-117.87272
260	*Olea europaea*	fruitless olive	Yes	13	1	13	0	0	0	0	15	20	Poor	Poor		34.152286	-117.87269
261	*Olea europaea*	fruitless olive	Yes	16	2	16	0	0	0	0	15	15	Fair	Poor		34.152322	-117.87308
262	*Olea europaea*	fruitless olive	Yes	24	3	24	0	0	0	0	25	30	Fair	Poor		34.152244	-117.87305
263	*Olea europaea*	fruitless olive	Yes	50	5	10	10	10	10	10	25	30	Fair	Poor		34.152031	-117.87272
264	*Olea europaea*	fruitless olive	Yes	18	4	18	0	0	0	0	25	30	Good	Poor		34.151664	-117.87295
265	*Olea europaea*	fruitless olive	Yes	18	1	18	0	0	0	0	30	20	Good	Poor		34.151654	-117.87316
266	*Ceratonia siliqua*	carob	Yes	28	1	28	0	0	0	0	30	50	Fair	Fair		34.15157	-117.87331
270	*Pinus canariensis*	Canary Island pine	Yes	18	1	18	0	0	0	0	65	15	Poor	Poor		34.152701	-117.87549
272	*Pinus canariensis*	Canary Island pine	Yes	33	1	33	0	0	0	0	70	35	Fair	Poor		34.152695	-117.87543
273	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	30	Fair	Fair		34.152693	-117.87547
274	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	15	Fair	Fair		34.152713	-117.87538
275	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	30	15	Fair	Poor		34.152691	-117.87534
277	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	45	30	Good	Fair		34.152598	-117.87529
279	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	50	30	Fair	Fair		34.152538	-117.87516
280	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	30	20	Good	Fair		34.152569	-117.87508
281	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	50	30	Poor	Fair		34.152535	-117.87509
282	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	25	Fair	Fair		34.152551	-117.87503
283	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Fair	Poor		34.152544	-117.87485
285	*Quercus agrifolia*	coast live oak	Yes	20	2	20	0	0	0	0	35	30	Fair	Fair		34.152559	-117.87457
288	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	75	15	Fair	Fair		34.152826	-117.87575

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
289	*Washingtonia robusta*	Mexican fan palm	Yes	18	1	18	0	0	0	0	75	15	Fair	Fair		34.152747	-117.87594
290	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	20	20	Fair	Fair		34.152748	-117.87594
291	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	75	15	Fair	Fair		34.152808	-117.87592
292	*Olea europaea*	fruitless olive	Yes	24	2	24	0	0	0	0	20	15	Poor	Poor		34.152835	-117.87594
293	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	75	15	Fair	Fair		34.15287	-117.87594
294	*Quercus agrifolia*	coast live oak	Yes	28	1	28	0	0	0	0	30	30	Poor	Poor		34.152909	-117.87595
295	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	10	10	Fair	Poor		34.15289	-117.876
296	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	20	20	Fair	Fair		34.152847	-117.87609
297	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	15	Fair	Fair		34.15286	-117.8761
298	*Washingtonia robusta*	Mexican fan palm	Yes	15	1	15	0	0	0	0	75	15	Fair	Fair		34.152765	-117.87607
300	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	35	40	Fair	Fair		34.152833	-117.87624
303	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	6	4	Good	Poor	stump sprout	34.152896	-117.87621
304	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	20	Poor	Poor		34.152988	-117.87618
307	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	15	10	Fair	Fair		34.153127	-117.87621
308	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair		34.153161	-117.87621
309	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	30	Fair	Fair		34.153193	-117.87623
310	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	35	15	Fair	Fair		34.153132	-117.87616
314	*Corymbia maculata*	spotted gum	Yes	38	1	38	0	0	0	0	90	45	Poor	Poor		34.153041	-117.87594
316	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	20	Poor	Poor		34.152913	-117.87585
318	*Washingtonia robusta*	Mexican fan palm	Yes	10	1	10	0	0	0	0	75	15	Fair	Fair		34.152814	-117.87575
319	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	30	Fair	Fair		34.153339	-117.87631
320	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	20	Fair	Fair		34.15333	-117.87631
321	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	40	35	Fair	Fair		34.153346	-117.8763
322	*Quercus agrifolia*	coast live oak	Yes	58	1	58	0	0	0	0	40	40	Fair	Fair		34.153447	-117.87635

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
323	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	15	Fair	Fair		34.153473	-117.87634
324	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	35	20	Fair	Fair		34.153447	-117.87629
325	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	15	Fair	Fair		34.153514	-117.87632
326	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	15	Fair	Fair		34.153513	-117.87632
327	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	20	Fair	Fair		34.153639	-117.87622
328	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	20	Fair	Fair		34.153665	-117.87627
329	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	35	30	Fair	Fair		34.153496	-117.87626
330	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	18	Fair	Fair		34.15349	-117.87618
331	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	40	20	Fair	Fair		34.15348	-117.87621
332	*Juglans californica*	Southern California black walnut	Yes	10	2	10	0	0	0	0	40	30	Fair	Fair		34.153492	-117.8762
333	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	30	Fair	Poor		34.153478	-117.87628
334	*Juglans californica*	Southern California black walnut	Yes	21	2	21	0	0	0	0	30	30	Fair	Poor		34.153435	-117.87619
335	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	40	20	Fair	Fair		34.153433	-117.8762
336	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	20	Fair	Fair		34.153447	-117.87617
337	*Corymbia maculata*	spotted gum	Yes	39	2	39	0	0	0	0	50	40	Fair	Fair		34.153336	-117.87625
338	*Corymbia maculata*	spotted gum	Yes	44	1	44	0	0	0	0	55	50	Fair	Fair		34.153279	-117.87621
339	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	15	Fair	Poor		34.153264	-117.87612
340	*Juglans californica*	Southern California black walnut	Yes	19	3	19	0	0	0	0	25	20	Fair	Fair		34.15325	-117.87598
341	*Quercus agrifolia*	coast live oak	Yes	11	2	11	0	0	0	0	20	15	Fair	Fair		34.153246	-117.87596
342	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Fair	Fair		34.153193	-117.87592
343	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Good	Poor		34.153172	-117.8759
344	*Quercus agrifolia*	coast live oak	Yes	21	2	21	0	0	0	0	30	23	Good	Fair		34.153155	-117.87583

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
345	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	30	15	Poor	Poor		34.153128	-117.87591
347	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	20	Fair	Fair		34.153029	-117.87573
348	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	35	30	Fair	Fair		34.153084	-117.87578
349	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	15	15	Fair	Poor		34.153136	-117.87571
351	*Juglans californica*	Southern California black walnut	Yes	8	1	8	0	0	0	0	30	15	Fair	Poor		34.153059	-117.87549
352	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	25	15	Fair	Fair		34.153056	-117.87568
353	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	15	Fair	Fair		34.153023	-117.87567
355	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Fair	Poor		34.153005	-117.87552
356	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	35	20	Fair	Fair		34.152896	-117.87549
357	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	15	20	Fair	Fair		34.152856	-117.87551
358	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	12	9	Good	Poor		34.152829	-117.87547
359	*Corymbia maculata*	spotted gum	Yes	31	1	31	0	0	0	0	50	40	Poor	Poor		34.152862	-117.87548
360	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	20	Fair	Fair		34.152809	-117.87549
361	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	15	Fair	Fair		34.152868	-117.87546
362	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	40	20	Fair	Fair		34.152858	-117.87542
363	*Juglans californica*	Southern California black walnut	Yes	10	2	5	5	0	0	0	20	10	Poor	Poor	stem of 3	34.152821	-117.87532
364	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	10	20	Poor	Poor	broke in half	34.152818	-117.8753
365	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	20	Fair	Fair		34.152811	-117.87536
366	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	15	Fair	Fair		34.152808	-117.87536
367	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	15	Fair	Fair		34.152801	-117.87537
368	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	15	9	Good	Poor		34.152776	-117.87542
369	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	6	4	Poor	Poor	stump sprout	34.152767	-117.87537

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
370	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	25	20	Fair	Fair		34.152759	-117.87536
371	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	20	Fair	Fair		34.152754	-117.87527
372	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	15	Fair	Fair		34.152751	-117.87526
374	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	20	Good	Fair		34.15274	-117.87521
375	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	40	30	Good	Fair		34.152721	-117.87519
376	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	20	Good	Fair		34.152732	-117.87517
377	*Juglans californica*	Southern California black walnut	Yes	16	3	6	5	5	0	0	15	15	Fair	Poor		34.152737	-117.87512
378	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	40	25	Good	Fair		34.152668	-117.87516
379	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	15	Good	Fair		34.152682	-117.87523
380	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	20	Good	Fair		34.152685	-117.87526
381	*Juglans californica*	Southern California black walnut	Yes	24	4	8	8	4	4	0	15	15	Fair	Fair		34.153116	-117.87534
382	*Juglans californica*	Southern California black walnut	Yes	20	4	6	6	4	4	0	15	15	Fair	Fair		34.153095	-117.87539
383	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	10	Good	Fair		34.152646	-117.87525
384	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	30	14	Good	Fair		34.15261	-117.87525
385	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	40	20	Good	Fair		34.152599	-117.87525
386	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	20	Good	Fair		34.152643	-117.87522
387	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	15	Good	Fair		34.152615	-117.87517
388	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	15	Fair	Fair		34.15257	-117.87517
389	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	40	25	Good	Fair		34.152589	-117.87514
391	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	10	Good	Fair		34.152566	-117.87509
392	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	10	Good	Fair		34.152643	-117.87511

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Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
393	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	35	20	Fair	Fair		34.152688	-117.87504
394	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	12	10	Good	Poor		34.152689	-117.87508
395	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	40	20	Fair	Fair		34.152622	-117.87499
396	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Fair	Fair		34.152612	-117.87499
397	*Quercus agrifolia*	coast live oak	Yes	21	1	21	0	0	0	0	45	30	Good	Fair		34.152598	-117.87501
398	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	15	Fair	Poor		34.15259	-117.87503
399	*Quercus agrifolia*	coast live oak	Yes	17	2	9	8	0	0	0	35	20	Fair	Poor		34.15257	-117.87498
400	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	20	Fair	Poor		34.152591	-117.87493
401	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	20	Fair	Fair		34.152574	-117.87494
402	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	40	30	Good	Fair		34.152568	-117.87495
403	*Ceratonia siliqua*	carob	Yes	48	4	16	16	10	6	0	30	20	Good	Fair		34.152621	-117.87489
405	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	15	Fair	Poor		34.152595	-117.87487
406	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	15	Fair	Fair		34.152596	-117.87488
407	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	40	20	Good	Fair		34.152548	-117.87475
408	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	45	20	Good	Fair		34.152563	-117.87476
409	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	15	Fair	Good		34.15258	-117.87477
410	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Poor	Poor		34.152615	-117.87477
411	*Quercus agrifolia*	coast live oak	Yes	20	2	20	0	0	0	0	40	15	Fair	Poor		34.152655	-117.87479
412	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	45	15	Fair	Poor		34.152672	-117.87479
414	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	15	Fair	Poor		34.152689	-117.87479
415	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	40	15	Fair	Poor		34.152699	-117.87476
416	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	35	15	Fair	Poor		34.152684	-117.87473
417	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	40	15	Fair	Poor		34.152724	-117.87479

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
418	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	15	Fair	Poor		34.152724	-117.87479
419	*Quercus agrifolia*	coast live oak	Yes	21	2	21	0	0	0	0	40	20	Fair	Poor		34.152746	-117.87478
420	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	40	15	Fair	Poor		34.152798	-117.87478
421	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	25	Fair	Fair		34.152794	-117.87481
422	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	35	30	Fair	Fair		34.152839	-117.87475
423	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	30	Fair	Fair		34.152844	-117.87475
424	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	45	30	Good	Fair		34.152852	-117.87474
425	*Quercus agrifolia*	coast live oak	Yes	29	3	29	0	0	0	0	45	30	Fair	Fair		34.152821	-117.87469
426	*Quercus agrifolia*	coast live oak	Yes	28	4	28	0	0	0	0	40	40	Fair	Fair		34.152805	-117.87471
427	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Fair	Poor		34.152808	-117.87471
428	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	40	15	Fair	Poor		34.152741	-117.87475
429	*Quercus agrifolia*	coast live oak	Yes	18	2	18	0	0	0	0	35	15	Fair	Poor		34.152717	-117.87476
430	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	10	Fair	Poor		34.152729	-117.87478
431	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	15	Fair	Poor		34.152718	-117.87471
432	*Quercus agrifolia*	coast live oak	Yes	24	3	24	0	0	0	0	30	15	Fair	Poor		34.152701	-117.87466
433	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Fair	Poor		34.152632	-117.87467
434	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	15	Fair	Poor		34.152627	-117.87467
435	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	25	Fair	Fair		34.152632	-117.8747
436	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	45	30	Good	Fair		34.152602	-117.87469
437	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	35	20	Good	Fair		34.152562	-117.87472
438	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	70	15	Fair	Fair		34.152649	-117.87459
440	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	65	15	Fair	Fair		34.15271	-117.87459
442	*Washingtonia robusta*	Mexican fan palm	Yes	12	1	12	0	0	0	0	55	15	Fair	Fair		34.152777	-117.8746
443	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	55	15	Fair	Fair		34.152807	-117.87464

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
444	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	65	15	Fair	Fair		34.152913	-117.87462
445	*Washingtonia robusta*	Mexican fan palm	Yes	10	1	10	0	0	0	0	55	15	Fair	Fair		34.152939	-117.87462
446	*Platanus racemosa*	California sycamore	Yes	10	1	10	0	0	0	0	18	15	Fair	Poor	stump sprout	34.153132	-117.87482
447	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	15	Fair	Poor	stump sprout	34.153127	-117.87475
448	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	18	Good	Poor	stump sprout	34.153096	-117.87472
449	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	18	Good	Poor	stump sprout	34.153106	-117.87471
450	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	35	20	Fair	Poor	stump sprout	34.153248	-117.87479
451	*Quercus agrifolia*	coast live oak	Yes	47	1	47	0	0	0	0	40	40	Fair	Fair	stump sprout	34.153279	-117.87487
452	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	20	30	Poor	Poor	stump sprout	34.153282	-117.8749
453	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	35	18	Poor	Poor	stump sprout	34.15332	-117.87487
454	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	20	Fair	Poor	stump sprout	34.15331	-117.87483
455	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	40	15	Fair	Poor	stump sprout	34.153338	-117.87481
456	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	40	45	Fair	Poor	stump sprout	34.153371	-117.87476
458	*Washingtonia robusta*	Mexican fan palm	Yes	16	1	16	0	0	0	0	60	15	Good	Fair		34.153369	-117.87451
459	*Juglans californica*	Southern California black walnut	Yes	42	3	42	0	0	0	0	25	30	Fair	Poor		34.153446	-117.87466
460	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	45	30	Fair	Fair		34.153465	-117.8745
461	*Phoenix canariensis*	Canary Island date palm	Yes	28	1	28	0	0	0	0	30	20	Fair	Fair		34.153342	-117.87449
462	*Phoenix canariensis*	Canary Island date palm	Yes	26	1	26	0	0	0	0	10	15	Good	Fair		34.153352	-117.87451
463	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	30	14	Good	Good		34.153556	-117.87449
464	*Quercus agrifolia*	coast live oak	Yes	21	1	21	0	0	0	0	30	30	Poor	Poor		34.153271	-117.87445
465	*Quercus agrifolia*	coast live oak	Yes	22	2	14	8	0	0	0	40	20	Fair	Fair		34.153156	-117.87445
466	*Quercus agrifolia*	coast live oak	Yes	19	2	11	8	0	0	0	30	20	Fair	Fair		34.153162	-117.87446
467	*Quercus agrifolia*	coast live oak	Yes	26	2	13	13	0	0	0	40	20	Fair	Fair		34.153106	-117.87443

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
468	*Quercus agrifolia*	coast live oak	Yes	32	1	32	0	0	0	0	40	30	Fair	Poor		34.153085	-117.8744
470	*Quercus agrifolia*	coast live oak	Yes	32	1	32	0	0	0	0	45	35	Fair	Fair		34.152917	-117.87451
471	*Juglans californica*	Southern California black walnut	Yes	18	1	18	0	0	0	0	20	30	Fair	Poor		34.153134	-117.87446
475	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	50	20	Fair	Fair		34.152891	-117.87451
476	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	20	Fair	Fair		34.152904	-117.87452
478	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	45	25	Fair	Fair		34.152849	-117.87437
479	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	25	20	Good	Good		34.152849	-117.87438
480	*Quercus agrifolia*	coast live oak	Yes	43	7	7	9	9	9	9	30	40	Fair	Poor	additional stems 7,7	34.152807	-117.87433
482	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	30	14	Good	Fair		34.152765	-117.87439
483	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	18	Good	Fair		34.152753	-117.87442
484	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	30	14	Good	Poor		34.152724	-117.87435
485	*Quercus agrifolia*	coast live oak	Yes	41	4	41	0	0	0	0	40	35	Fair	Fair		34.152793	-117.87445
486	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	20	Good	Fair		34.152814	-117.87441
487	*Quercus agrifolia*	coast live oak	Yes	17	3	17	0	0	0	0	50	30	Good	Fair		34.152835	-117.87455
488	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	50	25	Fair	Fair		34.152825	-117.87456
489	*Quercus agrifolia*	coast live oak	Yes	27	2	27	0	0	0	0	35	30	Fair	Poor		34.152806	-117.87455
490	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	8	Good	Poor		34.152646	-117.87435
491	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	20	Good	Fair		34.152609	-117.87431
492	*Olea europaea*	fruitless olive	Yes	16	4	16	0	0	0	0	20	20	Good	Poor		34.152587	-117.87437
494	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	25	Fair	Fair		34.15259	-117.87446
495	*Sambucus canadensis*	American elderberry	Yes	11	2	11	0	0	0	0	15	20	Fair	Fair		34.152537	-117.8744
497	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	12	10	Fair	Poor		34.152605	-117.87426
498	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	35	15	Fair	Poor		34.152621	-117.87421

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
499	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	12	Fair	Poor		34.152604	-117.87422
500	*Olea europaea*	fruitless olive	Yes	23	2	23	0	0	0	0	20	25	Good	Poor		34.152495	-117.87428
501	*Olea europaea*	fruitless olive	Yes	11	1	11	0	0	0	0	40	20	Fair	Fair		34.152677	-117.87414
502	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	25	20	Fair	Fair		34.152746	-117.87416
503	*Olea europaea*	fruitless olive	Yes	30	5	30	0	0	0	0	35	30	Good	Poor		34.152759	-117.87424
504	*Juglans californica*	Southern California black walnut	Yes	12	2	12	0	0	0	0	15	15	Fair	Fair		34.152768	-117.87418
505	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	35	20	Fair	Fair		34.152695	-117.87409
506	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	20	Fair	Fair		34.152627	-117.87406
507	*Olea europaea*	fruitless olive	Yes	12	2	12	0	0	0	0	20	20	Fair	Poor		34.152597	-117.87408
508	*Pinus canariensis*	Canary Island pine	Yes	28	1	28	0	0	0	0	70	25	Fair	Poor		34.152535	-117.87406
509	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	16	8	Poor	Poor	stump sprout	34.152564	-117.87406
510	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	20	Fair	Fair		34.152643	-117.87402
512	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	30	Poor	Poor		34.152618	-117.87391
513	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	30	Fair	Good		34.15253	-117.87398
514	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	15	Good	Poor	#514_#515 tagged on same tree	34.152501	-117.8739
516	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	25	15	Good	Poor		34.152502	-117.8739
517	*Phoenix canariensis*	Canary Island date palm	Yes	27	1	27	0	0	0	0	30	20	Fair	Good		34.152559	-117.87392
518	*Phoenix canariensis*	Canary Island date palm	Yes	27	1	27	0	0	0	0	50	20	Fair	Good		34.152582	-117.87389
519	*Phoenix canariensis*	Canary Island date palm	Yes	27	1	27	0	0	0	0	45	15	Fair	Good		34.152568	-117.87384
520	*Phoenix canariensis*	Canary Island date palm	Yes	27	1	27	0	0	0	0	30	15	Fair	Fair		34.152561	-117.87381
521	*Phoenix canariensis*	Canary Island date palm	Yes	22	1	22	0	0	0	0	45	15	Fair	Good		34.152561	-117.87376
522	*Platauna racemosa*	California sycamore	Yes	14	1	14	0	0	0	0	25	20	Fair	Fair		34.152585	-117.87366

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
523	*Phoenix canariensis*	Canary Island date palm	Yes	24	1	24	0	0	0	0	30	15	Good	Good		34.152659	-117.87379
524	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	14	10	Good	Poor	stump sprout	34.152731	-117.87362
525	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	15	20	Good	Poor	stump sprout	34.152731	-117.87362
526	*Quercus agrifolia*	coast live oak	Yes	47	4	47	0	0	0	0	45	35	Fair	Poor		34.15278	-117.87367
527	*Eucalyptus robusta*	swamp mahogany	Yes	17	1	17	0	0	0	0	25	30	Good	Poor		34.152772	-117.87363
528	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	20	12	Good	Poor		34.152831	-117.8737
529	*Juglans californica*	Southern California black walnut	Yes	12	1	12	0	0	0	0	25	15	Fair	Poor	stump sprout	34.152843	-117.87371
530	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	15	Good	Fair		34.152843	-117.8737
531	*Phoenix canariensis*	Canary Island date palm	Yes	11	1	11	0	0	0	0	30	18	Good	Good		34.1529	-117.87336
532	*Phoenix canariensis*	Canary Island date palm	Yes	11	1	11	0	0	0	0	30	18	Good	Good		34.152818	-117.87323
534	*Quercus agrifolia*	coast live oak	Yes	62	1	62	0	0	0	0	45	45	Poor	Fair		34.15298	-117.87293
535	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	10	Fair	Fair		34.152997	-117.87297
536	*Quercus agrifolia*	coast live oak	Yes	26	1	26	0	0	0	0	35	30	Fair	Fair		34.153081	-117.87298
537	*Quercus agrifolia*	coast live oak	Yes	21	1	21	0	0	0	0	50	30	Good	Fair		34.153094	-117.87301
538	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	20	Fair	Fair		34.153115	-117.87303
539	*Washingtonia robusta*	Mexican fan palm	Yes	11	1	11	0	0	0	0	30	15	Good	Good		34.153179	-117.87295
540	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	55	15	Good	Fair		34.153193	-117.87295
541	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	30	30	Fair	Fair		34.153131	-117.87299
542	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	25	20	Poor	Fair		34.153183	-117.87305
543	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	20	30	Fair	Poor		34.153267	-117.87306
544	*Quercus agrifolia*	coast live oak	Yes	46	5	46	0	0	0	0	50	30	Poor	Poor		34.153298	-117.87314
545	*Quercus agrifolia*	coast live oak	Yes	26	2	26	0	0	0	0	30	20	Fair	Poor		34.153384	-117.8731
547	*Quercus agrifolia*	coast live oak	Yes	37	2	37	0	0	0	0	35	30	Fair	Poor		34.153459	-117.87311

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
548	*Quercus agrifolia*	coast live oak	Yes	15	2	15	0	0	0	0	25	20	Fair	Poor		34.153454	-117.87316
549	*Quercus agrifolia*	coast live oak	Yes	40	2	40	0	0	0	0	40	25	Fair	Poor		34.153453	-117.87316
550	*Quercus agrifolia*	coast live oak	Yes	24	2	24	0	0	0	0	30	20	Fair	Poor		34.153477	-117.87315
551	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Fair	Poor		34.153504	-117.87317
552	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	20	15	Fair	Poor		34.153504	-117.87317
553	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	20	Fair	Poor		34.1535	-117.8732
554	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	30	20	Fair	Poor		34.153506	-117.8732
556	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	25	20	Poor	Fair		34.153535	-117.87323
557	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	10	Fair	Fair		34.153587	-117.87323
558	*Quercus agrifolia*	coast live oak	Yes	35	2	35	0	0	0	0	35	25	Fair	Fair		34.153554	-117.87314
560	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	20	15	Poor	Poor		34.153596	-117.87312
561	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	30	20	Poor	Poor		34.153692	-117.87323
562	*Quercus agrifolia*	coast live oak	Yes	27	1	27	0	0	0	0	50	30	Fair	Fair		34.15375	-117.87328
563	*Platanus racemosa*	California sycamore	Yes	11	1	11	0	0	0	0	25	20	Poor	Poor		34.153751	-117.87328
564	*Juglans californica*	Southern California black walnut	Yes	8	1	8	0	0	0	0	20	15	Poor	Poor	main stem is dead, stump sprout at base	34.153751	-117.87325
566	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	45	30	Poor	Poor		34.153778	-117.87314
567	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	30	20	Poor	Poor		34.153793	-117.87315
568	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	15	Poor	Poor		34.153808	-117.87315
569	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	35	15	Fair	Poor		34.153816	-117.87317
570	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	10	6	Fair	Poor		34.153878	-117.87319
571	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	15	Fair	Fair		34.153856	-117.87324
572	*Juglans californica*	Southern California black walnut	Yes	11	1	11	0	0	0	0	20	30	Good	Poor	stump sprout	34.153903	-117.8732
573	*Quercus agrifolia*	coast live oak	Yes	31	1	31	0	0	0	0	45	35	Fair	Fair		34.153906	-117.87314

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
574	*Quercus agrifolia*	coast live oak	Yes	28	1	28	0	0	0	0	45	30	Fair	Fair		34.153917	-117.87311
575	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	40	35	Fair	Fair		34.15394	-117.87311
577	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	15	Fair	Fair		34.154033	-117.87313
578	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	15	Fair	Good		34.154045	-117.87313
579	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	25	15	Fair	Poor		34.154123	-117.87313
580	*Quercus agrifolia*	coast live oak	Yes	28	4	28	0	0	0	0	25	30	Fair	Poor		34.154149	-117.87312
581	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	15	Fair	Poor		34.154167	-117.87305
583	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	35	30	Poor	Poor		34.154061	-117.87291
584	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	20	Fair	Poor		34.154173	-117.873
585	*Quercus agrifolia*	coast live oak	Yes	24	1	24	0	0	0	0	45	30	Poor	Fair		34.154161	-117.87295
586	*Juglans californica*	Southern California black walnut	Yes	11	2	11	0	0	0	0	15	15	Fair	Poor		34.154035	-117.87289
587	*Quercus agrifolia*	coast live oak	Yes	23	1	23	0	0	0	0	40	30	Fair	Poor		34.15399	-117.87288
588	*Quercus agrifolia*	coast live oak	Yes	45	2	45	0	0	0	0	40	30	Good	Fair		34.153863	-117.87293
589	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	30	15	Fair	Fair		34.15376	-117.873
590	*Juglans californica*	Southern California black walnut	Yes	15	2	15	0	0	0	0	20	30	Poor	Poor		34.153737	-117.873
591	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	30	Good	Fair		34.153674	-117.87293
592	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	30	20	Fair	Poor		34.153566	-117.87299
593	*Juglans californica*	Southern California black walnut	Yes	8	1	8	0	0	0	0	15	20	Good	Poor		34.153608	-117.87297
594	*Platanus racemosa*	California sycamore	Yes	20	1	20	0	0	0	0	45	30	Fair	Poor		34.153522	-117.87296
595	*Quercus agrifolia*	coast live oak	Yes	37	4	37	0	0	0	0	45	40	Fair	Fair		34.153203	-117.8728
597	*Olea europaea*	fruitless olive	Yes	10	1	10	0	0	0	0	12	12	Good	Poor		34.153072	-117.87279
598	*Quercus agrifolia*	coast live oak	Yes	37	2	37	0	0	0	0	45	30	Poor	Poor		34.152975	-117.87271

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
599	*Olea europaea*	fruitless olive	Yes	17	2	17	0	0	0	0	15	15	Good	Poor	stump sprout	34.153003	-117.87265
600	*Olea europaea*	fruitless olive	Yes	13	2	13	0	0	0	0	12	15	Good	Poor		34.152969	-117.87272
601	*Quercus agrifolia*	coast live oak	Yes	28	1	28	0	0	0	0	45	15	Poor	Poor	behind fence on adjacent property, no tag	34.150671	-117.87295
602	*Quercus agrifolia*	coast live oak	Yes	17	1	17	0	0	0	0	20	15	Poor	Poor	behind fence on adjacent property, no tag	34.151077	-117.87318
604	*Olea europaea*	fruitless olive	Yes	15	2	8	7	0	0	0	25	20	Fair	Fair		34.151806	-117.87383
608	*Juglans regia*	English walnut	Yes	11	2	6	5	0	0	0	20	15	Fair	Fair		34.152226	-117.87496
610	*Platanus racemosa*	California sycamore	Yes	16	4	4	4	4	4	0	15	15	Fair	Poor		34.152358	-117.87523
612	*Platanus racemosa*	California sycamore	Yes	18	4	6	4	4	4	0	25	15	Fair	Poor		34.152498	-117.87535
615	*Pittosporum undulatum*	Victorian box	Yes	21	9	5	4	4	4	4	20	15	Fair	Poor	additional stems of 3, 5, 4, 4	34.152209	-117.87545
616	*Quercus agrifolia*	coast live oak	Yes	42	2	21	21	0	0	0	35	30	Poor	Poor		34.15222	-117.8754
617	*Quercus agrifolia*	coast live oak	Yes	49	2	25	24	0	0	0	45	30	Poor	Poor		34.152215	-117.87541
618	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	55	40	Poor	Fair		34.152191	-117.87531
619	*Quercus agrifolia*	coast live oak	Yes	38	1	38	0	0	0	0	60	50	Fair	Fair		34.152187	-117.87526
620	*Quercus agrifolia*	coast live oak	Yes	23	2	12	11	0	0	0	40	30	Fair	Fair		34.152177	-117.87512
621	*Schinus molle*	Peruvian pepper	Yes	17	1	17	0	0	0	0	18	20	Fair	Fair		34.15223	-117.87568
623	*Ficus benjamina*	weeping fig	Yes	63	6	14	12	10	14	13	45	50	Fair	Poor	additional stem of 7	34.152185	-117.87578
624	*Pinus pinea*	Italian stone pine	Yes	25	1	25	0	0	0	0	45	50	Fair	Fair		34.152174	-117.87589
626	Cedrus atlantica 'glauca'	blue atlas cedar	Yes	16	3	6	5	5	0	0	30	15	Fair	Poor		34.152072	-117.87611
627	*Pinus pinea*	Italian stone pine	Yes	38	1	38	0	0	0	0	60	40	Fair	Poor		34.152047	-117.87615
629	*Citrus spp.*	citrus tree	Yes	12	3	4	4	4	0	0	10	9	Fair	Fair		34.152277	-117.87596
630	*Citrus spp.*	citrus tree	Yes	10	4	5	5	0	0	0	10	9	Fair	Fair	stem of 3	34.152304	-117.87591
631	*Citrus spp.*	citrus tree	Yes	18	3	9	5	4	0	0	10	9	Fair	Fair		34.152325	-117.87585

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
634	*Ficus benjamina*	weeping fig	Yes	13	2	7	6	0	0	0	25	15	Good	Poor		34.152465	-117.87587
636	*Schinus terebinthifolia*	Brazilian pepper	Yes	14	4	8	6	0	0	0	20	20	Fair	Poor	stems of 3,3	34.152585	-117.8758
637	*Washingtonia robusta*	Mexican fan palm	Yes	17	1	17	0	0	0	0	55	12	Fair	Fair		34.152742	-117.87604
641	*Quercus agrifolia*	coast live oak	Yes	15	2	9	6	0	0	0	30	18	Fair	Fair		34.15287	-117.87611
643	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	15	Poor	Poor		34.153006	-117.87618
644	*Washingtonia robusta*	Mexican fan palm	Yes	14	1	14	0	0	0	0	65	12	Poor	Fair		34.153	-117.87626
645	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	18	15	Poor	Poor		34.152989	-117.87627
646	*Quercus agrifolia*	coast live oak	Yes	18	3	9	5	4	0	0	25	15	Fair	Poor		34.152993	-117.87632
647	*Quercus agrifolia*	coast live oak	Yes	19	2	11	8	0	0	0	20	15	Fair	Poor		34.152964	-117.87635
648	*Quercus agrifolia*	coast live oak	Yes	14	3	10	4	0	0	0	15	12	Poor	Poor	stem of 3	34.152932	-117.87635
649	*Quercus agrifolia*	coast live oak	Yes	18	2	10	8	0	0	0	15	10	Poor	Poor		34.152903	-117.87636
650	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	10	Poor	Poor		34.152895	-117.87638
651	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	10	Poor	Poor		34.15289	-117.87637
652	*Quercus agrifolia*	coast live oak	Yes	16	2	9	7	0	0	0	25	10	Poor	Poor		34.152861	-117.87641
653	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	12	Fair	Poor		34.15282	-117.87639
654	*Quercus agrifolia*	coast live oak	Yes	17	2	9	8	0	0	0	10	8	Poor	Poor		34.15288	-117.87646
655	*Quercus agrifolia*	coast live oak	Yes	24	2	14	10	0	0	0	25	10	Fair	Poor		34.15288	-117.87646
656	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	10	8	Fair	Poor	broke trunk	34.152884	-117.87649
657	*Quercus agrifolia*	coast live oak	Yes	32	4	12	7	7	6	0	18	15	Fair	Poor		34.152923	-117.87655
659	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	25	10	Poor	Poor		34.153133	-117.87663
660	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	12	8	Poor	Poor		34.153153	-117.87661
661	*Quercus agrifolia*	coast live oak	Yes	18	2	10	8	0	0	0	25	10	Poor	Poor		34.153155	-117.87663
662	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	10	10	Poor	Poor		34.153157	-117.87669

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
666	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	18	Fair	Fair	Steep, no access estimated dbh	34.153892	-117.87643
667	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	18	Fair	Fair	Steep, no access estimated dbh	34.153869	-117.87637
669	*Quercus agrifolia*	coast live oak	Yes	14	0	6	8	0	0	0	20	15	Poor	Poor		34.15317	-117.87643
670	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	15	Poor	Poor		34.153134	-117.87642
671	*Olea europaea*	fruitless olive	Yes	56	5	21	13	9	6	7	20	10	Poor	Poor		34.153085	-117.87643
672	*Quercus agrifolia*	coast live oak	Yes	13	2	8	5	0	0	0	20	8	Fair	Poor		34.153078	-117.87641
673	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair		34.153078	-117.87639
674	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	15	8	Fair	Poor		34.153106	-117.87636
675	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	25	20	Poor	Poor		34.153074	-117.8763
676	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	30	15	Poor	Poor		34.153044	-117.8763
677	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	30	15	Poor	Fair		34.15318	-117.87632
678	*Quercus agrifolia*	coast live oak	Yes	24	1	7	11	6	0	0	30	20	Fair	Poor		34.153211	-117.8763
679	*Quercus agrifolia*	coast live oak	Yes	24	1	7	11	6	0	0	30	20	Fair	Poor		34.153362	-117.8763
679	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	15	Poor	Poor	Steep, no tag, estimate dbh	34.153447	-117.87649
680	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	35	Fair	Fair	Steep, no tag, estimate dbh	34.153456	-117.87644
681	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	45	35	Fair	Fair	Steep, no tag, estimate dbh	34.153454	-117.8764
682	*Quercus agrifolia*	coast live oak	Yes	22	2	16	6	0	0	0	50	30	Fair	Fair	Steep, no tag, estimate dbh	34.153477	-117.87641
683	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair	Steep, no tag, estimate dbh	34.153519	-117.87643
684	*Quercus agrifolia*	coast live oak	Yes	28	2	14	14	0	0	0	25	30	Poor	Fair	Steep, no tag, estimate dbh	34.153525	-117.8764
685	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	15	15	Fair	Poor		34.153704	-117.8763
686	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	30	15	Fair	Fair		34.153658	-117.87623
687	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	10	10	Fair	Poor	sprout off fallen tree no tag access	34.153714	-117.87614
688	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	17	12	Fair	Fair	Steep, no tag, estimate dbh	34.153846	-117.87631
689	*Quercus agrifolia*	coast live oak	Yes	18	1	18	0	0	0	0	10	18	Fair	Poor		34.153828	-117.87629
690	*Quercus agrifolia*	coast live oak	Yes	12	1	7	5	0	0	0	15	18	Fair	Poor		34.153842	-117.87624

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
691	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	15	6	Poor	Poor	Steep, no tag, estimate dbh	34.153742	-117.87613
692	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	25	15	Good	Fair	Steep, no tag, estimate dbh	34.153768	-117.87611
693	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	10	Fair	Fair		34.153822	-117.8761
695	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	23	18	Fair	Poor		34.153852	-117.87621
696	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair		34.15388	-117.87615
697	*Platanus racemosa*	California sycamore	Yes	20	1	20	0	0	0	0	45	20	Poor	Poor		34.15393	-117.87618
699	*Juglans californica*	Southern California black walnut	Yes	8	1	8	0	0	0	0	20	18	Good	Fair	Steep, no access estimated dbh	34.154082	-117.87627
700	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	18	Fair	Poor		34.15399	-117.87617
701	*Juglans californica*	Southern California black walnut	Yes	9	1	9	0	0	0	0	20	15	Fair	Poor	no tag, couldn't access	34.154056	-117.87612
702	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	15	Fair	Fair		34.154095	-117.87614
703	*Quercus agrifolia*	coast live oak	Yes	26	2	13	13	0	0	0	30	30	Fair	Poor		34.154158	-117.87615
704	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	45	20	Fair	Poor	no tag, couldn't access	34.15416	-117.87615
711	*Juglans californica*	Southern California black walnut	Yes	24	3	9	7	8	0	0	25	20	Poor	Poor	no tag, couldn't access	34.153412	-117.87599
712	*Juglans californica*	Southern California black walnut	Yes	16	2	9	7	0	0	0	25	15	Poor	Poor	no tag, couldn't access	34.153514	-117.87605
719	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	25	20	Fair	Fair		34.150829	-117.87262
720	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	25	20	Fair	Fair		34.150796	-117.87263
721	*Quercus agrifolia*	coast live oak	Yes	12	5	4	4	4	0	0	20	10	Fair	Fair	stems of 3,3	34.150927	-117.87263
722	*Grevillea robusta*	silk oak	Yes	10	2	5	5	0	0	0	30	23	Fair	Fair		34.151096	-117.87263
723	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	20	Fair	Fair		34.151289	-117.87265
724	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	25	10	Poor	Fair		34.151299	-117.87265
725	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	25	10	Poor	Fair		34.151296	-117.87264

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
726	*Quercus agrifolia*	coast live oak	Yes	11	2	7	4	0	0	0	20	10	Poor	Poor		34.15131	-117.87265
728	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	25	15	Fair	Fair		34.15135	-117.87264
730	*Quercus agrifolia*	coast live oak	Yes	14	2	7	7	0	0	0	18	22	Fair	Fair		34.151395	-117.87265
732	*Quercus agrifolia*	coast live oak	Yes	11	1	11	0	0	0	0	35	15	Poor	Fair		34.151452	-117.87266
734	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	35	15	Fair	Fair		34.151476	-117.87268
735	*Quercus agrifolia*	coast live oak	Yes	12	1	12	0	0	0	0	20	10	Fair	Fair		34.151501	-117.87267
736	*Schinus molle*	Peruvian pepper	Yes	27	5	8	9	6	4	0	15	15	Fair	Poor	stem of 3	34.15201	-117.87305
737	*Ficus elastica*	rubber tree	Yes	34	1	34	0	0	0	0	25	25	Good	Fair		34.152164	-117.87345
740	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	15	Fair	Poor		34.152426	-117.87381
745	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	30	10	Fair	Poor		34.152762	-117.87474
747	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	15	7	Poor	Poor		34.152775	-117.87472
749	*Platanus racemosa*	California sycamore	Yes	12	2	6	6	0	0	0	30	15	Fair	Fair	no tag, couldn't access	34.153071	-117.8747
750	*Juglans californica*	Southern California black walnut	Yes	8	2	4	4	0	0	0	20	18	Fair	Fair	no tag, couldn't access	34.15296	-117.87472
751	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	15	10	Fair	Fair		34.153116	-117.87467
752	*Juglans californica*	Southern California black walnut	Yes	9	1	9	0	0	0	0	12	15	Fair	Poor	stump sprout	34.153204	-117.87485
753	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	13	9	Fair	Poor		34.153357	-117.87503
754	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	20	12	Fair	Fair		34.153384	-117.87513
756	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	20	12	Fair	Fair	no tag, couldn't access	34.153611	-117.87485
758	*Juglans californica*	Southern California black walnut	Yes	18	3	6	6	6	0	0	30	15	Fair	Fair	Steep, no tag, estimated dbh	34.153759	-117.87461
763	*Quercus agrifolia*	coast live oak	Yes	14	1	14	0	0	0	0	30	15	Fair	Fair	Steep, no tag, estimated dbh	34.153962	-117.87461
767	*Quercus agrifolia*	coast live oak	Yes	15	1	15	0	0	0	0	30	15	Fair	Poor		34.153522	-117.8747

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
769	*Platanus racemosa*	California sycamore	Yes	15	2	10	5	0	0	0	30	10	Poor	Poor		34.153538	-117.8745
771	*Juglans californica*	Southern California black walnut	Yes	16	4	4	4	4	4	0	20	40	Good	Poor	Stump regrowth	34.153129	-117.87452
772	*Quercus agrifolia*	coast live oak	Yes	32	3	11	11	10	0	0	30	20	Fair	Poor	no tag, couldn't access	34.153024	-117.87434
773	*Juglans californica*	Southern California black walnut	Yes	9	1	9	0	0	0	0	30	20	Good	Poor	no tag, couldn't access	34.153103	-117.87445
778	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	45	30	Fair	Fair	no tag, couldn't access	34.152935	-117.8739
781	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	10	Fair	Fair		34.152839	-117.87311
782	*Eucalyptus robusta*	swamp mahogany	Yes	26	5	6	5	5	4	6	25	25	Fair	Poor	stump sprout	34.152832	-117.87311
793	*Quercus agrifolia*	coast live oak	Yes	22	1	22	0	0	0	0	35	15	Fair	Fair		34.154194	-117.8732
795	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	12	10	Poor	Poor		34.153876	-117.8731
796	*Quercus agrifolia*	coast live oak	Yes	10	0	10	0	0	0	0	45	18	Fair	Fair	no tag, couldn't access	34.153769	-117.87256
797	*Juglans californica*	Southern California black walnut	Yes	10	0	10	0	0	0	0	30	30	Fair	Fair	no tag, couldn't access	34.15352	-117.87254
798	*Quercus agrifolia*	coast live oak	Yes	16	1	16	0	0	0	0	35	15	Poor	Poor		34.153254	-117.87267
802	*Quercus agrifolia*	coast live oak	Yes	8	2	4	4	0	0	0	8	1	Poor	Poor		34.152602	-117.87257
803	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	25	8	Fair	Poor	located on adjacent property, did not tag	34.152516	-117.87255
804	*Quercus agrifolia*	coast live oak	Yes	25	1	25	0	0	0	0	35	15	Fair	Fair	located on adjacent property, did not tag	34.152507	-117.87255
805	*Quercus agrifolia*	coast live oak	Yes	44	2	28	16	0	0	0	40	20	Fair	Fair	located on adjacent property, did not tag	34.152507	-117.87255
806	*Quercus agrifolia*	coast live oak	Yes	20	1	20	0	0	0	0	40	25	Fair	Fair	located on adjacent property, did not tag	34.152425	-117.87258
807	*Quercus agrifolia*	coast live oak	Yes	8	1	8	0	0	0	0	20	10	Fair	Fair		34.152273	-117.8726
809	*Quercus agrifolia*	coast live oak	Yes	10	1	10	0	0	0	0	15	10	Fair	Poor		34.152241	-117.8726
810	*Quercus agrifolia*	coast live oak	Yes	13	1	13	0	0	0	0	18	15	Fair	Fair		34.152154	-117.87263
811	*Quercus agrifolia*	coast live oak	Yes	10	2	5	5	0	0	0	20	15	Poor	Fair		34.152052	-117.87266
812	*Quercus agrifolia*	coast live oak	Yes	10	2	5	5	0	0	0	12	10	Fair	Poor		34.152002	-117.87267
813	*Schinus molle*	Peruvian pepper	Yes	24	5	10	9	5	0	0	20	20	Fair	Fair	stems of 3,3	34.152037	-117.87259

Grand Estates Tree Information Matrix (August 2020)

Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
814	*Schinus molle*	Peruvian pepper	Yes	33	5	10	8	6	5	4	20	20	Fair	Fair		34.152086	-117.87256
815	*Quercus agrifolia*	coast live oak	Yes	18	2	9	9	0	0	0	15	10	Poor	Poor		34.152089	-117.87257
817	*Schinus molle*	Peruvian pepper	Yes	16	2	8	8	0	0	0	15	20	Fair	Poor		34.152142	-117.87258
818	*Schinus molle*	Peruvian pepper	Yes	16	2	8	8	0	0	0	15	20	Fair	Poor		34.151958	-117.87268
819	*Quercus agrifolia*	coast live oak	Yes	19	1	19	0	0	0	0	25	30	Fair	Fair		34.15186	-117.87262
820	*Quercus agrifolia*	coast live oak	Yes	8	4	4	4	0	0	0	25	15	Fair	Poor	stems of 3,3	34.15189	-117.87261
821	*Schinus molle*	Peruvian pepper	Yes	35	3	12	12	11	0	0	25	10	Fair	Poor		34.15185	-117.87258
822	*Schinus molle*	Peruvian pepper	Yes	34	2	12	12	10	0	0	30	15	Poor	Poor		34.151734	-117.87265
823	*Quercus agrifolia*	coast live oak	Yes	21	5	6	5	5	5	0	25	15	Fair	Poor	stem of 3	34.151735	-117.87263
824	*Quercus agrifolia*	coast live oak	Yes	21	3	8	6	7	0	0	35	15	Fair	Poor		34.151751	-117.87256
826	*Quercus agrifolia*	coast live oak	Yes	13	5	5	4	4	0	0	25	15	Fair	Poor	stems of 2,2	34.151739	-117.87256
827	*Quercus agrifolia*	coast live oak	Yes	19	5	6	5	4	4	0	20	15	Fair	Poor	stem of 3	34.15171	-117.87256
828	*Olea europaea*	fruitless olive	Yes	36	5	14	9	8	5	0	30	20	Fair	Poor	stem of 3	34.152233	-117.87308
829	*Eucalyptus cladocalx*	sugar gum	Yes	14	3	6	4	4	0	0	40	12	Fair	Poor		34.152504	-117.87312
830	*Eucalyptus cladocalx*	sugar gum	Yes	16	5	3	4	5	4	0	40	12	Fair	Poor	stem of 3	34.152511	-117.87314
831	*Eucalyptus cladocalx*	sugar gum	Yes	11	2	6	5	0	0	0	40	18	Fair	Poor		34.152533	-117.87315
832	*Eucalyptus cladocalx*	sugar gum	Yes	20	4	6	5	5	4	0	40	25	Fair	Poor		34.152555	-117.87312
833	*Quercus agrifolia*	coast live oak	Yes	9	1	9	0	0	0	0	35	15	Fair	Poor		34.152698	-117.87282
835	*Olea europaea*	fruitless olive	Yes	15	2	8	7	0	0	0	30	20	Fair	Poor		34.152793	-117.87279
708a	*Platanus racemosa*	California sycamore	Yes	11	1	11	0	0	0	0	30	10	Poor	Poor		34.154152	-117.87616
708b	*Juglans californica*	Southern California black walnut	Yes	9	4	5	4	0	0	0	10	10	Fair	Poor	no tag, couldn't access, stems of 3,2	34.153741	-117.87595

Appendix B-2

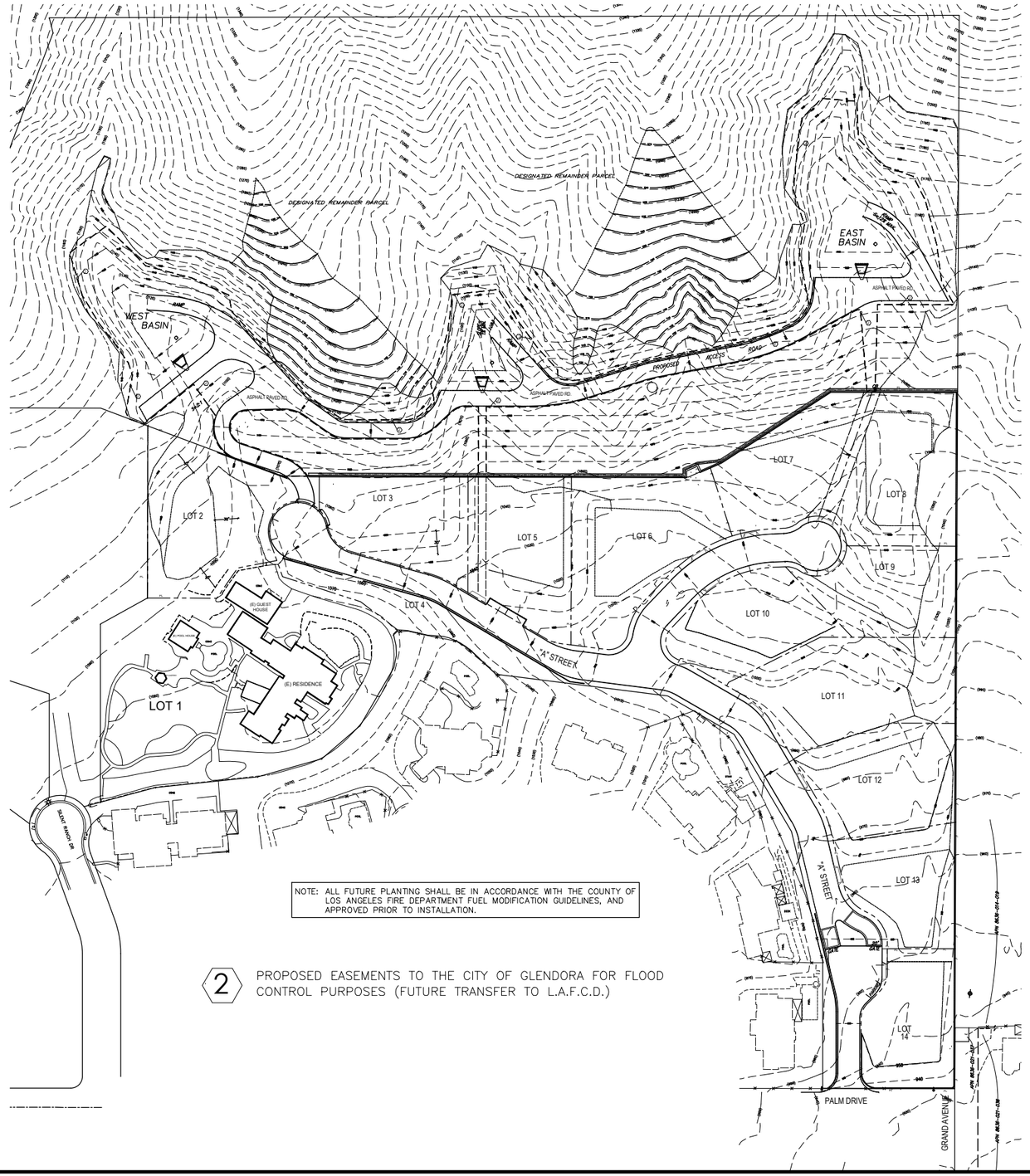
Draft Architectural Landscape Plans and Tree Removals

ARCHITECTURAL LANDSCAPE PLANS

THE GRAND ESTATES

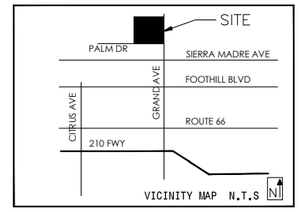
950 SILENT RANCH RD., GLENDORA, CA

TENTATIVE TRACT MAP NO. 72413



NOTE: ALL FUTURE PLANTING SHALL BE IN ACCORDANCE WITH THE COUNTY OF LOS ANGELES FIRE DEPARTMENT FUEL MODIFICATION GUIDELINES, AND APPROVED PRIOR TO INSTALLATION.

2 PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES (FUTURE TRANSFER TO L.A.F.C.D.)



OWNER / DEVELOPER
DREAMLAND INVESTMENT
INVESTMENT LLC
626.236.7388

CONSULTANTS

CIVIL ENGINEER
GIRON ENGINEERS INC.
654 S. GLENDORA AVE.
626.335.8782

LANDSCAPE ARCHITECT
Phil May Landscape Architecture
2532 Wallace Ave.
Fullerton, CA 92831
909-373-1959

SHEET INDEX		
L-1	TITLE PLAN	
L-2	TREE INVENTORY PLAN	(REMAIN)
L-2.1	EXISTING TREES DATA	(REMAIN)
L-2.2	EXISTING TREES DATA	(REMAIN)
L-3	TREE INVENTORY PLAN	(REMOVE)
L-3.1	EXISTING TREES DATA	(REMOVE)
L-3.2	EXISTING TREES DATA	(REMOVE)
L-3.3	TREE INVENTORY LOT -1	
L-4	CONCEPTUAL LANDSCAPE PLAN	
L-5	CONCEPTUAL LANDSCAPE PLAN	
L-6	CONCEPTUAL LANDSCAPE PLAN	
L-7	CONCEPTUAL LANDSCAPE PLAN	
L-8	CONCEPTUAL LANDSCAPE PLAN	

RECOMMENDED MINIMUM LANDSCAPE MAINTENANCE SCHEDULE

WEEKLY TASKS HOA LANDSCAPE AREAS

- Check all irrigation equipment and adjust/ align as required.
- Repair irrigation equipment with originally specified materials as needed.
- Inspect all landscape areas for pests/ pathogens.
- Weed all shrub/ groundcover areas as needed.
- Remove landscape debris.
- Aerating and dethatching turf areas.
- Repair planting well and/ or grade around plants to eliminate runoff.
- Perform corrective pruning to eliminate hazards and damage to plant after 2nd Year of Growth.

MINIMUM RECOMMENDED YEARLY MAINTENANCE SCHEDULE

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Adjust Irrigation Schedule	√	√	√	√	√	√	√	√	√	√	√	√
Inspect Tree Staking	√	√	√	√	√	√	√	√	√	√	√	√
Flush Drip Valves			√			√			√			√
Add Mulch (Maintain 3" Layer)			√			√			√			√
Fertilization: Reference to Agronomical Soil's report on these plans		√			√			√			√	

CERTIFICATION OF LANDSCAPE DESIGN

I hereby certify that:

(1) I am a professional appropriately licensed in the State of California to provide professional landscape design services.
(2) The landscape design and water use calculations for the property located at "TTM# 72413" 950 Silent Ranch Rd.,
(3) (provide street address or parcel number(s)) were prepared by me or under my supervision.
(4) The landscape design and water use calculations for the identified property comply with the requirements of the City of Glendora Water Efficient Landscape Ordinance (Municipal Code Chapter 13.18) and the City of Glendora Water Efficient Landscape Guidelines.
(5) The information I have provided in this Certificate of Landscape Design is true and correct and is hereby submitted in compliance with the City of Glendora Water Efficient Landscape Guidelines.

PHIL MAY — Print Name
02-21-2022 — Date
Signature
3104 — License Number
1937 W/ 9 TH. STREET UPLAND, CA 91786 — Address
(909) 373-1959 — Telephone
pmay@philmaydesign.com — E-mail Address
Landscape Design Professional's Stamp

NORTH

0 25' 50' 100'

REVISIONS	BY
CITY COMMENTS 09-01-2021	1
CITY COMMENTS 02-07-2022	2

THESE DRAWINGS ARE INSTRUMENTS OF SERVICE AND ARE PROPERTY OF PHIL MAY LANDSCAPE ARCHITECTURE. ALL DESIGNS AND OTHER INFORMATION ON THE DRAWINGS ARE FOR THE USE ON THE SPECIFIED PROJECT AND SHALL NOT BE USED OTHERWISE WITHOUT THE EXPRESS WRITTEN PERMISSION OF PHIL MAY LANDSCAPE ARCHITECTURE. WRITTEN DIMENSIONS ON THESE DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THIS OFFICE SHALL BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS. COPYRIGHTED ©

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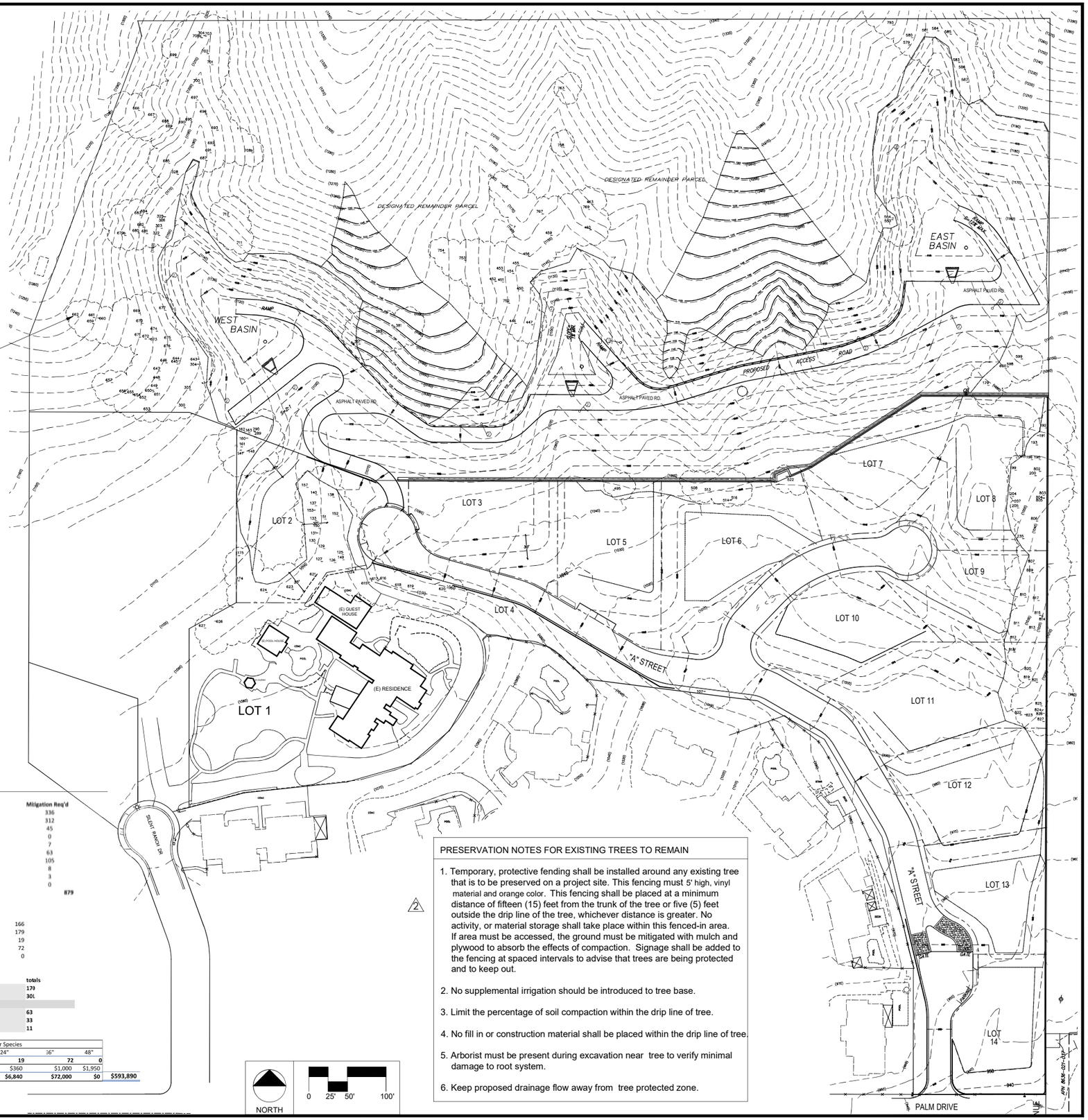
REGISTERED LANDSCAPE ARCHITECT PHILIP S. MAY 05.31.23 02-21-2022 STATE OF CALIFORNIA

TITLE PLAN

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-1
OF 13 SHEETS
JOB NO. 21015

EXISTING TREES TO REMAIN IN PLACE, SEE SHEETS L-2.1 & L-2.2 FOR TREE INFORMATION.



2

EXISTING TREE SUMMARY

#'s from Survey

Category	Size	#	Mitigation Requirement	Mitigation Req'd
A	Native 8" - 15"	168	36" boxed tree - 2:1 replacemnt	336
B	Native 16" - 36"	104	48" boxed tree - 3:1 replacement	312
C	Native 37" - 48"	9	48" boxed tree - 5:1 replacement	45
D	Native 49" - 60"	0	48" boxed tree - 6:1 replacement	0
E	Native 61" - and up	1	48" boxed tree - 7:1 replacement	7
F	Other 10" - 15"	63	24" boxed tree - 1:1 replacement	63
G	Other 16" - 36"	105	36" boxed tree - 1:1 replacement	105
H	Other 37" - 48"	4	48" boxed tree - 2:1 replacement	8
I	Other 49" - 60"	1	48" boxed tree - 3:1 replacement	3
J	Other 61" - and up	0	48" boxed tree - 5:1 replacement	0
	Total trees counted	455		879

Mitigation Requirements by Size

Tree Box Size	Req'd	Planned	Bal.
Native 36"	336	170	166
Native 48"	364	185	179
Other 24"	63	44	19
Other 36"	105	33	72
Other 48"	11	11	0

Plans dated 02-21-2022

Type	Size Proposed	Page L-5 through L-9	totals
Native	36"	170	170
	48"	301	301
Other	24"	63	63
	36"	33	33
	48"	11	11

Native Species			
Tree Size	36"	48"	
Total required	166	179	
Cost per tree	$1,000	$1,950	
Total in-lieu fee	$166,000	$349,050	

Other Species			
24"	36"	48"	
19	72	0	
$360	$1,000	$1,950	
$6,840	$72,000	$0	$593,890

PRESERVATION NOTES FOR EXISTING TREES TO REMAIN

1. Temporary, protective fending shall be installed around any existing tree that is to be preserved on a project site. This fencing must 5' high, vinyl material and orange color. This fencing shall be placed at a minimum distance of fifteen (15) feet from the trunk of the tree or five (5) feet outside the drip line of the tree, whichever distance is greater. No activity, or material storage shall take place within this fenced-in area. If area must be accessed, the ground must be mitigated with mulch and plywood to absorb the effects of compaction. Signage shall be added to the fencing at spaced intervals to advise that trees are being protected and to keep out.
2. No supplemental irrigation should be introduced to tree base.
3. Limit the percentage of soil compaction within the drip line of tree.
4. No fill in or construction material shall be placed within the drip line of tree.
5. Arborist must be present during excavation near tree to verify minimal damage to root system.
6. Keep proposed drainage flow away from tree protected zone.

REVISIONS	BY
CITY COMMENTS 09-01-2021	1
CITY COMMENTS 02-07-2022	2

PHIL MAY LANDSCAPE ARCHITECTURE
2532 Wallace Ave.
Fullerton, CA 92831
Phone: 909 373 1959
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www.philmaydesign.com

REGISTERED LANDSCAPE ARCHITECT
PHILLIP S. MAY
05-31-23
02-21-2022
DATE
STATE OF CALIFORNIA

TREE INVENTORY PLAN
(TO REMAIN IN PLACE)

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-2
OF 13 SHEETS
JOB NO. 21015

THESE DRAWINGS ARE INSTRUMENTS OF SERVICE AND ARE PROPERTY OF PHIL MAY LANDSCAPE ARCHITECTURE. ALL DESIGNS AND OTHER INFORMATION ON THE DRAWINGS ARE FOR THE USE ON THE SPECIFIED PROJECT AND SHALL NOT BE USED OTHERWISE WITHOUT THE EXPRESS WRITTEN PERMISSION OF PHIL MAY LANDSCAPE ARCHITECTURE. ANY UNAUTHORIZED USE, COPYING OR MODIFICATION OF THESE DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THIS OFFICE SHALL BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS.

PRESERVATION NOTES FOR EXISTING TREES TO REMAIN

1. Temporary, protective fending shall be installed around any existing tree that is to be preserved on a project site. This fencing must 5' high, vinyl material and orange color. This fencing shall be placed at a minimum distance of fifteen (15) feet from the trunk of the tree or five (5) feet outside the drip line of the tree, whichever distance is greater. No activity, or material storage shall take place within this fenced-in area. If area must be accessed, the ground must be mitigated with mulch and plywood to absorb the effects of compaction. Signage shall be added to the fencing at spaced intervals to advise that trees are being protected and to keep out.

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5. Arborist must be present during excavation near tree to verify minimal damage to root system.

6. Keep proposed drainage flow away from tree protected zone.

NOTE: SEE TREE INVENTORY PLAN, SHEET-L2 FOR REFERENCE

COUNT	Save/ remove	Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Native	Category	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
1	SAVE	107	*Quercus agrifolia*	coast live oak	Yes	22	Y	B	1	22	0	0	0	0	30	35	Good	Fair		34.15182	-117.87401
2	SAVE	124	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	80	15	Good	Fair		34.15224	-117.875529
3	SAVE	125	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	80	15	Good	Fair		34.15231	-117.875561
4	SAVE	126	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	80	15	Good	Fair		34.15228	-117.875594
5	SAVE	127	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	80	15	Good	Fair		34.15228	-117.875651
6	SAVE	129	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	80	15	Good	Fair		34.15233	-117.875641
7	SAVE	130	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	80	15	Good	Fair		34.15235	-117.87568
8	SAVE	131	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	80	15	Good	Fair		34.15239	-117.875671
9	SAVE	133	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	80	15	Good	Fair		34.15243	-117.875676
10	SAVE	137	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	80	15	Good	Fair		34.15248	-117.875676
11	SAVE	138	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	80	15	Good	Fair		34.15251	-117.8756
12	SAVE	140	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	80	15	Good	Fair		34.15252	-117.875673
13	SAVE	147	*Washingtonia robusta*	Mexican fan palm	Yes	18	N	G	1	18	0	0	0	0	80	15	Good	Fair		34.15268	-117.875998
14	SAVE	148	*Washingtonia robusta*	Mexican fan palm	Yes	17	N	G	1	17	0	0	0	0	80	15	Good	Fair		34.15268	-117.875969
15	SAVE	149	*Quercus agrifolia*	coast live oak	Yes	40	Y	C	1	40	0	0	0	0	45	50	Good	Good		34.15229	-117.875558
16	SAVE	150	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	35	20	Good	Fair		34.1524	-117.875662
17	SAVE	151	*Quercus agrifolia*	coast live oak	Yes	25	Y	B	1	25	0	0	0	0	45	35	Fair	Good		34.15244	-117.875635
18	SAVE	152	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	25	20	Fair	Fair		34.15245	-117.875581
19	SAVE	153	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	20	15	Fair	Fair		34.15247	-117.875682
20	SAVE	157	*Quercus agrifolia*	coast live oak	Yes	28	Y	B	1	28	0	0	0	0	50	35	Fair	Fair		34.15255	-117.875712
21	SAVE	160	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	30	20	Fair	Fair		34.15271	-117.875971
22	SAVE	161	*Quercus agrifolia*	coast live oak	Yes	26	Y	B	2	13	13	0	0	0	30	30	Fair	Fair		34.15269	-117.875994
23	SAVE	162	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	60	15	Fair	Fair		34.15275	-117.875981
24	SAVE	163	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	1	23	0	0	0	0	40	30	Fair	Fair		34.15274	-117.875962
25	SAVE	174	*Pinus pinea*	Italian stone pine	Yes	50	N	I	1	50	0	0	0	0	40	40	Fair	Poor		34.15222	-117.876008
26	SAVE	175	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	2	11	9	0	0	0	20	20	Good	Fair		34.15231	-117.876006
27	SAVE	179	*Quercus agrifolia*	coast live oak	Yes	35	Y	B	1	35	0	0	0	0	35	35	Fair	Fair	laying or ground	34.1529	-117.872791
28	SAVE	191	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	25	15	Good	Fair		34.15273	-117.872578
29	SAVE	192	*Quercus agrifolia*	coast live oak	Yes	30	Y	B	1	30	0	0	0	0	45	35	Fair	Fair		34.15276	-117.872544
30	SAVE	193	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	50	20	Fair	Fair		34.1527	-117.872583
31	SAVE	195	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	40	20	Fair	Fair		34.15264	-117.87257
32	SAVE	196	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	35	25	Fair	Fair		34.15264	-117.872604
33	SAVE	199	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	30	15	Fair	Fair		34.15261	-117.872674
34	SAVE	200	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	45	20	Good	Fair		34.15259	-117.872589
35	SAVE	204	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	35	30	Fair	Fair		34.15251	-117.872686
36	SAVE	205	*Quercus agrifolia*	coast live oak	Yes	25	Y	B	1	25	0	0	0	0	40	40	Fair	Fair		34.15247	-117.872664
37	SAVE	207	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	35	25	Fair	Poor		34.1525	-117.872683
38	SAVE	235	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	25	20	Fair	Fair		34.15236	-117.872642
39	SAVE	289	*Washingtonia robusta*	Mexican fan palm	Yes	18	N	G	1	18	0	0	0	0	75	15	Fair	Fair		34.15275	-117.875938
40	SAVE	290	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	20	20	Fair	Fair		34.15275	-117.875939
41	SAVE	300	*Quercus agrifolia*	coast live oak	Yes	25	Y	B	1	25	0	0	0	0	35	40	Fair	Fair		34.15283	-117.876238
42	SAVE	303	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	6	4	Good	Poor	stump sprout	34.1529	-117.876214
43	SAVE	304	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	30	20	Poor	Poor		34.15299	-117.876181
44	SAVE	322	*Quercus agrifolia*	coast live oak	Yes	58	Y	D	1	58	0	0	0	0	40	40	Fair	Fair		34.15345	-117.876347
45	SAVE	323	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	15	15	Fair	Fair		34.15347	-117.876336
46	SAVE	325	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	30	15	Fair	Fair		34.15351	-117.876323
47	SAVE	326	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	25	15	Fair	Fair		34.15357	-117.876323
48	SAVE	328	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	30	20	Fair	Fair		34.15367	-117.876267
49	SAVE	351	*Juglans californica*	Southern California black walnut	yes	8	Y	A	1	8	0	0	0	0	30	15	Fair	Poor		34.15306	-117.875488
50	SAVE	381	*Juglans californica*	Southern California black walnut	Yes	24	Y	B	4	8	8	4	4	0	15	15	Fair	Fair		34.15312	-117.875335
51	SAVE	382	*Juglans californica*	Southern California black walnut	Yes	20	Y	B	4	6	6	4	4	0	15	15	Fair	Fair		34.1531	-117.875392
52	SAVE	446	*Platanus racemosa*	California sycamore	Yes	10	N	F	1	10	0	0	0	0	18	15	Fair	Poor	stump sprout	34.15313	-117.874819
53	SAVE	447	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	30	15	Fair	Poor	stump sprout	34.15313	-117.874747
54	SAVE	450	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	1	24	0	0	0	0	35	20	Fair	Poor	stump sprout	34.15325	-117.874787
55	SAVE	451	*Quercus agrifolia*	coast live oak	Yes	47	Y	C	1	47	0	0	0	0	40	40	Fair	Fair	stump sprout	34.15328	-117.874872
56	SAVE	452	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	20	30	Poor	Poor	stump sprout	34.15328	-117.874904
57	SAVE	453	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	35	18	Poor	Poor	stump sprout	34.15332	-117.874874
58	SAVE	454	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	40	20	Fair	Poor	stump sprout	34.15331	-117.874926
59	SAVE	455	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	40	15	Fair	Poor	stump sprout	34.15334	-117.874805
60	SAVE	456	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	40	45	Fair	Poor	stump sprout	34.15337	-117.87476
61	SAVE	459	*Juglans californica*	Southern California black walnut	Yes	42	Y	C	3	42	0	0	0	0	25	30	Fair	Poor		34.15345	-117.874664
62	SAVE	460	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	1	23	0	0	0	0	45	30	Fair	Fair		34.15347	-117.874497
63	SAVE	463	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	30	14	Good	Good		34.15356	-117.874486
64	SAVE	495	*Sambucus canadensis*	American elderberry	Yes	11	N	F	2	11	0	0	0	0	15	20	Fair	Fair		34.15254	-117.874398
65	SAVE	508	*Pinus canariensis*	Canary Island pine	Yes	28	N	G	1	28	0	0	0	0	70	25	Fair	Poor		34.15254	-117.87406
66	SAVE	513	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	30	30	Fair	Good		34.15253	-117.873984
67	SAVE	514	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	30	15	Good	Poor	#514 ,#515 tagged on same tree	34.1525	-117.873898
68	SAVE	516	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	1	24	0	0	0	0	25	15	Good	Poor		34.1525	-117.873895
69	SAVE	522	*Platauna racemosa*	California sycamore	Yes	14	N	F	1	14	0	0	0	0	25	20	Fair	Fair		34.15259	-117.873656
70	SAVE	553	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	30	20	Fair	Poor		34.1535	-117.873207
71	SAVE	554	*Quercus agrifolia*	coast live oak	Yes	19	Y	B	1	19	0	0	0	0	30	20	Fair	Poor		34.15351	-117.8732
72	SAVE	579	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	25	15	Fair	Poor		34.15412	-117.873128
73	SAVE	580	*Quercus agrifolia*	coast live oak	Yes	28	Y	B	4	28	0	0	0	0	25	30	Fair	Poor		34.15415	-117.873116
74	SAVE	581	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	20	15	Fair	Poor		34.15417	-117.873051
75	SAVE	583	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	35	30	Poor	Poor		34.15406	-117.872914
76	SAVE	584	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	35	20	Fair	Poor		34.15417	-117.873004
77	SAVE	585	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	1	24	0	0	0	0	45	30	Poor	Fair		34.15416	-117.87295
78	SAVE	586	*Juglans californica*	Southern California black walnut	Yes	11	Y	A	2	11	0	0	0	0	15	15	Fair	Poor		34.15404	-117.87289
79	SAVE	587	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	1	23	0	0	0	0	40	30	Fair	Poor		34.15399	-117.872878
80	SAVE	598	*Quercus agrifolia*	coast live oak	Yes	37	Y	C	2	37	0	0	0	0	45	30	Poor	Poor		34.15298	-117.872707
81	SAVE	599	*Olea europaea*	fruitless olive	Yes	17	N	G	2	17	0	0	0	0	15	15	Good	Poor	stump sprout	34.153	-117.872647
82	SAVE	500	*Olea europaea*	fruitless olive	Yes	13	N	F	2	13	0	0	0	0	12	15	Good	Poor		34.15297	-117.872718
83	SAVE	502	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	1	17	0	0	0	0	20	15	Poor	Poor	behind fence on adjacent property, no tag	34.15108	-117.873176
84	SAVE	515	*Pittosporum undulatum*	Victorian box	Yes	21	N	G	9	5	4	4	4	4	20	15	Fair	Poor	additional stems of 3, 5, 4, 4	34.15221	-117.875452
85	SAVE	516	*Quercus agrifolia*	coast live oak	Yes	42	Y	C	2	21	21	0	0	0	35	30	Poor	Poor		34.15222	-117.875404
86	SAVE	517	*Quercus agrifolia*	coast live oak	Yes	49	Y	D	2	25	24	0	0	0	45	30	Poor	Poor		34.15222	-117.87541
87	SAVE	518	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	55	40	Poor	Fair		34.15219	-117.875312
88	SAVE	519	*Quercus agrifolia*	coast live oak	Yes	38	Y	C	1	38	0	0	0	0	60	50	Fair	Fair		34.15219	-117.875255
89	SAVE	520	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	2	12	11	0	0	0	40	30	Fair	Fair		34.15218	-117.875127
90	SAVE	521	*Schinus molle*	Peruvian pepper	Yes	17	N	G	1	17	0	0	0	0	18	20	Fair	Fair		34.15223	-117.87568
91	SAVE	523	*Ficus benjamina*	weeping fig	Yes	63	N	J	6	14	12	10	11	13	45	50	Fair	Poor	additional stem of 7	34.15219	-117.875776
92	SAVE	524	*Pinus pinea*	Italian stone pine	Yes	25	N	G	1	25	0	0	0	0	45	50	Fair	Fair		34.15217	-117.875888
93	SAVE	526	*Cedrus atlantica 'glauca'*	blue atlas cedar	Yes	16	N	G	3	6	5	5	0	0	30	15	Fair	Poor		34.15207	-117.876108
94	SAVE	527	*Pinus pinea*	Italian stone pine	Yes	38	N	H	1	38	0	0	0	0	60	40	Fair	Poor		34.15205	-117.876152
95	SAVE	543	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	30	15	Poor	Poor		34.15301	-117.87618
96	SAVE	544	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	65	12	Poor	Fair		34.153	-117.876262
97	SAVE	545	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	18	15	Poor	Poor		34.15299	-117.876265
98	SAVE	546	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	3	9	5	4	0	0	25	15	Fair	Poor		34.15299	-117.876316
99	SAVE	547	*Quercus agrifolia*	coast live oak	Yes	19	Y	B	2	11	8	0	0	0	20	15	Fair	Poor		34.15296	-117.876346
100	SAVE	548	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	3	10	4		0	0	15	12	Poor	Poor		34.15293	-117.876346
101	SAVE	549	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	2	10	8	0	0	0	15	10	Poor	Poor		34.1529	-117.876357
102	SAVE	550	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	10	Poor	Poor		34.1529	-117.876375
103	SAVE	551	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	20	10	Poor	Poor		34.15289	-117.876372
104	SAVE	552	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	2	9	7	0	0	0	25	10	Poor	Poor		34.15286	-117.876405
105	SAVE	553	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	15	12	Fair	Poor		34.15282	-117.876388
106	SAVE	554	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	2	9	8	0	0	0	10	8	Poor	Poor		34.15288	-117.876457
107	SAVE	555	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	2	14	10	0	0	0	25	10	Fair	Poor		34.15288	-117.876456
108	SAVE	556	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	10	8	Fair	Poor	broke trunk	34.15288	-117.876495

REVISIONS	BY
CITY COMMENTS 09-01-2021	1
CITY COMMENTS 02-07-2022	2

PHIL MAY LANDSCAPE ARCHITECTURE
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www.philmaydesign.com

REGISTERED LANDSCAPE ARCHITECT PHILIP S. MAY 05.31.23 02-21-2022 STATE OF CALIFORNIA

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EXISTING TREE INVENTORY DATA
(TO REMAIN IN PLACE)

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-2.1
OF 13 SHEETS
JOB NO. 21015

⚠2

PRESERVATION NOTES FOR EXISTING TREES TO REMAIN

1. Temporary, protective fending shall be installed around any existing tree that is to be preserved on a project site. This fencing must 5' high, vinyl material and orange color. This fencing shall be placed at a minimum distance of fifteen (15) feet from the trunk of the tree or five (5) feet outside the drip line of the tree, whichever distance is greater. No activity, or material storage shall take place within this fenced-in area. If area must be accessed, the ground must be mitigated with mulch and plywood to absorb the effects of compaction. Signage shall be added to the fencing at spaced intervals to advise that trees are being protected and to keep out.
2. No supplemental irrigation should be introduced to tree base.
3. Limit the percentage of soil compaction within the drip line of tree.
4. No fill in or construction material shall be placed within the drip line of tree.
5. Arborist must be present during excavation near tree to verify minimal damage to root system.
6. Keep proposed drainage flow away from tree protected zone.

NOTE: SEE TREE INVENTORY PLAN, SHEET-L2 FOR REFERENCE

COUNT	Save/ remove	Tree No.	Botanical Name	Common Name	Protected	Diameter at Standard Height (inches)	Native	Category	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure	Notes	Lat.	Long.
108	SAVE	657	*Quercus agrifolia*	coast live oak	Yes	32	Y	B	4	12	7	7	6	0	18	15	Fair	Poor		34.15292	-117.87655
110	SAVE	659	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	25	10	Poor	Poor		34.15313	-117.87663
111	SAVE	660	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	12	8	Poor	Poor		34.15315	-117.876607
112	SAVE	661	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	2	10	8	0	0	0	25	10	Poor	Poor		34.15316	-117.876627
113	SAVE	662	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	10	10	Poor	Poor		34.15316	-117.876694
114	SAVE	666	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	20	18	Fair	Fair	Steep, no access estimated dbh	34.15389	-117.876433
115	SAVE	667	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	20	18	Fair	Fair	Steep, no access estimated dbh	34.15387	-117.876367
116	SAVE	669	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	0	6	8	0	0	0	20	15	Poor	Poor		34.15317	-117.876432
117	SAVE	670	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	20	15	Poor	Poor		34.15313	-117.876419
118	SAVE	671	*Olea europaea*	fruitless olive	Yes	56	N	I	5	21	13	9	6	7	20	10	Poor	Poor		34.15305	-117.87643
119	SAVE	672	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	2	8	5	0	0	0	20	8	Fair	Poor		34.15308	-117.876405
120	SAVE	673	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	15	Fair	Fair		34.15308	-117.876388
121	SAVE	674	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	15	8	Fair	Poor		34.15311	-117.876357
122	SAVE	675	*Quercus agrifolia*	coast live oak	Yes	19	Y	B	1	19	0	0	0	0	25	20	Poor	Poor		34.15307	-117.876299
123	SAVE	676	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	30	15	Poor	Poor		34.15304	-117.876301
124	SAVE	677	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	30	15	Poor	Fair		34.15318	-117.876321
125	SAVE	679b	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	20	15	Poor	Poor	Steep, no tag, estimate dbh	34.15345	-117.876492
126	SAVE	680	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	45	35	Fair	Fair	Steep, no tag, estimate dbh	34.15346	-117.876435
127	SAVE	681	*Quercus agrifolia*	coast live oak	Yes	19	Y	B	1	19	0	0	0	0	45	35	Fair	Fair	Steep, no tag, estimate dbh	34.15345	-117.876399
128	SAVE	682	*Quercus agrifolia*	coast live oak	Yes	22	Y	B	2	16	6	0	0	0	50	30	Fair	Fair	Steep, no tag, estimate dbh	34.15348	-117.876414
129	SAVE	683	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	15	Fair	Fair	Steep, no tag, estimate dbh	34.15352	-117.876426
130	SAVE	684	*Quercus agrifolia*	coast live oak	Yes	28	Y	B	2	14	14	0	0	0	25	30	Poor	Fair	Steep, no tag, estimate dbh	34.15353	-117.876399
131	SAVE	685	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	15	15	Fair	Poor		34.1537	-117.876303
132	SAVE	687	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	10	10	Fair	Poor	sprout off fallen tree no tag access	34.15371	-117.876144
133	SAVE	688	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	17	12	Fair	Fair	Steep, no tag, estimate dbh	34.15385	-117.876307
134	SAVE	689	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	10	18	Fair	Poor		34.15383	-117.876292
135	SAVE	690	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	7	5	0	0	0	15	18	Fair	Poor		34.15384	-117.876236
136	SAVE	691	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	15	6	Poor	Poor	Steep, no tag, estimate dbh	34.15374	-117.876126
137	SAVE	692	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	25	15	Good	Fair	Steep, no tag, estimate dbh	34.15377	-117.876111
138	SAVE	693	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	20	10	Fair	Fair		34.15382	-117.876096
139	SAVE	695	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	23	18	Fair	Poor		34.15385	-117.876207
140	SAVE	696	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	15	Fair	Fair		34.15388	-117.876145
141	SAVE	697	*Platanus racemosa*	California sycamore	Yes	20	N	G	1	20	0	0	0	0	45	20	Poor	Poor		34.15393	-117.876182
142	SAVE	699	*Juglans californica*	Southern California black walnut	yes	8	Y	A	1	8	0	0	0	0	20	18	Good	Fair	Steep, no access estimated dbh	34.15408	-117.876273
143	SAVE	700	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	30	18	Fair	Poor		34.15396	-117.876173
144	SAVE	701	*Juglans californica*	Southern California black walnut	yes	9	Y	A	1	9	0	0	0	0	20	15	Fair	Poor	no tag, couldn't access	34.15406	-117.876118
145	SAVE	702	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	25	15	Fair	Fair		34.1541	-117.876137
146	SAVE	703	*Quercus agrifolia*	coast live oak	Yes	26	Y	B	2	13	13	0	0	0	30	30	Fair	Poor		34.15416	-117.876146
147	SAVE	704	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	45	20	Fair	Poor	no tag, couldn't access	34.15416	-117.876152
148	SAVE	708b	*Juglans californica*	Southern California black walnut	Yes	9	Y	A	4	5	4			0	30	10	Fair	Poor	no tag, couldn't access	34.15374	-117.875946
149	SAVE	708a	*Platanus racemosa*	California sycamore	Yes	11	N	F	1	11	0	0	0	0	30	10	Poor	Poor		34.15415	-117.876163
150	SAVE	711	*Juglans californica*	Southern California black walnut	Yes	24	Y	B	3	9	7	8	0	0	25	20	Poor	Poor	no tag, couldn't access	34.15341	-117.875994
151	SAVE	712	*Juglans californica*	Southern California black walnut	Yes	16	Y	B	2	9	7	0	0	0	25	15	Poor	Poor	no tag, couldn't access	34.15351	-117.876049
152	SAVE	752	*Juglans californica*	Southern California black walnut	yes	9	Y	A	1	9	0	0	0	0	12	15	Fair	Poor	stump sprout	34.1532	-117.874846
153	SAVE	753	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	13	9	Fair	Poor		34.15336	-117.875034
154	SAVE	754	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	12	Fair	Fair		34.15338	-117.875125
155	SAVE	756	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	20	12	Fair	Fair	no tag, couldn't access	34.15361	-117.874851
156	SAVE	758	*Juglans californica*	Southern California black walnut	Yes	18	Y	B	3	6	6	5	0	0	30	15	Fair	Fair	Steep, no tag, estinated dbh	34.15376	-117.874611
157	SAVE	763	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	30	15	Fair	Fair	Steep, no tag, estinated dbh	34.15396	-117.87461
158	SAVE	767	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	13	0	0	0	0	30	15	Fair	Poor		34.15352	-117.874702
159	SAVE	769	*Platanus racemosa*	California sycamore	Yes	15	N	F	2	10	5	0	0	0	30	10	Poor	Poor		34.15354	-117.874503
160	SAVE	793	*Quercus agrifolia*	coast live oak	Yes	22	Y	B	1	22	0	0	0	0	35	15	Fair	Fair		34.15415	-117.873197
161	SAVE	802	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	2	4	4	0	0	0	8	1	Poor	Poor		34.1526	-117.87257
162	SAVE	803	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	25	8	Fair	Poor	located on adjacent property, did not tag	34.15252	-117.872554
163	SAVE	804	*Quercus agrifolia*	coast live oak	Yes	25	Y	B	1	25	0	0	0	0	35	15	Fair	Fair	located on adjacent property, did not tag	34.15251	-117.872554
164	SAVE	805	*Quercus agrifolia*	coast live oak	Yes	44	Y	C	2	28	16	0	0	0	40	20	Fair	Fair	located on adjacent property, did not tag	34.15251	-117.872554
165	SAVE	806	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	40	25	Fair	Fair	located on adjacent property, did not tag	34.15243	-117.872583
166	SAVE	807	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	20	10	Fair	Fair		34.15227	-117.872595
167	SAVE	809	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	15	10	Fair	Poor		34.15224	-117.872602
168	SAVE	810	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	18	15	Fair	Fair		34.15215	-117.872632
169	SAVE	811	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	2	5	5	0	0	0	20	15	Poor	Fair		34.15205	-117.872663
170	SAVE	812	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	2	5	5	0	0	0	12	10	Fair	Poor		34.152	-117.872674
171	SAVE	813	*Schinus molle*	Peruvian pepper	Yes	24	N	G	5	10	9	5			20	20	Fair	Fair		34.15204	-117.872593
172	SAVE	814	*Schinus molle*	Peruvian pepper	Yes	29	N	G	5	10	8	5	5		20	20	Fair	Fair		34.15205	-117.872561
173	SAVE	815	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	2	9	9	0	0	0	15	10	Poor	Poor		34.15205	-117.87257
174	SAVE	817	*Schinus molle*	Peruvian pepper	Yes	16	N	G	2	8	8	0	0	0	15	20	Fair	Poor		34.15214	-117.872577
175	SAVE	818	*Schinus molle*	Peruvian pepper	Yes	16	N	G	2	8	8	0	0	0	15	20	Fair	Poor		34.15196	-117.87268
176	SAVE	819	*Quercus agrifolia*	coast live oak	Yes	19	Y	B	1	19	0	0	0	0	25	30	Fair	Fair		34.15186	-117.872617
177	SAVE	820	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	4	4	4			0	25	15	Fair	Poor		34.15189	-117.872611
178	SAVE	821	*Schinus molle*	Peruvian pepper	Yes	35	N	G	3	12	12	11	0	0	25	10	Fair	Poor		34.15185	-117.872584
179	SAVE	822	*Schinus molle*	Peruvian pepper	Yes	34	N	G	3	12	12	10	0	0	30	15	Poor	Poor		34.15173	-117.872653
180	SAVE	823	*Quercus agrifolia*	coast live oak	Yes	21	Y	B	5	6	5		5	5	25	15	Fair	Poor		34.15174	-117.872634
181	SAVE	824	*Quercus agrifolia*	coast live oak	Yes	21	Y	B	3	8	6	7	0	0	35	15	Fair	Poor		34.15175	-117.872561
182	SAVE	825	*Quercus agrifolia*	coast live oak	Yes		Y	A	5						12	10	Fair	Poor		34.15177	-117.872565
183	SAVE	826	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	5	5	4	4			25	15	Fair	Poor		34.15174	-117.872555
184	SAVE	827	*Quercus agrifolia*	coast live oak	Yes	19	Y	B	5	6	5	4	4		20	15	Fair	Poor		34.15171	-117.872556

REVISIONS
CITY COMMENTS 09-01-2021 ⚠1
CITY COMMENTS 02-07-2022 ⚠2

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REGISTERED LANDSCAPE ARCHITECT PHILIP S. MAY 05.31.23 RENEWAL DATE 02-21-2022 STATE OF CALIFORNIA

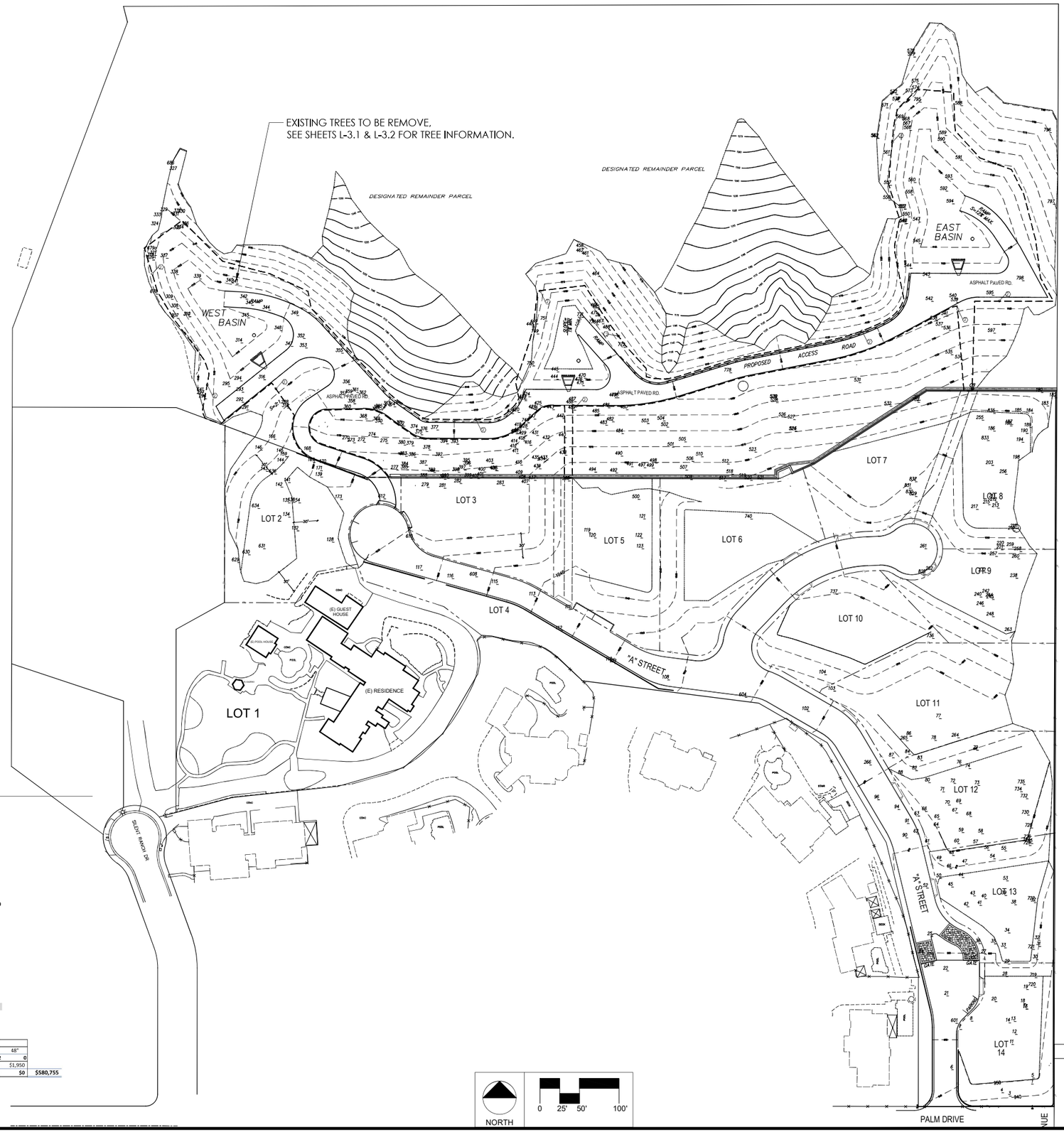
EXISTING TREE INVENTORY DATA
(TO REMAIN IN PLACE)

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-2.2
OF 13 SHEETS
JOB NO. 21015

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EXISTING TREES TO BE REMOVE,
SEE SHEETS L-3.1 & L-3.2 FOR TREE INFORMATION.



EXISTING TREE SUMMARY

#'s from Survey

Category	Size	#	Mitigation Requirement	Mitigation Req'd
A	Native 8" - 15"	168	36" boxed tree - 2:1 replacement	336
B	Native 16" - 36"	104	48" boxed tree - 3:1 replacement	312
C	Native 37" - 48"	9	48" boxed tree - 5:1 replacement	45
D	Native 49" - 60"	0	48" boxed tree - 6:1 replacement	0
E	Native 61" - and up	1	48" boxed tree - 7:1 replacement	7
F	Other 10" - 15"	63	24" boxed tree - 1:1 replacement	63
G	Other 16" - 36"	105	36" boxed tree - 1:1 replacement	105
H	Other 37" - 48"	4	48" boxed tree - 2:1 replacement	8
I	Other 49" - 60"	1	48" boxed tree - 3:1 replacement	3
J	Other 61" - and up	0	48" boxed tree - 5:1 replacement	0
	Total trees counted	455		879

Mitigation Requirements by tree

Tree Box Size	Req'd	Planned	Bal.	
Native 36"	336	170	166	
Native 48"	368	185	179	
Other 24"	63	44	19	
Other 36"	105	33	72	
Other 48"	11	11	0	

Plans dated 05-15-2021

Type	Size Proposed	Page L-5 through L-9	Totals
Native	36"	170	170
	48"	301	301
Other	24"	63	63
	36"	33	33
	48"	11	11

Native Species			
Tree Size	36"	48"	
Total required	166	179	
Cost per tree	$950	$1,950	
Total in-lieu fee	$157,700	$349,050	

Other Species				
	24"	36"	48"	
	19	72	0	
	$350	$950	$1,950	
	$6,669	$68,400	$0	$580,755

1

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REVISIONS	BY
CITY COMMENTS 09-01-2021	1
CITY COMMENTS 02-07-2022	2

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REGISTERED LANDSCAPE ARCHITECT
PHILLIP S. MAY
06-30-23
02-21-2022
DATE
STATE OF CALIFORNIA

TREE INVENTORY PLAN
(TO BE REMOVED)

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-3
OF 13 SHEETS
JOB NO. 21015

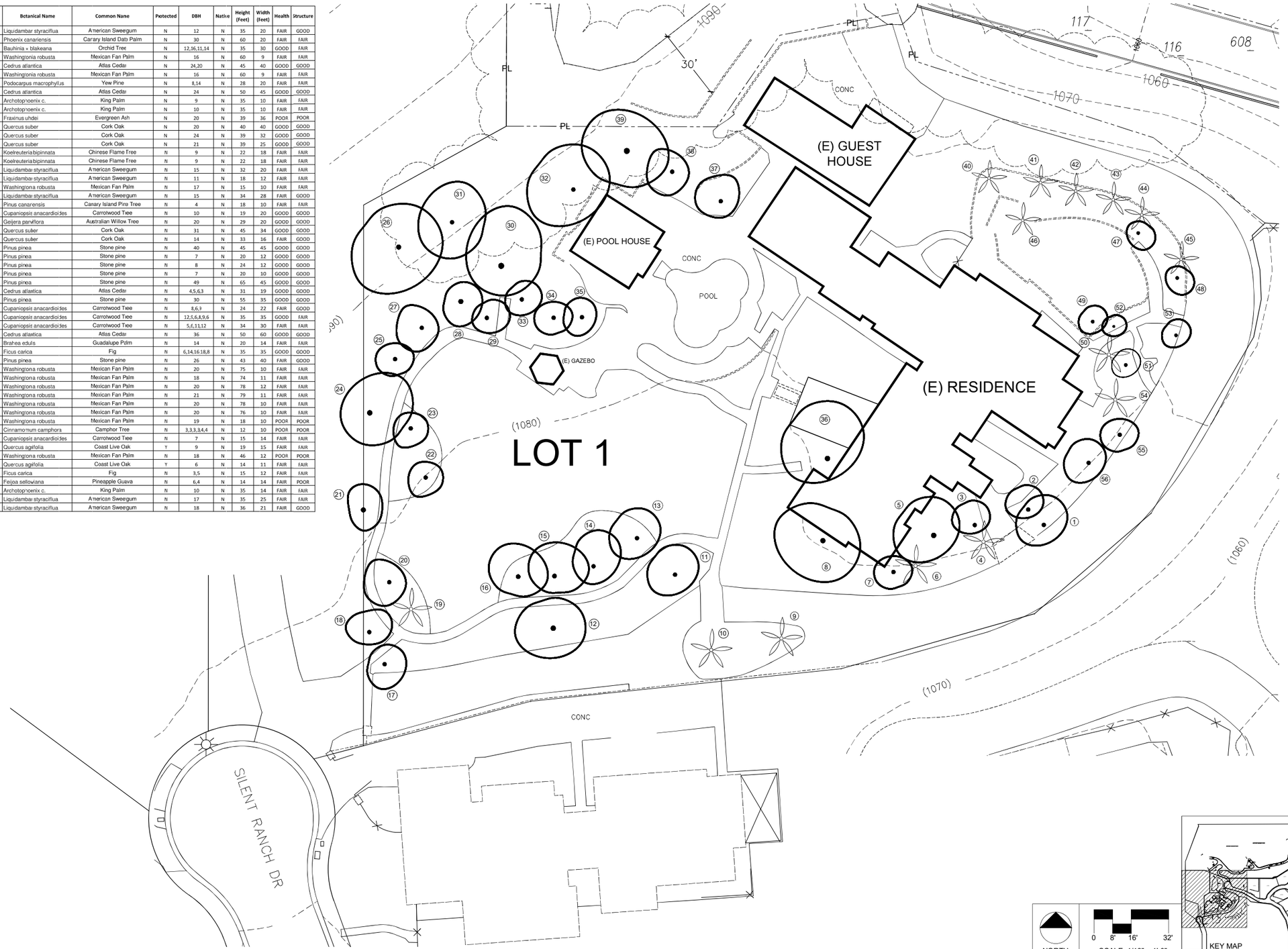
Tree No.	Botanical Name	Common Name	Protected	DBH	Native	Category	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure
1	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	1	23	0	0	0	0	22	25	Fair	Poor
3	*Casuarina curninghamiana*	river she-oak	Yes	29	N	G	1	29	0	0	0	0	60	20	Good	Good
4	*Pinus canariensis*	Canary Island pine	Yes	26	N	G	1	26	0	0	0	0	70	20	Good	Poor
5	*Jacaranda mimosifolia*	jacaranda	Yes	20	N	G	3	10	5	5	0	0	18	18	Fair	Poor
6	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	90	15	Good	Fair
7	*Pinus canariensis*	Canary Island pine	Yes	30	N	G	1	30	0	0	0	0	90	30	Good	Fair
8	*Casuarina curninghamiana*	river she-oak	Yes	19	N	G	1	19	0	0	0	0	35	25	Fair	Fair
11	*Jacaranda mimosifolia*	jacaranda	Yes	18	N	G	2	10	8	0	0	0	30	30	Fair	Fair
12	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	30	18	Poor	Fair
13	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	2	8	7	0	0	0	10	10	Fair	Poor
14	*Washingtonia robusta*	Mexican fan palm	Yes	11	N	F	1	11	0	0	0	0	75	15	Good	Fair
16	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	15	10	Good	Poor
17	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	95	15	Good	Fair
18	*Washingtonia robusta*	Mexican fan palm	Yes	17	N	G	1	17	0	0	0	0	20	10	Good	Good
19	*Casuarina curninghamiana*	river she-oak	Yes	14	N	F	1	14	0	0	0	0	50	20	Fair	Good
20	*Cedrus deodora*	deodar cedar	Yes	20	N	G	1	20	0	0	0	0	50	30	Fair	Fair
21	*Phoenix canariensis*	Canary Island date palm	Yes	20	N	G	1	20	0	0	0	0	60	20	Good	Good
22	*Cedrus deodora*	deodar cedar	Yes	23	N	G	1	23	0	0	0	0	55	25	Fair	Fair
24	*Phoenix canariensis*	Canary Island date palm	Yes	18	N	G	1	18	0	0	0	0	45	18	Good	Good
25	*Cedrus deodora*	deodar cedar	Yes	17	N	G	1	17	0	0	0	0	40	20	Fair	Fair
27	*Casuarina curninghamiana*	river she-oak	Yes	10	N	I	1	10	0	0	0	0	30	15	Poor	Poor
28	*Casuarina curninghamiana*	river she-oak	Yes	21	N	G	1	21	0	0	0	0	55	18	Fair	Poor
29	*Pinus canariensis*	Canary Island pine	Yes	24	N	G	1	24	0	0	0	0	55	20	Fair	Fair
30	*Washingtonia robusta*	Mexican fan palm	Yes	12	N	F	1	12	0	0	0	0	40	10	Fair	Good
31	*Washingtonia robusta*	Mexican fan palm	Yes	12	N	F	1	12	0	0	0	0	45	12	Good	Good
32	*Washingtonia robusta*	Mexican fan palm	Yes	12	N	F	1	12	0	0	0	0	25	10	Good	Good
33	*Casuarina curninghamiana*	river she-oak	Yes	15	N	F	1	15	0	0	0	0	35	20	Fair	Fair
34	*Grevillea robusta*	silk oak	Yes	22	N	G	1	22	0	0	0	0	50	20	Good	Fair
35	*Casuarina curninghamiana*	river she-oak	Yes	15	N	F	1	15	0	0	0	0	35	15	Fair	Fair
36	*Casuarina curninghamiana*	river she-oak	Yes	18	N	G	1	18	0	0	0	0	50	20	Good	Fair
37	*Washingtonia robusta*	Mexican fan palm	Yes	12	N	I	1	12	0	0	0	0	30	10	Fair	Good
38	*Casuarina curninghamiana*	river she-oak	Yes	20	N	G	1	20	0	0	0	0	55	25	Good	Fair
39	*Grevillea robusta*	silk oak	Yes	25	N	G	1	25	0	0	0	0	55	25	Poor	Poor
40	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	50	15	Good	Good
41	*Washingtonia robusta*	Mexican fan palm	Yes	12	N	F	1	12	0	0	0	0	50	15	Good	Good
42	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	45	15	Good	Poor
43	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	55	12	Good	Poor
44	*Washingtonia robusta*	Mexican fan palm	Yes	12	N	F	1	12	0	0	0	0	60	12	Good	Fair
45	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	60	12	Good	Fair
46	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	60	12	Good	Fair
47	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	60	12	Good	Fair
48	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	60	12	Good	Fair
49	*Phoenix canariensis*	Canary Island date palm	Yes	20	N	G	1	20	0	0	0	0	25	15	Good	Good
50	*Phoenix canariensis*	Canary Island date palm	Yes	21	N	G	1	21	0	0	0	0	30	20	Good	Good
52	*Cedrus deodora*	deodar cedar	Yes	23	N	G	1	23	0	0	0	0	50	30	Fair	Fair
53	*Pinus canariensis*	Canary Island pine	Yes	17	N	G	1	17	0	0	0	0	55	20	Fair	Poor
54	*Pinus canariensis*	Canary Island pine	Yes	11	N	F	1	11	0	0	0	0	30	15	Fair	Fair
55	*Pinus canariensis*	Canary Island pine	Yes	27	N	G	1	27	0	0	0	0	70	30	Fair	Fair
56	*Pinus canariensis*	Canary Island pine	Yes	21	N	G	1	21	0	0	0	0	70	30	Fair	Fair
57	*Pinus canariensis*	Canary Island pine	Yes	20	N	G	1	20	0	0	0	0	70	20	Fair	Fair
58	*Pinus canariensis*	Canary Island pine	Yes	17	N	G	1	17	0	0	0	0	60	15	Poor	Fair
59	*Pinus canariensis*	Canary Island pine	Yes	19	N	G	1	19	0	0	0	0	65	15	Fair	Poor
60	*Pinus canariensis*	Canary Island pine	Yes	22	N	G	1	22	0	0	0	0	70	20	Fair	Fair
61	*Pinus canariensis*	Canary Island pine	Yes	22	N	G	1	22	0	0	0	0	65	20	Good	Fair
62	*Pinus canariensis*	Canary Island pine	Yes	23	N	G	1	23	0	0	0	0	65	20	Fair	Fair
63	*Pinus canariensis*	Canary Island pine	Yes	22	N	G	1	22	0	0	0	0	65	20	Poor	Fair
64	*Pinus canariensis*	Canary Island pine	Yes	20	N	G	1	20	0	0	0	0	60	15	Fair	Poor
65	*Pinus canariensis*	Canary Island pine	Yes	17	N	G	1	17	0	0	0	0	55	10	Poor	Poor
66	*Pinus canariensis*	Canary Island pine	Yes	12	N	F	1	12	0	0	0	0	40	10	Fair	Poor
67	*Pinus canariensis*	Canary Island pine	Yes	20	N	G	1	20	0	0	0	0	60	15	Fair	Fair
68	*Pinus canariensis*	Canary Island pine	Yes	21	N	G	1	21	0	0	0	0	60	15	Fair	Fair
69	*Pinus canariensis*	Canary Island pine	Yes	22	N	G	1	22	0	0	0	0	60	15	Fair	Fair
70	*Pinus canariensis*	Canary Island pine	Yes	23	N	G	1	23	0	0	0	0	60	15	Fair	Fair
71	*Pinus canariensis*	Canary Island pine	Yes	19	N	G	1	19	0	0	0	0	75	15	Fair	Fair
72	*Pinus canariensis*	Canary Island pine	Yes	20	N	G	1	20	0	0	0	0	75	15	Fair	Fair
73	*Pinus canariensis*	Canary Island pine	Yes	22	N	G	1	22	0	0	0	0	75	20	Fair	Poor
74	*Pinus canariensis*	Canary Island pine	Yes	22	N	G	1	22	0	0	0	0	70	15	Fair	Poor
76	*Eucalyptus robusta*	swamp mahogany	Yes	15	N	F	1	15	0	0	0	0	15	20	Good	Poor
77	*Washingtonia robusta*	Mexican fan palm	Yes	12	N	F	1	12	0	0	0	0	30	12	Good	Good
78	*Olea europaea*	fruitless olive	Yes	12	N	F	1	12	0	0	0	0	20	20	Good	Fair
79	*Quercus agrifolia*	coast live oak	Yes	26	Y	B	4	9	9	4	4	0	20	20	Good	Fair
80	*Heteromeles arbutifolia*	toyon	Yes	21	N	G	5	7	5	5	0	4	15	15	Poor	Fair
82	*Grevillea robusta*	silk oak	Yes	24	N	G	1	24	0	0	0	0	65	30	Fair	Fair
83	*Olea europaea*	fruitless olive	Yes	26	N	G	3	10	10	6	0	0	30	30	Good	Poor
84	*Grevillea robusta*	silk oak	Yes	18	N	G	1	18	0	0	0	0	55	20	Fair	Fair
86	*Grevillea robusta*	silk oak	Yes	20	N	G	1	20	0	0	0	0	55	15	Good	Good
87	*Grevillea robusta*	silk oak	Yes	19	N	G	1	19	0	0	0	0	50	15	Fair	Fair
88	*Grevillea robusta*	silk oak	Yes	16	N	G	1	16	0	0	0	0	45	15	Fair	Fair
90	*Cedrus deodora*	deodar cedar	Yes	26	N	G	1	26	0	0	0	0	55	30	Fair	Fair
91	*Grevillea robusta*	silk oak	Yes	11	N	F	1	11	0	0	0	0	40	15	Good	Fair
94	*Casuarina curninghamiana*	river she-oak	Yes	14	N	F	1	14	0	0	0	0	35	15	Fair	Fair
96	*Olea europaea*	fruitless olive	Yes	20	N	G	2	10	10	0	0	0	30	30	Good	Fair
102	*Cedrus deodora*	deodar cedar	Yes	31	N	G	1	31	0	0	0	0	65	30	Fair	Good
103	*Araucaria bidwillii*	bunya-bunya	Yes	20	N	G	1	20	0	0	0	0	55	20	Fair	Fair
104	*Araucaria bidwillii*	bunya-bunya	Yes	16	N	G	1	16	0	0	0	0	55	15	Fair	Fair
108	*Quercus agrifolia*	coast live oak	Yes	36	Y	B	1	36	0	0	0	0	35	40	Good	Poor
109	*Quercus agrifolia*	coast live oak	Yes	21	Y	B	1	21	0	0	0	0	35	30	Good	Fair
110	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	20	15	Good	Fair
111	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	25	20	Good	Fair
112	*Quercus agrifolia*	coast live oak	Yes	35	Y	B	1	35	0	0	0	0	45	40	Good	Fair
113	*Cedrus deodora*	deodar cedar	Yes	11	N	F	1	11	0	0	0	0	45	15	Fair	Fair
115	*Pseudotsuga menziesii*	Douglas-fir	Yes	12	N	F	1	12	0	0	0	0	40	8	Poor	Poor
116	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	35	25	Good	Fair
117	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	30	20	Good	Fair
119	*Phoenix canariensis*	Canary Island date palm	Yes	23	N	G	1	23	0	0	0	0	35	20	Good	
120	*Phoenix canariensis*	Canary Island date palm	Yes	17	N	G	1	17	0	0	0	0	30	15	Good	Fair
121	*Phoenix canariensis*	Canary Island date palm	Yes	20	N	G	1	20	0	0	0	0	40	15	Good	Cood
122	*Phoenix canariensis*	Canary Island date palm	Yes	20	N	G	1	20	0	0	0	0	40	15	Fair	Cood
123	*Phoenix canariensis*	Canary Island date palm	Yes	19	N	G	1	19	0	0	0	0	40	15	Fair	Cood
128	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	80	15	Good	Fair
132	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	80	15	Good	Fair
134	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	80	15	Good	Fair
135	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	80	15	Good	Fair
136	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	80	15	Good	Fair
139	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	55	15	Fair	Fair
141	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	80	15	Good	Fair
142	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	80	15	Good	Fair
143	*Washingtonia robusta*	Mexican fan palm	Yes	17	N	G	1	17	0	0	0	0	80	15	Good	Fair
144	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	80	15	Good	Fair
145	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	80	15	Good	Fair
146	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	80	15	Good	Fair
154	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	25	20	Fair	Fair
159	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	20	25	Fair	Fair
166	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	1	24	0	0	0	0	40	35	Fair	Fair
168	*Washingtonia robusta*	Mexican fan palm	Yes	13	N	F	1	13	0	0	0	0	80	15	Good	Fair
169	*Quercus agrifolia*	coast live oak	Yes	29	Y	B	2	15	14	0	0	0	30	30	Fair	Poor
170	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	30	30	Fair	Fair

Tree No.	Botanical Name	Commcn Name	Protected	DBH	Native	Category	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure
171	*Olea europaea*	fruitless olive	Yes	20	N	G	2	10	10	0	0	0	30	25	Good	Poor
173	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	45	30	Far	Fair
180	*Quercus agrifolia*	coast live oak	Yes	30	Y	B	1	30	0	0	0	0	40	25	Poer	Poor
182	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	2	6	4	0	0	0	18	10	Far	Poor
183	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	25	20	Far	Poor
184	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	30	20	Far	Poor
185	*Quercus agrifolia*	coast live oak	Yes	26	Y	B	1	26	0	0	0	0	50	35	Far	Fair
186	*Quercus agrifolia*	coast live oak	Yes	22	Y	B	1	22	0	0	0	0	45	30	Far	Fair
187	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	50	20	Far	Fair
188	*Quercus agrifolia*	coast live oak	Yes	32	Y	B	1	32	0	0	0	0	55	35	Far	Fair
189	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	40	25	Far	Fair
190	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	10	Far	Fair
194	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	40	25	Far	Fair
198	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	1	17	0	0	0	0	35	20	Far	Fair
203	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	30	25	Far	Fair
211	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	25	15	Far	Fair
212	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	15	10	Far	Fair
213	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	30	20	Good	Fair
215	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	20	15	Good	Fair
217	*Quercus agrifolia*	coast live oak	Yes	28	Y	B	2	16	12	0	0	0	20	15	Good	Fair
218	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	10	Far	Poor
219	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	15	8	Far	Poor
220	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	20	15	Far	Fair
221	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	20	13	Far	Fair
232	*Quercus agrifolia*	coast live oak	Yes	22	Y	B	1	22	0	0	0	0	20	20	Far	Poor
238	*Quercus agrifolia*	coast live oak	Yes	38	Y	C	3	12	13	13	0	0	30	30	Good	Fair
240	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	20	20	Far	Fair
242	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	15	Far	Poor
244	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	12	Far	Fair
245	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	20	12	Far	Fair
246	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	6	10	Far	Poor
248	*Quercus agrifolia*	coast live oak	Yes	19	Y	B	1	19	0	0	0	0	15	10	Far	Fair
255	*Olea europaea*	fruitless olive	Yes	22	N	G	2	22	0	0	0	0	35	25	Far	Fair
256	*Olea europaea*	fruitless olive	Yes	18	N	G	1	18	0	0	0	0	30	20	Far	Poor
257	*Olea europaea*	fruitless olive	Yes	22	N	G	3	22	0	0	0	0	20	15	Far	Poor
258	*Olea europaea*	fruitless olive	Yes	25	N	G	3	25	0	0	0	0	30	25	Far	Poor
259	*Olea europaea*	fruitless olive	Yes	14	N	F	3	14	0	0	0	0	15	15	Far	Poor
260	*Olea europaea*	fruitless olive	Yes	13	N	F	1	13	0	0	0	0	15	20	Poor	Poor
261	*Olea europaea*	fruitless olive	Yes	16	N	G	2	16	0	0	0	0	15	15	Far	Poor
262	*Olea europaea*	fruitless olive	Yes	24	N	G	3	24	0	0	0	0	25	30	Far	Poor
263	*Olea europaea*	fruitless olive	Yes	50	N	I	5	10	10	10	10	10	25	30	Far	Poor
264	*Olea europaea*	fruitless olive	Yes	18	N	G	4	18	0	0	0	0	25	30	Good	Poor
265	*Olea europaea*	fruitless olive	Yes	18	N	G	1	18	0	0	0	0	30	20	Good	Poor
266	*Ceratonia siliqua*	carob	Yes	28	N	G	1	28	0	0	0	0	30	50	Far	Fair
270	*Pinus canariensis*	Canary Island pine	Yes	18	N	G	1	18	0	0	0	0	65	15	Poor	Poor
272	*Pinus canariensis*	Canary Island pine	Yes	33	N	G	1	33	0	0	0	0	70	35	Far	Poor
273	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	30	30	Far	Fair
274	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	30	15	Far	Fair
275	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	30	15	Far	Poor
277	*Quercus agrifolia*	coast live oak	Yes	22	Y	B	1	22	0	0	0	0	45	30	Good	Fair
279	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	1	23	0	0	0	0	50	30	Far	Fair
280	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	30	20	Good	Fair
281	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	1	23	0	0	0	0	50	30	Poor	Fair
282	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	45	25	Far	Fair
283	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	20	15	Far	Poor
285	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	2	20	0	0	0	0	35	30	Far	Fair
288	*Washingtonia robusta*	Mexican fan palm	Yes	15	N	F	1	15	0	0	0	0	75	15	Far	Fair
291	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	75	15	Far	Fair
292	*Olea europaea*	fruitless olive	Yes	24	N	G	2	24	0	0	0	0	20	15	Poor	Poor
293	*Washingtonia robusta*	Mexican fan palm	Yes	17	N	G	1	17	0	0	0	0	75	15	Far	Fair
294	*Quercus agrifolia*	coast live oak	Yes	28	Y	B	1	28	0	0	0	0	30	30	Poor	Poor
295	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	10	10	Far	Poor
296	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	20	20	Far	Fair
297	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	30	15	Far	Fair
307	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	15	10	Far	Fair
308	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	15	Far	Fair
309	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	30	30	Far	Fair
310	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	35	15	Far	Fair
312	*Quercus agrifolia*	coast live oak	yes	13	Y	A	1	13	0	0	0	0	10	10	Poor	Poor
314	*Ccrymbia maculata*	spotted gum	Yes	38	N	H	1	38	0	0	0	0	90	45	Poor	Poor
316	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	30	20	Poor	Poor
318	*Washingtonia robusta*	Mexican fan palm	Yes	10	N	F	1	10	0	0	0	0	75	15	Fair	Fair
319	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	40	30	Far	Fair
320	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	35	20	Far	Fair
321	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	1	23	0	0	0	0	40	35	Far	Fair
324	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	35	20	Far	Fair
327	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	30	20	Far	Fair
329	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	35	30	Far	Fair
330	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	30	18	Far	Fair
331	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	40	20	Far	Fair
332	*Jeglans californica*	Southern California black walnut	Yes	10	Y	A	2	10	0	0	0	0	40	30	Far	Fair
333	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	35	30	Far	Poor
334	*Jeglans californica*	Southern California black walnut	Yes	21	Y	B	2	21	0	0	0	0	30	30	Far	Poor
335	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	40	20	Far	Fair
336	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	20	20	Far	Fair
337	*Ccrymbia maculata*	spotted gum	Yes	39	N	H	2	39	0	0	0	0	50	40	Far	Fair
338	*Ccrymbia maculata*	spotted gum	Yes	44	N	H	1	44	0	0	0	0	55	50	Far	Fair
339	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	30	15	Far	Poor
340	*Jeglans californica*	Southern California black walnut	Yes	19	Y	B	3	19	0	0	0	0	25	20	Far

Tree No.	Botanical Name	Common Name	Protected	DBH	Native	Category	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure
370	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	25	20	Fair	Fair
371	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	30	20	Fair	Fair
372	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	30	15	Fair	Fair
374	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	30	20	Good	Fair
375	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	40	30	Good	Fair
376	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	30	20	Good	Fair
377	*Juglans californica*	Southern California black walnut	Yes	16	Y	B	3	6	5	5	0	0	15	15	Fair	Poor
378	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	40	25	Good	Fair
379	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	30	15	Good	Fair
380	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	25	20	Good	Fair
383	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	25	10	Good	Fair
384	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	30	14	Good	Fair
385	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	1	17	0	0	0	0	40	20	Good	Fair
386	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	30	20	Good	Fair
387	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	25	15	Good	Fair
388	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	30	15	Fair	Poor
389	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	40	25	Good	Fair
391	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	30	10	Good	Fair
392	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	25	10	Good	Fair
393	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	35	20	Fair	Fair
394	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	12	10	Good	Poor
395	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	40	20	Fair	Fair
396	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	30	20	Fair	Fair
397	*Quercus agrifolia*	coast live oak	Yes	21	Y	B	1	21	0	0	0	0	45	30	Good	Fair
398	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	30	15	Fair	Poor
399	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	2	9	8	0	0	0	35	20	Fair	Poor
400	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	30	20	Fair	Poor
401	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	30	20	Fair	Fair
402	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	1	17	0	0	0	0	40	30	Good	Fair
403	*Ceratonia siliqua*	carob	Yes	48	N	H	4	16	16	10	6	0	30	20	Good	Fair
405	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	30	15	Fair	Poor
406	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	15	Fair	Fair
407	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	40	20	Good	Fair
408	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	45	20	Good	Fair
409	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	30	15	Fair	Good
410	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	20	15	Poor	Poor
411	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	2	20	0	0	0	0	40	15	Fair	Poor
412	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	45	15	Fair	Poor
414	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	35	15	Fair	Poor
415	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	40	15	Fair	Poor
416	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	35	15	Fair	Poor
417	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	40	15	Fair	Poor
418	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	35	15	Fair	Poor
419	*Quercus agrifolia*	coast live oak	Yes	21	Y	B	2	21	0	0	0	0	40	20	Fair	Poor
420	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	40	15	Fair	Poor
421	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	35	25	Fair	Fair
422	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	35	30	Fair	Fair
423	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	35	30	Fair	Fair
424	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	45	30	Good	Fair
425	*Quercus agrifolia*	coast live oak	Yes	29	Y	B	3	29	0	0	0	0	45	30	Fair	Fair
426	*Quercus agrifolia*	coast live oak	Yes	28	Y	B	4	28	0	0	0	0	40	40	Fair	Fair
427	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	10	Fair	Poor
428	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	40	15	Fair	Poor
429	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	2	18	0	0	0	0	35	15	Fair	Poor
430	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	35	10	Fair	Poor
431	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	35	15	Fair	Poor
432	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	3	24	0	0	0	0	30	15	Fair	Poor
433	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	10	Fair	Poor
434	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	30	15	Fair	Poor
435	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	40	25	Fair	Fair
436	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	45	30	Good	Fair
437	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	35	20	Good	Fair
438	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	70	15	Fair	Fair
440	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	65	15	Fair	Fair
442	*Washingtonia robusta*	Mexican fan palm	Yes	12	N	F	1	12	0	0	0	0	55	15	Fair	Fair
443	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	55	15	Fair	Fair
444	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	65	15	Fair	Fair
445	*Washingtonia robusta*	Mexican fan palm	Yes	10	N	F	1	10	0	0	0	0	55	15	Fair	Fair
448	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	18	Good	Poor
449	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	35	18	Good	Poor
458	*Washingtonia robusta*	Mexican fan palm	Yes	16	N	G	1	16	0	0	0	0	60	15	Good	Fair
461	*Phoenix canariensis*	Canary Islanc date palm	Yes	28	N	G	1	28	0	0	0	0	30	20	Fair	Fair
462	*Phoenix canariensis*	Canary Islanc date palm	Yes	26	N	G	1	26	0	0	0	0	10	15	Good	Fair
464	*Quercus agrifolia*	coast live oak	Yes	21	Y	B	1	21	0	0	0	0	30	30	Poor	Poor
465	*Quercus agrifolia*	coast live oak	Yes	22	Y	B	2	14	8	0	0	0	40	20	Fair	Fair
466	*Quercus agrifolia*	coast live oak	Yes	19	Y	B	2	11	8	0	0	0	30	20	Fair	Fair
467	*Quercus agrifolia*	coast live oak	Yes	26	Y	B	2	13	13	0	0	0	40	20	Fair	Fair
468	*Quercus agrifolia*	coast live oak	Yes	32	Y	B	1	32	0	0	0	0	40	30	Fair	Poor
470	*Quercus agrifolia*	coast live oak	Yes	32	Y	B	1	32	0	0	0	0	45	35	Fair	Fair
471	*Juglans californica*	Southerr California black walnut	Yes	18	Y	B	1	18	0	0	0	0	20	30	Fair	Poor
475	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	50	20	Fair	Fair
476	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	45	20	Fair	Fair
478	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	45	25	Fair	Fair
479	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	25	20	Good	Good
480	*Quercus agrifolia*	coast live oak	Yes	43	Y	C	7	7	9	9	9	9	30	40	Fair	Poor
482	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	30	14	Good	Fair
483	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	40	18	Good	Fair
484	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	30	14	Good	Poor
485	*Quercus agrifolia*	coast live oak	Yes	41	Y	C	4	41	0	0	0	0	40	35	Fair	Fair
486	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	30	20	Good	Fair
487	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	3	17	0	0	0	0	50	30	Good	Fair
488	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	50	25	Fair	Fair
489	*Quercus agrifolia*	coast live oak	Yes	27	Y	B	2	27	0	0	0	0	35	30	Fair	Poor
490	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	20	8	Good	Poor
491	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	30	20	Good	Fair
492	*Olea europaea*	fruitless olive	Yes	16	N	G	4	16	0	0	0	0	20	20	Good	Poor
494	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	25	25	Fair	Fair
497	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	12	10	Fair	Poor
498	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	35	15	Fair	Poor
499	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	12	Fair	Poor
500	*Olea europaea*	fruitless olive	Yes	23	N	G	2	23	0	0	0	0	20	25	Good	Poor
501	*Olea europaea*	fruitless olive	Yes	11	N	F	1	11	0	0	0	0	40	20	Fair	Fair
502	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	25	20	Fair	Fair
503	*Olea europaea*	fruitless olive	Yes	30	N	G	5	30	0	0	0	0	35	30	Good	Poor
504	*Juglans californica*	Southerr California black walnut	Yes	12	Y	A	2	12	0	0	0	0	15	15	Fair	Fair
505	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	1	24	0	0	0	0	35	20	Fair	Fair
506	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	30	20	Fair	Fair
507	*Olea europaea*	fruitless olive	Yes	12	N	F	2	12	0	0	0	0	20	20	Fair	Poor
509	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	16	8	Poor	Poor
510	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	40	20	Fair	Fair
512	*Quercus agrifolia*	coast live oak	Yes	20	Y	B	1	20	0	0	0	0	45	30	Poor	Poor
517	*Phoenix canariensis*	Canary Islanc date palm	Yes	27	N	G	1	27	0	0	0	0	30	20	Fair	Good
518	*Phoenix canariensis*	Canary Islanc date palm	Yes	27	N	G	1	27	0	0	0	0	50	20	Fair	Good
519	*Phoenix canariensis*	Canary Islanc date palm	Yes	27	N	G	1	27	0	0	0	0	45	15	Fair	Good
520	*Phoenix canariensis*	Canary Islanc date palm	Yes	27	N	G	1	27	0	0	0	0	30	15	Fair	Fair

Tree No.	Botanical Name	Common Name	Protected	DBH	Native	Category	Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	Height (Feet)	Width (Feet)	Health	Structure
521	*Phoenix canariensis*	Canary Island date palm	Yes	22	N	G	1	22	0	0	0	0	45	15	Fair	Good
523	*Phoenix canariensis*	Canary Island date palm	Yes	24	N	G	1	24	0	0	0	0	30	15	Good	Good
524	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	14	10	Good	Poor
525	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	15	20	Good	Poor
526	*Quercus agrifolia*	coast live oak	Yes	47	Y	C	4	47	0	0	0	0	45	35	Fair	Poor
527	*Eucalyptus robusta*	swamp mahogany	Yes	17	N	G	1	17	0	0	0	0	25	30	Good	Poor
528	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	20	12	Good	Poor
529	*Juglans californica*	Southern California black walnut	Yes	12	Y	A	1	12	0	0	0	0	25	15	Fair	Poor
530	*Quercus agrifolia*	coast live oak	Yes	10	Y	A	1	10	0	0	0	0	25	15	Good	Fair
531	*Phoenix canariensis*	Canary Island date palm	Yes	11	N	F	1	11	0	0	0	0	30	18	Good	Good
532	*Phoenix canariensis*	Canary Island date palm	Yes	11	N	F	1	11	0	0	0	0	30	18	Good	Good
534	*Quercus agrifolia*	coast live oak	Yes	62	Y	E	1	62	0	0	0	0	45	45	Poor	Fair
535	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	20	10	Fair	Fair
536	*Quercus agrifolia*	coast live oak	Yes	26	Y	B	1	26	0	0	0	0	35	30	Fair	Fair
537	*Quercus agrifolia*	coast live oak	Yes	21	Y	B	1	21	0	0	0	0	50	30	Good	Fair
538	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	35	20	Fair	Fair
539	*Washingtonia robusta*	Mexican fan palm	Yes	11	N	F	1	11	0	0	0	0	30	15	Good	Good
540	*Washingtonia robusta*	Mexican fan palm	Yes	14	N	F	1	14	0	0	0	0	55	15	Good	Fair
541	*Quercus agrifolia*	coast live oak	Yes	25	Y	B	1	25	0	0	0	0	30	30	Fair	Fair
542	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	1	17	0	0	0	0	25	20	Poor	Fair
543	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	1	17	0	0	0	0	20	30	Fair	Poor
544	*Quercus agrifolia*	coast live oak	Yes	46	Y	C	5	46	0	0	0	0	50	30	Poor	Poor
545	*Quercus agrifolia*	coast live oak	Yes	26	Y	B	2	26	0	0	0	0	30	20	Fair	Poor
547	*Quercus agrifolia*	coast live oak	Yes	37	Y	C	2	37	0	0	0	0	35	30	Fair	Poor
548	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	2	15	0	0	0	0	25	20	Fair	Poor
549	*Quercus agrifolia*	coast live oak	Yes	40	Y	C	2	40	0	0	0	0	40	25	Fair	Poor
550	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	2	24	0	0	0	0	30	20	Fair	Poor
551	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	10	Fair	Poor
552	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	20	15	Fair	Poor
556	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	25	20	Poor	Fair
557	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	25	10	Fair	Fair
558	*Quercus agrifolia*	coast live oak	Yes	35	Y	B	2	35	0	0	0	0	35	25	Fair	Fair
560	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	1	15	0	0	0	0	20	15	Poor	Poor
561	*Quercus agrifolia*	coast live oak	Yes	17	Y	B	1	17	0	0	0	0	30	20	Poor	Poor
562	*Quercus agrifolia*	coast live oak	Yes	27	Y	B	1	27	0	0	0	0	50	30	Fair	Fair
563	*Platanus racemosa*	California sycamore	Yes	11	N	F	1	11	0	0	0	0	25	20	Poor	Poor
566	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	45	30	Poor	Poor
567	*Quercus agrifolia*	coast live oak	Yes	22	Y	B	1	22	0	0	0	0	30	20	Poor	Poor
568	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	30	15	Poor	Poor
569	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	35	15	Fair	Poor
570	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	10	6	Fair	Poor
571	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	20	15	Fair	Fair
572	*Juglans californica*	Southern California black walnut	Yes	11	Y	A	1	11	0	0	0	0	20	30	Good	Poor
573	*Quercus agrifolia*	coast live oak	Yes	31	Y	B	1	31	0	0	0	0	45	35	Fair	Fair
574	*Quercus agrifolia*	coast live oak	Yes	28	Y	B	1	28	0	0	0	0	45	30	Fair	Fair
575	*Quercus agrifolia*	coast live oak	Yes	23	Y	B	1	23	0	0	0	0	40	35	Fair	Fair
577	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	35	15	Fair	Fair
578	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	35	15	Fair	Good
588	*Quercus agrifolia*	coast live oak	Yes	45	Y	C	2	45	0	0	0	0	40	30	Good	Fair
589	*Quercus agrifolia*	coast live oak	Yes	13	Y	A	1	13	0	0	0	0	30	15	Fair	Fair
590	*Juglans californica*	Southern California black walnut	Yes	15	Y	A	2	15	0	0	0	0	28	30	Poor	Poor
591	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	35	30	Good	Fair
592	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	30	20	Fair	Poor
593	*Juglans californica*	Southern California black walnut	Yes	8	Y	A	1	8	0	0	0	0	15	20	Good	Poor
594	*Platanus racemosa*	California sycamore	Yes	20	N	G	1	20	0	0	0	0	45	30	Fair	Poor
595	*Quercus agrifolia*	coast live oak	Yes	37	Y	C	4	37	0	0	0	0	45	40	Fair	Fair
597	*Olea europaea*	fruitless olive	Yes	10	N	F	1	10	0	0	0	0	12	12	Good	Poor
601	*Quercus agrifolia*	coast live oak	Yes	28	Y	B	1	28	0	0	0	0	45	15	Poor	Poor
604	*Olea europaea*	fruitless olive	Yes	15	N	F	2	8	7	0	0	0	25	20	Fair	Fair
608	*Juglans regia*	English walnut	Yes	11	N	F	2	6	5	0	0	0	20	15	Fair	Fair
610	*Platanus racemosa*	California sycamore	Yes	16	N	G	4	4	4	4	4	0	15	15	Fair	Poor
612	*Platanus racemosa*	California sycamore	Yes	18	N	G	4	6	4	4	4	0	25	15	Fair	Poor
629	*Citrus spp.*	citrus tree	Yes	12	N	F	3	4	4	4	0	0	10	9	Fair	Fair
630	*Citrus spp.*	citrus tree	Yes	10	N	F	4	5	5	5	0	0	10	9	Fair	Fair
631	*Citrus spp.*	citrus tree	Yes	18	N	G	3	9	5	4	0	0	10	9	Fair	Fair
634	*Ficus benjamina*	weeping fig	Yes	13	N	F	2	7	6	0	0	0	25	15	Good	Poor
636	*Schinus terebinthifolia*	Brazilian pepper	Yes	14	N	F	4	8	6			0	20	20	Fair	Poor
641	*Quercus agrifolia*	coast live oak	Yes	15	Y	A	2	9	6	0	0	0	30	18	Fair	Fair
678	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	1	7	11	6	0	0	30	20	Fair	Poor
679a	*Quercus agrifolia*	coast live oak	Yes	24	Y	B	1	7	11	6	0	0	30	20	Fair	Poor
686	*Quercus agrifolia*	coast live oak	Yes	18	Y	B	1	18	0	0	0	0	30	15	Fair	Fair
719	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	25	20	Fair	Fair
720	*Quercus agrifolia*	coast live oak	Yes	16	Y	B	1	16	0	0	0	0	25	20	Fair	Fair
721	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	5	4	4	4			20	20	Fair	Fair
722	*Grevillea robusta*	silk oak	Yes	10	N	F	2	5	5	0	0	0	30	23	Fair	Fair
723	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	1	14	0	0	0	0	30	20	Fair	Fair
724	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	25	20	Poor	Fair
725	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	25	20	Poor	Fair
726	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	2	7	4	0	0	0	20	20	Poor	Poor
728	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	25	15	Fair	Fair
730	*Quercus agrifolia*	coast live oak	Yes	14	Y	A	2	7	7	0	0	0	18	22	Fair	Fair
732	*Quercus agrifolia*	coast live oak	Yes	11	Y	A	1	11	0	0	0	0	35	15	Poor	Fair
734	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	35	15	Fair	Fair
735	*Quercus agrifolia*	coast live oak	Yes	12	Y	A	1	12	0	0	0	0	20	20	Fair	Fair
736	*Schinus molle*	Peruvian pepper	Yes	27	N	G	5	8	9	6	4		15	15	Fair	Poor
737	*Ficus elastica*	rubber tree	Yes	34	N	G	1	34	0	0	0	0	25	25	Good	Fair
740	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	20	15	Fair	Poor
745	*Quercus agrifolia*	coast live oak	Yes	8	Y	A	1	8	0	0	0	0	30	20	Fair	Poor
747	*Quercus agrifolia*	coast live oak	Yes	9	Y	A	1	9	0	0	0	0	15	7	Poor	Poor
749	*Platanus racemosa*	California sycamore	Yes	12	N	F	2	6	6	0	0	0	30	15	Fair	Fair
750	*Juglans californica*	Southern California black walnut	yes	8	Y

Tree #	Save/ remove	Botanical Name	Common Name	Protected	DBH	Native	Height (Feet)	Width (Feet)	Health	Structure
1	SAVE	Liquidambar styraciflua	American Sweegum	N	12	N	35	20	FAIR	GOOD
2	SAVE	Phoenix canariensis	Canary Island Date Palm	N	30	N	60	20	FAIR	FAIR
3	SAVE	Bauhinia x blakeana	Orchid Tree	N	12,16,11,14	N	35	30	GOOD	FAIR
4	SAVE	Washingtonia robusta	Mexican Fan Palm	N	16	N	60	9	FAIR	FAIR
5	SAVE	Cedrus atlantica	Atlas Cedar	N	24,20	N	45	40	GOOD	GOOD
6	SAVE	Washingtonia robusta	Mexican Fan Palm	N	16	N	60	9	FAIR	FAIR
7	SAVE	Podocarpus macrophyllus	Yew Pine	N	8,14	N	28	20	FAIR	FAIR
8	SAVE	Cedrus atlantica	Atlas Cedar	N	24	N	50	45	GOOD	GOOD
9	SAVE	Archotophoenix c.	King Palm	N	9	N	35	10	FAIR	FAIR
10	SAVE	Archotophoenix c.	King Palm	N	10	N	35	10	FAIR	FAIR
11	SAVE	Fraxinus uhdei	Evergreen Ash	N	20	N	39	36	POOR	POOR
12	SAVE	Quercus suber	Cork Oak	N	20	N	40	40	GOOD	GOOD
13	SAVE	Quercus suber	Cork Oak	N	24	N	39	32	GOOD	GOOD
14	SAVE	Quercus suber	Cork Oak	N	21	N	39	25	GOOD	GOOD
15	SAVE	Koelreuteria bipinnata	Chinese Flame Tree	N	9	N	22	18	FAIR	FAIR
16	SAVE	Koelreuteria bipinnata	Chinese Flame Tree	N	9	N	22	18	FAIR	FAIR
17	SAVE	Liquidambar styraciflua	American Sweegum	N	15	N	32	20	FAIR	FAIR
18	SAVE	Liquidambar styraciflua	American Sweegum	N	11	N	18	12	FAIR	FAIR
19	SAVE	Washingtonia robusta	Mexican Fan Palm	N	17	N	15	10	FAIR	FAIR
20	SAVE	Liquidambar styraciflua	American Sweegum	N	15	N	34	28	FAIR	GOOD
21	SAVE	Pinus canariensis	Canary Island Pine Tree	N	4	N	18	10	FAIR	FAIR
22	SAVE	Cupaniopsis anacardioides	Carrotwood Tree	N	10	N	19	20	GOOD	GOOD
23	SAVE	Geijera parviflora	Australian Willow Tree	N	20	N	29	20	GOOD	GOOD
24	SAVE	Quercus suber	Cork Oak	N	31	N	45	34	GOOD	GOOD
25	SAVE	Quercus suber	Cork Oak	N	14	N	33	16	FAIR	GOOD
26	SAVE	Pinus pinea	Stone pine	N	40	N	45	45	GOOD	GOOD
27	SAVE	Pinus pinea	Stone pine	N	7	N	20	12	GOOD	GOOD
28	SAVE	Pinus pinea	Stone pine	N	8	N	24	12	GOOD	GOOD
29	SAVE	Pinus pinea	Stone pine	N	7	N	20	10	GOOD	GOOD
30	SAVE	Pinus pinea	Stone pine	N	49	N	65	45	GOOD	GOOD
31	SAVE	Cedrus atlantica	Atlas Cedar	N	4,5,6,3	N	31	19	GOOD	GOOD
32	SAVE	Pinus pinea	Stone pine	N	30	N	55	35	GOOD	GOOD
33	SAVE	Cupaniopsis anacardioides	Carrotwood Tree	N	8,6,9	N	24	22	FAIR	GOOD
34	SAVE	Cupaniopsis anacardioides	Carrotwood Tree	N	12,5,6,8,9,6	N	35	35	GOOD	FAIR
35	SAVE	Cupaniopsis anacardioides	Carrotwood Tree	N	5,6,11,12	N	34	30	FAIR	FAIR
36	SAVE	Cedrus atlantica	Atlas Cedar	N	36	N	50	60	GOOD	GOOD
37	SAVE	Brahea edulis	Guadalupe Palm	N	14	N	20	14	FAIR	FAIR
38	SAVE	Ficus carica	Fig	N	6,14,16,18,8	N	35	35	GOOD	GOOD
39	SAVE	Pinus pinea	Stone pine	N	26	N	43	40	FAIR	GOOD
40	SAVE	Washingtonia robusta	Mexican Fan Palm	N	20	N	75	10	FAIR	FAIR
41	SAVE	Washingtonia robusta	Mexican Fan Palm	N	18	N	74	11	FAIR	FAIR
42	SAVE	Washingtonia robusta	Mexican Fan Palm	N	20	N	78	12	FAIR	FAIR
43	SAVE	Washingtonia robusta	Mexican Fan Palm	N	21	N	79	11	FAIR	FAIR
44	SAVE	Washingtonia robusta	Mexican Fan Palm	N	20	N	78	10	FAIR	FAIR
45	SAVE	Washingtonia robusta	Mexican Fan Palm	N	20	N	76	10	FAIR	FAIR
46	SAVE	Washingtonia robusta	Mexican Fan Palm	N	19	N	18	10	POOR	POOR
47	SAVE	Cinnamomum camphora	Camphor Tree	N	3,3,3,3,4,4	N	12	10	POOR	POOR
48	SAVE	Cupaniopsis anacardioides	Carrotwood Tree	N	7	N	15	14	FAIR	FAIR
49	SAVE	Quercus agifolia	Coast Live Oak	Y	9	N	19	15	FAIR	FAIR
50	SAVE	Washingtonia robusta	Mexican Fan Palm	N	18	N	46	12	POOR	POOR
51	SAVE	Quercus agifolia	Coast Live Oak	Y	6	N	14	11	FAIR	FAIR
52	SAVE	Ficus carica	Fig	N	3,5	N	15	12	FAIR	FAIR
53	SAVE	Feijoa sellowiana	Pineapple Guava	N	6,4	N	14	14	FAIR	POOR
54	SAVE	Archotophoenix c.	King Palm	N	10	N	35	14	FAIR	FAIR
55	SAVE	Liquidambar styraciflua	American Sweegum	N	17	N	35	25	FAIR	FAIR
56	SAVE	Liquidambar styraciflua	American Sweegum	N	18	N	36	21	FAIR	GOOD



REVISIONS | BY
CITY COMMENTS 09-01-2021 | 1
CITY COMMENTS 02-07-2022 | 2

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REGISTERED LANDSCAPE ARCHITECT PHILIP S. MAY 05-31-23 02-21-2022 STATE OF CALIFORNIA

TREE INVENTORY LOT -1

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-3.3
OF 13 SHEETS
JOB NO. 21015

THESE DRAWINGS ARE INSTRUMENTS OF SERVICE AND ARE PROPERTY OF PHIL MAY LANDSCAPE ARCHITECTURE. ALL ESTIMATE AND OTHER INFORMATION ON THE DRAWINGS ARE FOR THE USE ON THE SPECIFIED PROJECT AND SHALL NOT BE USED OTHERWISE, WITHOUT THE EXPRESS WRITTEN PERMISSION OF PHIL MAY LANDSCAPE ARCHITECTURE. WRITTEN DIMENSIONS ON THESE DRAWINGS SHALL HAVE PRECEDENCE OVER SCALED DIMENSIONS. CONTRACTORS SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS AND CONDITIONS ON THE JOB AND THIS OFFICE SHALL BE NOTIFIED OF ANY VARIATIONS FROM THE DIMENSIONS AND CONDITIONS SHOWN ON THE DRAWINGS. COPYRIGHTED ©

PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	WUCOLS
	TREES				
	Arctostaphylos glauca	Bigberry Manzanita	24" box	28	L
	Arbutus 'Marina'	NCN	36" box	19	M
	Chitalpa tashkentensis	Chitalpa	36" box	21	L
	Cercis occidentalis	Western Redbud	36" box	41	L
	Heteromeles arbutifolia	Toyon	36" box	56	L
	Lagestroemia i.'Tuscarora'	Crape Myrtle	36" box	8	M
	Lagestroemia i.'Tuscarora'	Crape Myrtle	48" box	11	M
	Prunus ilicifolia	Catalina Cherry	36" box	52	L
	Platanus racemosa	California Sycamore	48" box	38	M
	Quercus chrysolepis	Canyon Live Oak	48" box	32	L
	Quercus agrifolia	Coast Live Oak	48" box	93	L
	Quercus engelmannii	Engelmann Oak	48" box	22	L
	Lophostemon confertus	Brisbane box	36" box	6	M
	Rhus ovata	Sugar Bush	24" box	16	L
	Existing Quercus agrifolia, Coast Live Oak Trees to remain and protect in place. No new planting or irrigation within drip line of existing trees. See Sheets L-2 & L-3 for tree information				
	SHRUBS				
	Agave hybrid 'Blue Glow'	Agave Bule Glow	5 gal	65	L

PLANT LEGEND

	Agave hybrid 'Blue Glow'	Agave Bule Glow	5 gal	65	L
	Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	15 gal	63	L
	Bougainvillea 'La Jolla'	La Jolla Bougainvillea	5 gal	273	L
	Carissa m. 'Emerald Carpet'	Emerald Carpet Natal Plum	5 gal	716	L
	Westringia fruticosa 'Smokey'	Dwarf Coastal Rosemary	5 gal	612	L
	Ligustrum j. 'Texanum'	Texas Privet	5 gal	988	M
	PERENNIALS				
	Dietes vegeta 'Orange Drop'	Fortnight Lily	1 gal	141	M
	Lavandula angustifolia	English Lavender	1 gal	118	L
	GROUNDCOVER				
	Provide 3" layer of 3/4" gravel at level pad areas typ.				
	Rosmarinus o. 'Prostratus'	Prostrate Rosemary	1 gal	3165	L
	Myoporum parvifolium	Prostrate Myoporum	1 gal	4136	L
	Debris producing area to be groomed (minor grading to remove loose topsoil, rocks and small vegetation) per Civil Engineer plans.				
	Graded areas to be sprayed with Hydro-Seed mix, see legend.				

2 PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES (FUTURE TRANSFER TO L.A.F.C.D.)

HYDRO-SEED MIX @ SLOPE AREAS

Lbs/acre	Species
20.0	
2.0	Bromus cucamonga
1.0	Festuca microstachys
2.0	Trifolium willdenovii
1.5	Eschscholzia californica
2.0	Lupinus microcarpus
0.5	Lasthenia californica
2.0	Bromus carinatus
2.0	Festuca microstachys
1.0	Sisyrinchium bellum
2.0	Eschscholzia californica
1.0	Mimulus aurantiacus
1.0	Lupinus bicolor
1.0	Acmispon heermannii
1.0	Salvia apiana
1.0	Ambrosia psilostachya

NOTE: AM 120 Mycorrhizal Inoculum should also be considered at a rate of 20 lbs/acre

EXISTING TREES TO REMAIN IN PLACE, SEE "EXISTING TREES DATA" SHEETS L-3 & L-4 FOR TREE INFORMATION.

DESIGNATED REMAINDER PARCEL

RAMP

WEST BASIN

MATCH LINE, SEE SHEET L-5

MATCH LINE, SEE SHEET L-6

CITY LIMIT

IRRIGATION NOTES

1. All proposed planting of HOA areas to be irrigated with a permanent irrigation system to comply with City of Glendora Water Efficient Landscape and Irrigation Ordinance.

2. All proposed planting outside Fuel Modification Zones, are to be irrigated with a temporarily irrigation system for hydro-seed establishment.

3. North area will be irrigated with a temporarily spray irrigation system for until plant material is established

NORTH

SCALE: 1" = 20'-0"

KEY MAP

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REVISIONS	BY
CITY COMMENTS 09-01-2021	1
CITY COMMENTS 02-07-2022	2

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www.philmaydesign.com

REGISTERED LANDSCAPE ARCHITECT PHILIP S. MAY 06-30-23 02-21-2022 STATE OF CALIFORNIA

CONCEPTUAL LANDSCAPE PLAN

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-4
OF 13 SHEETS
JOB NO. 21015

PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	WUCOLS
	TREES				
	Arctostaphylos glauca	Bigberry Manzanita	24" box	28	L
	Arbutus 'Marina'	NCN	36" box	19	M
	Chitalpa tashkentensis	Chitalpa	36" box	21	L
	Cercis occidentalis	Western Redbud	36" box	41	L
	Heteromeles arbutifolia	Toyon	36" box	56	L
	Lagestroemia i.'Tuscarora'	Crape Myrtle	36" box	8	M
	Lagestroemia i.'Tuscarora'	Crape Myrtle	48" box	11	M
	Prunus ilicifolia	Catalina Cherry	36" box	52	L
	Platanus racemosa	California Sycamore	48" box	38	M
	Quercus chrysolepis	Canyon Live Oak	48" box	32	L
	Quercus agrifolia	Coast Live Oak	48" box	93	L
	Quercus engelmannii	Engelmann Oak	48" box	22	L
	Lophostemon confertus	Brisbane box	36" box	6	M
	Rhus ovata	Sugar Bush	24" box	16	L

Existing Quercus agrifolia, Coast Live Oak Trees to remain and protect in place. No new planting or irrigation within drip line of existing trees. See Sheets L-2 & L-3 for tree information

SHRUBS

PLANT LEGEND

	Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	15 gal	63	L
	Bougainvillea 'La Jolla'	La Jolla Bougainvillea	5 gal	273	L
	Carissa m. 'Emerald Carpet'	Emerald Carpet Natal Plum	5 gal	716	L
	Westringia fruticosa 'Smokey'	Dwarf Coastal Rosemary	5 gal	612	L
	Ligustrum j. 'Texanum'	Texas Privet	5 gal	988	M
	PERENNIALS				
	Dietes vegeta 'Orange Drop'	Fortnight Lily	1 gal	141	M
	Lavandula angustifolia	English Lavender	1 gal	118	L
	GROUNDCOVER				
	Provide 3" layer of 3/4" gravel at level pad areas typ.				
	Rosmarinus o. 'Prostratus'	Prostrate Rosemary	1 gal	3165	L
	Myoporum parvifolium	Prostrate Myoporum	1 gal	4136	L
	Debris producing area to be groomed (minor grading to remove loose topsoil, rocks and small vegetation) per Civil Engineer plans.				
	Graded areas to be sprayed with Hydro-Seed mix, see legend.				

(2) PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES (FUTURE TRANSFER TO L.A.F.C.D.)

HYDRO-SEED MIX @ SLOPE AREAS

Lbs/acre	Species
20.0	
2.0	Bromus cucamonga
1.0	Festuca microstachys
2.0	Trifolium willdenovii
1.5	Eschscholzia californica
2.0	Lupinus microcarpus
0.5	Lasthenia californica
2.0	Bromus carinatus
2.0	Festuca microstachys
1.0	Sisyrinchium bellum
2.0	Eschscholzia californica
1.0	Mimulus aurantiacus
1.0	Lupinus bicolor
1.0	Acmispon heermannii
1.0	Salvia apiana
1.0	Ambrosia psilostachya

NOTE: AM 120 Mycorrhizal Inoculum should also be considered at a rate of 20 lbs/acre

MATCH LINE, SEE SHEET L-4

DESIGNATED REMAINDER PARCEL

EXISTING TREES TO REMAIN IN PLACE, SEE "EXISTING TREES DATA" SHEETS L-3 & L-4 FOR TREE INFORMATION.

EAST BASIN

RAMP S=12% MAX.

ASPHALT PAVED RD.

PROPOSED ACCESS ROAD

RAMP

SLOPE= 18% MAX.

MATCH LINE, SEE SHEET L-7

IRRIGATION NOTES
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2. All proposed planting outside Fuel Modification Zones, are to be irrigated with a temporarily irrigation system for hydro-seed establishment.

3. North area will be irrigated with a temporarily spray irrigation system for until plant material is established

NORTH

0 10' 20' 40'
SCALE: 1" = 20'-0"

KEY MAP

REVISIONS	BY
CITY COMMENTS 09-01-2021	1
CITY COMMENTS 02-07-2022	2

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REGISTERED LANDSCAPE ARCHITECT PHILIP S. MAY 05-31-23 RENEWAL DATE 02-21-2022 STATE OF CALIFORNIA

CONCEPTUAL LANDSCAPE PLAN

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-5
OF 13 SHEETS
JOB NO. 21015

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MATCH LINE, SEE SHEET L-4

MATCH LINE, SEE SHEET L-7

EXISTING TREES TO REMAIN IN PLACE, SEE "EXISTING TREES DATA" SHEETS L-3 & L-4 FOR TREE INFORMATION.

ASPHALT PAVED RD.

LOT 2

LOT 3

LOT 4

(E) GUEST HOUSE

(E) POOL HOUSE

CONC

POOL

IRRIGATION NOTES

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2. All proposed planting outside Fuel Modification Zones, are to be irrigated with a temporarily irrigation system for hydro-seed establishment.

3. North area will be irrigated with a temporarily spray irrigation system for until plant material is established

PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	WUCOLS
	TREES				
	Arctostaphylos glauca	Bigberry Manzanita	24" box	28	L
	Arbutus 'Marina'	NCN	36" box	19	M
	Chitalpa tashkentensis	Chitalpa	36" box	21	L
	Cercis occidentalis	Western Redbud	36" box	41	L
	Heteromeles arbutifolia	Toyon	36" box	56	L
	Lagestroemia i.'Tuscarora'	Crape Myrtle	36" box	8	M
	Lagestroemia i.'Tuscarora'	Crape Myrtle	48" box	11	M
	Prunus ilicifolia	Catalina Cherry	36" box	52	L
	Platanus racemosa	California Sycamore	48" box	38	M
	Quercus chrysolepis	Canyon Live Oak	48" box	32	L
	Quercus agrifolia	Coast Live Oak	48" box	93	L
	Quercus engelmannii	Engelmann Oak	48" box	22	L
	Lophostemon confertus	Brisbane box	36" box	6	M
	Rhus ovata	Sugar Bush	24" box	16	L
#	Existing Quercus agrifolia, Coast Live Oak Trees to remain and protect in place. No new planting or irrigation within drip line of existing trees. See Sheets L-2 & L-3 for tree information				
	SHRUBS				
	Agave hybrid 'Blue Glow'	Agave Bule Glow	5 gal	65	L

PLANT LEGEND

	Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	15 gal	63	L
	Bougainvillea 'La Jolla'	La Jolla Bougainvillea	5 gal	273	L
	Carissa m. 'Emerald Carpet'	Emerald Carpet Natal Plum	5 gal	716	L
	Westringia fruticosa 'Smokey'	Dwarf Coastal Rosemary	5 gal	612	L
	Ligustrum j. 'Texanum'	Texas Privet	5 gal	988	M
	PERENNIALS				
	Dietes vegeta 'Orange Drop'	Fortnight Lily	1 gal	141	M
	Lavandula angustifolia	English Lavender	1 gal	118	L
	GROUNDCOVER				
	Provide 3" layer of 3/4" gravel at level pad areas typ.				
	Rosmarinus o. 'Prostratus'	Prostrate Rosemary	1 gal	3165	L
	Myoporum parvifolium	Prostrate Myoporum	1 gal	4136	L
	Debris producing area to be groomed (minor grading to remove loose topsoil, rocks and small vegetation) per Civil Engineer plans.				
	Graded areas to be sprayed with Hydro-Seed mix, see legend.				

2 PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES (FUTURE TRANSFER TO L.A.F.C.D.)

HYDRO-SEED MIX @ SLOPE AREAS

Lbs/acre	Species
20.0	
2.0	Bromus cucamonga
1.0	Festuca microstachys
2.0	Trifolium wildenovii
1.5	Eschscholzia californica
2.0	Lupinus microcarpus
0.5	Lasthenia californica
2.0	Bromus carinatus
2.0	Festuca microstachys
1.0	Sisyrinchium bellum
2.0	Eschscholzia californica
1.0	Mimulus aurantiacus
1.0	Lupinus bicolor
1.0	Acmispon heermannii
1.0	Salvia apiana
1.0	Ambrosia psilostachya

NOTE: AM 120 Mycorrhizal Inoculum should also be considered at a rate of 20 lbs/acre

NORTH

0 10' 20' 40'

SCALE: 1" = 20'-0"

KEY MAP

REVISIONS	BY
CITY COMMENTS 09-01-2021	1
CITY COMMENTS 02-07-2022	2

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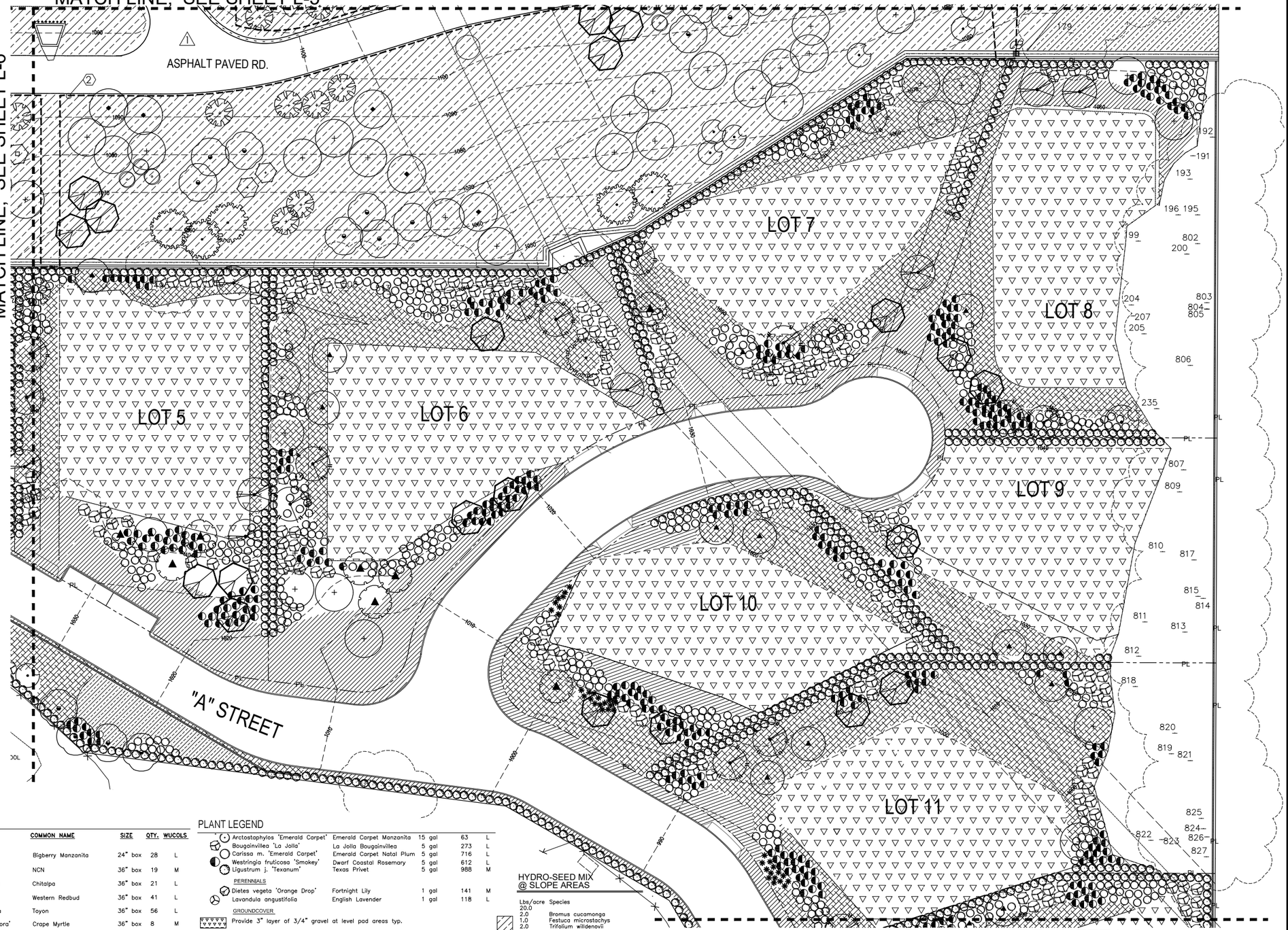
REGISTERED LANDSCAPE ARCHITECT — PHIL S. MAY — 05-31-21 — 02-21-2022 — STATE OF CALIFORNIA

CONCEPTUAL LANDSCAPE PLAN

APN: 8684045004
THE GRAND ESTATES
950 SILENT RANCH RD.
GLENDORA, CA

DRAWN R.S.
CHECKED R.S.
DATE 02-21-2022
SHEET L-6
OF 13 SHEETS
JOB NO. 21015

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PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	WUCOLS
	TREES				
	Arctostaphylos glauca	Bigberry Manzanita	24" box	28	L
	Arbutus 'Marina'	NCN	36" box	19	M
	Chitalpa tashkentensis	Chitalpa	36" box	21	L
	Cercis occidentalis	Western Redbud	36" box	41	L
	Heteromeles arbutifolia	Toyon	36" box	56	L
	Lagestroemia i.'Tuscarora'	Crape Myrtle	36" box	8	M
	Lagestroemia i.'Tuscarora'	Crape Myrtle	48" box	11	M
	Prunus lilicifolia	Catalina Cherry	36" box	52	L
	Platanus racemosa	California Sycamore	48" box	38	M
	Quercus chrysolepis	Canyon Live Oak	48" box	32	L
	Quercus agrifolia	Coast Live Oak	48" box	93	L
	Quercus engelmannii	Engelmann Oak	48" box	22	L
	Lophostemon confertus	Brisbane box	36" box	6	M
	Rhus ovata	Sugar Bush	24" box	16	L
	Existing Quercus agrifolia, Coast Live Oak Trees to remain and protect in place. No new planting or irrigation within drip line of existing trees. See Sheets L-2 & L-3 for tree information				
	SHRUBS				
	Agave bybrid 'Blue Glow'	Agave Hybrid Glow	5 gal	65	L

PLANT LEGEND

	Arctostaphylos 'Emerald Carpet'	Emerald Carpet Manzanita	15 gal	63	L
	Bougainvillea 'La Jolla'	La Jolla Bougainvillea	5 gal	273	L
	Carissa m. 'Emerald Carpet'	Emerald Carpet Natal Plum	5 gal	716	L
	Westringia fruticosa 'Smokey'	Dwarf Coastal Rosemary	5 gal	612	L
	Ligustrum j. 'Texanum'	Texas Privet	5 gal	988	M
	PERENNIALS				
	Dietes vegeta 'Orange Drop'	Fortnight Lily	1 gal	141	M
	Lavandula angustifolia	English Lavender	1 gal	118	L
	GROUNDCOVER				
	Provide 3" layer of 3/4" gravel at level pad areas typ.				
	Rosmarinus o. 'Prostratus'	Prostrate Rosemary	1 gal	3165	L
	Myoporum parvifolium	Prostrate Myoporum	1 gal	4136	L
	Debris producing area to be groomed (minor grading to remove loose topsoil, rocks and small vegetation) per Civil Engineer plans.				
	Graded areas to be sprayed with Hydro-Seed mix, see legend.				

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1

HYDRO-SEED MIX @ SLOPE AREAS

Lbs/acre	Species
20.0	Bromus cucamonga
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2.0	Trifolium willdenovii
1.5	Eschscholzia californica
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0.5	Lasthenia californica
2.0	Bromus carinatus
2.0	Festuca microstachys
1.0	Sisyrinchium bellum
2.0	Eschscholzia californica
1.0	Mimulus aurantiacus
1.0	Lupinus bicolor
1.0	Acmispon heermannii
1.0	Salvia apiana
1.0	Ambrosia psilostachya

NOTE: AM 120 Mycorrhizal Inoculum should also be considered at a rate of 20 lbs/acre

IRRIGATION NOTES
1. All proposed planting of HOA areas to be irrigated with a permanent irrigation system to comply with City of Glendora Water Efficient Landscape and Irrigation Ordinance.

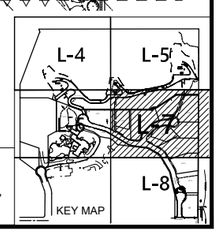
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NORTH

SCALE: 1" = 20'-0"

0 10' 20' 40'



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PLANT LEGEND

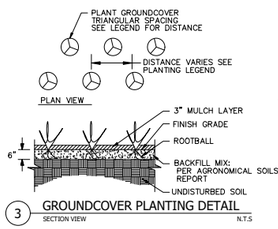
SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	QTY.	WUCOLS	REMARKS
	TREES					
	Arctostaphylos glauca	Bigberry Manzanita	24" box	28	L	
	Arbutus 'Marina'	NCN	36" box	19	M	multi trunk
	Chitalpa tashkentensis	Chitalpa	36" box	21	L	
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	Ligustrum j. 'Texanum'	Texas Privet	5 gal	988	M	
	PERENNIALS					
	Dietes vegeta 'Orange Drop'	Fortnight Lily	1 gal	141	M	
	Lavandula angustifolia	English Lavender	1 gal	118	L	10' from structure
	GROUNDCOVER					
	Provide 3" layer of 3/4" gravel at level pad areas typ.					
	Rosmarinus o. 'Prostratus'	Prostrate Rosemary	1 gal	3165	L	plant @ 42" o.c.
	Myoporum parvifolium	Prostrate Myoporum	1 gal	4136	L	plant @ 42" o.c.
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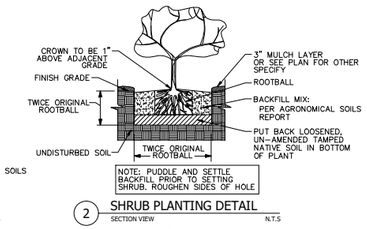
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PLANTING NOTES

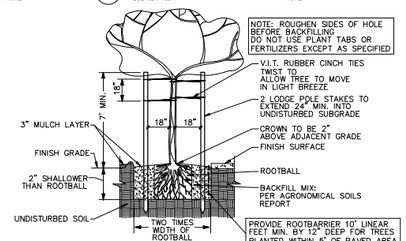
1. Contractor is to review plans, verify site conditions and plant quantities prior to installation. Contractor shall take sole responsibility for any cost incurred due to damage of existing utilities. Plant material quantities are listed for the convenience of the Contractor. Actual number of symbols shall have priority over quantity designated. Conflicts between the Owner and these plans or within these plans shall be brought to the attention of the Landscape Architect prior to landscape installation. Any deviation(s) from the plans or specifications will require written approval from the Owner and/or Landscape Architect. The Contractor shall assume full responsibility for all necessary revisions due to failure to give such notification.
2. The Contractor shall maintain a qualified supervisor on the site at all times during construction through completion of pick-up work.
3. The Contractor shall receive site graded within 0.10 foot of finish grade. Commencement of work indicates Contractor's acceptance of existing grades and conditions. Final grades shall be adjusted by Contractor as directed by Owner's representative. All grading shall be completed prior to commencement of planting operation.
4. The Contractor shall furnish and pay for all container grown trees, shrubs, vines, seeded/sodded turf, hydromulches, and flatted groundcovers. The Contractor shall also be responsible for and pay for planting, staking, and guarantee of all plant materials. See planting details for planting and staking/guying requirements.
5. The Landscape Architect and/or Owner shall approve plant material placement by Contractor prior to installation.
6. Contractor shall follow the soil's report recommendations, notes and shall uniformly broadcast amendments over planting areas only. See Report on Sheet L-4.
7. The planting pits for trees shall be dug twice the diameter of the root ball and two inches shallower than the rootball. Planting pits for shrubs and perennials shall be dug twice the original root ball width, and one-and-a-half times as deep as the rootball. Planting pits for groundcovers shall be dug one-and-a-half times the original root ball size in all directions.
8. Provide root barriers to all new trees planted within five(5) feet of paved areas. The root barrier shall be installed per manufacture specifications. For trees planted in square or circular tree wells; the root barrier shall be install around entire perimeter edge of the well planter.
9. Provide jute netting on all slopes 4:1 or greater.
10. The Landscape Contractor shall maintain all planted areas shown on the plans, including (but not limited to) watering, pruning, edging, and mowing, for a period of thirty (30) days after completion of project and acceptance by Owner.
11. The Landscape Contractor shall warranty and replace any plant material that shows signs of lack of vigor or other unhealthful appearance within ninety (90) days of completion of contract. Trees that have been topped or otherwise improperly pruned by the Contractor shall be removed and replaced by the Contractor at no cost to the Owner.



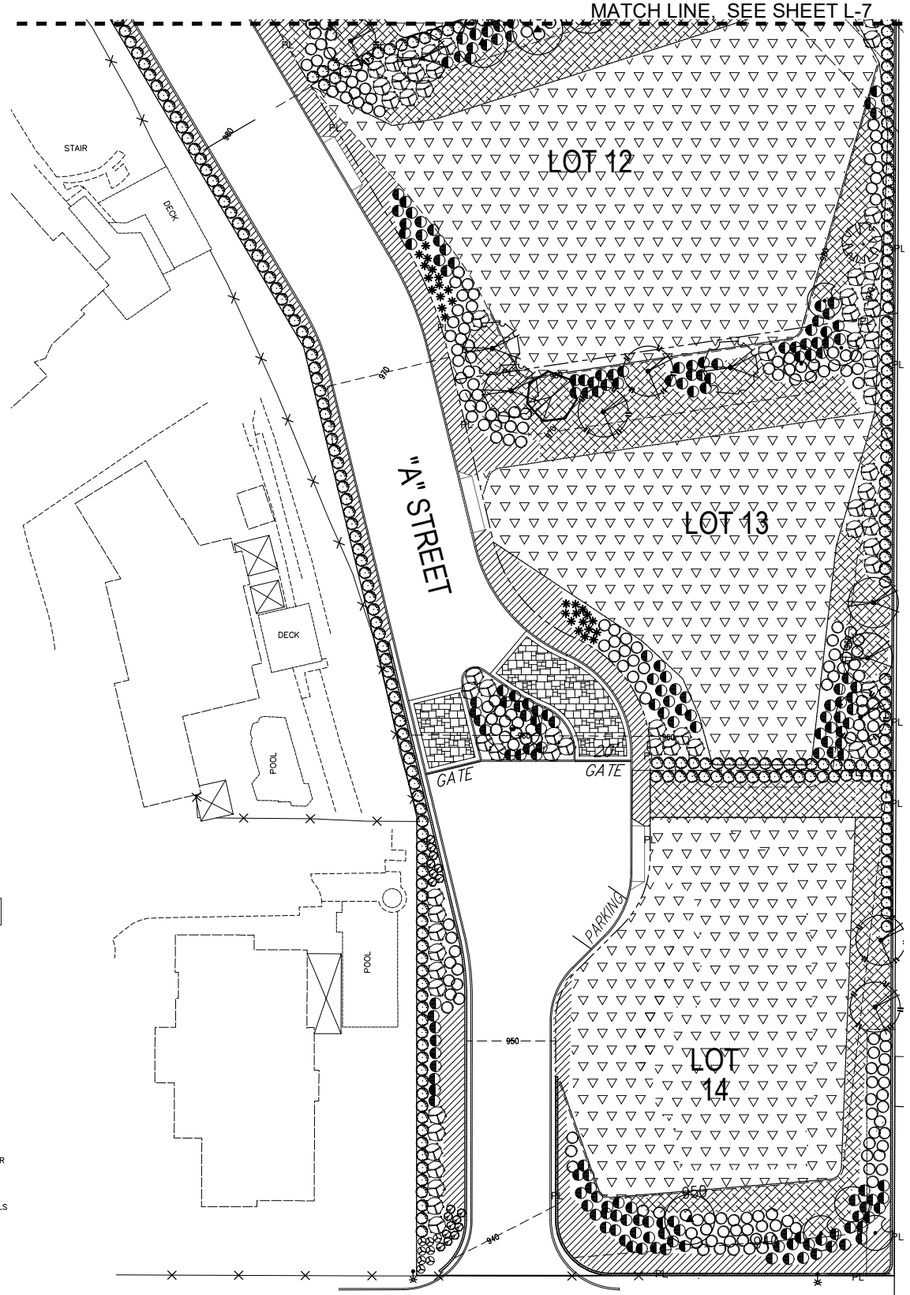
(3) GROUNDCOVER PLANTING DETAIL
SECTION VIEW N.T.S



(2) SHRUB PLANTING DETAIL
SECTION VIEW N.T.S



(1) TREE PLANTING DETAIL
SECTION VIEW N.T.S



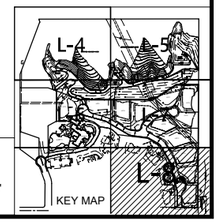
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REGISTERED LANDSCAPE ARCHITECT PHILIP S. MAY 05-31-23 RENEWAL DATE STATE OF CALIFORNIA
Phil May
02-21-2022
DATE

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Appendix C

Cultural Resources Technical Report

DRAFT

HISTORICAL RESOURCES TECHNICAL REPORT FOR GRAND ESTATES PROJECT

Prepared for:

City of Glendora
Planning Department
116 East Foothill Boulevard
Glendora, California 91741

Prepared by:

Kate Kaiser, MSHP, Kathryn Haley, MA, and Samantha Murray, MA

DUDEK
38 North Marengo Ave
Pasadena, California 91101

AUGUST 2019

Printed on 30% post-consumer recycled material.

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Executive Summary

Dudek was retained by City of Glendora Planning Department to prepare a historical significance evaluation report for an approximately 27-acre property located at 950 North Silent Ranch Drive in the City of Glendora, California (APN: 8684-045-004). The proposed project APE contains several buildings and structures over 45 years old that have not been previously evaluated for historical significance. This report includes a pedestrian survey of the property by a qualified architectural historian, a California Historical Resources Information System (CHRIS) records search of the APE and a 0.5-mile radius, building development and archival research, development of an appropriate historic context for the property, and evaluation of the property for historical significance and integrity in consideration of National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and City of Glendora historic resources ad landmarks designation criteria. This report was prepared in conformance with California Environmental Quality Act (CEQA), and Section 106 of the National Historic Preservation Act (NHPA).

As a result of the CHRIS records search, extensive archival research with Glendora Historical Society, building permit history, field survey, and property significance evaluation, one historic property was identified within the APE: the Metropolitan Water District of Southern California (MWD) Upper Feeder pipeline and its associated concrete hatch structure. The MWD pipeline is recommended eligible under Criteria A/1/as a representative component of the MWD Upper Feeder pipeline, which was instrumental in delivery of Colorado River Water to the region, and the first multi-city municipal water distribution system of its kind. The period of significance for this historic property is 1931 to 1941. In consideration of these findings, the MWD pipeline and hatch structure are considered an historic property under Section 106 of the NHPA and an historical resource under CEQA. Impacts discussion, mitigation measures, and management recommendations are discussed in Section 6.

The remaining resources located at 950 North Silent Ranch Drive (APN: 8684-045-004): the Rancho Los Alisos Structures, Camp Aventura building, and joint Forest Service and County Flood Control District dams and channel do not appear not eligible for the NRHP, CRHR, or as a City of Glendora historic resource or landmark due to a lack of significant historical associations and architectural merit. Therefore, these resources are not considered historical resource for the purposes of CEQA. No management recommendations are required for these ineligible resources.

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1 Introduction

Dudek was retained by City of Glendora Planning Department to complete a historical significance evaluation report for an approximately 27-acre property located at 950 North Silent Ranch Drive in the City of Glendora, California (APN: 8684-045-004) (hereafter, proposed project APE). The proposed project APE contains several buildings and structures over 45 years old and has not been previously evaluated for historical significance. This report includes a pedestrian survey of the property by a qualified architectural historian, a California Historical Resources Information System (CHRIS) records search of the APE and a 0.5-mile radius, building development and archival research, development of an appropriate historic context for the property, and evaluation of the property for historical significance and integrity in consideration of National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), and City of Glendora historic resources ad landmarks designation criteria. This report was prepared in conformance with California Environmental Quality Act (CEQA) Guidelines Section 15064.5 for historical resources and Section 106 of the National Historic Preservation Act (NHPA) for historic properties.

1.1 Project Description and Location

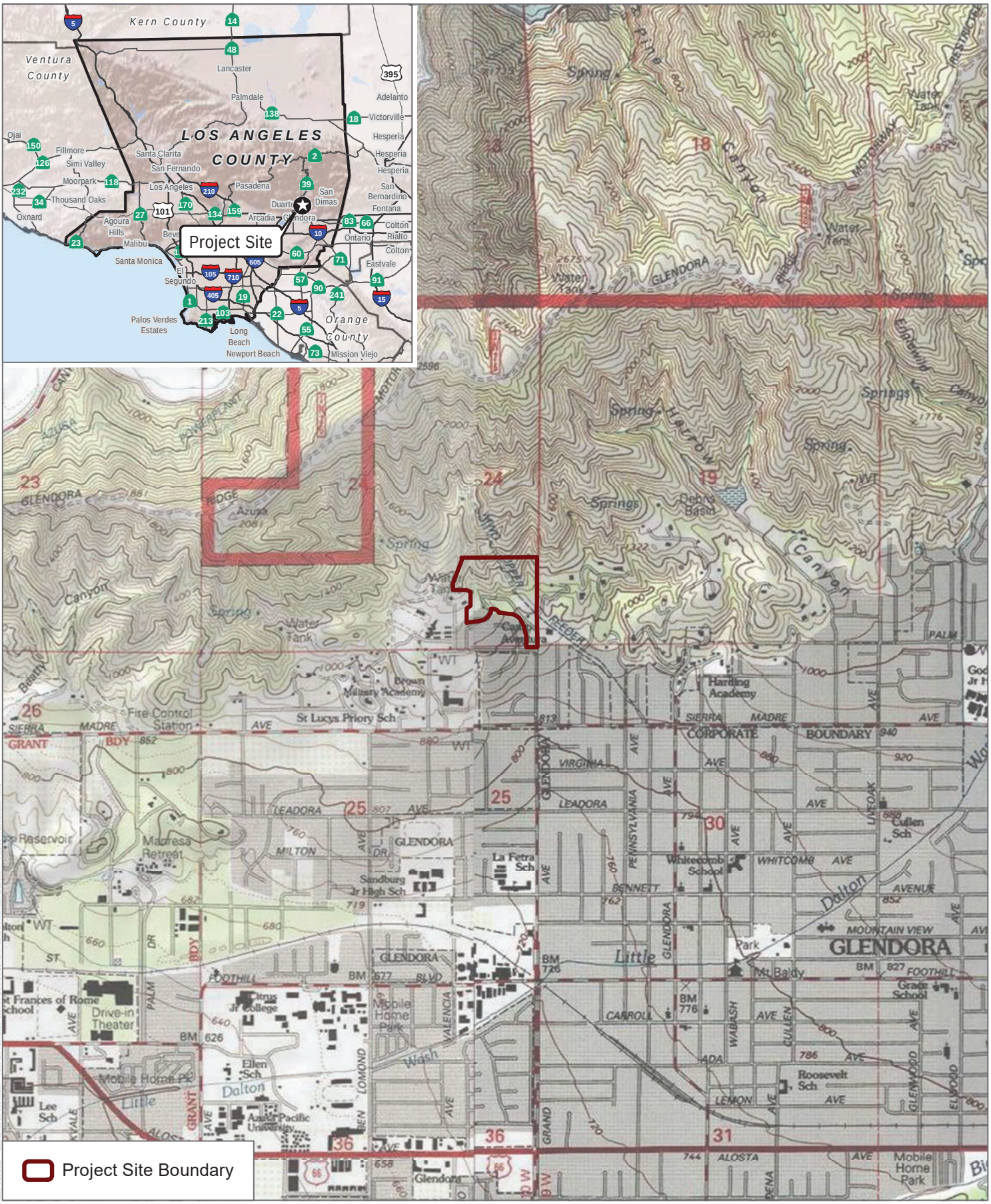
The Grand Estates Project (proposed project) would involve the subdivision of a hillside property in the City of Glendora for the development of 13 single-family residential lots and one private street. It is expected that 12 single-family homes would be constructed on the new lots (one lot has an existing home, to remain in place). The proposed project area of potential effect (APE) is approximately 27 acres in size and is located at 950 North Silent Ranch Drive, at the northern terminus of Grand Avenue in the City of Glendora (Figure 1. Project Vicinity). The majority of the proposed project APE is currently vacant and undeveloped, with the exception of one single-family residence and three flood control structures, which are intended to control debris flow from the hillside above. The existing single-family residence would remain in place, and the three existing flood control structures would be demolished and new debris basins and maintenance road would be constructed as part of the proposed project, to provide effective protection from debris flow and flooding.

1.2 Area of Potential Effects (APE)

The APE is the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties. Delineation of the APE is influenced by the project's setting, the scale and nature of the undertaking, and the different kinds of effects that may result from the undertaking (36 Code of Federal Regulations [CFR] 800.16[d]). Specifically, the APE follows the maximum possible area for potential impacts resulting from the proposed project, including all ground disturbing activities related to construction, easements, and staging areas located in the proposed project APE. Potential ground disturbance ranges from 25 to 35 feet deep with at least five feet of over-excavation to compensate for irregularities in the subgrade. Therefore, the vertical APE is up to 40 feet. The proposed project would affect the buildings and structures at 950 North Silent Ranch Drive, Glendora California. (Figure 2. APE Map).

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SOURCE: USGS 7.5-Minute Series Azusa & Glendora Quadrangles

DUDEK

0 1,000 2,000 Feet
0 285 570 Meters
1:24,000

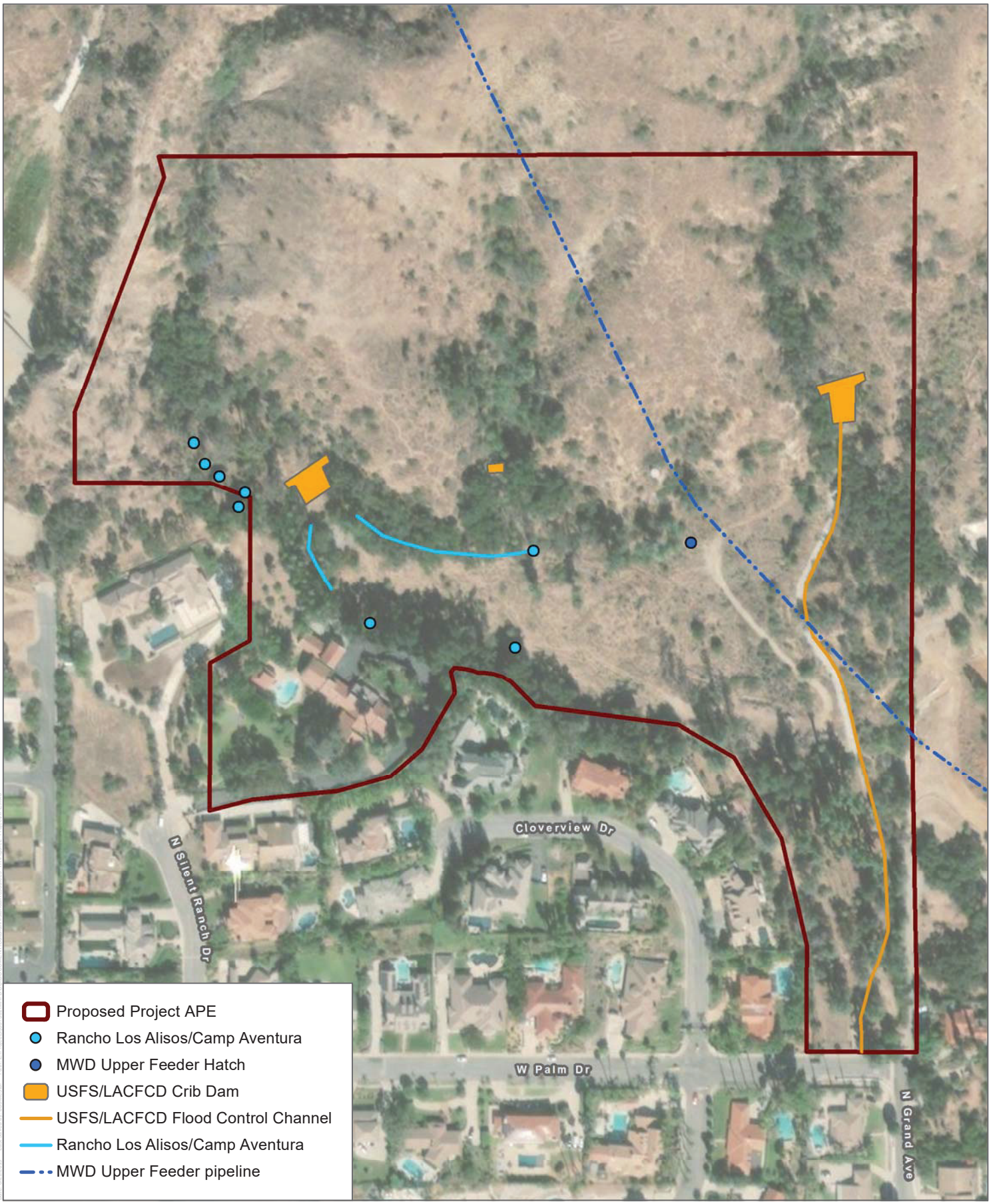
FIGURE 1

Project Location

Historical Resources Technical Report for the Silent Ranch Hillside Subdivision Project

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SOURCE: County of Los Angeles 2018; Bing Maps 2018; NHD 2018

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0 100 200 Feet
0 25 50 Meters
1:2,400

FIGURE 2

Project APE

Historical Resources Technical Report for the Silent Ranch Hillside Subdivision Project

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1.3 Project Personnel

This report and associated property evaluation was prepared by Dudek Architectural Historian Kate Kaiser, MSHP. The report was reviewed for quality assurance/quality control by Dudek Senior Architectural Historians Kathryn Haley, MA and Samantha Murray, MA. All authors and reviewers meet the Secretary of the Interior's Professional Qualification Standards (36 CFR Part 61) for architectural history or archaeology (see Appendix A, Preparers' Qualifications).

1.4 Regulatory Setting

National Historic Preservation Act

The NHPA established the NRHP and the President's Advisory Council on Historic Preservation (ACHP), and provided that states may establish State Historic Preservation Officers (SHPOs) to carry out some of the functions of the NHPA. Most significantly for federal agencies responsible for managing cultural resources, Section 106 of the NHPA directs that "[t]he head of any Federal agency having direct or indirect jurisdiction over a proposed Federal or federally assisted undertaking in any State and the head of any Federal department or independent agency having authority to license any undertaking shall, prior to the approval of the expenditure of any Federal funds on the undertaking or prior to the issuance of any license, as the case may be, take into account the effect of the undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the NRHP." Section 106 also affords the ACHP a reasonable opportunity to comment on the undertaking (16 U.S. Code 470f).

The content of 36 Code of Federal Regulations, Part 800 (36 CFR 800) implements Section 106 of the NHPA. It defines the steps necessary to identify historic properties (those cultural resources listed in or eligible for listing in the NRHP), including consultation with federally recognized Native American tribes to identify resources with important cultural values; to determine whether or not they may be adversely affected by a proposed undertaking; and to outline the process for eliminating, reducing, or mitigating the adverse effects.

The ACHP provides methodological and conceptual guidance for identifying historic properties. In 36 CFR 800.4, the steps necessary for identifying historic properties are as follows:

- Determine and document the APE (36 CFR 800.16(d)).
- Review existing information on historic properties within the APE, including preliminary data.
- Confer with consulting parties to obtain additional information on historic properties or concerns about effects to these.
- Consult with Native American tribes (36 CFR 800.3(f)) to obtain knowledge on resources that are identified with places where they attach cultural or religious significance.
- Perform appropriate fieldwork (including phased identification and evaluation).
- Apply NRHP criteria to determine resource eligibility for NRHP listing.

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Fulfilling these steps is generally thought to constitute a reasonable effort to identify historic properties within the APE for an undertaking. The obligations of a federal agency must also assess whether an undertaking will have an adverse effect on cultural resources. An undertaking will have an adverse effect when:

> an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative" (36 CFR Part 800.5(1)).

The process of determining whether an undertaking may have an adverse effect requires the federal agency to confer with consulting parties to appropriately consider all relevant stakeholder concerns and values. Consultation regarding the treatment of a historic property may result in a Programmatic Agreement and/or Memorandum of Agreement between consulting parties that typically include the lead federal agency, SHPO, and other applicable parties if they agree to be signatories to these documents. Treatment documents—whether resource-specific or generalized—provide guidance for resolving potential or realized adverse effects to known historic properties or to those that may be discovered during implementation of an undertaking. In all cases, avoidance of adverse effects to historic properties is the preferred treatment measure, and it is generally the burden of the federal agency to demonstrate why avoidance may not be feasible.

Federal

National Register of Historic Places

The NRHP is the United States' official list of districts, sites, buildings, structures, and objects worthy of preservation. Overseen by the National Park Service, under the U.S. Department of the Interior, the NRHP was authorized under the National Historic Preservation Act, as amended. Its listings encompass all National Historic Landmarks, as well as historic areas administered by the National Park Service.

NRHP guidelines for the evaluation of historic significance were developed to be flexible and to recognize the accomplishments of all who have made significant contributions to the nation's history and heritage. Its criteria are designed to guide state and local governments, federal agencies, and others in evaluating potential entries in the NRHP. For a property to be listed in or determined eligible for listing, it must be demonstrated to possess integrity and to meet at least one of the following criteria:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of persons significant in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded, or may be likely to yield, information important in prehistory or history.

Integrity is defined in NRHP guidance, "How to Apply the National Register Criteria," as "the ability of a property to convey its significance. To be listed in the NRHP, a property must not only be shown to be significant under the NRHP criteria, but it also must have integrity" (NPS 1990). NRHP guidance further asserts that properties be completed at least 50 years ago to be considered for eligibility. Properties completed fewer than 50 years before evaluation must be proven to be "exceptionally important" (criteria consideration to be considered for listing.

State

California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (California Public Resources Code Section 5024.1(a)). The criteria for listing resources on the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the NRHP, enumerated below. According to California Public Resources Code Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one of the following criteria:

Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.

(2) Is associated with the lives of persons important in our past.

(3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that sufficient time has passed to understand its historical importance (see 14 CCR 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- California Public Resources Code Section 21083.2(g) defines "unique archaeological resource."
- California Public Resources Code Section 21084.1 and CEQA Guidelines Section 15064.5(a) define "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource." It also defines the circumstances when a project would materially impair the significance of an historical resource.
- California Public Resources Code Section 21074(a) defines "tribal cultural resources."
- California Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(e) set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- California Public Resources Code Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4 provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(b).) If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources or identified as significant in a historical resources survey (meeting the requirements of California Public Resources Code Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption (California Public Resources Code Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); California Public Resources Code Section 5020.1(q)). In turn, CEQA Guidelines section 15064.5(b)(2) states the significance of an historical resource is materially impaired when a project:

1. Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

2. Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

3. Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (California Public Resources Code Section 21083.2[a], [b], and [c]).

California Public Resources Code Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.

3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (California Public Resources Code section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (California Public Resources Code Section 21074(c), 21083.2(h)), further consideration of significant impacts is required. CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in California Public Resources Code Section 5097.98.

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Local

City of Glendora (21.03.050 Historic preservation).

The most recent iteration of the City of Glendora's historic preservation ordinance was adopted in 2014. The ordinance established the purpose, roles, and responsibilities of the Historic Preservation Commission, along with nomination and designation program for historic resources. Historic resources or landmarks shall be designated based upon one or more of the following findings:

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

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2 Background Research

2.1 Cultural Resources Records Search

On June 28, 2019, Dudek completed a search of the CHRIS at the SCCIC, located on the campus of California State University, Fullerton of the proposed project APE and a half (0.5) mile buffer. This search included mapped prehistoric and historic archaeological resources and historic built-environment resources; Department of Parks and Recreation site records; technical reports; archival resources; and ethnographic references. Additional consulted sources included historical maps of the proposed project APE, the NRHP, the CRHR, the California Historic Property Data File, and the lists of California State Historical Landmarks, California Points of Historical Interest, and the Archaeological Determinations of Eligibility. The confidential records search results are also provided in Appendix B.

Previously Conducted Cultural Resource Studies

The SCCIC records indicate that seven (7) previous cultural resources technical investigations have been conducted within 0.50mile of the proposed project APE between 1988 and 2019. All seven technical investigations and are summarized in Table 1.

Table 1. Previously Conducted Technical Studies within 0.5-Mile of the Proposed Project APE

Report Number	Author	Year	Report Title
Within the Project APE			
LA-00837	Cottrell, Marie G.	1977	An Archaeological Survey Conducted on a Parcel of Land North of Palm Drive in the City of Glendora, Los Angeles County, California
Outside the Project APE			
LA-00334	Desautels, Roger J.	1978	Archaeological Survey Report on Tentative Tract No. 33742 Located in the City of Glendora, County of Los Angeles.
LA-01439	Cottrell, Marie G.	1985	Archaeological Resources Assessment of the Azusa Pacific University Hillside Campus in the City of Glendora, California
LA-08068	Wlodarski, Robert J.	1996	Draft Report: Peer Review of the Monrovia Nursery Project Cultural Resources Element
LA-08073	Farrell, Nancy	1992	Monrovia Nursery Project Cultural Resources Investigation
LA-10172	Brasket, Kelli S.	2006	Glendora Ridge Motorway and Van Tassel Road Maintenance Project
LA-10579	Hunt, Kevin and Patrick Maxon	2006	Final- Cultural Resources Survey for the Monrovia Nursery Development Project, Glendora, Los Angeles County, California

Source: SCCIC visit by Dudek staff 8/28/2019

LA-00837

An Archaeological Survey Conducted on a Parcel of Land North of Palm Drive in the City of Glendora, Los Angeles County, California (Cottrell 1977) was an archaeological survey report conducted on the proposed project APE parcel in November 1977, prior to grading a portion of the site in anticipation of a residential development project. The results of the field reconnaissance and record search were both negative, owing to a lack of visible resources in the southern portion of the survey area and to the dense vegetation present on the property in the drainage

basins. The report does not record any historical features, but noted their presence and association either to the Silent Ranch/Rancho Los Alisos property or to the Girl Scout camp.

Previously Recorded Cultural Resources

The SCCIC records indicate that two cultural resources have been recorded within 0.5-mile of the proposed project APE; neither of which overlap or are located adjacent to the proposed project APE. One resource is the Angeles National Forest, which encompasses the entirety of the forest and one resource is a historic road. Both resources are summarized in Table 2.

Table 2. Previously Recorded Resources within 0.5-Mile of the Proposed Project APE

Primary Number	Trinomial	Period	NRHP Status	Description	Recorded by/Year
Outside the Project APE					
P-19-186535	n/a	Historic	7L: State Historical Landmarks 1-769 and Points of Historical Interest designated prior to January 1998 – Needs to be reevaluated using current standards; CHL # 717	Historic Site: Angeles National Forest	1979 (J. Arbuckle)
P-19-188290	n/a	Historic	Not evaluated	Historic Structure: Glendora Ridge Motorway	2005 (Brasket, K., J. Huckabee, and D. Peebles)

Source: SCCIC visit by Dudek staff 8/28/2019

2.2 Building Development Research

Los Angeles County Assessor

Dudek accessed the Los Angeles County Tax Assessor's online Property Assessment Information System (PAIS) on August 15, 2019. The available reports from PAIS provided property information that included dates of construction. The information from PAIS was used in the preparation of the historic context.

City of Glendora eTRAKit Online Permit System

Dudek accessed the City of Glendora's online permitting system (eTRAKit) on August 14 and 15, 2019. Dudek collected permit information for 950 N Silent Ranch Drive and 935 N. Silent Ranch Drive (which contained information about the Aventura Girl Scout Camp). The available reports from PAIS provided property information that included dates of construction and alterations for structures built after 1950. The information from eTRAKit was used in the preparation of the historic context and identified alterations sections.

City of Glendora Public Library

On August 16, 2019, Dudek visited the Glendora Public Library to review sources relating to the history of Glendora. These collections included photographs, books, and maps. Research at the Glendora Public Library was used in the preparation of the historic context.

Glendora Historical Society

On August 20, 2019, Dudek visited the Glendora Historical Society Museum to review items in the museum collection relating to the history of Glendora and collections for Silent Ranch. These collections included photographs, books, notebooks, pamphlets, advertisements, newspaper clippings and other archival materials. Research at the Glendora Historical Society was used in the preparation of the historic context.

Aerial Photograph Review

Historic aerial photographs of the proposed project APE were available from Nationwide Environmental Title Research (NETR) LLC maps for the years 1953, 1964, 1965, 1972, 1977, 1978, 1980, 1994, 2002, 2003, 2004, 2005, 2009, 2012, and 2014, and from the University of California Santa Barbara (UCSB) Map and Imagery Laboratory for the years 1927, 1933, 1934, 1938, 1949, 1953, 1954, 1956, 1960, 1964, 1968, 1976, 1981 (NETR 2019a; UCSB 2019).

The earliest aerial photographs from 1927 show Judge Charles Silent's Rancho Los Alisos. A circular fountain feature is located in the southeastern portion of the property, while the main house, outbuildings, and lawns are located loser to the western property boundary. The property is framed to the north by the vegetation at the base of the foothills. Some features appear in this vegetated area, such as a road cuts, footpaths, tree border, and a water cistern. The rest of the property is dominated by an evenly spaced, mature orchard.

The proposed project APE and surrounding area do not noticeably change in appearance or layout until the 1954 photograph. In the 1953 photograph the orchards that dominate the area south of the main house are present and densely arranged. In the 1954 photograph, some of the trees have been removed. By the 1956 aerial photograph, all of the orchard trees except two rows along the southern boundary on Palm Drive were removed. The tree lined access road was retained and a palm tree surrounded fountain/water feature in the southeastern property corner appears dry and infilled.

In the 1960 photograph, four buildings, and ten tent pads arranged in semi circles around the buildings appear in the southern section of the property, likely related to the Camp Aventura Girl Scout Camp. The northwestern corner of the property appears to have been subdivided into a separate property and in 1960 has a large, rectangular plan building with pool, driveway and fence along the property line. Another square plan building, located just north of the vegetated area in the northern portion of the property, also appears in the 1960 photograph, with a separate driveway leading to it. A large, square parking lot also appears in the southwestern corner of the property. Around the property is the Girls' School to the west and several sports fields, but south of Palm Drive and east of Grand Avenue several residential subdivisions appear mid-construction. By the 1968 photograph, the water feature in the southeastern portion of the property appears overgrown. A fifth, very large irregular plan building appears north of the Camp Aventura buildings, as well as formal footpaths to the camp buildings and a separate driveway. Perhaps most meaningfully, the original Charles Silent Rancho Los Alisos-era ranch house and outbuildings are all removed in the 1968 photograph. By the 1976 photograph, a new house is under construction in the same location as the demolished Rancho Los Alisos-era house. The tent pads are no longer present at the Camp Aventura buildings and the paths between camp buildings appear disused and grown over. The large, rectangular-plan property just west also appears to have been demolished. The three concrete debris dams, and the concrete lined channel leading south from the east-most debris dam, are visible in the 1976 photograph. West of the proposed project APE and the Girls' School buildings is the Hook Canyon debris dam and channel a significantly larger Los Angeles County Flood Control District debris dam, concrete lined flood control channel, and water tanks.

By the 1981 photograph, there are again drastic changes to the property. All of the visible Camp Aventura buildings appear demolished and land leveled, in the southern portion of the property, along Palm Drive. The square plan building situated in the vegetation in the western portion of the property appears demolished. The new ranch house building appears completed, and has a pool house, pool, and landscaped lawns and small immature orchard, northwest of the building. In the 1982 photograph, individual lot foundations and an access road are visibly under construction, creating a residential subdivision with 15 lots. By the next available photograph from 1994 and 1995, some, but not all lots appear to have construction activity and new buildings on them. By the 2003 photograph, all of the lots are filled. There are few other changes to the proposed project APE after 2003. Between the 2012 and 2014 photograph, the vegetation appears to have reduced in the canyon drainages, suggesting a fire.

Historical Map Review

A review of historic maps and aerial photographs was conducted as part of the archival research effort for the project. Sanborn Fire Insurance Company Maps were prepared for the City for the years 1910, 1928, and 1931; however, their coverage did not extend to the proposed project APE. An adjacent property, the Girls Collegiate School is on the 1931 Sanborn map, but no data for the proposed project APE is given. Topographic maps are available from NETR for the years 1897, 1898, 1902, 1904, 1908, 1912, 1923, 1925, 1927, 1932, 1933, 1939, 1941, 1946, 1955, 1957, 1960, 1964, 1968, 1975, 1999, 2012, and 2015. Additional topographic maps were available from the interactive USGS Historical Topographic Map Explorer website for the years 1894, 1897, 1897, 1901, 1904, 1925, 1927, 1933, 1939, 1953, 1966, 1972, and 1995.

The earliest topographical maps from 1894, 1897, and 1898 show two properties, marked by solid black squares near the northern terminus of Grand Avenue. There are few other markings in the proposed project APE, but the city boundaries of Glendora move incrementally north and west towards the proposed project APE until 1927, when four more structure symbols appear near the Grand Avenue terminus. Far north of the proposed project APE, the Morris Dam appears along the San Gabriel River, the major watershed of the area, creating a dam and several aqueducts in the area. In the 1939 topographic map, a water feature called the Metropolitan Aqueduct (Metropolitan Water District (MWD) Upper Feeder) appears in this topographic map for the first time, bisecting the proposed project APE. Six springs are also marked in the foothills northwest, north and northeast of the proposed project APE. The proposed project APE appears to have three structures, an unpaved road and a water reservoir on it. The Girls Collegiate School campus (later St. Lucy's Priory School) appears north of the intersection of Barranca Avenue and Sierra Madre Avenue, west of the proposed project APE. In the 1966 topographic map, the Camp Aventura Girl Scout Camp appears. Also by the 1966 topographic map, the proposed project APE no longer appears to be on the rural fringes of Glendora, but rather a developed suburban community within the Glendora development limits. There are no radical changes to the proposed project APE or surrounding neighborhood after this according to topographical maps (NETR 2019b; USGS 2019).

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3 Historical Context

3.1 Prehistoric and Ethnographic Overview

Prehistoric

Numerous chronological sequences have been devised to aid in understanding cultural changes within southern California. Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the Southern California coastal region that is still widely used today and is applicable to near-coastal and many inland areas. Four periods are presented in Wallace's prehistoric sequence: Early Man (Horizon I), Milling Stone (Horizon II), Intermediate (Horizon III), and Late Prehistoric (Horizon IV). The earliest accepted dates for occupation are from two of the northern Channel Islands, located off the coast of Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area about 10,000 years ago (Erlandson 1991). Recent data from Horizon I sites indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas and on Pleistocene lakeshores in eastern San Diego County (see Moratto 1984). The Milling Stone Horizon of Wallace (1955, 1978) and Encinitas Tradition of Warren (1968) (6000–3000 BC) are characterized by subsistence strategies centered on collecting plant foods and small animals. Following the Milling Stone Horizon, Wallace's Intermediate Horizon and Warren's Campbell Tradition in Santa Barbara, Ventura, and parts of Los Angeles Counties, date from approximately 3000 BC to AD 500 and are characterized by a shift toward a hunting and maritime subsistence strategy, along with a wider use of plant foods. In the Late Prehistoric Horizon (Wallace 1955, 1978), which lasted from the end of the Intermediate (ca. AD 500) until European contact, there was an increase in the use of plant food resources in addition to an increase in land and sea mammal hunting. There was a concomitant increase in the diversity and complexity of material culture during the Late Prehistoric.

Ethnographic

The proposed project APE is in an area historically occupied by the Gabrielino. The archaeological record indicates that the Gabrielino arrived in the Los Angeles Basin around 500 BC. Many contemporary Gabrielino identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and adjacent areas. The name "Gabrielino" denotes those people who were administered by the Spanish from the San Gabriel Mission, which included people from the Gabrielino area proper as well as other social groups (Bean and Smith 1978; Kroeber 1925). Many modern Gabrielino identify themselves as descendants of the indigenous people living across the plains of the Los Angeles Basin and refer to themselves as the Tongva (King 1990), while others reject this term. Gabrielino lands encompassed the greater Los Angeles Basin and three Channel Islands, San Clemente, San Nicolas, and Santa Catalina. The Gabrielino established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978), but recent ethnohistoric work suggests a number approaching 10,000 (O'Neil 2002).

3.2 Historical Overview of City of Glendora

The historical period for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and

British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. In 1771, a fourth mission was founded at the Mission San Gabriel Arcángel by a Portola expedition. The original 1771 mission was destroyed in a flash flood and a new mission was built in 1776. El Pueblo de Nuestra Señora la Reina de Los Ángeles, further west, was established in 1781 to support Mission San Gabriel Arcángel. The San Gabriel Mission lands extended from Los Angeles east as far as San Bernardino de Sena Estancia (established 1810), and the San Bernardino Valley, including present day Irwindale, would have been under Mission San Gabriel Arcángel control (Caughey and Caughey 1977; Gumprecht 2001).

After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants. Mexican governors established extensive land grants throughout interior California during the Mexican Period, in part to wrest secular control away from the Spanish Missions and to give land as a reward to soldiers in lieu of pension. Land grants were also a way to disperse the population away from the more settled coastal areas and take advantage of cattle and agricultural industry (Dallas 1955; Fogelson 1993).

Mexican governors established extensive land grants throughout interior California during the Mexican Period, in part to wrest secular control away from the Spanish Missions and to give land as a reward to soldiers in lieu of pension. Land grants were also a way to disperse the population away from the more settled coastal areas and take advantage of cattle and agricultural industry. Mexican governor Juan Alvarado awarded Rancho El Susa to Luis Arenas and Rancho Azusa de Duarte to Andres Duarte in 1841. Just three years later, in 1844 Arenas sold one-third interest in Rancho San Jose to Englishman and merchant Henry Dalton. Dalton also acquired the San Jose Addition, and Rancho Azusa in 1844, and renamed his acquired lands Rancho Azusa de Dalton (Figure 3) (Caughey and Caughey 1977; Dallas 1955; Lewis Publishing Co. 1889; Zerneke 2009).

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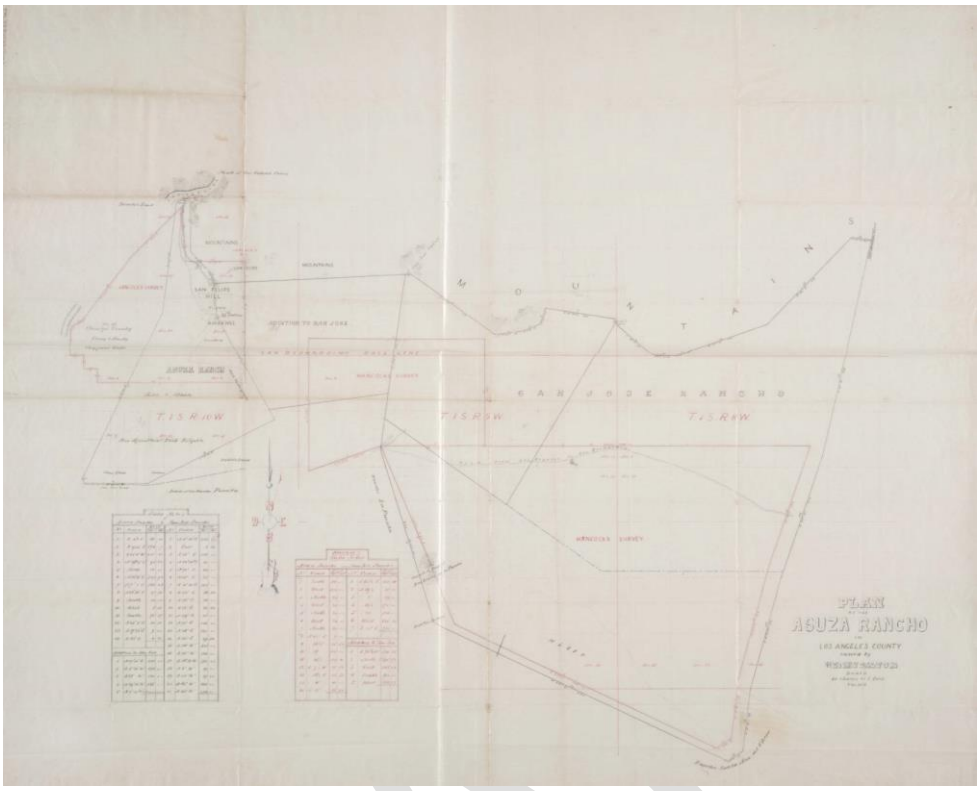


Figure 3. Plan of the Asuza Rancho in Los Angeles County owned by Henry Dalton, pre-1860. (Maps, Huntington Digital Library)

The Mexican Period ended with the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, which signals the beginning of the American Period when California became a territory of the United States. California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as U.S. Territories. After the Treaty of Guadalupe Hidalgo in 1848, Henry Dalton lost the majority of his assets and was forced to live the rest of his life in poverty (City of Glendora 1999; Lewis Publishing Co. 1889; Waugh 2003).

Dalton's claims were partitioned and sold off and in the 1860s four homesteads along the foothills belonging to John Gassaway, John Harrar, Coleman Barnes, and Leonidas Barnes were recorded. In 1874, John Bender and William Bryant Cullen homesteaded 160 acres within what would become Glendora. They were soon joined by other homesteading families including Shorey, Preston, Wright, Griece, Washburn, Englehart, LaFetra, Johnson, and West. The homesteads produced wheat, flax, barley, caster beans, potatoes other vegetables, grapevine orchards and fruit trees. Crops were sold in markets in either Los Angeles or San Bernardino, both near 2-days wagon ride away. These early settlers came together to start a community, as shops, blacksmiths, churches, and a few houses began to dot the landscape. They even opened a small schoolhouse on the old Dalton homestead, named the LaFetra School (City of Glendora 1999; Landers 2001; Price 2008).

In 1884, George Dexter Whitcomb a coal mining and manufacturing man from Chicago retired and moved to the Glendora area. Whitcomb bought two hundred acres from Harrison Fuller, John Bender, and several other pioneers of the area. Whitcomb became associated with John Cook and Merrick Reynolds who had substantial land claims and formed the Glendora Land Company to purchase land for a plat the town of Glendora. The name Glendora is a

combination of Mrs. Whitcomb's name, Leadora, and the mountain glen view from the back of their family home (City of Glendora 1999; Lewis Publishing Co. 1889; Price 2008).

In 1885, the Atchison, Topeka & Santa Fe Railway Company was already building a line from Pasadena to San Bernardino, and on May 31 the first train on the new line arrived in Los Angeles, stopping at Glendora Station along the way. The tracks running through Glendora were first owned by the San Bernardino and Los Angeles Railway and the California Southern Railroad, both subsidiaries of the Atchison, Topeka and Santa Fe Railway. The original Glendora Station was little more than an old boxcar on a rail siding in 1887. By 1888, the official Victorian-style Glendora Station was opened, but the station was demolished in the 1950s and replaced with a concrete block building, which has also since been demolished. The railroad would go on to play an important role in the development of the citrus industry in Glendora. In 1907, the Pacific Electric Railway came to Glendora and the Great Bridge was built over the San Gabriel River. It was destroyed in 1938 by the great flood of San Gabriel and was subsequently replaced with a single-track steel structure (Landers 2001; Price 2008, 2012).

On November 13, 1911, the City of Glendora was officially incorporated, and in 1915, the Glendora Water Company was purchased by the City (Figure 4). In 1921 Glendora opened its "auto camp" on Michigan Avenue, offering a great alternative to expensive hotels that provided visitors with free stoves, a covered kitchen, and running water. The building boom in Glendora culminated in 1922 with construction of City Hall on Foothill Boulevard just east of Michigan Avenue (Price 2008).

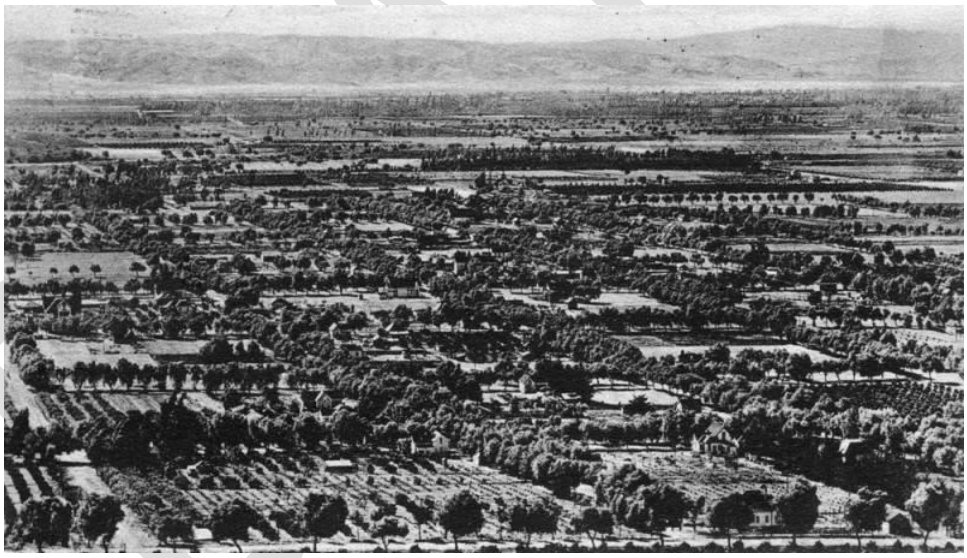


Figure 4. Birds Eye View of Glendora, ca. 1910 (LAPL)

In 1923 the Glendora Fruit Exchange was established when the Glendora Citrus Association and the Glendora Heights Orange and Lemon Growers Association joined forces to build their own packing house. Eventually, Glendora was producing over one million boxes of fruit per year and had numerous packing houses to meet the demand. The city often appeared to be on fire at night with the orange flames from all of the oil smudge pots used to keep the citrus groves warm during the frost. A review of Sanborn Fire Insurance maps from the late 1920s show that the Glendora Mutual Orange Association was located within the proposed project APE. This company marketed under the Azusa-Covina-Glendora Fruit Exchange, which in 1927 shipped 1,117 cars of oranges and 30 cars of lemons for a total return of $1,176,000. The citrus boom carried into the 1930s and continued to grow (Los Angeles Times 1927). At the citrus industry's peak in 1947, Glendora had more than 5,000 acres of oranges and lemon

groves and six packing houses, which produced approximately 78,000 tons of citrus per year, worth between $4 and $8 million. A serious tree disease, bluntly known as "quick-decline disease," struck the area in the 1940s–1950s and the industry began to suffer. The disease, in combination with rising costs of labor and water, may well have marked the beginning of the end of the booming Glendora citrus industry (Derbeken 1987; Landers 2001; LAT 1927)

During World War II, Glendora was host to a Civilian Public Service camp for conscientious objectors, located in Big Dalton Canyon. The conscientious objectors, their family, or sponsoring religious affiliation paid a monthly fine of $35 (equivalent to $488 in 2019) and the objectors worked as medical study subjects and on civilian infrastructure projects, rather than be drafted by the selective service act. Men who did not report to the draft had to report to a conscientious objector's camps or be imprisoned and potentially sent to "punishment camps". Conscientious objectors in the Glendora Camp were not well treated or paid for their work. In spring 1946, the Glendora camp conscientious objectors lead a series of strikes in response to two workers being sent to a punishment camp without charges, hearings, or appeals, as well as being forced to perform unpaid labor, denial of accident compensation, adequate medical care and physical abuse from supervisors. The 1946 strike began in Glendora and spread to other camps throughout the nation. Though World War II ended in 1945, camp continued to hold objectors until December 1946 (Glendora Strikers 1946; LAT 1941; SBCS 1946)

In 1945, veterans began to return from World War II with their sights set on starting a family and purchasing a home. As nearby areas such as Pasadena, Temple City, Arcadia, and Monrovia began to see drastic increases in property values, residential developers began to consider Glendora a better value for new home construction. Residential subdivisions began to appear north of the central downtown Glendora are in the 1953, Along the main north-south thoroughfare, North Glendora Ave, residential subdivision begin to replace the orchards and fields north of E. Leodora Avenue in the 1950s, and begin to be developed north of Sierra Madre Avenue by the 1960s. The town boundary also edges west, closer to the proposed project APE and the nearest town of Azusa, replacing agricultural fields, orchards between 1965 and 1975. Most of the agricultural lands in the foothills north of Glendora disappear between 1972 and 1977. However, the agricultural lands between Glendora and Azusa to the west persist until roughly 2005-2009, when a large-scale residential subdivision fills the entirety of the space north of the 210 Freeway, south of the San Gabriel Mountains foothills, east of North Pasadena Avenue in Azusa, and west of North Yucca Ridge Road in Glendora (Glendora Chamber of Commerce 2014; NETR 2019).

3.3 Project Area History

This section summarizes the history of the residential development of 950 Silent Ranch Drive (APN: 8684-045-004). Unrelated to residential development, this section also summarizes the historic context for the USDA Forest Service and Los Angeles County Flood Control District dams and flood control channel on the property and Metropolitan Water District Upper Feeder pipeline, which transects the proposed project APE.

Residential Development

Rancho Los Alisos (1907-1953)

Judge Charles Silent was a lawyer, judge, and a prominent real estate speculator in Los Angeles. Silent moved to Los Angeles in 1885, and made connections while representing wealthy landowners and speculators during the real estate boom of the 1880s. Silent also made key real estate investments and bought large tracts of land along

the coast southwest of Los Angeles, developing the communities of Inglewood and Redondo Beach. Silent lived near the present-day University of Southern California campus, and in 1900, he created the gated subdivision of Chester Place around his home. In 1907, Judge Charles Silent purchased 110 acres just north of the town of Glendora from one of his clients, P. Shorey, though he remained in Los Angeles for a few years after the purchase. Silent continued to be engaged in both Los Angeles and Glendora, proving an influential voice in the construction of a scenic highway from Redlands to the sea, now Foothill Boulevard. (LAT 1907a, 1907b; Price 2008).

After a family death, Silent moved to Glendora permanently in 1908. Silent retired from his law practice and devoted himself to the development of his Glendora property, turning it into a landscaped park, with experimental orchards where he could engage in horticultural plant, fruit tree, and flower production. Silent hired Henry and Charles Greene, well known Arts and Crafts Era architects, to design the ranch house at Rancho Los Alisos (Figure 5). While the Arts & Crafts-style Greene & Green bungalow design apparently never came to fruition, the houses that were built along the floor plan were humble canvas and wood structures with palm thatch-clad roofs. (Argus 1910; Greene & Green Architects 1908; Price 2008).

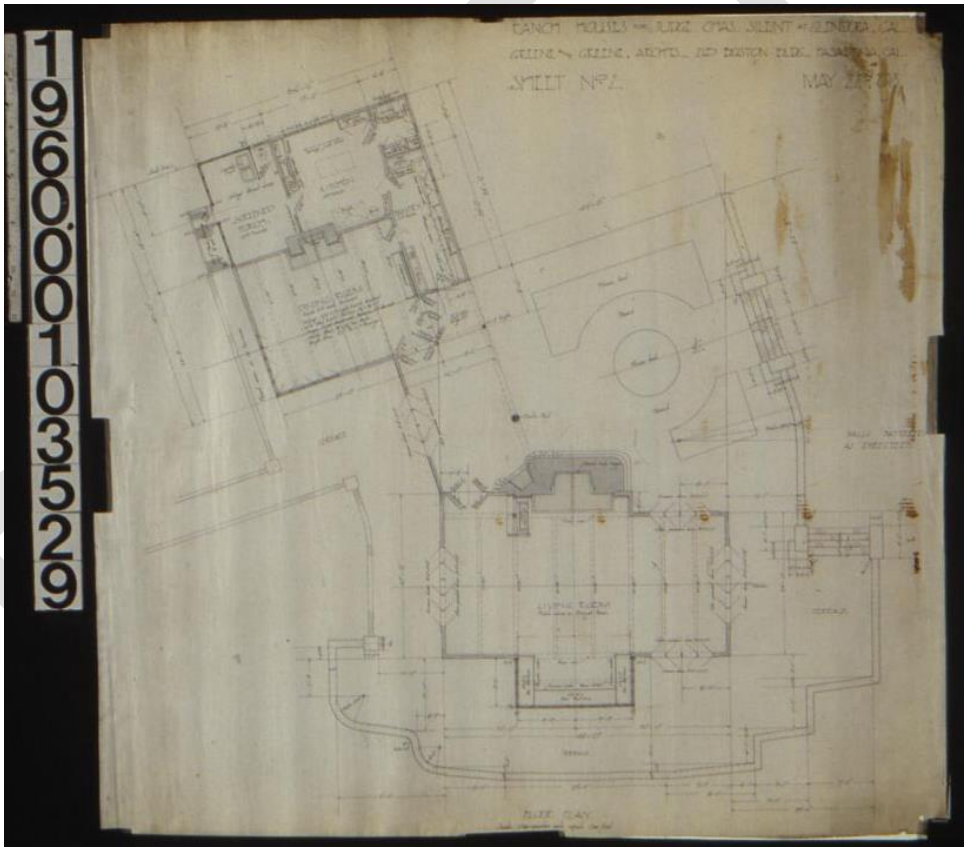


Figure 5. Floor plan: Sheet no. 2 May 22, 1908. "Walls battered as directed". (NYDA.1960.001.03529, Greene & Greene Architectural Records & Paper Collections, Avery Architectural & Fine Arts Library)

Silent became involved with the California Avocado Association and eventually became a director of the organization, growing lemons and varieties of avocados at Rancho Los Alisos. Silent engaged the local pomological societies and opened his property to the public on Sundays so that residents of Glendora could enjoy his gardens and grounds. During this period, Silent's property consists of a grouping of rancho-style buildings with the appearance of palm-leaved thatched roofing, and also developed rock-lined bricks paths, elaborate flower and palm

tree plantings, viewing platforms, fountains, and a fishing basin where Silent stocked black bass (Figures 6, 7). According to a newspaper feature about the property, Silent irrigated his vast property using spring water from further up the mountain. Silent supposedly tunneled north to the springs, and brought water through a series of underground reservoirs, and pipelines to his property. Once there, Silent irrigated his plants but also created "aa series of reservoirs that are connected here and there with artistic stone grottos and scenes of flowing and falling streams" (Argus 1910: 2). After Silent's death in 1918, and his wife's death in 1921, the property remained unused, and cared for by a small caretaker staff. The Silent estate eventually sold portions of the ranch to real estate developers. Though the original house was demolished between 1964 and 1968, and a new residence constructed on the location, some of these plantings, water conveyance systems, and rock-lined landscape features remain (Argus 1910, 1921; LAT 1918; Price 2008; UCSB 2019).



Figure 6. Postcard of Rancho Los Alisos ranch house building group. (Silent Ranch subject files, Glendora Historical Society)



Figure 7. View to main buildings of Rancho Los Alisos, looking southwest, c 1910 (Oversized photos, Glendora Historical Society)

Camp Aventura (1953-1974)

In 1953, the Los Angeles Council of Girl Scouts and Girl Scouts of America began making formal inquiries about purchasing 295 acres for a camp in Glendora, including the former Silent Ranch Property. Beginning as early as 1953, a Master Plan was in the works for the camp, which planned to develop 12 unit sites on the property. The Los Angeles Council of Girl Scouts member troops raised the funds for the camp through yearly cookie drives and other fund raising efforts, and eventually purchased 295 acres of the former Silent Ranch estate. In October 1955, Camp Aventura was officially dedicated and opened. By 1956, four buildings and 12 tent pads were present at the site. The area had been cleared of orchard trees and in 1956, Girl Scouts planted trees and other vegetation around the new camp. In 1959, the Los Angeles Council of Girl Scouts made its final payment on Camp Aventura in Glendora, owning the property outright. The camp continued to operate until at least 1971, and in 1974, the Los Angeles Council of Girl Scouts sold the Camp property to George and Jean Deukmejian[1]. The Deukmejians demolished the remaining Girl Scout buildings on the property, but donated a 30-acre parcel to the City of Glendora to use as dedicated open space (LAT 1953, 1956, 1958, 1959; Leagle 2019; Valley News 1956; UCSB 2019). According to legal documentation:

> The donated property consists of 28.93 acres, of which 0.29 acres are subject to a Flood Control District easement, leaving a net area of 28.64 acres. The property has an "L" shape measuring 1,650 feet long and a width of 1,320 feet along the northern boundary and a width along the irregular southern boundary of 440 feet. The parcel is located about 0.25 miles north of Palm Drive and about 0.25 miles west of Grand Avenue, if it were extended which it had not been at the time of trial (*George Deukmejian and Jean Deukmejian v. Commissioner* 1981).

[1] George Deukmejian (b. 1920- d. 1985) of Glendora was cousin to former State Senator and Governor George Deukmejian (b. 1928- d. 2018); however, former Governor Deukmejian never resided in Glendora.

Silent Ranch Estates Residential Subdivision (1974- present)

George Deukmeijian first applies for a demolition permit for the Girl Scout Camp in 1974. Deukmejian began building a new residence at the site of the former Rancho Los Alisos house in 1976 and it was completed by 1980. By 1981, the property also had a pool house, pool, and landscaped lawns, and small immature orchard northwest of the building. In 1982, Deukmejian's company, Deukmejian Enterprises, began redeveloping the surrounding property into a residential subdivision called Silent Ranch Estates with 15 lots. Lots were prepared and custom-built homes offered beginning in 1984, and later the same year, City of Glendora allowed it to become a private, gated community. By 2003, all 15 lots were filled (LAT 1984a, 1984b, 1985; UCSB 2019).

Water Infrastructure Development

A small, subterranean segment of the Metropolitan Water District of Southern California (MWD) Upper Feeder pipeline is present in the proposed project APE as a tunnel, historically called Monrovia No. 1. The segment is entirely below ground and extends roughly 1,150 feet within the proposed project APE. The total length of the Monrovia No. 1 tunnel is 7,868 feet (Weymouth 1939). In three of the small riparian canyons in the proposed project APE, there are crib dams and one flood control channel. In 1970 the US Forest Service, City of Glendora, Los Angeles County Flood Control District, and Army Corps of Engineers, responded to a 1968 fire and 1969 mudslide in the City of Glendora by installing these crib dams to abate future flood and mudslide damages.

Metropolitan Water District: Upper Feeder Aqueduct (1939-present)

The Metropolitan Water District of Southern California MWD was established in 1928, as a result of the Metropolitan Water Act. With this act, the State authorized the new agency to build an aqueduct 242 miles to bring Colorado River water to supplement Los Angeles Department of Water and Power sources for City of Los Angeles, and to provide municipal water to thirteen cities in the Los Angeles metropolitan area not served by LADWP. In 1931, the Colorado River Aqueduct project was funded by a bond measure approved by the thirteen cities: Anaheim, Beverly Hills, Burbank, Compton, Fullerton, Glendale, Long Beach, Los Angeles, Pasadena, San Marino, Santa Ana, Santa Monica, and Torrance. MWD's Colorado River Aqueduct construction project, which lasted nearly 10 years, erected four dams, five pumping plants, 92 miles of tunnels, 63 miles of concrete lined canals, 55 miles of concrete conduit, and 29 miles of siphon from Lake Havasu to Lake Matthews in Riverside. Once in the reservoir at Lake Matthews, water was dispensed to the member cities through the distribution system. Both the aqueduct and distribution system were some of the largest public works projects in southern California during the Great Depression (Desert Sun 1938; LAT 1934; Weymouth 1939).

Concurrent to the erection of the 242-mile aqueduct was the distribution system that lead from the aqueduct terminus to each of the participating cities. The distribution system consisted of the Morris Dam and Reservoir, 16 miles of tunnel, and 134 miles of pipelines to carry water to each of the thirteen cities (Figure 8). Two portions of this distribution feeder system are located in the proposed project APE. North of the APE, the Morris Dam was erected between 1932 and 1934 in the San Gabriel River Basin. It was originally owned by the City of Pasadena, but sold in 1935 to MWD. The other portion is the Upper Feeder distribution line, a 65-mile distribution line extending from Lake Matthews to the San Rafael Tunnel. The upper feeder consisted of sections of underground 10-foot diameter tunnel lined with concrete, and large diameter precast concrete or welded steel plate pipes. In 1935, orchard owners north of Glendora, Claremont, La Verne, Pomona, and San Dimas conferred with MWD and attempted to negotiate for surplus water in exchange for allowing the pipeline through their lands. In 1936, a new

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MWD water district inducted the cities of Ontario, Upland, Claremont, San Dimas, Glendora, Pomona, and La Verne (Argus 1935; Creason 2015; Hinds 1935; SBSC 1936a; Weymouth 1939; WDPJ 1936).

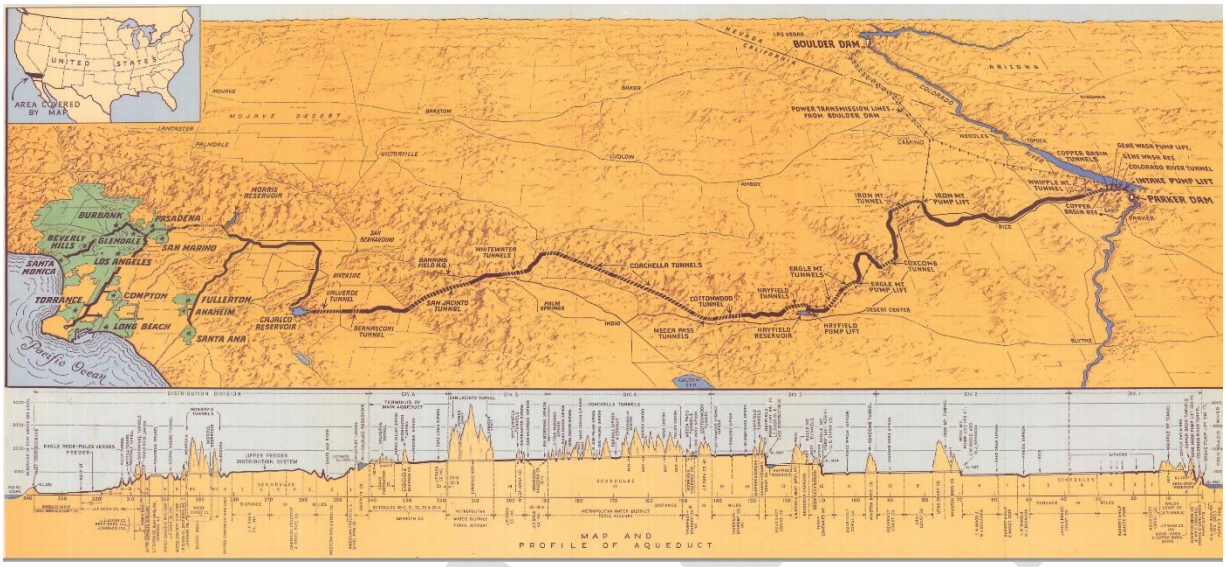


Figure 8. Colorado River Aqueduct Map, The Metropolitan Water District of Southern California. (Special Collections, Honnold Mudd Library, Claremont Colleges Library system)

Construction of a 30-mile section of the Upper Feeder pipeline began in 1936 near the Lake Matthews Reservoir, and extended north to Fontana then west to just below Morris Dam Reservoir north of Glendora in the Angeles National Forest. From Morris Reservoir, the feeder continued west in a separate segment through the Monrovia No. 3 through 4 tunnels to the San Rafael Tunnel, to Glendale. In Glendora, the Upper Feeder pipeline stayed at the base of the San Gabriel Range foothills, before crossing diagonally through the foothills northwest towards Morris Dam. A right-of-way was obtained in 1935 for the section through the Silent Estate. This location was chosen partly to avoid costly purchases of rights-of-way, which would be needed in densely settled urban areas. The Silent Ranch Estate right of way was for part of Monrovia No. 1, a tunnel extending 7,868 feet from east portal to west portal, exiting above the San Gabriel River canyon. The tunnel work was completed by West Construction Company in February 1937. Construction of the Upper Feeder pipeline as a whole was interrupted by the major storm and subsequent flood damage in February 1938; however, work on the feeder was completed later that year. In 1939, the distribution system was connected to the Lake Matthews Dam but the main Colorado River Aqueduct was not completed until 1941. In June 1941, the aqueduct and distribution system finally went into operation and on June 20, 1941, water finally reached the City of Pasadena (Argus 1935; Creason 2015; Hinds 1935; LAT 1936; SBSC 1936a, 1936b; Weymouth 1939; WDPJ 1936).

In 1963, MWD announced a second feeder, called the Foothill Feeder, which could carry double the capacity of the original Upper Feeder, and bring Feather River water from Northern California via Castaic, through the foothill cities to San Bernardino. A tunnel, bypassing all of Glendora was announced in 1965, and would consist of a 6.5-mile concrete lined tunnel between San Gabriel Canyon and San Dimas (Figure 9). The contract for tunnel construction went to J.F. Shea Co., and blasting was completed by 1968. Tunnel Construction was scheduled for completion in 1969; however, litigation surrounding eminent domain takings by MWD went to the California Courts (Pasadena Independent 1964; SBCS 1963, 1965; Lauten 1970; LAT 1968).

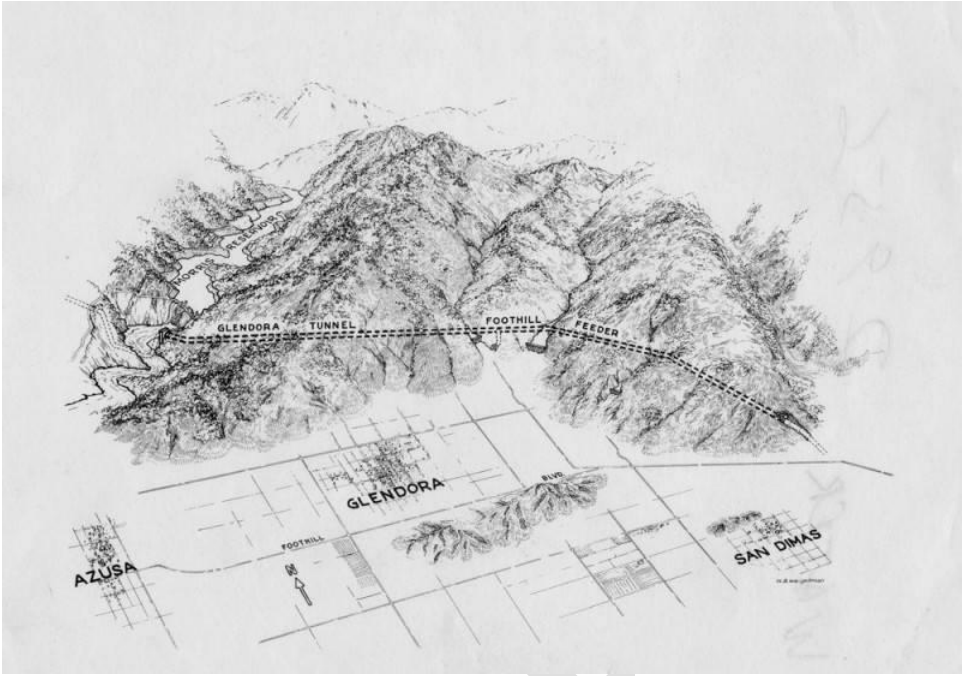


Figure 9. Glendora Tunnel section of the Foothill Feeder, 1965. (Los Angeles Herald Examiner Photo Collection, Los Angeles Public Library)

Los Angeles County Flood Control District and Forest Service Crib Dams (circa 1969-present)

In 1968, a large wildfire in the foothills north of Glendora and Azusa burned 20,000 acres and decimated the underbrush and trees. The following January through March 1969, Glendora experienced heavy rains which led to flooding, devastating mudslides, and cascading boulders damaging homes and schools. Mudslides were especially damaging along Rainbow Drive, just two blocks east of Grand Avenue. Glendora sought relief and received $1.5 million in federal aid. One of the first projects to go through was the $340,000 debris control dam and basin just west of the proposed project APE in Hook Canyon, started in 1969. In spring 1970, City of Glendora, US Army Corps of Engineers, Los Angeles County Flood Control District (LACFCD), and the USDA Forest Service (USFS) began constructing 45 concrete crib dams in 15 canyons north of Glendora (Figure 10). The purpose of the crib dams was to allow debris and soil to accumulate behind the dams while allowing water through. Still more erosion control measures were taken by instating planting programs, and seeding areas of then 1968 burn scar. These efforts were rewarded in 1974 (LAT 1969a, 1969b, 1969c, 1970; Pasadena Independent 1968; USFS 1975).

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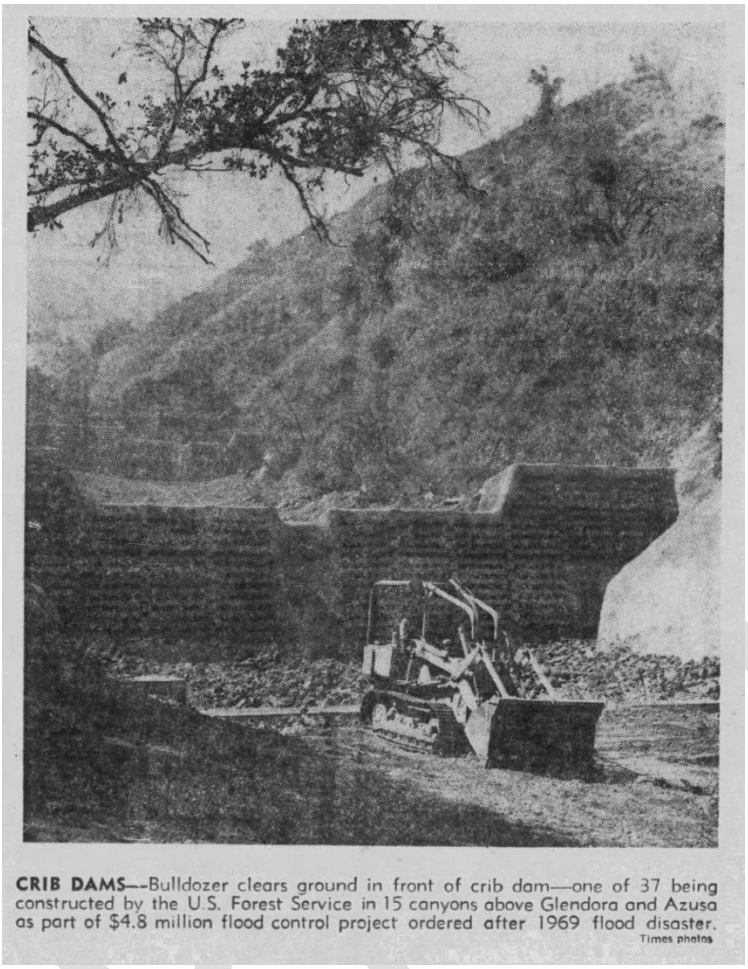


Figure 10. USFS employees constructing a concrete crib dam north of Glendora. (Los Angeles Times 1970)

3.4 Associated Engineer: Robert Bernard Diemer (1888-1966)

R.B. Diemer was born in 1888 in Palmyra Missouri, and graduated from the University of Missouri with a Bachelor's of Science in engineering at 23. Like many young engineers who graduated in the 1910s, Diemer began his career with the Reclamation Service (later Bureau of Reclamation), working on the North Platte Project (1903-1927), an irrigation project in Wyoming and Nebraska. In 1929, he left the Reclamation Service to work for the newly formed Metropolitan Water District (MWD), with other former Reclamation Service engineer Frank E. Weymouth. In 1930, Diemer became the distribution division engineer on MWD's Colorado River Aqueduct project, responsible for all 150+ miles of distribution system west of Lake Matthews. Diemer remained in career at the MWD, and ion 1950 became assistant general manager. In 1952, he became MWD's general manager and chief engineer and served in this position until he retired in 1961 (Hager 2015).

3.5 Associated People: Judge Charles Silent (1842-1918)

Charles K. Silent was born in 1842 in Prussia, but emigrated in 1848 to Columbus Ohio with his family due to the Revolutions of 1848. In 1856, at 14 Silent left home for New York and then onto a ship for San Francisco. Silent earned a teacher's certificate by age 17 and worked as a teacher for several years before enrolling in University of the Pacific in 1862. He married Emma Daniel in 1864 and had three children before her death in 1870. Silent passed the California bar exam in 1868 and became partner to San Jose law firm of Moore, Laine & Silent. He remarried Mary Tantau in 1874 and developed connections in law and to the railroad industry. In 1878, President Rutherford B. Hayes appointed Silent as an associate justice of the Supreme Court of Arizona, however, Silent continued financial interests in railroads in mining during his tenure and in 1880 was investigated by the U.S. Attorney general for his conflict of interest, and soon after the investigation, resigned from the court and returned to practicing law. Silent grew wealthy from his law practice in Tuscon but due to declining health, relocated to Los Angeles California in 1885 (LAT 1918; SFE 1878; Spitzzeri 2019).

In California, Silent joined W.P. Wade and W.F Fitzgerald in a law practice and continued serving wealthy clients in the metropolitan area, while simultaneously investing in the booming Southern California real estate. Silent joined many other wealthy Los Angeles elite in forming real estate companies such as Centinela-Inglewood Land Company (1887), and creating coastal towns such as Redondo Beach and Inglewood, and investing heavily in Azusa, Redlands, and the Foothill Boulevard road. Later he formed the firm Houghton, Silent, and Campbell with men he met through Wade and Fitzgerald's connections. Silent moved into Nathan Vail's mansion and formed the gated subdivision called Chester Place in 1899, creating a private park just southwest of the metropolitan center. Silent also practiced horticulture as a hobby, and perhaps as a result of this hobby and his multitude of connections to wealthy Los Angeles personalities and government officials, he was appointed to the head of the Los Angeles Parks Commission. There he worked on remodeling Pershing Square and Elysian Park, and secured Griffith Park from Colonel Griffith J. Griffith (LAT 1918; Spitzzeri 2019).

In 1907, one of Silent's children died, and Silent responded by withdrawing from his legal practice and purchasing a large tract of land in Glendora from P. Shorey, which he would call Rancho Los Alisos. Silent had a home built in Glendora and effectively retired there by 1910. Silent remained active in pomological societies, horticultural societies, and hobby groups in Glendora, raising avocados, oranges, and lemons in addition to several exotic species. He also opened his Rancho Los Alisos property as a public park to Glendorans on Sundays. Silent died in 1918 leaving his wife and remaining four children (LAT 1918; Spitzzeri 2019).

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4 Historic Resources Survey

4.1 Methods

A pedestrian survey of the proposed project APE was conducted on August 1, 2019, for historic age built environment resources. During the survey, all buildings and structures within the proposed project APE constructed over 45 years ago were surveyed and recorded. All accessible portions of properties were also intensively surveyed for archaeological resources. The built environment component of the survey entailed documenting each building with notes and photographs, specifically noting character-defining features, spatial relationships, and any observed alterations. The survey area was photographed using a digital camera. All field notes, photographs, and records related to the current study are on file at the Dudek Pasadena, California, office.

4.2 Results

The proposed project APE encompasses approximately 27 acres, northwest of the intersection of W. Palm Drive and Grand Avenue in the City of Glendora. The survey of the proposed project APE was positive for 9 structures associated with Rancho Los Alisos (1908-1953), one building associated with Camp Aventura (1953-1973), three USFS and LACFCD crib dams and one channel (1970), and one above ground structure and the Monrovia No. 1 tunnel which are components of a larger water infrastructure system, the MWD Upper Feeder pipeline (c. 1936-1939). These individual components have been categorized as three (3) resources that have been evaluated for historical significance as part of this project. Result for these resources are summarized below in Table 3. California Department of Parks and Recreation (DPR) Series 523 Forms were prepared for all built environment resources and are provided in Appendix C.

Table 3. Built Environment: Summary of Findings for buildings and structures in the Proposed Project APE

Resource name	Property Type	Year built	Applicable Criteria	CHRS Status Code
Rancho Los Alisos/ Camp Aventura	Structures: Landscape architecture Building: women's property; community center/social hall	c. 1907/ c. 1955	n/a	6Z: Found ineligible for NR, CR or Local designation through survey evaluation.
USFS/LACFCD Crib dams and channel	Structure: dams and water conveyance system (channel)	1970	n/a	6Z: Found ineligible for NR, CR or Local designation through survey evaluation.
Monrovia No. 1 tunnel and hatch (component of MWD Upper Feeder pipeline)	Structure: water conveyance system (tunnel, hatch)	c. 1937	A/1/1	3D: appears eligible for NR as a contributor to a NR eligible district through survey evaluation

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5 Significance Evaluations

The following significance evaluations consider NRHP, CRHR, and City significance criteria and integrity requirements. For a property to be listed in or determined eligible for listing in the NRHP, it must be demonstrated to possess integrity and to meet at least one of four criteria. The CRHR was designed to reflect the same criteria and integrity as those identified for the NRHP. Therefore, the NRHP and CRHR significance evaluations are presented together.

5.1 Rancho Los Alisos/Camp Aventura Buildings and Structures

Rancho Los Alisos/Silent Ranch and Camp Aventura occupy the same address and parcel, and are part of the same chain of ownership. Rancho Los Alisos was purchased in 1907 and developed beginning in 1908. The original house for Rancho Los Alisos was demolished between 1964 and 1968. The modern house of the property was built in 1980 and therefore not eligible for evaluation. Components of the Rancho Los Alisos grounds, such as the rock-lined structures, constructed rock water features, and Black Bass Pool were constructed between 1908 and 1910 and are associated with the original period of development. Camp Aventura was purchased in 1953 and developed between 1953 and 1958. The camp was abandoned in 1971 and most camp buildings were demolished when it was sold in 1974. One feature of Camp Aventura remains: a bathroom/washhouse.

Rancho Los Alisos: Rock-lined road and bench feature

This road feature is located east and southeast of the 950 Silent Ranch Avenue house, and the bench feature is located southeast of the house. The rock-lined road feature is visible in photographs dating to 1910, and was developed between 1908 and 1910. The roadbed itself is unpaved, compacted dirt, but the rock retaining wall runs the length of the "uphill" side of the road and is constructed of concrete, faced with semi-coursed, locally sourced, dark gray stone. The bench is integrated directly into the wall and is also constructed of concrete and stone. Total bench height is roughly 3 feet, level with the retaining wall height and the bench seat height roughly 2 feet above the road surface. The width of the bench appears to be 3'6"-4' with flared sides (Figure 11 and 12).





Figure 11. Left: Rock wall and bench feature (IMG_4041); Right: 1910 photo of rock lined road and bench (Glendora Historical Society)



Figure 12. Another segment of rock-line road (IMG 4003)

Rancho Los Alisos: Black Bass Pool

This pool feature is located northwest of 950 Silent ranch Drive house, long a ridgeline, immediately north of a mature lemon grove. The pool feature is visible in photographs dating to 1910, was featured in a newspaper article from 1911 describing its function, and was developed between 1908 and 1910. The pool feature extends at least ten feet below the rim. The pool rim rises roughly 1'6" above ground level. The pool is circular and has an approximate diameter of 25 feet. In the center of the pool is a burned metal and wood post, capped with a metal hood. The pool is constructed of concrete reinforced with metal mesh, the face of which is badly spalling in some places. Around the rim of the pool is a wood ring, which still contains metal fixtures for the gate feature which has been lost. A metal ladder provides access to the pool interior (Figure 13 and 14). The entire feature has been burned and the pool is partially filled with burned debris.

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Figure 13. Left: concrete pool, looking southeast (IMG_4054); Right: 1910 photo of bass pool (Glendora Historical Society)



Figure 14. Profile view of pool feature wall (IMG 1350)

Rancho Los Alisos: Constructed Rock "cave", wall, steps, and water pool features

The constructed rock cave feature, wall, steps, and pools are located immediately northwest of the black bass pool on the ridge above (northwest of) the house. The rock cave is constructed concrete faced with semi-coursed, locally sourced, dark grayish red stone. Over the arch of the entrance to the "cave" the rocks are arranged in an arch, with a keystone, and two 2-3 foot tall rock walls slope away from it (Figure 15). The opening itself is roughly 2 feet wide by 3 feet tall. Downhill of and connected to the cave by a continuous low rock-faced wall are at least two circular shallow rock-lined concrete pools, which produce a cascade effect downhill towards the black bass pool. Uphill of the cave is a 4-foot high rock faced concrete retaining wall. A set of 10 narrow stairs lead to the uphill area above the wall, and are also constructed of concrete and local dark gray-red stone (Figure 16).



Figure 15. Entrance to rock "cave" showing rock walls sloping away, view to west (IMG_4051)



Figure 16. Stairs and retaining wall immediately right (northwest) of cave (IMG_1377)

Rancho Los Alisos: Constructed Rock Fountain

The constructed rock fountain feature and pools is located northwest of the black bass pool on the ridge above (northwest of) the house, and southeast of the constructed rock cave. The constructed rock fountain is constructed concrete faced with semi-coursed, locally sourced, dark grayish-red stone (Figure 17). There is a smoothed, concrete, tool formed basin below the upper pour spout, forming the drinking fountain, which is roughly 2 feet x 1'6" in diameter and oval shaped. The fountain basin portion is roughly 3 feet above current ground surface and is obscured by brush.

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Figure 17. Left: view of steps looking northeast (IMG_1357); Right: 1910 postcard of fountain pavilion. (Glendora Historical Society)

Rancho Los Alisos: Stone Stairs to Dining Pavilion

Stone stair feature is located due north of the 950 Silent Ranch Drive house. The stair feature is visible in photographs dating to 1910, and was developed between 1908 and 1910. The feature consists of a set of windowing, narrow concrete construction, stone-faced steps, approximately 8 inches high, 8 inches tread, and roughly 2 feet wide, with a rock and concrete border to each side. The stair is banked into a steep hillside just north of the house and extends downhill roughly 15 feet below the driveway north of the house. (Figure 18 and 19).

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Figure 18. Left: view of steps looking northeast (IMG_2394); Right: 1910 postcard of steps leading to earthen pavilion. (Glendora Historical Society)



Figure 19. View of steps looking south (IMG 4006)

Camp Aventura: Restroom Building

Restroom building is a one-story, Mid-Century Modern-styled building constructed in circa 1955-1956, located northeast and immediately downhill from the 950 N. Silent Ranch Drive property and driveway (Figure 20). The building is one-story and a simple rectangle in plan, with the east portion enclosed for a three-stall restroom and privacy screen, and the west portion an open-air wash area. The building rests on a concrete slab foundation. It features a flat roof with wide overhang and wide, angled fascia board with open eaves, and is supported by wood posts and the restroom stall enclosed space. The roof is clad with rolled composition roofing and flashed with

aluminum-finish metal around the edges. The wall construction of the restroom stalls is wood stud clad with both board-and batten on the south and east elevation, and plywood on the west elevation. Along the north elevation there was a board and batten privacy wall in front of the stall doors, however, doors and privacy wall have been removed. Fixtures are still present at this building including an enameled double sink and three metal pit toilet fixtures. Along the rear (south) elevation, against the hillside, 2"x4" boards are nailed to the building exterior and support posts to provide pipe and wood board storage.



Figure 20. Main and west elevations of restroom building, view to southeast (IMG_4010)

Identified Alterations

Dudek attained all available permits pertaining to the proposed project APE through the City of Glendora Building Department's eTRAKit online permitting system on August 14, 2019. The permits date from 1975 through present, which are summarized below:

- 1947: Permit for house and attached garage at 575 W. Palm Drive
- 1950: Permit for adding Bathroom to main house at 19153 E Sierra Madre; issued to Rancho Los Alisos
- 1953: Plumbing permit for adding bathroom; sewer connection and septic tank to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scouts
- 1954: Permit for new roof cover for 13' x 26' reservoir; issued to Girl Scouts
- 1955: Permit for building alterations 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scouts

- 1955: Plumbing permit for 3 toilets, 2 showers, 3 lavatory wash basins, 3 kitchen sinks and 2 gas outlets to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scout Camp (likely for fixtures in restroom building)

- 1955: Building Permit for "Unit Toilet Shelter" Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scout Camp (possibly the restroom building)

- 1955: Building Permit for "Public Sanitary Unit" 8' x 12' Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scout Camp

- 1955: Building Permit for "Unit Wash Shelter" Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scout Camp

- 1955: Permit for new roof to 40' reservoir; issued to Girl Scout Camp

- 1955: Permit for new roof to 80' reservoir; issued to Girl Scout Camp Glendora

- 1955: Permit for Dormitory and Kitchen Building; Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to L.A. Girl Scouts

- 1956: Permit for "Unit Wash Shelter" Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to L.A. Girl Scouts

- 1956: Permit for "Unit Toilet Shelter" Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to L.A. Girl Scouts (possibly the restroom building)

- 1959: Permit for 20' x 30' "Shelter – Orange Camp"; Architect Tryon & Foy, Contractor Wendell Turner to 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 20' x 30' "Shelter – Lemon Camp"; Architect Tryon & Foy, Contractor Wendell Turner to 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 20' x 30' "Shelter – Lime Camp"; Architect Tryon & Foy, Contractor Wendell Turner for 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 20' x 42'4" "Handicraft House"; Architect Tryon & Foy, Contractor Wendell Turner for 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 18'6"' x 42'4" "Latrine"; Architect Tryon & Foy, Contractor Wendell Turner for 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 20' x 48'4" "Bath House" with 4 sinks, 2 showers, 10 toilet stalls, water heater and gas hookup; Architect Tryon & Foy, Contractor Wendell Turner for7755 N Grand Avenue; issued to L.A. Council Girl Scouts

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- 1959: Permit for Public Swim Pool, Standard Plan #16472; Architect W. Taggert, Contractor Paddock Pools, for 7755 N Grand Avenue; issued to Girl Scouts of USA
- 1963: Permit for 1 story, single-family 1142 s.f. "Caretakers House"; Architect Tryon & Foy, Contractor Colletta and Edgely for 7755 N Grand Avenue; issued to Girl Scouts of USA
- 1963: Permit for 1 story, 3000s.f. "Dining Hall and Kitchen"; Architect Tryon & Foy, for 7755 N Grand Avenue; issued to Girl Scouts of USA
- 1973: Permit to demolish 5 "camping structures"; contractor U.S. Navy Seabees, for 905 N. Grand Street, Glendora; issued to Angeles Girl Scout Council
- 1974: Permit to demolish "2 buildings, one bathhouse and misc. structures"; issued to George Deukmejian
- 1975: Permit for new 6200 sf house at 950 N Silent Ranch Drive; Architect: David Hyen Associates; issued to George Deukmejian
- 1980: Demolish pump house at 553 W Palm Drive; issued to George Deukmejian
- 1980: Grading at 950 N Silent Ranch Drive, 553 W Palm Drive, contractor G. Bart Striker; issued to George Deukmejian
- 1999: New 4-car garage at 950 N Silent Ranch Drive, issued to Pam and Time Morales
- 1999: Permit to demolish "old Girl Scout House, approx. 600 s.f." at 935/950 N. Silent Ranch Drive; issued to Deukmejian Enterprises.

In addition to permits, observed alterations include the demolition of the original Rancho Los Alisos house, circa 1968-1974 and the construction of the crib dams and drainage channel on the property, which would not have received a building permit, for 1969-1970. Other alterations include the piercing of a section of stone-faced retaining wall along the lower road, north of the 950 Silent Ranch Drive house for an unpaved drainage channel for the crib dams.

NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The Rancho Los Alisos/Camp Aventura property has two phases: Rancho Los Alisos extending from 1907 through 1953 and Camp Aventura extending from 1953 through 1974. The Rancho Los Alisos phase is representative of the retirement years of wealthy lawyer, real estate investor and former judge Charles K. Silent. Silent's property, though private, was opened as a public park for citizens of Glendora from 1907 to Silent's death in 1918, then for years afterwards operated by the Silent Estate. Major components of this park and private property have been destroyed including most exotic plantings, the original orchards, and the original Greene & Greene designed house, however some key features of the landscaping remain including rock lined roads and paths, rock-lined water features, and a fish pool. The park likely made an impression on local Glendora visitors, however, the private home and garden does not appear to be host to a major historical event or influenced the growth of Glendora in any way.

Camp Aventura was one of nearly 40 Girl Scouts of America organizations camps established in Southern California between 1930 and 1970. Only one remaining feature of the original camp, established in 1953 remains: a 3-stall restroom and washroom building. The other buildings were demolished by the Navy Seabees and George Deukmeijian between 1973 and 1974. As with Rancho Los Alisos, the camp may have made an impression on its occasional users, but did not particularly influence the growth of Glendora, or host any significant historical events. Despite local popularity as a public park and later as a Girl Scout campground, no significant historical associations were found in the course of research. Due to a lack of identified significant associations with events important to history, the Rancho Los Alisos/Camp Aventura property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research identified a single important person, Judge Charles K. Silent (1842-1918), associated with the rancho Los Alisos/ Camp Avenura property. Silent was an influential lawyer, real estate investor, and former judge at a formative period in the history of Los Angeles. He was instrumental in the formation of Redondo Beach and Inglewood via his company the Centinela-Inglewood Land Company (1887). Silent also created the first gated community In Los Angeles (Chester Place), and was influential in his role as City of Los Angeles Parks Commissioner. Despite this association, Silent's relationship with rancho Los Alisos/Camp Aventura is after the influential period of his life, after he had retired from his law practice and stopped working as Parks Commissioner. Rancho Los Alisos was not associated with the period of historical influence in Silent's life; therefore, the Rancho Los Alisos/Camp Aventura property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The Rancho Los Alisos property was initially built between 1907 and 1910, in a mixed Rustic style and Spanish Colonial Revival style romantically associated with old California ranchos. The grounds around the house were landscaped, and contained horticultural gardens, walks, retaining walls, stone benches, fountains, pools, fish-stocked ponds, orchards and experimental orchards, during the time Charles Silent was alive. The original house was probably designed by master architects Greene & Greene, however this could not be determined as the house and all associated outbuildings were demolished in the late 1960s. The only remaining features of the original 1907-1910 property are the rock-lined landscaping features, including a pool, fountain, rock retaining walls, rock stairs and rock-lined paths throughout the property. These features have been allowed to deteriorate or were partially demolished as more modern portions of the property were added, such as the partial demolition of a rock retaining wall to allow a channel outlet for the West crib dam (1970) structure. These concrete and rock structures have also been damaged or altered by fires and flood and subsequent repairs. While interesting in construction, the majority of rock structures, original landscaping, and the original buildings on the property have been lost and the remaining structures lack the integrity to convey significance under this criteria. They cannot be positively identified as the work of a master, as the Greene & Greene house plans from 1907 do not include landscaping or structures aside from the main house. The structures have deteriorated and no longer possess high artistic value, and are not part of a district or entity whose components lack individual distinction.

The later Camp Aventura building has a similar issue. The only remaining building of the original 12 buildings and camp grounds is one Mid-Century Modern-style restroom building, badly deteriorated since its abandonment in the 1970s. Constructed in 1955-1956, the restroom building retains few character-defining features of the style including thin, upright supports and a flat roof with angled fascia board detailing. The original architect was

narrowed down to either Paul R. Hunter or Tryon & Foy, neither of which can be considered master architects. The building has no artistic value and while it was originally a component of a larger Girl Scout-related campground, it is the only remaining features and as such does not adequately convey this distinctive association. Therefore, the Rancho Los Alisos/Camp Aventura property does not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The Rancho Los Alisos/Camp Aventura property is not likely to yield information important to understanding prehistory or history. Therefore, the Rancho Los Alisos/Camp Aventura property does not appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

As stated above in Criteria A/1 and C/3, the remaining stone landscaping structures (1907-1910) and remaining restroom building (1955-1956) do not reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage of Glendora. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research identified an association with influential lawyer, real estate developer and former judge Charles K. Silent, who is likely a significant person at the local and possibly state level. However, the Rancho Los Alisos property and Camp Aventura property do not retain an association with the influential period of Silent's life, and are indicative only of his retirement and his posthumous estate transactions. No important person was identified in association with the Girl Scout camp. Therefore, Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

Rancho Los Alisos/Camp Aventura no longer embody the characteristics of their original styles, periods, or methods of construction due to integrity issues and overall loss of the majority of concurrent features (i.e. Rancho Los Alisos has lost the original house, all associated outbuildings, and all original landscaping; Camp Aventura has lost the original 11 other campground buildings and major activity surfaces). Therefore, Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research failed to resolve whether the Rancho Los Alisos stone structures were designed by architects Greene & Greene as landscaping plans for the property have not been retained. Archival research also failed to identify if the Camp Aventura restroom is associated with architect Paul R. Hunter or Tryon & Foy, nor is the building definitively visibly the work of either architect. In both cases, the remaining Rancho Los Alisos/Camp Aventura structures and buildings are not representative of the notable work of a builder, designer, or architect. Therefore,

Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

The Rancho Los Alisos/Camp Aventura buildings and structures retain only integrity of location, as they remain in their original locations. These features do not retain integrity of setting as the setting of both Rancho Los Alisos and Camp Aventura have been lost in subsequent fires, residential subdivision development, and flood control structure development. Enough of the Rancho Los Alisos or Camp Aventura settings have been altered, removed, or redeveloped such that integrity of setting is no longer intact. These features also do not retain integrity of design, materials or workmanship as all stone and concrete structures are in advanced states of decay, sometimes with the entire stone facing section missing. The Camp Aventura building has had several material portions removed so discerning original design intent, materials or workmanship was not possible. All features do not retain integrity of feeling as they do not convey the feeling of a mid-century Girl Scout camp with both accessible and remote camp sites nor convey the feeling of an early twentieth century several hundred-acre estate and intermittent park. Finally, no features retain integrity of association as all association with the Silent Estate and with the Los Angeles Girl Scout Council has been lost by the encroaching residential subdivision development.

5.2 USFS and LACFCD concrete crib dams and channel structures

West crib dam (1970)

The West crib dam is a concrete crib check dam, built in 1970 located in the west-most canyon of the property, northwest of the 950 Silent Ranch Drive house (Figure 21). The dam was one of forty such concrete crib check dams constructed after a fire and flooding event in 1969. The dam is constructed of reinforced concrete beams laid in crib bays with no mortar and metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. The dam portion is a squared U shape, extending 75 feet wide (11 visible crib widths) by 6 feet thick, and rises near 20 feet at its height and 15 feet in the middle. A concrete slurry mix called gunnite was applied to a central crib to form a spillway/pour-over location. The lower concrete sill below the dam rises roughly 2-3 feet above the ground surface. Between the dam and sill the hillside to the north and south are both covered with a gunnite, which was intended to prevent erosion of the hillside between the dam and sill, and erosion around the dam footings. One concrete beam on the upper right side of the dam bears the incised mark of “USFS 1970 W 12” and a metal plaque from the LACFCD. A pair of metal bars are attached to right side of the dam face, to act as ladder with the crib beams as rungs.

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Figure 21. West crib dam, with dam in background, concrete sill in foreground, looking northwest (IMG_1264)

Center crib dam (1970)

The Center crib dam is a concrete crib check dam, built in 1970 located in the second-from-west canyon of the property, northeast of the 950 Silent Ranch Drive house (Figure 22). The dam was one of forty such concrete crib check dams constructed after a fire and flooding event in 1969. The dam is constructed of reinforced concrete beams laid in crib bays with no mortar and metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. The dam portion is a squared U shape, extending 15 feet wide (4 visible crib widths) by 6 feet thick, and rises approximately 12 feet at its height and 8 feet in the middle. Gunnite was applied to the central crib from ground surface to top of dam to form a spillway. No lower sill was visible, through thick vegetation growth. The hillside to the east and west of the area below the dam are covered with a gunnite, rising from visible ground surface to a few feet above the lip of the dam. One concrete beam on the upper right side of the dam bears a metal plaque from the LACFCD. A pair of metal bars are attached to right side of the dam face, to act as ladder with the crib beams as rungs.

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Figure 22. Center crib dam, looking north (IMG_1332)

East crib dam and channel (1970)

The East crib dam is a concrete crib check dam, built in 1970 located in the east-most canyon of the property, northeast of the 950 Silent Ranch Drive house (Figure 23). The dam was one of forty such concrete crib check dams constructed after a fire and flooding event in 1969. The dam is constructed of reinforced concrete beams laid in crib bays with metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. The dam portion is a squared U shape, extending approximately 85 feet wide (14 visible crib widths) by 6 feet thick, and rises approximately 24 feet at its height and 20 feet in the middle. Gunnite was applied to a central crib to form a spillway/pour-over location. The lower concrete sill below the dam rises roughly 3 feet above the channel surface. Between the dam and sill, as well as south of the sill, the hillside to the east and west are both covered with gunnite to stabilize the hillside. On the west hillside gunnite slurry wall, however an oak tree is actively growing out a large crack and concavity in the slurry wall, showing a wall thickness of roughly 2 inches. One concrete beam on the upper right side of the dam bears the incised mark of "USFS 1970 E 4" and a metal plaque from the LACFCD. A pair of metal bars are attached to right side of the dam face, to act as ladder with the crib beams as rungs.

South of the crib dam, a gunnite-lined channel meanders south towards a culvert along Palm Drive. The channel width varies along the length with a shallow smooth-bottomed basin shape approximately 30 feet wide immediately below the dam. 200 feet south of the dam, the channel is a steep V-shape, 16 feet wide and 5 feet deep. 550 feet south of the dam, the channel is a steep V-shape, 10 feet wide and 5 feet deep (Figure 24). 900 feet south of the dam, a dirt road crosses the channel and the channel walls slope to accommodate the road; here the channel is 0 feet deep and 12 feet wide. At the culvert along Palm Drive, the channel is 8 feet wide and 6 feet deep.



Figure 23. East crib dam, looking north (IMG_1320)



Figure 24. Concrete lined channel, 550 feet south of dam, looking north (IMG_4019)

Identified Alterations

No permits were available from the Los Angeles County Department of Public Works for the concrete crib dams or channel. No observed alterations were noted in the course of survey. The crib dams are in fair condition, but heavily overgrown by vegetation and the debris cone behind each dam has completely filled and level to the top of each dam.

NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The three crib dams and channel were constructed in 1970 in response to a 1968 fire and subsequent flooding and mudslides in 1969, in order to prevent further damage to the residential subdivisions of City of Glendora, which had been slowly reaching further and further north into the San Gabriel Mountain foothills. Though the 1969 fire was a substantial fire and brought about positive civil infrastructure changes, the fire and flood are exemplary of many in the history of Glendora and its damages were not particularly exceptional or historic in their proportions. Fire and flood/mudslide patterns were typical to this area and most down-stream communities south the canyon outlets of San Gabriel Mountains. The crib dams were constructed as part of a larger joint USFS and LACFCD infrastructure program which created the larger Hook Canyon debris dam and channel, as well as 40 other concrete crib dams. As such, the dams on the proposed project APE do not distinguish themselves as particularly important structures that made a significant contribution to the broad patterns of local Glendora history. Therefore, the three crib dams and channel do not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the USFS/LACFCD crib dams do not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The three dams and channel were constructed in 1970 as a joint project between USFS, LACFCD, with financial aid from the Army Corps of Engineers and the City of Glendora. They are typically constructed of concrete beams arranged in cribs and built to various heights. Crib dams were not a new, novel, or improved engineering method for dealing with debris floods. The technique of using crib dams to control land erosion and heavy sediment flow originated in Europe and was used in the San Gabriel Mountains by the USFS as early as 1915. Because the dams are meant to slowly backfill, the multiple historical flood events in Los Angeles (1916, 1938) eventually covered and made obsolete earlier crib dams. Multiple crib dam building periods were identified by the USFS as important projects: a concrete arch check dam in Arroyo Seco Canyon (1942); the Coon Canyon Stabilization Project (1950); and the Los Angeles River Watershed Project (1954-1974), however this last did not provide crib dams in Glendora. The three crib dams in the study area are typical in their construction and offer no insight into engineering techniques or identified major projects. Archival research did not indicate an association between the dams and channel and a master engineer. The dams are of utilitarian construction and do not possess artistic value. While

the dams and channel are part of an entity of dams built after the 1969 mudslides and flood, they are neither significant or distinguishable from earlier period crib dams constructed for similar regions throughout the San Gabriel National Forest. Therefore, the crib dams and channel not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The crib dams and channel are not likely to yield information important to understanding prehistory or history. Therefore, the crib dams and channel donot appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

The three crib dams and the channel are utilitarian in construction and constructed by the USFS and LACFCD in 1970, in response to a flood and mudslide event in 1969. However, in the larger Glendora-area history this flood and mudslide event was one of many in Glendora's history, and resulted in the construction of 40 similar structures. These structures neither exemplify nor reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage of Glendora. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research failed to identify any associations with significant persons at the local, state, or national level. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

The three crib dams are 1970s-era concrete crib dams, and typical of the method of construction of crib dams by USFS. They are utilitarian in construction and do not embody a particular style, type, or period. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research failed to identify any associations with a specific architect, designer, or engineer. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

All three dams and the channel maintain integrity of location and setting as neither have changed since their construction in 1970. The dams have infilled, however there appear to be no notable alterations, repairs, demolitions, or additions, and therefore the three dams and channel maintain integrity of design, materials and workmanship. The dams and channel still evoke the feeling of utilitarian flood control structures and therefore

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retain integrity of feeling. Though the dams retain signage by USFS and LACFCD, they appear to not be actively maintained and do not retain integrity of association.

5.3 MWD Upper Feeder Pipeline segment (Monrovia No. 1) and Above-ground Structures

The Monrovia No. 1 tunnel and hatch structure are components of a larger water conveyance system called the Upper Feeder pipeline, completed in 1939, owned and operated by the Metropolitan Water District of Southern California (MWD), and operating today as an active utility. The Upper Feeder was designed and constructed concurrently with the Colorado River Aqueduct as part of the distribution system, which furnished water to participating cities for distribution b local municipal water departments.

MWD Upper Feeder Pipeline segment: Monrovia No. 1 tunnel (1937)

The MWD Upper Feeder Pipeline segment: Monrovia No. 1 tunnel is a subterranean structure that transects the proposed project APE from a point due east of the 950 Silent Ranch Drive main house building to a point northeast of the 950 Silent Ranch Drive main house building, in the eastern section of the proposed project APE. No portion of the Monrovia No. 1 tunnel was accessible for survey, due to it being underground. Historical MWD source document that entirety of the 41.6 miles from Lake Matthews to the east portal of Monrovia No. 1 tunnel was constructed of welded steel and precast concrete pipe. The Monrovia No. 1 tunnel extended 7,868 feet from portal to portal, and was a concrete lined pressure tunnel in rock substrate, and was 10 feet in diameter, with light supper of steel ribs and timber lagging occasionally placed as-needed (Weymouth 1939: 266-269).

Concrete access point hatch 2256-93 (no date)

The concrete access hatch structure and above ground structure is part of the MWD Upper Feeder Pipeline located northeast of the 950 Silent Ranch Drive main house building, at the outlet of a wide gully. The hatch structure consists of a 6-foot diameter, circular concrete access point that rises 1-2 feet above the ground surface, with a rectangular asbestos lid with a crosshatch pattern (Figure 25). Date of construction for the hatch is unknown. The original subsurface section of the MWD Upper Feeder was constructed between 1936 and 1939; however, the asbestos lid does not appear to be of 1930s construction. The hatch structure is labeled with stenciled paint on the top and side with “2256-93.”

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Figure 25. MWD hatch, looking northwest (IMG_1339)

Identified Alterations

No permits were available from the Metropolitan Water District of the City of Glendora for the infrastructure related to the Upper Feeder. No observed alterations were noted in the course of survey.

NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The section of Upper Feeder pipeline within the study area is subterranean Monrovia No. 1 tunnel with only one visible, above-ground structure: the concrete access hatch. Monrovia No. 1 tunnel is an underground pipeline and critical segment of the MWD Upper Feeder pipeline, the first multi-city municipal water distribution system of its kind in the region. The entire Upper Feeder pipeline system was designed in 1931, contract for the Monrovia No. 1 tunnel was awarded to West Construction Company in 1934, the right-of-way easement was acquired in 1935 through the Silent Ranch Estate, and the Monrovia No. 1 tunnel was completed in 1937. Water first flowed through the distribution system in 1941. No date of construction could be ascertained for this hatch; however, it is assumed that the construction date is concurrent with the Monrovia No. 1 tunnel: 1937. Both Monrovia No.1 tunnel and the access hatch are components of the larger Upper Feeder pipeline and distribution system for the Colorado River Aqueduct. The entire distribution the Upper Feeder pipeline belongs to extends 150-miles and serves participating cities in the greater metropolitan Los Angeles area, the Inland Empire, San Diego County, and other Southern California areas. The Upper Feeder pipeline is the first segment of the distribution system for the MWD Colorado River Aqueduct, extending 60 miles from the Colorado River Aqueduct's western terminus at Lake Matthews to the San Rafael tunnel between Pasadena and Glendale. The construction of the distribution system and Upper Feeder pipeline made a significant contribution to the board pattern of history as part of the transportation and distribution

of Colorado River water, an enabling force for the intensive economic and residential development of Southern California.

The MWD Upper Feeder was instrumental to the transportation and distribution of Colorado River water to participating cities in Southern California. After Colorado River traversed the Mojave Desert from Nevada to Riverside in the Colorado River Aqueduct, the Upper Feeder pipeline was the practical means by which the participating cities accessed Colorado River water. The need for Colorado River water was dire in the 1920s, and the 2,200 square miles of coastal plain surrounding the City of Los Angeles was ripe for residential, commercial, industrial, and agricultural development. However, prior to receiving Colorado River water, municipalities in the arid region relied on outdated and overtaxed irrigation systems, artesian wells and groundwater, or private water companies to furnish water, or face annexation by City of Los Angeles in order to access the Los Angeles Department of Water and Power's Owens River water sources. Most smaller municipalities in the region simply lacked the resources to import water like Los Angeles on their own. After the Colorado River Compact enabled Arizona, California Colorado, Nevada, New Mexico, Utah and Wyoming to divert portions of Colorado River water in 1923, the Metropolitan Water District of Southern California (MWD) was established in 1928, as a result of the Metropolitan Water Act. The Metropolitan Water Act outlined how to the Colorado River Aqueduct and distribution system would be located and constructed. Construction of both distribution system and Colorado River Aqueduct began in 1931. 150 miles of distribution system were completed in 1939 and 242 miles of Colorado River Aqueduct were completed in 1941.

The Upper Feeder was a segment of the distribution system of the MWD Colorado River Aqueduct, and the means by which the participating cities in the greater metropolitan Los Angeles area, the Inland Empire, San Diego County, and other Southern California areas got access to Colorado River water after the completion of the Hoover Dam. The MWD Upper Feeder pipeline, as well as the rest of the distribution system and Colorado River Aqueduct, were major construction programs affording thousands of jobs to Californians during the Great Depression. After both projects were completed, the increased water supply and made it possible for Southern California to enjoy widespread economic development and to be settled so densely.

For linear, water conveyanceresources to be found eligible under Criterion A/1, it must be a key piece of the overall system. In this case, the Monrovia No. 1 tunnel is a key portion of the Upper Feeder pipeline, facilitating its portage from the south side of the San Gabriel foothills, to the San Gabriel River canyon. Further, the Monrovia No. 1 tunnel and hatch maintain their original alignment and location, which is critical to understanding their importance and significance as a historically significant piece of water infrastructure. The Monrovia No. 1 tunnel and hatch also maintain its subterranean setting, situated in the original undeveloped suburban foothill area of Glendora. Finally the Monrovia No. 1 tunnel and hatch continue to function as a water conveyance system operated by Metropolitan Water District of Southern California (MWD). While setting is less important for an underground feature, maintaining the original alignment, association with MWD, and its continued use as a water conveyance structure are important are the character-defining features of the Monrovia No. 1 tunnel and hatch

As such, the Monrovia No. 1 tunnel segment transecting the proposed project APE and the above-ground access hatch, are r**ecommended eligible** for NRHP/CRHR Criterion A/1, as a component of the larger MWD Upper Feeder pipeline for the period 1931-1941, for transportation and distribution of Colorado River water to participating municipalities in Southern California, which was an enabling force for the intensive economic and residential development of Southern California.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with specific significant persons. Due to a lack of identified significant associations with important persons in history, the MWD Upper Feeder and all associated components do not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The entire Upper Feeder pipeline system was designed in 1931, contract for the Monrovia No. 1 tunnel was awarded to West Construction Company in 1934, the right-of-way easement was acquired in 1935 through the Silent Ranch Estate, and the Monrovia No. 1 tunnel was completed in 1937. Water first flowed through the distribution system in 1941. No date of construction could be ascertained for this hatch; however, it is assumed that the construction date is concurrent with the Monrovia No. 1 tunnel: 1937. The MWD Upper Feeder pipeline was designed by Metropolitan Water District engineer R.B. Diemer and multiple contractors were used to complete the above and below ground sections. Monrovia No. 1 tunnel was completed by contractor West Construction Company, and the majority of other concrete pipe sections completed by contractor J.F. Shea Company Inc. Like the Colorado River Aqueduct the scale and importance of the distribution system, which totaled over 150 miles and served dozens of cities across Southern California. The Upper Feeder segment between Lake Matthews and Morris Reservoir is 30+ miles long and passes through the proposed project APE in a series of subterranean tunnels. No portion of the tunnels are visible as above ground features except for a single concrete hatch. As such, this report cannot offer comment on the type or method of construction. Adequate records of the construction of the section through the proposed project APE are well recorded; however, construction techniques could not be confirmed as the line itself was not visible during the field visit.

Despite the Upper Feeder pipeline's historical importance and monumental scale, nothing about the original design for the Monrovia No. 1 tunnel was particularly identifiable to a specific historical period or method of construction. Concrete pipelines and tunnel construction are ubiquitous water infrastructure components and the Monrovia No. 1 tunnel and MWD Upper Feeder pipeline as a whole do not distinguish themselves other than by its size. The Upper Feeder pipeline as a whole is associated with MWD engineer R.B. Diemer, who despite his later role as chief engineer of MWD for nine years, does not rise to the level of master engineer. The Monrovia No. 1 tunnel is utilitarian infrastructure and does not possess high artistic value. Finally, the Monrovia No. 1 tunnel and the concrete hatch are components of a significant and distinguishable work of twentieth century water engineering and a major infrastructure development project, however they are subsurface components and not visible. Therefore, they are not representative of the pipeline as a whole. Therefore, the MWD Upper Feeder subsurface tunnel segment and associated infrastructure, including the hatch, do not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The Upper Feeder pipeline is not likely to yield information important to understanding prehistory or history. Therefore, Upper Feeder pipeline does not appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

The Monrovia No. 1 tunnel and hatch, which traverse the proposed project APE, exemplifies special elements of City of Glendora's history. The addition of this water to the city existing water system allowed for the continuation of and assurance of water for irrigated crops in Glendora, allowing the Glendora citrus industry to persist until the mid-1960s, when residential and economic development pressure overrode the citrus industry's land requirements. Therefore, the Monrovia No. 1 tunnel and hatch are **recommended eligible** as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research failed to identify any associations with significant persons at the local, state, or national level. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

The Monrovia No. 1 tunnel and hatch are not particularly outstanding or innovative examples of 1930s-era monumental-scale water infrastructure. All components of the Upper Feeder tunnel in the APE are underground and Dudek was not able to verify the condition, construction, or alterations to the pipeline. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research identified that the MWD Upper Feeder's engineer is associated with MWD engineer R.B. Diemer, who despite his later role as chief engineer of MWD for nine years, does not rise to the level of master engineer. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

Integrity is the ability of a property to convey its significance. Under NRHP Criterion A and CRHR Criterion 1, a significant water conveyance resource must retain the following physical attributes as they relate to the integrity of location, setting, and association:

- Location: original alignment
- Setting: remains subterranean
- Association: continues to function as a water conveyance system

Dudek recommends that the pipeline retains integrity of location as it maintains its original 1930s alignment, as confirmed through map research. The Monrovia No. 1 tunnel segment also retains integrity of its setting, as the pipe is still under the ground surface. Because the pipeline is a subterranean feature, integrity of the aboveground setting is not necessary for the pipeline to convey its significance. The pipeline retains integrity of association with the MWD as the pipeline retains its original ownership and function. Integrity of design, materials, workmanship and feeling are not required for a water conveyance resource to convey its significance under Criterion A/1. Therefore Monrovia No. 1 tunnel and hatch retain the requisite aspects of integrity to convey their significance under Criterion A/1.

5.4 Summary of Evaluation Findings

Within the APE, one resource is recommended eligible for the NRHP, CRHR and City of Glendora Historic Resource of Landmark designation: the Monrovia No. 1 tunnel and hatch. The Monrovia No. 1 tunnel and hatch are recommended eligible under Criterion A/1/1 as a component of the MWD Upper Feeder pipeline, for the period 1931-1941 for representing a critical component of a larger water infrastructure, the MWD Upper Feeder pipeline. The MWD Upper Feeder pipeline was instrumental to addressing the water needs of the greater metropolitan area of Los Angeles, and was an enabling force for the intensive economic and residential development of Southern California. The Monrovia No. 1 tunnel and hatch was evaluated in accordance with Section 15064.5(a) (2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Resources Code, and it appears to be a historical resource for the purposes of CEQA and a historical property for the purposes of Section 106 of the NHPA (36 CFR Part 800). Dudek recommends this resource be assigned a California Historical Resource Status Code of 3D (appears eligible for NR as a contributor to a NR eligible district through survey evaluation).

The remaining resources located at 950 North Silent Ranch Drive (APN: 8684-045-004): the Rancho Los Alisos Structures, Camp Aventura building, and joint Forest Service and County Flood Control District dams and channel do not appear not eligible for the NRHP, CRHR, or as a City of Glendora historic resource or landmark due to a lack of significant historical associations and architectural merit. Therefore, the property is not considered an historical resource for the purposes of CEQA or an historic property for the purposes of Section 106 of the NHPA. No management recommendations are required for cultural resources. These resources have been assigned a California Historical Resource Status Code of 6Z (found ineligible for the NRHP, CRHR, or local designation through survey evaluation).

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6 Findings and Conclusions

6.1 Summary of Findings

One resource within the proposed project APE was recommended eligible for the NRHP, CRHR, and City of Glendora Historic Resource or Landmark Designation and are considered an historic property under Section 106 of the NHPA and an historical resource under CEQA: the Monrovia No. 1 tunnel and hatch. Dudek recommends the Monrovia No. 1 tunnel and hatch are eligible under Criterion A/1/1 for the period 1931-1941 for representing a critical component of a larger water infrastructure, the MWD Upper Feeder pipeline. The MWD Upper Feeder pipeline was instrumental to addressing the water needs of the greater metropolitan area of Los Angeles, and was an enabling force for the intensive economic and residential development of Southern California.

6.2 Consideration of Adverse Effects to Historic Properties

Under Section 106 of the NHPA, an adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative (36 CFR Part 800.5(1)).

In July 2019, Metropolitan Water District of Southern California (MWD) sent Giron Engineers, Inc. a letter commenting on plans submitted for the proposed project and requiring the project proponents to: make accommodations for MWD vehicles and build an MWD-accessible right-of-way in the proposed project APE; provide protections such as bollards or gates for above ground MWD structures such as manholes or hatches; provide MWD with detailed plans for any protection provisions built for MWD resources as a result of the project; provide plans for landscaping or other improvements within the MWD proposed right-of-way; provide details of any non-potable utilities for MWD review; and to include provisions for loads imposed on the pipeline. The letter further cautions that any facility constructed within the MWD easement is subject to the paramount right of MWD to use the easement for the purpose it was required. MWD reserved the right to remove facilities from the easement and to block access to their right-of-way at any time (MWD 2019). This letter provides for the protection of the structure of the Monrovia No. 1 tunnel segment of the MWD Upper Feeder pipeline which transects the proposed project APE. If the recommendations and requirements of MWD are followed as part of the proposed project, Dudek does not anticipate any potential effect on the Monrovia No. 1 tunnel segment of the MWD Upper Feeder pipeline. This letter has been included in Appendix D.

As stated above the Monrovia No. 1 tunnel and hatch appears eligible for listing in the NRHP Criterion A and CRHR Criterion 1. The character-defining features associated with the Monrovia No. 1 tunnel and hatch are its location, original alignment, association with MWD, and continued function as a water conveyance system. The proposed project would develop a residential subdivision, and construction includes grading, fill deposits, utilities trenching, road construction, driveway construction, and construction of residential buildings over the MWD pipeline easement. Given the above summarized steps Giron Environmental, Inc. and MWD will take to protect the MWD Upper Feeder pipeline in the proposed project APE, no intrusion, modification, or destruction or any aspect of this water system are proposed or

expected as part of this project. The historic property will still be able to convey is significance following proposed project implementation. As a result the recommended finding is **No Adverse Effect** to the Monrovia No. 1 tunnel and hatch. For a detailed assessment of potential adverse effects please refer to Table 4.

Table 4. Application of Criteria of Adverse Effects for the Monrovia No. 1 tunnel and hatch within the Proposed Project APE

Examples of adverse effects on historic properties include, but are not limited to:	Assessment of potential adverse effects
(i) Physical destruction of or damage to all or part of the property;	Proposed construction will not result in the physical destruction of or damage to all or part of the Monrovia No. 1 tunnel and hatch. As the MWD Upper Feeder pipeline is a public utility and still owned and operated by MWD, protection measures for the pipeline are being undertaken by MWD and the project proponent as part of the project. MWD has recommended that above-ground features be avoided and protected from vehicle damage by bollards and gates. Additionally MWD requires that when ground cover over the pipeline is between 3 and 4 feet of cover, that equipment must be restricted so the load on the pipe meets AASHTO H-20 loading requirements.
(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;	Proposed construction will not result in the alteration of the Monrovia No. 1 tunnel and hatch inconsistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines
(iii) Removal of the property from its historic location;	Proposed construction will not result in the removal of the Monrovia No. 1 tunnel and hatch from their historic location.
(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;	The proposed project will change the setting of the Monrovia No. 1 tunnel and hatch; however, as discussed above in Section 5.3 Integrity, because the pipeline is a subterranean feature, integrity of the aboveground setting is not necessary for the pipeline to convey its significance.
(v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;	The proposed project will introduce visual elements: 12 single-family residential properties to the southern section of the Monrovia No. 1 tunnel and the area surrounding the access hatch. However, as discussed above in Section 5.3 Integrity, because the pipeline is a subterranean feature, integrity of the aboveground setting is not necessary for the pipeline to convey its significance. Therefore, the proposed project will not diminish the integrity of the property's significant historic features.
(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and	Proposed construction will not result in the neglect or deterioration of the Monrovia No. 1 tunnel and hatch. As the MWD Upper Feeder pipeline is a public utility and still owned and operated by MWD, protection measures for the pipeline are being undertaken by MWD and the project proponent as part of the project. MWD has recommended that above-ground features be avoided and protected from vehicle damage by bollards and gates. Additionally MWD requires that when ground cover over the pipeline is between 3 and 4 feet of cover, that equipment must be restricted so the load on the pipe meets AASHTO H-20 loading requirements.

Table 4. Application of Criteria of Adverse Effects for the Monrovia No. 1 tunnel and hatch within the Proposed Project APE

Examples of adverse effects on historic properties include, but are not limited to:	Assessment of potential adverse effects
Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.	Proposed construction will not result in the transfer, lease, or sale of the Monrovia No. 1 tunnel and hatch out of Metropolitan Water District of Southern California ownership or control.

6.3 Management Recommendations

All work for this inventory and evaluation report has been conducted as required under the Section 106 regulations (36 CFR Part 800 et seq.) and in accordance with Section 15064.5(a) (2)-(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the California Resources Code. The overall finding for this study is that no historic properties listed in, or eligible for inclusion in the NRHP, CRHR, or local Glendora Historic Resource or Landmark list will be impacted by the proposed project.

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Appendix A

Preparer's Qualifications

Kate Kaiser, MSHP

Architectural Historian

Kate Kaiser is an architectural historian with 7 years' professional experience as a cultural resource manager specializing in California Environmental Quality Act (CEQA) compliance, National Historic Preservation Act Section 106 compliance, reconnaissance and intensive level surveys, archival research, cultural landscapes, and GIS. Ms. Kaiser meets the Secretary of the Interior's Professional Qualification Standards for both architectural history and archaeology.

In addition, Ms. Kaiser has worked as an archaeological technician for the National Park Service and USDA Forest Service. She has worked with federal, private, and local organizations to manage multidisciplinary transportation projects, park-wide inventories, and federal land management projects.



Kate Kaiser

Education

University of Oregon
MS, Historic Preservation, 2017
Boston University
BA, Archaeology, 2009

Professional Affiliations

Association for Preservation Technology – Southwest
California Preservation Foundation
Vernacular Architecture Forum

Project Experience

Development

14545 Lanark Street Project, Panorama City, City of Los Angeles, California. Kaiser served as architectural historian and co-author of the cultural resources technical report for the 14545 Lanark Street Project. The report included conducting a CHRIS record search, reviewing permits held by the City of Angeles, archival research, historical context development, developing building and structure descriptions, and historical significance evaluations for the former Los Angeles County Social Services office in Panorama City. The project proposed to demolish the Social Services office and redevelop the property into 120 studios, one-, two-, and three-bedroom apartments serving low-income individuals and families.

Cultural Resources Technical Report for the City of Irwindale Speculative Concrete Tilt-Up Building Project. Irwindale, Los Angeles County, California. Kaiser served as architectural historian and author of the cultural resources technical report for the City of Irwindale Speculative Concrete Tilt-Up Building Project. The report included conducting a CHRIS record search, reviewing permits held by the City of Irwindale, archival research, historical context development, developing building and structure descriptions, and historical significance evaluations for two buildings and thirteen structures at a hollow-core concrete panel manufacturer in southeast Irwindale. The project proposed to demolish all buildings and structures in the project site and construct a 528 710 s.f., tilt-up concrete warehouse on the parcel. All four buildings were determined ineligible for listing in the National Register of Historic Places (NRHP), the California Register of Historical Resources (CRHR), or as a City of Irwindale Historic Resource.

Historical Resource Assessment for 1230 North Ogden Drive, City of West Hollywood, Los Angeles County, California. Served as architectural historian and author of the historic resource assessment for four residential buildings on the 1230 North Ogden Drive parcel in West Hollywood. Report included conducting a record search,

coordinating with the City of West Hollywood for building permits, developing the building description, archival research, historical context development, historical significance evaluations, and California DPR form production for the four buildings. The historical resource assessment report fulfills City requirements during the development permit application process. All four buildings were determined ineligible for listing in the NRHP or CRHR.

Education

Campus-wide Historic Context Statement for California State University Long Beach, City of Long Beach, Los Angeles County, California. Served as architectural historian and co-author of the historic context statement report analyzing the effect of master architect Edward Killingsworth on the development of the campus. Preparation of the historic context statement involved extensive archival research, historic context development, in-person interviews of architects who worked on-campus, review of CSU Long Beach building and landscape records, and coordination with local heritage group, Long Beach Heritage.

Historic Resource Evaluation Report for the Housing Expansion Phase I – Parkside North Housing Project, California State University Long Beach, City of Long Beach, Los Angeles County, California. Served as architectural historian and author of the Historic Resource Evaluation Report for the Housing and Residential Life (HRL) building in support of the Parkside North Housing Project. The report included conducting a CHRIS record search, reviewing permits, archival research, historical context development, developing building and structure descriptions, and a historical significance evaluation for the HRL office building. The project proposed to demolish the HRL building, and replace it with a new student housing building, adding 476 student dormitory beds to the CSU Long Beach campus. While the existing HRL building proposed for demolition was not yet 50 years old, it was designed by local master architect Edward Killingsworth and required consideration as a potential historical resource under CEQA. Dudek determined that the HRL building was not eligible under all applicable designation criteria due to a lack of significant associations and compromised integrity.

Healthcare

Kaiser Permanente Los Angeles Specialty Medical Center Project, Los Angeles, Los Angeles County, California. Served as architectural historian and author of the Historical Resource Assessment for the Kaiser Permanente Los Angeles Specialty Medical Center at 755-765 W. College Street in Los Angeles. Preparation of the report involved extensive archival research, reconnaissance level fieldwork, historic context development, building development descriptions, historical significance evaluations for buildings greater than 45 years in age, and DPR forms for the medical center buildings and structures that are proposed for demolition as part of the multiphase project. As a result of the evaluations, all buildings were found not eligible for designation under all applicable national, state, and local designation criteria and integrity requirements.

Kaiser Permanente Los Angeles Medical Center Project, Los Angeles, Los Angeles County, California. Served as architectural historian and co-author of the Draft EIR Cultural Resources Chapter and the author of the Cultural Resources Report Appendix. Preparation of the report involved extensive archival research, reconnaissance level fieldwork, historic context development, building development descriptions, historical significance evaluations, and DPR forms for six buildings greater than 45 years in age that are proposed for demolition as part of the multiphase project. As a result of the evaluations, all buildings proposed for demolition were found not eligible for designation under all applicable national, state, and local designation criteria and integrity requirements. DEIR chapter also analyzed potential indirect impacts on two other National Register listed or eligible sites: the Aline Barnsdall Complex and the Hollywood Presbyterian Medical Center.

Municipal

Northside Specific Plan Draft EIR, City of Riverside, Riverside County, California (ongoing). Kaiser served as architectural historian and author of the Draft EIR Cultural Resources Chapter for the developed for City of Riverside's Northside Specific Plan. The cultural resource chapter involved conducting a record search and documenting results,

developing a historic context for the Specific Plan Area, and developing an impacts analysis and mitigation measures for the future development of the Northside Specific Plan Area. The Northside Specific Plan proposed changes to zoning and the potential redevelopment of a site containing a historic adobe.

LADWP City Trunkline South Project, Los Angeles Department of Water and Power, California (ongoing). Served as architectural historian and author of the Cultural Resources Technical Report for the City Trunkline South Project. Preparation of the report involved site recordation, extensive archival research, historic context development, building development descriptions, historical significance evaluations, and State of California Department of Parks and Recreation Series 523 forms (DPR forms) for each building of the project. The project proposed to replace sections of the pipeline in located in the Coldwater Canyon Road area of the San Fernando Valley. The report analyzed the vibration effects of pipeline replacement and pipe-jacking practices expected as part of the Trunkline project.

LADWP Western District Yards Project, Los Angeles Department of Water and Power, California. Served as architectural historian and author of the Cultural Resources Technical Report for the Wester District Yards Rehabilitation Project. Preparation of the report involved site recordation, extensive archival research, historic context development, building development descriptions, historical significance evaluations, and State of California Department of Parks and Recreation Series 523 forms (DPR forms) for each building of the project. The project proposed to demolish 11 buildings and structures constructed between 1946 and 2007. This resource had been previously evaluated and designated eligible for the CRHR under Criterion 1 and 3, however this evaluation was outdated and a revised evaluation determined that the property was no longer eligible for national, state, or local listing.

LADWP Valley Generating Station Project, Los Angeles Department of Water and Power, California. Served as architectural historian and author of the Cultural Resources Technical Report for the Valley Generating Station Project. Preparation of the report involved site recordation, extensive archival research, historic context development, engineering feature development descriptions, historical significance evaluations, and State of California Department of Parks and Recreation Series 523 forms (DPR forms) for each building of the project. The project proposed to remove the 1953 steam generating plant, as well as the four stacks, SPRR rail spur, and underground fuel tanks.

LACSD Gardena Pumping Station Project, Sanitation Districts of Los Angeles County, Gardena, California. Served as architectural historian and author of the Cultural Resources Technical Report for the Gardena Pumping Project. Preparation of the report involved site recordation, extensive archival research, historic context development, engineering feature development descriptions, historical significance evaluations, and State of California Department of Parks and Recreation Series 523 forms (DPR forms) for each building of the project. The project proposed to remove the 1929 and 1960 pumping plant above and below-ground structures, as well as two adjacent parcels containing commercial buildings (1954, 1957) and replace them with a larger capacity pumping plant facility.

Phillips 66 and Kinder Morgan Relocation Project, Berths 150-151, Marine Oil Terminal Engineering and Maintenance Standards (MOTEMS), Port of Los Angeles, California. Served as architectural historian and co-author of the Updated Historical Resources Evaluation Report for the Phillips 66 and Kinder Morgan Relocation Project. Preparation of the report involved reviewing previous evaluations for Union Oil Terminal Berths 150-151 and writing an updated significance evaluation. The project proposed to remove and replace the original wharfs with new concrete loading platform, mooring and breasting dolphins, access ramps, catwalks, and an underwater bulkhead. It also proposed the construction of new topside and piping components connecting the new platform to existing pipes in the backlands.

Globemaster Corridor Specific Plan, City of Long Beach, Los Angeles County, California. Served as architectural historian and author of the Draft EIR-EIS Cultural Resources Chapter for the Globemaster Corridor Specific Plan

(GCSP) project. The project proposed to implement the GCSP, a planning and regulatory framework for redevelopment of an area adjacent to the Long Beach Airport and the surrounding residential and business community which includes rezoning portions of the GCSP area, and a mobility plan that implements new streets and pedestrian connectors. Since the GCSP does not directly propose changes to the buildings or structures in the Plan area, the cultural resources report takes a programmatic overview and offers potential impacts analysis and mitigation measures for future development.

LADWP De Soto Tanks Project, Los Angeles Department of Water and Power, California. Served as architectural historian and author of the Historic Properties Identification Report for the De Soto Tanks EIR. Preparation of the report involved site recordation, extensive archival research, historic context development, engineering feature development descriptions, historical significance evaluations, and State of California Department of Parks and Recreation Series 523 forms (DPR forms) for each building of the project. The project proposed to remove the 1941 reservoir and associated buildings, and replace them with two modern underground storage tanks, as well as connections to the LADWP Rinaldi Trunk Line and De Soto Trunk Line.

LADWP Tujunga Spreading Grounds Enhancement, Los Angeles Department of Water and Power, California. Served as architectural historian and author of the cultural resources report CEQA-Plus Project. Preparation of the report involved site recordation, extensive archival research, historic context development, engineering feature development descriptions, historical significance evaluations, and State of California Department of Parks and Recreation Series 523 forms (DPR forms) for each building of the project. The evaluation found the property ineligible under all NRHP, CRHR, and Los Angeles Historic-Cultural Monuments designation criteria. The project proposed to modify a U.S. Army Corps of Engineer-owned flood control channel to divert more flood water from the Tujunga Flood Control Channel into the Tujunga Spreading Grounds.

State

Judicial Council of California Historical Resource Evaluation Report for the Stanley Mosk Courthouse, City of Los Angeles, Los Angeles County, California. Served as architectural historian and author of the historical resource evaluation report. Preparation of the report involved extensive archival research, interior and exterior survey fieldwork, historic context development, material descriptions, historical significance evaluations, and DPR forms for the Stanley Mosk Courthouse. Dudek was retained by the Judicial Council of California (JCC) to prepare an evaluation of the Stanley Mosk Los Angeles County Courthouse building, located at 111 N. Hill Street in the City of Los Angeles, California. To comply with Public Resources Code Section 5024(b), the JCC must submit to the State Historic Preservation Officer (SHPO) an inventory of all structures over 50 years of age under the JCC's jurisdiction that are listed in or that may be eligible for inclusion in the National Register of Historic Places (NRHP), or registered or that may be eligible for registration as a California Historical Landmark (CHL), The Stanley Mosk Courthouse was found eligible for designation for the NRHP, CHL, CRHR, and Los Angeles Historic Cultural Monument list under Criterion A/1 and C/3.

Kathryn Haley, MA

Senior Architectural Historian

Kathryn Haley is a senior architectural historian with over 15 years of professional experience in historic/cultural resource management. Ms. Haley has worked on a wide variety of projects involving historic research, field inventory, and site assessment conducted for compliance with Section 106, NEPA, and CEQA. Ms. Haley specializes in California Register of Historical Resources (CRHR), the National Register of Historic Places (NRHP), evaluations of built environment resources, including water management structures (levees, canals, dams, ditches), buildings (residential, industrial, and commercial), and linear resources (railroad alignments, roads, and bridges). She specializes in managing large-scale surveys of built environment resources including historic district evaluations. She has prepared numerous Historic Resources Evaluation Reports (HRERs) and Historic Property Survey Reports (HPSRs) for the California Department of Transportation (Caltrans). Ms. Haley also worked on the California High-Speed Rail, San Jose to Merced, and Central Valley Wye Project Sections; leading the built environment survey, conducting property specific research, preparing the Draft Historic Architectural Survey Report (HASR) as well as co-authoring the environmental section for Cultural Resources.

Education

California State University, Sacramento
MA, Public History, 2004

California State University, Sacramento
BA, History, 2001

Professional Affiliations

California Council for the Promotion of History (former Treasurer)

California Preservation Foundation

She meets the Secretary of the Interior's Professional Qualification Standards for historian and architectural historian. Ms. Haley has also assisted in preparation of Historic Properties Inspection Reports (condition assessments) under the direction of the Naval Facilities Engineering Command (NAVFAC) in accordance with Section 106 and Section 110 of the National Historic Preservation Act. Moreover, Ms. Haley has served as project manager, coordinator, historian, and researcher for a wide variety of project. She is also experienced in the preparation for National Register nominations, as well as, Historic American Building Survey (HABS), Historic American Engineering Record (HAER), and Historic American Landscape Survey (HALS) documents.

Previous Project Experience

Transportation – Roads, Bridges, Highways, and Rail

California High-Speed Rail (CHSR) from San Jose to Merced and Central Valley Wye Project Sections—California High-Speed Rail Authority/Parsons Transportation Group, Various Counties in California (2010 to 2018). For several years, Ms. Haley served as lead historian and project coordinator for architectural history for the San Jose Merced and Central Valley Wye Project Sections. She led built environment field surveys, property specific historical research, co-wrote technical reports, and assisted in preparing the EIR/EIS cultural resources section. All work was conducted according to stipulations in the programmatic agreement written specifically for the project and in coordination with the California High Speed Rail Authority. While working on these project sections Ms. Haley participated in surveying more than 1000 buildings. She played a key role in managing the survey data, and evaluating built environment resources under NRHP and CRHR Criteria, as well as ensuring the proper documentation of locally designated CEQA historical resources.

Interstate 80 (I-80)/I-680 Interchange Projects—Solano County Transportation Authority, Solano County, California (2009). Ms. Haley conducted a field survey and contributed to NRHP and CRHR evaluations of historic architectural resources located in the I-80/I-680/State Route 12 (SR-12) interchange project area. More than 200 historic architectural resources were identified in the project area, including two historic districts. The Suisun City Historic District was identified as part of this project and consisted of 95 contributing buildings built within the period of significance, 1880-1934. The district comprised residential and commercial buildings constructed in a wide range of architectural styles, including Queen Anne and Craftsman bungalows, as well as late 19th century and early 20th century Revival styles. The Village of Cordelia Historic District, also located in the project area, was previously identified as eligible for the NRHP in 1989. The historic district was reevaluated as part of this project because several of the contributing buildings had been destroyed and fallen into disrepair. The overall integrity of the district, contributors and non-contributors, as well as district boundaries were reassessed and documented. All work was conducted according to Caltrans guidelines for compliance with Section 106.

Bayview/Hunters Point Transportation Improvements Project—City and County of San Francisco and Caltrans, California (2007). Ms. Haley severed lead investigator for historic architectural resources. She conducted fieldwork and prepared documentation identifying and evaluating historic properties in the Bayview/Hunters Point project area for Section 106 compliance. Ms. Haley prepared a HPSR and HRER identifying and evaluating historic properties in accordance with Caltrans guidelines.

Healdsburg Avenue Bridge NEPA/CEQA Compliance—City of Healdsburg/Omni Means, California (2012). As lead historian Ms. Haley conducted a field survey and wrote the constraints analysis for historic resources. The project studied different alternatives in replacing and rehabilitating the historic Healdsburg Avenue Bridge, which is listed in the NRHP. She also prepared the HSPR, HRER and assisted in preparing the FOE for the project.

Parks/Trail/Bicycle Path/Recreation

East Bay Greenway (Lake Merritt BART to South Hayward BART), HNTB, Alameda CTC, Oakland, San Leandro, Hayward, and Alameda County, California (2017 to 2018). Served as technical lead for architectural history. Prepared HRER for Caltrans as part of the CEQA/NEPA documentation for a visionary 16-mile, multimodal trail facility (rail to trail/rail with trail) connecting seven Bay Area Rapid Transit (BART) stations adjacent to the UPRR Oakland Subdivision from Oakland to Hayward. The project objectives include improvement of bicycle and pedestrian network connectivity; access to schools, downtown destinations, and activity centers; and development of a multimodal transportation system. Ms. Haley also prepared a Finding of Effect (FOE) document in support of a No Adverse Effect Finding to historically significant properties identified in the HRER.

Mitigation Implementation

Tower Bridge Pedestrian/Bikeway Improvement Project—City of Sacramento/Parsons Brinkerhoff, California (2007). Ms. Haley conducted archival research and prepared text for interpretative display kiosks outlining the history of the Tower Bridge, which is listed in the NRHP. The interpretive kiosks were created in compliance with Section 106 to mitigate changes to the Tower Bridge resulting from the expansion of the structure's pedestrian walkways.

Doyle Drive and Presidio Mitigation Project for HABS, HAER, and HALS Documentation—Parsons Brinkerhoff, San Francisco, California (2010 to 2014). This work included documenting several contributing historic buildings, structures, and landscape features located within the Presidio of San Francisco National Historic Landmark (NHL) District. This recordation was required under Section 106 of the NHPA to mitigate the adverse effects of the Doyle Drive replacement project. Doyle Drive is the southern access route to the Golden Gate Bridge. Construction activities related to the project will result in the demolition of historic resources that contribute to the NHL district. Ms. Haley served as project coordinator, assistant historian, researcher, and co-author for compliance documents prepared for this project.

Hallbom Ranch Mitigation—Placer County Water Agency, Auburn, California. Assistant Historian (2006). Ms. Haley conducted research and assisted in production of a brochure that documented the history of the property. The brochure was produced as part of mitigating impacts to Hallbom Ranch due project construction on the historically significant property. The mitigation was required as part of CEQA compliance.

Feather River CEQA/NEPA Compliance, Mitigation for Adverse Effects to the Sutter Butte Canal —Sutter Butte Flood Control Agency (SBFCA), Butte and Sutter Counties, California (2016). As built environment lead, Ms. Haley worked with the USACE to establish efficient and appropriate mitigation for the burial of the Sutter Butte Canal Haselbusch Headgate, which was determined eligible for listing in the NRHP and CRHR as part of the cultural resources inventory and evaluation efforts for this project. To mitigate the adverse effect to the resource, an interpretative program was established in consultation with the USACE, SHPO, and SBFCA. Ms. Haley lead the effort to produce an interpretive brochure and exhibit that explained the history of the Sutter Butte Canal Haselbusch Headgate. The brochures were distributed to local libraries and archives in Sutter and Butte Counties. The exhibit is part of the Butte County Historical Museum in Oroville, CA.

Ports and Harbors

Historic Initiative Inventory and Conservation—Port of Los Angeles, California (2006 to 2007) Ms. Haley assisted the Port of Los Angeles with establishing an archival repository to house historic documents by advising the Port on all aspects of the proposed archival facility. As project manager and lead archivist, she conducted a records inventory, facilitated immediate preservation and conservation of historic materials, and helped establish policy and procedures for the archives.

Architectural Survey and Evaluation of Signal Street Properties—Port of Los Angeles, California (2007). Ms. Haley prepared an inventory and evaluation report for six historic era properties located in an area that LAHD was planning on redeveloping. The purpose of the report was to evaluate the properties under NHPR, CRHR, and the criteria set forth in the City of Los Angeles Heritage Ordinance to see if they were eligible for listing. Ms. Haley completed this work during the planning phase of the redevelopment project. Five of the six buildings were found eligible for listing in the NRHP, CRHR, and as Los Angeles Historic Cultural Monuments.

Development

Section 106 Compliance for the Sixth Street Streetscape West Project—Harris and Associates and City of Gilroy, California (2008). Ms. Haley served as project manager and lead architectural historian prepared a recommendations report for Section 106 compliance for streetscape improvements within the City's downtown historic district.

Military

Naval Air Station Alameda, Historic Properties Inspection Report and Draft NRHP Nomination—Naval Facilities Engineering Command, Alameda, California (2008). Ms. Haley served as assistant historian in the preparation of historic properties inspection reports and a NRHP nomination for the Naval Air Station Alameda Historic District under the direction of the Naval Facilities Engineering Command, in accordance with Section 106 and Section 110 of the NHPA. Tasks included conducting research, a field survey, and written condition assessments of the contributing buildings and structures located within the historic districts.

Appendix B

Confidential Records Search Results

Appendix C

DPR forms

State of California ♁ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 3D

Other Listings
Review Code Reviewer Date

Page 1 **of** 11 ***Resource Name or #:** (Assigned by recorder) Monrovia No. 1 Tunnel (segment)
P1. Other Identifier: MWD Upper Feeder pipeline (segment)
***P2. Location:** ☐ **Not for Publication** ☒ **Unrestricted**
***a. County** Los Angeles **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Glendora **Date** 1995 **T** 1N; **R** 10W; SE ¼ **of** SE ¼ **of Sec** 24; San Bernardino **B.M.**
c. Address 950 Silent Ranch Drive City Glendora Zip 91741
d. UTM: (Give more than one for large and/or linear resources) Zone 11S , 419565 mE/ 3779300 mN;
Zone 11S , 419460 mE/ 3779418 mN; Zone 11S , 419378 mE/ 3779600 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
This 1170 foot long segment of the MWD Upper Feeder pipeline is within parcel 8684-045-004, on 950 North Silent Ranch Drive, at the northern terminus of Grand Avenue in the City of Glendora. The entire Monrovia No. 1 tunnel extends 7,868 feet from portal to portal. The entire Upper Feeder pipeline extends from Lake Matthews, (See Continuation Sheet)

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The Monrovia No. 1 tunnel and hatch structure are components of a larger water conveyance system called the Upper Feeder pipeline, completed in 1939, owned and operated by the Metropolitan Water District of Southern California (MWD), and operating today as an active utility. The Upper Feeder was designed and constructed concurrently with the Colorado River Aqueduct as part of the distribution system, which furnished water to participating cities for distribution b local municipal water departments. (See Continuation Sheet)

***P3b. Resource Attributes:** (List attributes and codes) AH6 – water conveyance system

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



***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)
P5b. Description of Photo: (view, date, accession #) tunnel hatch, looking northwest, (IMG_1339)

***P6. Date Constructed/Age and Source:** ☒ Historic ☐ Prehistoric ☐ Both
1937 (Weymouth 1939)

***P7. Owner and Address:**
Metropolitan Water District of Southern California
700 N. Alameda Street
Los Angeles, CA 90012

***P8. Recorded by:** (Name, affiliation, and address) Kate Kaiser, MSHP
DUDEK, 38 N Marengo Ave
Pasadena, CA 91101

***P9. Date Recorded:** 8/1/2019
***P10. Survey Type:** pedestrian

***P11. Report Citation**: Dudek. 2019. *Historical Resources Technical Report for Silent Ranch Hillside Subdivision Project.* Prepared for City of Glendora Planning Department.

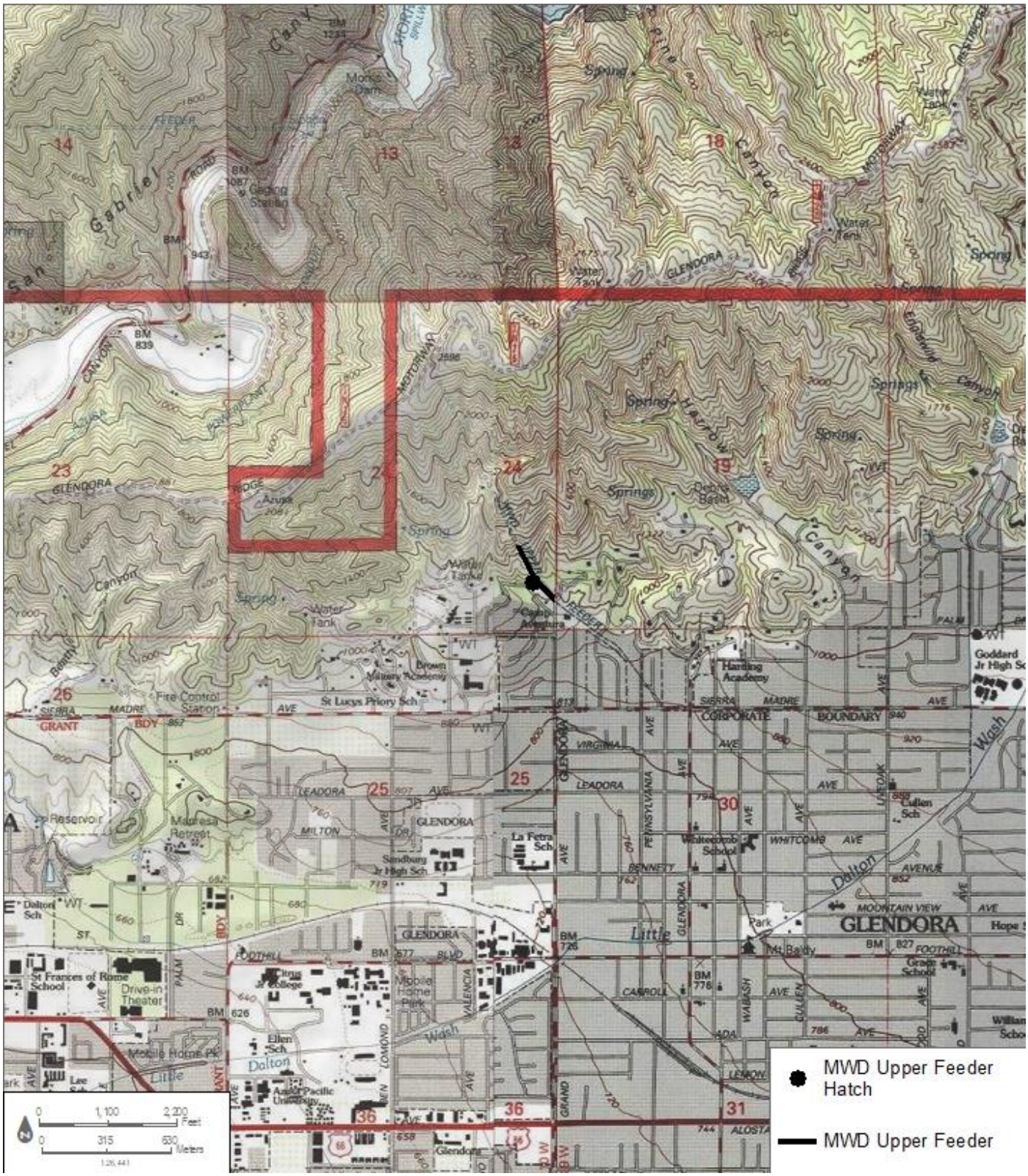
***Attachments:** ☐NONE ☒Location Map ☒Continuation Sheet ☒Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California ♁ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 2 **of** 11 ***Resource Name or #** (Assigned by recorder) Monrovia No. 1 Tunnel (segment)
***Map Name:** Glendora, Calif. ***Scale:** 1:24,000 ***Date of map:** 1995



State of California ♘ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) Monrovia No. 1 tunnel (segment) ***NRHP Status Code** 3D
Page 3 **of** 11

B1. Historic Name: Monrovia No. 1 tunnel (segment)
B2. Common Name: Monrovia No. 1 tunnel (segment); MWD Upper Feeder Pipeline (segment)
B3. Original Use: water conveyance system B4. Present Use: water conveyance system
***B5. Architectural Style:** utilitarian
***B6. Construction History:** (See Continuation Sheet)

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** _____ **Original Location:** _____
***B8. Related Features:**
Same parcel: USFS/LACFCD Crib Dams
Same parcel: Rancho Los Alisos/Camp Aventura

B9 a. Engineer: Robert Bernard Diemer (1888-1966)
b. Builder: Metropolitan Water District of Southern California
***B10. Significance: Theme** Municipal Water Utility Development
Area Southern California: greater metropolitan Los Angeles area, Inland Empire, San Diego County
Period of Significance 1931-1941 **Property Type** Water Conveyance System
Applicable Criteria A/1/1
(See Continuation Sheet)

B11. Additional Resource Attributes: (List attributes and codes) _____

***B12. References:** (See Continuation Sheet)

B13. Remarks: The Monrovia No. 1 tunnel and hatch are recommended eligible under Criterion A/1/1 as a component of the MWD Upper Feeder pipeline, for the period 1931-1941 for representing a critical component of a larger water infrastructure, the MWD Upper Feeder pipeline. The MWD Upper Feeder pipeline was instrumental to addressing the water needs of the greater metropolitan area of Los Angeles, and was an enabling force for the intensive economic and residential development of Southern California. The Monrovia No. 1 tunnel and hatch was evaluated in accordance with Section 15064.5(a) (2)-(3) of the California Environmental Quality Act (CEQA) Guidelines using the criteria outlined in Section 5024.1 of the California Resources Code, and it appears to be a historical resource for the purposes of CEQA and a historical property for the purposes of Section 106 of the NHPA (36 CFR Part 800). Dudek recommends this resource be assigned a California Historical Resource Status Code of 3D (appears eligible for NR as a contributor to a NR eligible district through survey evaluation), 3CD (appears eligible for CR as a contributor to a CR eligible district through a survey evaluation), and 5S3 (appears to be individually eligible for local listing or designation through survey evaluation).

(Sketch Map with north arrow required.)



***B14. Evaluator:** Kate Kaiser, MSHP
***Date of Evaluation:** 8/26/2019

(This space reserved for official comments.)

P2e. Other Locational Data (continued): Riverside to San Rafael Tunnel terminating in Glendale. Elevation: 980 to 1277 feet amsl.

P3a. Description (continued): *MWD Upper Feeder Pipeline segment: Monrovia No. 1 tunnel (1937)*
The MWD Upper Feeder Pipeline segment: Monrovia No. 1 tunnel is a subterranean structure that transects the proposed project APE from a point due east of the 950 Silent Ranch Drive main house building to a point northeast of the 950 Silent Ranch Drive main house building, in the eastern section of the proposed project APE. No portion of the Monrovia No. 1 tunnel was accessible for survey, due to it being underground. Historical MWD source document that entirety of the 41.6 miles from Lake Matthews to the east portal of Monrovia No. 1 tunnel was constructed of welded steel and precast concrete pipe. The Monrovia No. 1 tunnel extended 7,868 feet from portal to portal, and was a concrete lined pressure tunnel in rock substrate, and was 10 feet in diameter, with light supper of steel ribs and timber lagging occasionally placed as-needed (Weymouth 1939: 266-269).

Concrete access point hatch 2256-93 (no date)

The concrete access hatch structure and above ground structure is part of the MWD Upper Feeder Pipeline located northeast of the 950 Silent Ranch Drive main house building, at the outlet of a wide gully. The hatch structure consists of a 6-foot diameter, circular concrete access point that rises 1-2 feet above the ground surface, with a rectangular asbestos lid with a crosshatch pattern. Date of construction for the hatch is unknown. The original subsurface section of the MWD Upper Feeder was constructed between 1936 and 1939; however, the asbestos lid does not appear to be of 1930s construction. The hatch structure is labeled with stenciled paint on the top and side with "2256-93."



Figure 1. MWD hatch, looking northwest (IMG_1339)

Identified Alterations

No permits were available from the Metropolitan Water District of the City of Glendora for the infrastructure related to the Upper Feeder. No observed alterations were noted in the course of survey.

B6. Construction History (continued):
Metropolitan Water District: Upper Feeder Aqueduct (1939-present)

The Metropolitan Water District of Southern California MWD was established in 1928, as a result of the Metropolitan Water Act. With this act, the State authorized the new agency to build an aqueduct 242 miles to bring Colorado River water to supplement Los Angeles Department of Water and Power sources for City of Los Angeles, and to provide municipal water to thirteen cities in the Los Angeles metropolitan area not served by LADWP. In 1931, the Colorado River Aqueduct project was funded by a bond measure approved by the thirteen cities: Anaheim, Beverly Hills, Burbank, Compton, Fullerton, Glendale, Long Beach, Los Angeles, Pasadena, San Marino, Santa Ana, Santa Monica, and Torrance. MWD's Colorado River Aqueduct construction project, which lasted nearly 10 years, erected four dams, five pumping plants, 92 miles of tunnels, 63 miles of concrete lined canals, 55 miles of concrete conduit, and 29 miles of siphon from Lake Havasu to Lake Matthews in Riverside. Once in the reservoir at Lake Matthews, water was dispensed to the member cities through the distribution system. Both the aqueduct and distribution system were some of the largest public works projects in southern California during the Great Depression (Desert Sun 1938; LAT 1934; Weymouth 1939).

Concurrent to the erection of the 242-mile aqueduct was the distribution system that lead from the aqueduct terminus to each of the participating cities. The distribution system consisted of the Morris Dam and Reservoir, 16 miles of tunnel, and 134 miles of pipelines to carry water to each of the thirteen cities (Figure 8). Two portions of this distribution feeder system are located in the proposed project APE. North of the APE, the Morris Dam was erected between 1932 and 1934 in the San Gabriel River Basin. It was originally owned by the City of Pasadena, but sold in 1935 to MWD. The other portion is the Upper Feeder distribution line, a 65-mile distribution line extending from Lake Matthews to the San Rafael Tunnel. The upper feeder consisted of sections of underground 10-foot diameter tunnel lined with concrete, and large diameter precast concrete or welded steel plate pipes. In 1935, orchard owners north of Glendora, Claremont, La Verne, Pomona, and San Dimas conferred with MWD and attempted to negotiate for surplus water in exchange for allowing the pipeline through their lands. In 1936, a new MWD water district inducted the cities of Ontario, Upland, Claremont, San Dimas, Glendora, Pomona, and La Verne (Argus 1935; Creason 2015; Hinds 1935; SBSC 1936a; Weymouth 1939; WDPJ 1936).

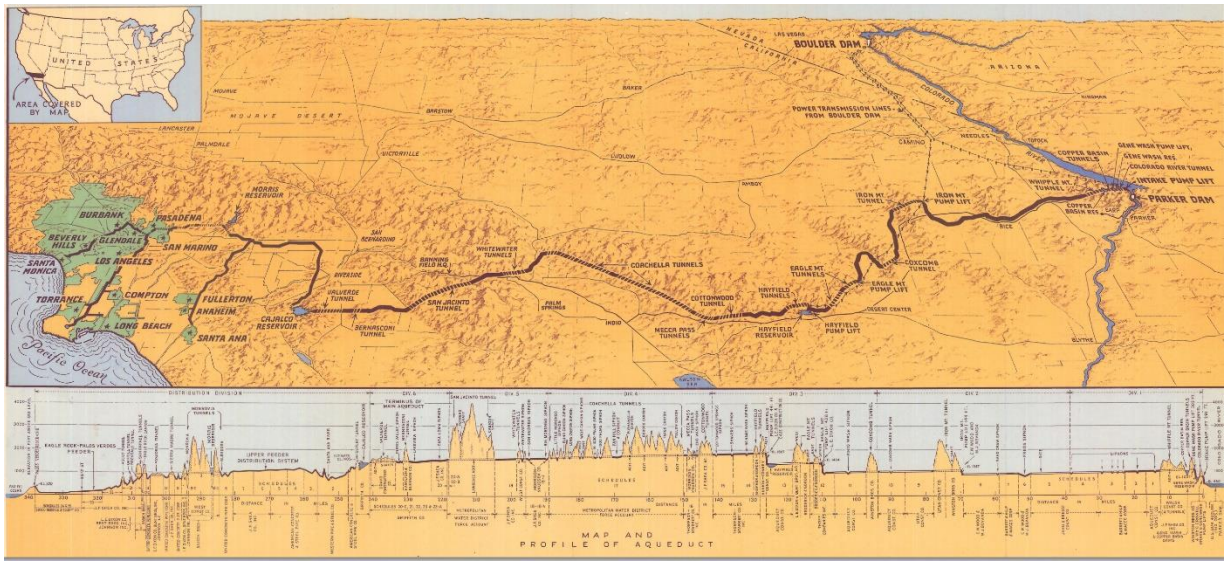


Figure 2. Colorado River Aqueduct Map, The Metropolitan Water District of Southern California. (Special Collections, Honnold Mudd Library, Claremont Colleges Library system)

Construction of a 30-mile section of the Upper Feeder pipeline began in 1936 near the Lake Matthews Reservoir, and extended north to Fontana then west to just below Morris Dam Reservoir north of Glendora in the Angeles National Forest. From Morris Reservoir, the feeder continued west in a separate segment through the Monrovia No. 3 through 4 tunnels to the San Rafael Tunnel, to Glendale. In Glendora, the Upper Feeder pipeline stayed at the base of the San Gabriel Range foothills, before crossing diagonally through the foothills northwest towards Morris Dam. A right-of-way was obtained in 1935 for the section through the Silent Estate. This location was chosen partly to avoid costly purchases of rights-of-way, which would be needed in densely settled urban areas. The Silent Ranch Estate right of way was for part of Monrovia No. 1, a tunnel extending 7,868 feet from east portal to west portal, exiting above the San Gabriel River canyon. The tunnel work was completed by West Construction Company in February 1937. Construction of the Upper Feeder pipeline as a whole was interrupted by the major storm and subsequent flood damage in February 1938; however, work on the feeder was completed later that year. In 1939, the distribution system was connected to the Lake Matthews Dam but the main Colorado River Aqueduct was not completed until 1941. In June 1941, the aqueduct and distribution system finally went into operation and on June 20, 1941, water finally reached the City of Pasadena (Argus 1935; Creason 2015; Hinds 1935; LAT 1936; SBSC 1936a, 1936b; Weymouth 1939; WDPJ 1936).

Associated Engineer: Robert Bernard Diemer (1888-1966)

R.B. Diemer was born in 1888 in Palmyra Missouri, and graduated from the University of Missouri with a Bachelor's of Science in engineering at 23. Like many young engineers who graduated in the 1910s, Diemer began his career with the Reclamation Service (later Bureau of Reclamation), working on the North Platte Project (1903-1927), an irrigation project in Wyoming and Nebraska. In 1929, he left the Reclamation Service to work for the newly formed Metropolitan Water District (MWD), with other former Reclamation Service engineer Frank E. Weymouth. In 1930, Diemer became the distribution division engineer on MWD's Colorado River Aqueduct project, responsible for all 150+ miles of distribution system

west of Lake Matthews. Diemer remained in career at the MWD, and ion 1950 became assistant general manager. In 1952, he became MWD's general manager and chief engineer and served in this position until he retired in 1961 (Hager 2015).

B10. Significance (continued): NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The section of Upper Feeder pipeline within the study area is subterranean Monrovia No. 1 tunnel with only one visible, above-ground structure: the concrete access hatch. Monrovia No. 1 tunnel is an underground pipeline and critical segment of the MWD Upper Feeder pipeline, the first multi-city municipal water distribution system of its kind in the region. The entire Upper Feeder pipeline system was designed in 1931, contract for the Monrovia No. 1 tunnel was awarded to West Construction Company in 1934, the right-of-way easement was acquired in 1935 through the Silent Ranch Estate, and the Monrovia No. 1 tunnel was completed in 1937. Water first flowed through the distribution system in 1941. No date of construction could be ascertained for this hatch; however, it is assumed that the construction date is concurrent with the Monrovia No. 1 tunnel: 1937. Both Monrovia No.1 tunnel and the access hatch are components of the larger Upper Feeder pipeline and distribution system for the Colorado River Aqueduct. The entire distribution the Upper Feeder pipeline belongs to extends 150-miles and serves participating cities in the greater metropolitan Los Angeles area, the Inland Empire, San Diego County, and other Southern California areas. The Upper Feeder pipeline is the first segment of the distribution system for the MWD Colorado River Aqueduct, extending 60 miles from the Colorado River Aqueduct's western terminus at Lake Matthews to the San Rafael tunnel between Pasadena and Glendale. The construction of the distribution system and Upper Feeder pipeline c made a significant contribution to the board pattern of history as part of the transportation and distribution of Colorado River water, an enabling force for the intensive economic and residential development of Southern California.

The MWD Upper Feeder was instrumental to the transportation and distribution of Colorado River water to participating cities in Southern California. After Colorado River traversed the Mojave Desert from Nevada to Riverside in the Colorado River Aqueduct, the Upper Feeder pipeline was the practical means by which the participating cities accessed Colorado River water. The need for Colorado River water was dire in the 1920s, and the 2,200 square miles of coastal plain surrounding the City of Los Angeles was ripe for residential, commercial, industrial, and agricultural development. However prior to receiving Colorado River water, municipalities in the arid region relied on outdated and overtaxed irrigation systems, artesian wells and groundwater, or private water companies to furnish water, or face annexation by City of Los Angeles in order to access the Los Angeles Department of Water and Power's Owens River water sources. Most smaller municipalities in the region simply lacked the resources to import water like Los Angeles on their own. After the Colorado River Compact enabled Arizona, California Colorado, Nevada, New Mexico, Utah and Wyoming to divert portions of Colorado River water in 1923, the Metropolitan Water District of Southern California (MWD) was established in 1928, as a result of the Metropolitan Water Act. The Metropolitan Water Act outlined how to the Colorado River Aqueduct and distribution system would be located and constructed. Construction of both distribution system and Colorado River Aqueduct began in 1931. 150 miles of distribution system were completed in 1939 and 242 miles of Colorado River Aqueduct were completed in 1941.

The Upper Feeder was a segment of the distribution system of the MWD Colorado River Aqueduct, and the means by which the participating cities in the greater metropolitan Los Angeles area, the Inland Empire, San Diego County, and other Southern California areas got access to Colorado River water after the completion of the Hoover Dam. The MWD Upper Feeder pipeline, as well as the rest of the distribution system and Colorado River Aqueduct, were major construction programs affording thousands of jobs to Californians during the Great Depression. After both projects were completed, the increased water supply and made it possible for Southern California to enjoy widespread economic development and to be settled so densely.

For linear resources to be found eligible under Criterion A/1, it must be a key piece of the overall system. In this case, the Monrovia No. 1 tunnel is a key portion of the Upper Feeder pipeline, facilitating its portage from the south side of the San Gabriel foothills, to the San Gabriel River canyon. Further, the Monrovia No. 1 tunnel and hatch maintain their original alignment and location, which is critical to understanding their importance and significance as a historically significant piece of water infrastructure. The Monrovia No. 1 tunnel and hatch also maintain its original undeveloped suburban and foothill setting, and continues to function as a water conveyance system operated by the original utility: Metropolitan Water District of Southern California (MWD). While setting is less important for an underground feature, maintaining the association with MWD and its continued use as a water conveyance structure are important.

As such, the Monrovia No. 1 tunnel segment transecting the proposed project APE and the above-ground access hatch, are r**ecommended eligible** for NRHP/CRHR Criterion A/1, as a component of the larger MWD Upper Feeder pipeline for the period 1931-1941, for transportation and distribution of Colorado River water to participating municipalities in Southern California, which was an enabling force for the intensive economic and residential development of Southern California.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with specific significant persons. Due to a lack of identified significant associations with important persons in history, the MWD Upper Feeder and all associated components do not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The entire Upper Feeder pipeline system was designed in 1931, contract for the Monrovia No. 1 tunnel was awarded to West Construction Company in 1934, the right-of-way easement was acquired in 1935 through the Silent Ranch Estate, and the Monrovia No. 1 tunnel was completed in 1937. Water first flowed through the distribution system in 1941. No date of construction could be ascertained for this hatch; however, it is assumed that the construction date is concurrent with the Monrovia No. 1 tunnel: 1937. The MWD Upper Feeder pipeline was designed by Metropolitan Water District engineer R.B. Diemer and multiple contractors were used to complete the above and below ground sections. Monrovia No. 1 tunnel was completed by contractor West Construction Company, and the majority of other concrete pipe sections completed by contractor J.F. Shea Company Inc. Like the Colorado River Aqueduct the scale and importance of the distribution system, which totaled over 150 miles and served dozens of cities across Southern California. The Upper

Feeder segment between Lake Matthews and Morris Reservoir is 30+ miles long and passes through the subject property in a series of subterranean tunnels. No portion of the tunnels are visible as above ground features except for a single concrete hatch. As such, this report cannot offer comment on the type or method of construction. Adequate records of the construction of the section through the subject property are well recorded; however, construction techniques could not be confirmed as the line itself was not visible during the field visit.

Despite the Upper Feeder pipeline's historical importance and monumental scale, nothing about the original design for the Monrovia No. 1 tunnel was particularly identifiable to a specific historical period or method of construction. Concrete pipelines and tunnel construction are ubiquitous water infrastructure components and the Monrovia No. 1 tunnel and MWD Upper Feeder pipeline as a whole do not distinguish themselves other than by its size. The Upper Feeder pipeline as a whole is associated with MWD engineer R.B. Diemer, who despite his later role as chief engineer of MWD for nine years, does not rise to the level of master engineer. The Monrovia No. 1 tunnel is utilitarian infrastructure and does not possess high artistic value. Finally, the Monrovia No. 1 tunnel and the concrete hatch are components of a significant and distinguishable work of twentieth century water engineering and a major infrastructure development project, however they are subsurface components and not visible. Therefore, they are not representative of the pipeline as a whole. Therefore, the MWD Upper Feeder subsurface tunnel segment and associated infrastructure, including the hatch, do not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The Upper Feeder pipeline is not likely to yield information important to understanding prehistory or history. Therefore, Upper Feeder pipeline does not appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

The Monrovia No. 1 tunnel and hatch, which traverse the proposed project APE, exemplifies special elements of City of Glendora's history. The addition of this water to the city existing water system allowed for the continuation of and assurance of water for irrigated crops in Glendora, allowing the Glendora citrus industry to persist until the mid-1960s, when residential and economic development pressure overrode the citrus industry's land requirements. Therefore, the Monrovia No. 1 tunnel and hatch are **recommended eligible** as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research failed to identify any associations with significant persons at the local, state, or national level. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

The Monrovia No. 1 tunnel and hatch are not particularly outstanding or innovative examples of 1930s-era monumental-scale water infrastructure. All components of the Upper Feeder tunnel in the APE are underground and Dudek was not able to verify the condition, construction, or alterations to the pipeline. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research identified that the MWD Upper Feeder's engineer is associated with MWD engineer R.B. Diemer, who despite his later role as chief engineer of MWD for nine years, does not rise to the level of master engineer. Therefore, the Monrovia No. 1 tunnel and hatch are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

The Monrovia No. 1 tunnel and hatch, a segment of the Upper Feeder pipeline that traverses the proposed project APE, is underground and was not visible during survey. Therefore, Dudek may not comment on the condition, state of materials, or alterations to the pipeline. Dudek recommends that the pipeline does retain integrity of location as it maintains its original 1930s alignment. The Monrovia No. 1 tunnel segment also retains integrity of its above ground setting as the underground pipeline traverses an underdeveloped portion of the proposed project APE in the southeast to a more remote, completely undeveloped portion of the proposed project APE in the north. However because the pipeline is a subterranean feature, integrity of the aboveground setting is not necessary for the pipeline to convey its significance. Due to the lack of accessibility of the pipeline Dudek may not comment on the integrity of design, materials, workmanship, or feeling of the pipeline as these could not be verified without visual access to the segment. Archival research indicates there have been no changes to the pipeline in the proposed project APE's use, design, alignment, or materials since it was constructed. The pipeline retains integrity of association with the MWD as the pipeline retains its original ownership and function.

B12. References (continued):

Argus. 1935. "Citrus Area Confers with Metropolitan." Newspapers.com: *Covina Argus*. July 26, 1935, pg. 1.

Creason, Glen. 2015. "CityDig: This 1938 Map Details Every Dramatic Stretch of the 242-Mile-Long Colorado River Aqueduct." *Los Angeles Magazine*. Published February 11, 2015, accessed August 8, 2019. https://www.lamag.com/citythinkblog/citydig-1938-map-details-every-dramatic-stretch-242-mile-long-colorado-river-aqueduct/

Desert Sun. 1938. "Construction of Colorado River Aqueduct Nears Completion." California Digital Newspaper Collection: *Desert Sun* Volume XI, No 51, July 22, 1938.

Hager, William H. 2015. *Hydraulicians in the USA 1800-2000: A biographical dictionary of leaders in hydraulic engineering and fluid mechanics*. London: CRC Press. Accessed August 19, 2019. https://books.google.com/books?id=EAVCCwAAQBAJ&pg=PA1969&lpg=PA1969&dq=R.B.+Diemer+engineer&source=bl&ots=HMpd2IyYxD&sig=ACfU3U11zHLrOcvKwe37Bw3erwoOULRc2w&hl=e

n&sa=X&ved=2ahUKEwjDrL7F1I_kAhVjhq0KHXuxBXQQ6AEwEHoECAgQAQ#v=onepage&q=R.B.%20Diemer%20engineer&f=false

Hinds, Julian. 1935. Letter to Honorable Board of Directors of the Metropolitan Water District of Southern California. RE: "Upper Feeder Line Right of Way and Waiver – Silent Estate." December 6, 1935. Accessed August 8, 2019. http://mwdh2o.com/WhoWeAre/Board/Board-Meeting/Board%20Archives/1935/12-Dec/Letter/064739488.pdf#search=silent%20ranch

LAT (Los Angeles Times). 1934. "Great Aqueduct Moves Forward at Brisk Pace." Newspapers.com: *The Los Angeles Times*. August 19, 1934, pg. 16.

LAT. 1936. "Giant Pipe Being Placed for Aqueduct Project." Newspapers.com: *The Los Angeles Times*. March 26, 1936, pg. 28.

SBCS (San Bernardino County Sun). 1936a. "Work Begun on Aqueduct Project Through Valley." Newspapers.com: *San Bernardino County Sun* (San Bernardino, California). March 27, 1936, pg. 12.

SBCS. 1936b. "New Districts May Share Water of Colorado River." Newspapers.com: *San Bernardino County Sun*. August 11, 1936, pg. 19.

WDPJ (Wilmington Daily Press Journal.) 1936. "Metropolitan Aqueduct Has World's Biggest Pipeline." Newspapers.com: *Wilmington Daily Press Journal* (Wilmington, California). June 4, 1946, pg. 3.

Weymouth, F.E. 1939. *History and First Annual Report for the period ending June 30, 1938*. Los Angeles: Metropolitan Water District of Southern California. http://www.mwdh2o.com/PDF_Who_We_Are/1.5.1_Inaugural_Annual_Report_1939.pdf

State of California ♘ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code | Reviewer | Date

Page 1 **of** 21 ***Resource Name or #:** (Assigned by recorder) Rancho Los Alisos/Camp Aventura
P1. Other Identifier: Silent Ranch; Glendora Girl Scout Camp

*P2. **Location:** ☐ **Not for Publication** ☒ **Unrestricted**
*a. **County** Los Angeles **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
*b. **USGS 7.5' Quad** Glendora **Date** 1995 **T** 1N; **R** 10W; SE ¼ **of** SE ¼ **of Sec** 24; San Bernardino **B.M.**
c. Address 950 Silent Ranch Drive City Glendora Zip 91741
d. UTM: (Give more than one for large and/or linear resources) Zone 11S , 419223 mE/ 3779467 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
APN: 8684-045-004; 950 North Silent Ranch Drive, at the northern terminus of Grand Avenue in the City of Glendora, is approximately 27 acres in size. Access is provided through a gated entrance on W Palm Drive. Elevation: 1030-1143 feet asml; Lat/Long: 34.151953, -117.875441

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
Rancho Los Alisos/Silent Ranch and Camp Aventura occupy the same address and parcel, and are part of the same chain of ownership. Rancho Los Alisos was purchased in 1907 and developed beginning in 1908. The original house for Rancho Los Alisos was demolished between 1964 and 1968. The modern house of the property was built in 1980 and therefore not eligible for evaluation. Components of the Rancho (See Continuation Sheet)

***P3b. Resource Attributes:** (List attributes and codes) HP29 – Landscape Architecture; (See BSO Sheet, B11)
***P4. Resources Present:** ☒ Building ☒ Structure ☐ Object ☒ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

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



P5b. Description of Photo: (view, date, accession #) View of open basin, looking east (IMG 2235)

***P6. Date Constructed/Age and Source:** ☒ Historic ☐ Prehistoric ☐ Both 1907-1953; 1953-1974

***P7. Owner and Address:**
(private owner)
950 Silent Ranch Drive
Glendora, CA 91741

***P8. Recorded by:** (Name, affiliation, and address) Kate Kaiser, MSHP
DUDEK, 38 N Marengo Ave
Pasadena, CA 91101

***P9. Date Recorded:** 8/1/2019
***P10. Survey Type:** (Describe)
pedestrian

***P11. Report Citation**: Dudek. 2019. *Historical Resources Technical Report for Silent Ranch Hillside Subdivision Project.* Prepared for City of Glendora Planning Department.

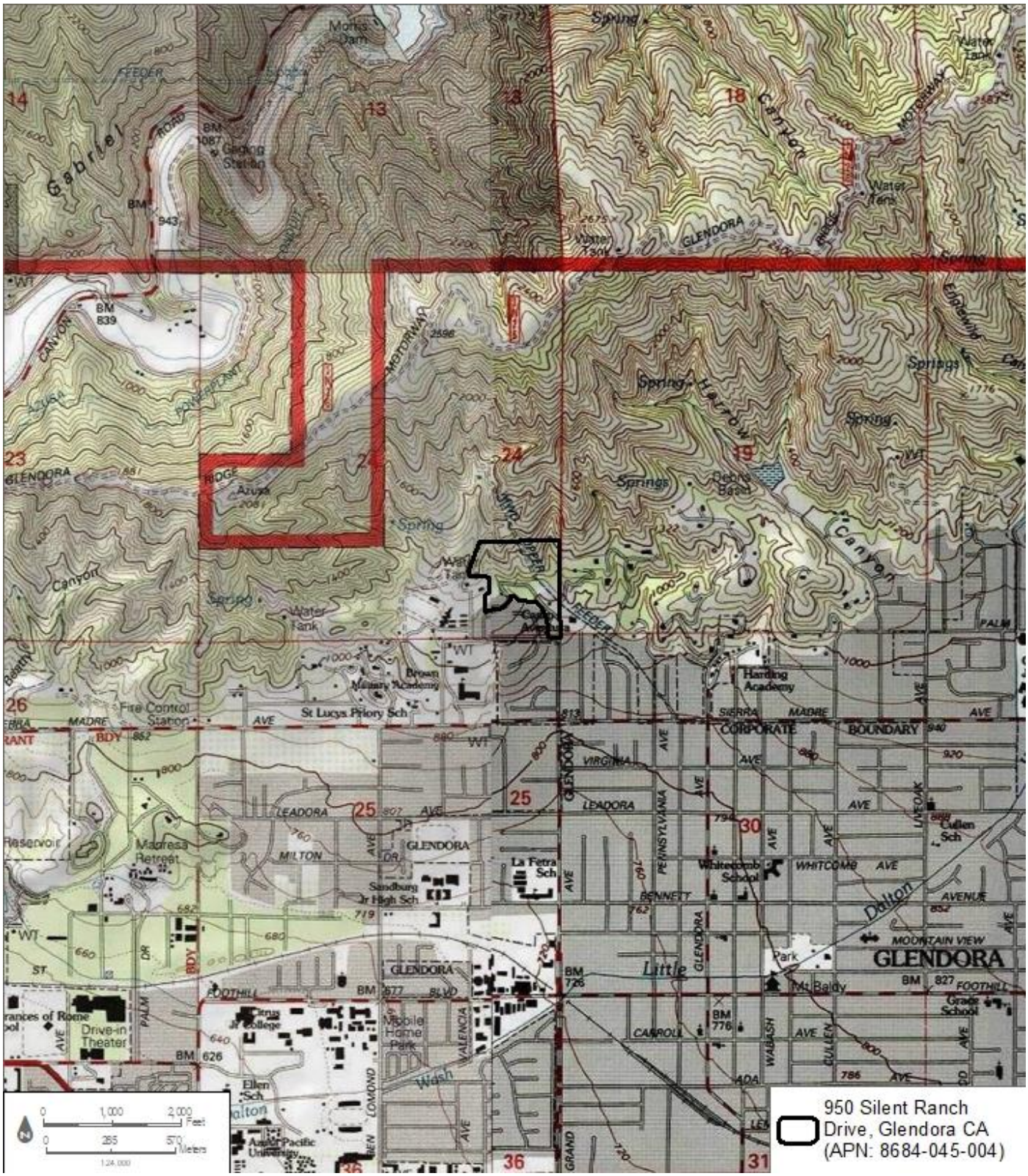
***Attachments:** ☐NONE ☒Location Map ☒Continuation Sheet ☒Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California ♉ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 2 **of** 21 ***Resource Name or #** (Assigned by recorder) _Rancho Los Alisos/Camp Aventura
***Map Name:** Glendora, Calif. ***Scale:** 1:24,000 ***Date of map:** __1995


950 Silent Ranch Drive, Glendora CA (APN: 8684-045-004)
GLENDORA
Harding Academy
Brown Military Academy
St Lucys Priory Sch
Fire Control Station
Madresa Retreat
Reservoir
Sandburg Jr High Sch
La Fetra Sch
Whitecomb School
Cullen Sch
Grand School
Mt Baldy
Park
Drive-in Theater
Mobile Home Park
Ellen Sch
Azusa Pacific University
Wash
Little Dalton
Gabriel
Canyon
Spring
Water Tank
Monks Dam
Gaging Station
Debris Basin
Corporate Boundary
Foothill Blvd
Mountain View Avenue
Whitecomb Avenue
Bennett
Carroll
Virginia
Pennsylvania
Leadora
Milton
Sierra Madre
Palm
Valencia
Wabash
Cullen
Grand
Lone Oak
Glendora
Azusa
Meridian
Ridge
Feeder
Motorway
Freeway
Trail
Road
Creek
Bridge
Levee
Ditch
Tank
Station
Dr
Ave
Blvd
St
Rd
Pl
Ct
Ln
Way
Terr
Cir
Hwy
Fwy
Pkwy
Sch
Jr College
Jr High Sch
Academy
Retreat
Theater
Park
Home Park
Reservoir
University
Water Tank
Water Tanks
Gaging Station
Debris Basin
Monks Dam
Fire Control Station
Drive-in Theater
Mobile Home Park
Ellen Sch
Azusa Pacific University
Madresa Retreat
Sandburg Jr High Sch
La Fetra Sch
Whitecomb School
Cullen Sch
Grand School
Mt Baldy
Harding Academy
Brown Military Academy
St Lucys Priory Sch
Spring
Springs

State of California ♉ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) Rancho Los Alisos/Camp Aventura ***NRHP Status Code** 6Z
Page 3 **of** 21

B1. Historic Name: Rancho Los Alisos/Silent Ranch (1907-1953); Camp Aventura (1953-1974)
B2. Common Name: Silent Ranch Estates (1974-present)
B3. Original Use: single-family residence; orchards B4. Present Use: single-family residence
***B5. Architectural Style:** Rancho Los Alisos: n/a; Camp Aventura: Mid-Century Modern
***B6. Construction History:** (Construction date, alterations, and date of alterations)

(See Continuation Sheet)

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** **Original Location:**
***B8. Related Features:** Monrovia Runnel No. 1. (MWD Upper Feeder segment); USFS/LACFCD Crib dams

B9a. Architect: n/a b. Builder: n/a
***B10. Significance: Theme** **Area**
Period of Significance **Property Type** **Applicable Criteria**
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(See Continuation Sheet)

B11. Additional Resource Attributes: (List attributes and codes) HP38. Women's property; HP31. Urban Open Space; HP4. Ancillary Building; AH2. Foundations; AH6. Water Conveyance System; AH11. Walls, fences

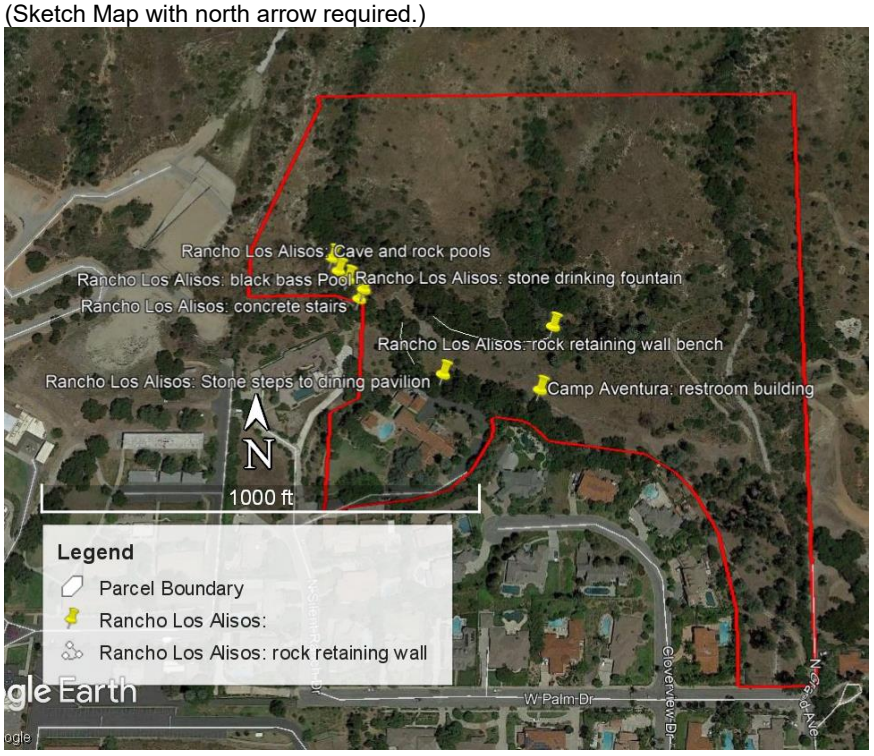
***B12. References:**

(See Continuation Sheet)

B13. Remarks:

***B14. Evaluator:** Kate Kaiser, MSHP architectural historian
***Date of Evaluation:** 8/26/2019

(Sketch Map with north arrow required.)



(This space reserved for official comments.)

P3a Description (continued): Los Alisos grounds, such as the rock-lined structures, constructed rock water features and Black Bass Pool were constructed between 1908 and 1910 and are associated with the original period of development. Camp Aventura was purchased in 1953 and developed between 1953 and 1958. The camp was abandoned in 1971 and most camp buildings were demolished when it was sold in 1974.

Rancho Los Alisos: Rock-lined road and bench feature

This road feature is located east and southeast of the 950 Silent Ranch Avenue house, and the bench feature is located southeast of the house. The rock-lined road feature is visible in photographs dating to 1910, and was developed between 1908 and 1910. The roadbed itself is unpaved, compacted dirt, but the rock retaining wall runs the length of the "uphill" side of the road and is constructed of concrete, faced with semi-coursed, locally sourced, dark gray stone. The bench is integrated directly into the wall and is also constructed of concrete and stone. Total bench height is roughly 3 feet, level with the retaining wall height and the bench seat height roughly 2 feet above the road surface. The width of the bench appears to be 3'6"-4' with flared sides (Figure 1 and 2).

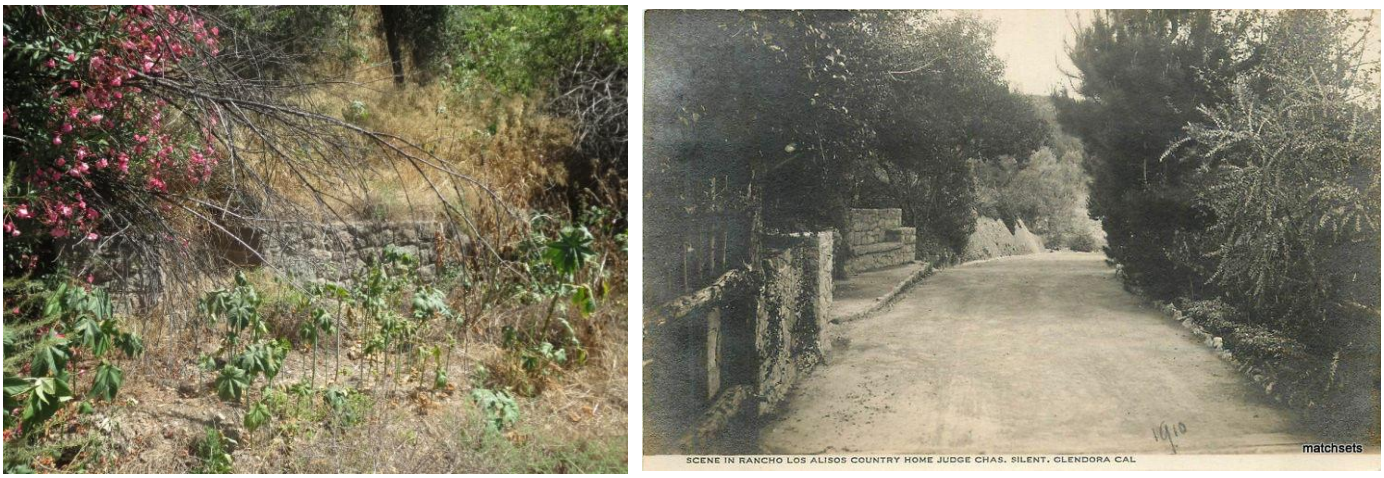


Figure 1. Left: Rock wall and bench feature (IMG_4041); Right: 1910 photo of rock lined road and bench (Glendora Historical Society)



Figure 2. Another segment of rock-line road (IMG 4003)

Rancho Los Alisos: Black Bass Pool

This pool feature is located northwest of 950 Silent ranch Drive house, long a ridgeline, immediately north of a mature lemon grove. The pool feature is visible in photographs dating to 1910, was featured in a newspaper article from 1911 describing its function, and was developed between 1908 and 1910. The pool feature extends at least ten feet below the rim. The pool rim rises roughly 1'6" above ground level. The pool is circular and has an approximate diameter of 25 feet. In the center of the pool is a burned metal and wood post, capped with a metal hood. The pool is constructed of concrete reinforced with metal mesh, the face of which is badly spalling in some places. Around the rim of the pool is a wood ring, which still contains metal fixtures for the gate feature which has been lost. A metal ladder provides access to the pool interior (Figure 3 and 4). The entire feature has been burned and the pool is partially filled with burned debris.




Figure 3. Left: concrete pool, looking southeast (IMG_4054); Right: 1910 photo of bass pool (Glendora Historical Society)



Figure 4. Profile view of pool feature wall (IMG 1350)

Rancho Los Alisos: Constructed Rock "cave", wall, steps, and water pool features

The constructed rock cave feature, wall, steps, and pools are located immediately northwest of the black bass pool on the ridge above (northwest of) the house. The constructed rock cave is constructed concrete faced with semi-coursed, locally sourced, dark grayish red stone. Over the arch of the entrance to the "cave" the rocks are arranged in an arch, with a keystone, and two 2-3 foot tall rock walls slope away from it (Figure 5). The opening itself is roughly 2 feet wide by 3 feet tall. Downhill of and connected to the cave by a continuous low rock-faced wall are at least two circular shallow rock-

lined concrete pools, which produce a cascade effect downhill towards the black bass pool. Uphill of the cave is a 4-foot high rock faced concrete retaining wall. A set of 10 narrow stairs lead to the uphill area above the wall, and are also constructed of concrete and local dark gray-red stone (Figure 6).



Figure 5. Entrance to rock "cave" showing rock walls sloping away, view to west (IMG_4051)



Figure 6. Stairs and retaining wall immediately right (northwest) of cave (IMG_1377)

Rancho Los Alisos: Constructed Rock Fountain

The constructed rock fountain feature and pools is located northwest of the black bass pool on the ridge above (northwest of) the house, and southeast of the constructed rock cave. The constructed rock fountain is constructed concrete faced with semi-coursed, locally sourced, dark grayish-red stone (Figure 7). There is a smoothed, concrete, tool formed basin below the upper pour spout, forming the drinking fountain, which is roughly 2 feet x 1’6” in diameter and oval shaped. The fountain basin portion is roughly 3 feet above current ground surface and is obscured by brush.



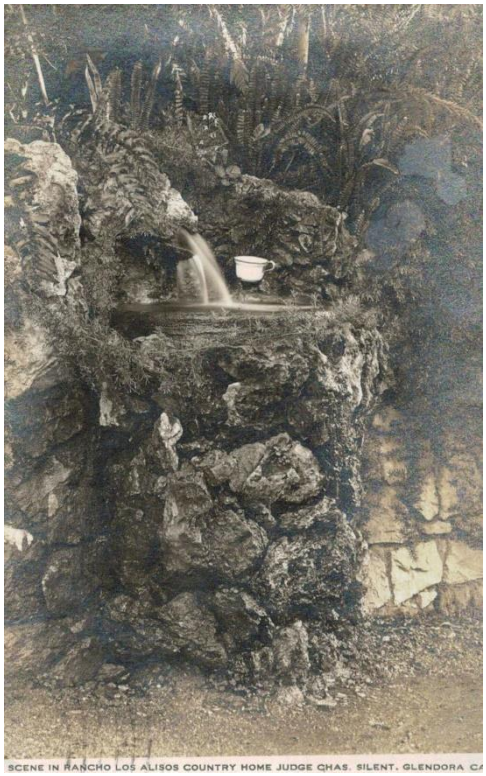


Figure 7. Left: view of steps looking northeast (IMG_1357); Right: 1910 postcard of fountain pavilion. (Glendora Historical Society)

Rancho Los Alisos: Stone Stairs to Dining Pavilion

Stone stair feature is located due north of the 950 Silent Ranch Drive house. The stair feature is visible in photographs dating to 1910, and was developed between 1908 and 1910. The feature consists of a set of windowing, narrow concrete construction, stone-faced steps, approximately 8 inches high, 8 inches tread, and roughly 2 feet wide, with a rock and concrete border to each side. The stair is banked into a steep hillside just north of the house and extends downhill roughly 15 feet below the driveway north of the house. (Figure 8 and 9).



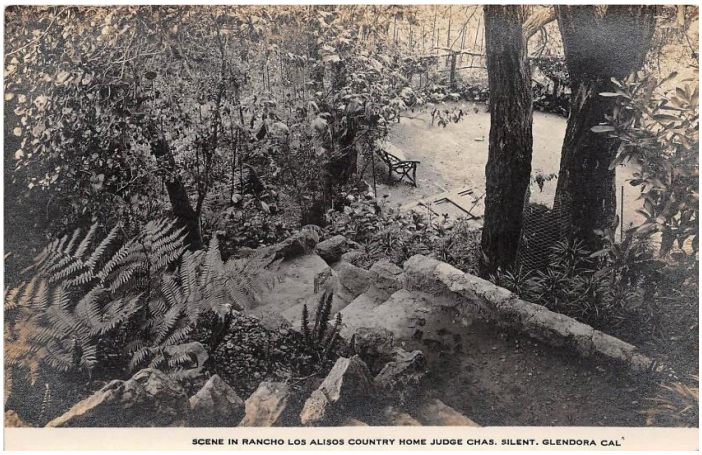


Figure 8. Left: view of steps looking northeast (IMG_2394); Right: 1910 postcard of steps leading to earthen pavilion. (Glendora Historical Society)



Figure 9. View of steps looking south (IMG 4006)

Camp Aventura: Restroom Building

Restroom building is a one-story, Mid-Century Modern-styled building constructed in circa 1955-1956, located northeast and immediately downhill from the 950 N. Silent Ranch Drive property and driveway (Figure 10). The building is one-story and a simple rectangle in plan, with the east portion enclosed for a three-stall restroom and privacy screen, and the west portion an open-air wash area. The building rests on a concrete slab foundation. It features a flat roof with wide overhang and wide, angled fascia board with open eaves,

and is supported by wood posts and the restroom stall enclosed space. The roof is clad with rolled composition roofing and flashed with aluminum-finish metal around the edges. The wall construction of the restroom stalls is wood stud clad with both board-and batten on the south and east elevation, and plywood on the west elevation. Along the north elevation there was a board and batten privacy wall in front of the stall doors, however, doors and privacy wall have been removed. Fixtures are still present at this building including an enameled double sink and three metal pit toilet fixtures. Along the rear (south) elevation, against the hillside, 2"x4" boards are nailed to the building exterior and support posts to provide pipe and wood board storage.



Figure 10. Main and west elevations of restroom building, view to southeast (IMG_4010)

Identified Alterations

Dudek attained all available permits pertaining to the subject property through the City of Glendora Building Department's eTRAKit online permitting system on August 14, 2019. The permits date from 1975 through present, which are summarized below:

- 1947: Permit for house and attached garage at 575 W. Palm Drive
- 1950: Permit for adding Bathroom to main house at 19153 E Sierra Madre; issued to Rancho Los Alisos
- 1953: Plumbing permit for adding bathroom; sewer connection and septic tank to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scouts
- 1954: Permit for new roof cover for 13' x 26' reservoir; issued to Girl Scouts

- 1955: Permit for building alterations 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scouts

- 1955: Plumbing permit for 3 toilets, 2 showers, 3 lavatory wash basins, 3 kitchen sinks and 2 gas outlets to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scout Camp (likely for fixtures in restroom building)

- 1955: Building Permit for "Unit Toilet Shelter" Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scout Camp (possibly the restroom building)

- 1955: Building Permit for "Public Sanitary Unit" 8' x 12' Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scout Camp

- 1955: Building Permit for "Unit Wash Shelter" Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to Girl Scout Camp

- 1955: Permit for new roof to 40' reservoir; issued to Girl Scout Camp

- 1955: Permit for new roof to 80' reservoir; issued to Girl Scout Camp Glendora

- 1955: Permit for Dormitory and Kitchen Building; Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to L.A. Girl Scouts

- 1956: Permit for "Unit Wash Shelter" Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to L.A. Girl Scouts

- 1956: Permit for "Unit Toilet Shelter" Building, Architect Paul R. Hunter, Contractor J. Lonnie Crumpler to 19153 E Sierra Madre/935 N. Silent Ranch Drive; issued to L.A. Girl Scouts (possibly the restroom building)

- 1959: Permit for 20' x 30' "Shelter – Orange Camp"; Architect Tryon & Foy, Contractor Wendell Turner to 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 20' x 30' "Shelter – Lemon Camp"; Architect Tryon & Foy, Contractor Wendell Turner to 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 20' x 30' "Shelter – Lime Camp"; Architect Tryon & Foy, Contractor Wendell Turner for 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 20‘ x 42’4” “Handicraft House”; Architect Tryon & Foy, Contractor Wendell Turner for 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 18’6”‘ x 42’4” “Latrine”; Architect Tryon & Foy, Contractor Wendell Turner for 7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for 20‘ x 48’4” “Bath House” with 4 sinks, 2 showers, 10 toilet stalls, water heater and gas hookup; Architect Tryon & Foy, Contractor Wendell Turner for7755 N Grand Avenue; issued to L.A. Council Girl Scouts

- 1959: Permit for Public Swim Pool, Standard Plan #16472; Architect W. Taggert, Contractor Paddock Pools, for 7755 N Grand Avenue; issued to Girl Scouts of USA

- 1963: Permit for 1 story, single-family 1142 s.f. “Caretakers House”; Architect Tryon & Foy, Contractor Colletta and Edgely for 7755 N Grand Avenue; issued to Girl Scouts of USA

- 1963: Permit for 1 story, 3000s.f. “Dining Hall and Kitchen”; Architect Tryon & Foy, for 7755 N Grand Avenue; issued to Girl Scouts of USA

- 1973: Permit to demolish 5 “camping structures”; contractor U.S. Navy Seabees, for 905 N. Grand Street, Glendora; issued to Angeles Girl Scout Council

- 1974: Permit to demolish “2 buildings, one bathhouse and misc. structures”; issued to George Deukmejian

- 1975: Permit for new 6200 sf house at 950 N Silent Ranch Drive; Architect: David Hyen Associates; issued to George Deukmejian

- 1980: Demolish pump house at 553 W Palm Drive; issued to George Deukmejian

- 1980: Grading at 950 N Silent Ranch Drive, 553 W Palm Drive, contractor G. Bart Striker; issued to George Deukmejian

- 1999: New 4-car garage at 950 N Silent Ranch Drive, issued to Pam and Time Morales

- 1999: Permit to demolish “old Girl Scout House, approx. 600 s.f.” at 935/950 N. Silent Ranch Drive; issued to Deukmejian Enterprises.

In addition to permits, observed alterations include the demolition of the original Rancho Los Alisos house, circa 1968-1974 and the construction of the crib dams and drainage channel on the property, which would not have received a building permit, for 1969-1970. Other alterations include the piercing of a section of stone-faced retaining wall along the lower road, north of the 950 Silent Ranch Drive house for an unpaved drainage channel for the crib dams.

B6. Construction History (continued): *Rancho Los Alisos (1907-1953)*

Judge Charles Silent was a lawyer, judge, and a prominent real estate speculator in Los Angeles. Silent moved to Los Angeles in 1885, and made connections while representing wealthy landowners and speculators during the real estate boom of the 1880s. Silent also made key real estate investments and bought large tracts of land along the coast southwest of Los Angeles, developing the communities of Inglewood and Redondo Beach. Silent lived near the present-day University of Southern California campus, and in 1900, he created the gated subdivision of Chester Place around his home. In 1907, Judge Charles Silent purchased 110 acres just north of the town of Glendora from one of his clients, P. Shorey, though he remained in Los Angeles for a few years after the purchase. Silent continued to be engaged in both Los Angeles and Glendora, proving an influential voice in the construction of a scenic highway from Redlands to the sea, now Foothill Boulevard. (LAT 1907a, 1907b; Price 2008).

After a family death, Silent moved to Glendora permanently in 1908. Silent retired from his law practice and devoted himself to the development of his Glendora property, turning it into a landscaped park, with experimental orchards where he could engage in horticultural plant, fruit tree, and flower production. Silent hired Henry and Charles Greene, well known Arts and Crafts Era architects, to design the ranch house at Rancho Los Alisos (Figure 5). While the Arts & Crafts-style Greene & Green bungalow design apparently never came to fruition, the houses that were built along the floor plan were humble canvas and wood structures with palm thatch-clad roofs. (Argus 1910; Greene & Green Architects 1908; Price 2008).

Silent became involved with the California Avocado Association and eventually became a director of the organization, growing lemons and varieties of avocados at Rancho Los Alisos. Silent engaged the local pomological societies and opened his property to the public on Sundays so that residents of Glendora could enjoy his gardens and grounds. During this period, Silent's property consists of a grouping of rancho-style buildings with the appearance of palm-leaved thatched roofing, and also developed rock-lined bricks paths, elaborate flower and palm tree plantings, viewing platforms, fountains, and a fishing basin where Silent stocked black bass (Figures 11, 12). According to a newspaper feature about the property, Silent irrigated his vast property using spring water from further up the mountain. Silent supposedly tunneled north to the springs, and brought water through a series of underground reservoirs, and pipelines to his property. Once there, Silent irrigated his plants but also created "aa series of reservoirs that are connected here and there with artistic stone grottos and scenes of flowing and falling streams" (Argus 1910: 2). After Silent's death in 1918, and his wife's death in 1921, the property remained unused, and cared for by a small caretaker staff. The Silent estate eventually sold portions of the ranch to real estate developers. Though the original house was demolished between 1964 and 1968, and a new residence constructed on the location, some of these plantings, water conveyance systems, and rock-lined landscape features remain (Argus 1910, 1921; LAT 1918; Price 2008; UCSB 2019).



Figure 11. Postcard of Rancho Los Alisos ranch house building group. (Silent Ranch subject files, Glendora Historical Society)



Figure 12. View to main buildings of Rancho Los Alisos, looking southwest, c 1910 (Oversized photos, Glendora Historical Society)

Camp Aventura (1953-1974)

In 1953, the Los Angeles Council of Girl Scouts and Girl Scouts of America began making formal inquiries about purchasing 295 acres for a camp in Glendora, on the former Silent Ranch Property. Beginning as early as 1953, a Master Plan was in the works for the camp, which planned to develop 12 unit sites on the property. The Los Angeles Council of Girl Scouts member troops raised the funds for the camp through yearly cookie drives and other fund raising efforts, and eventually purchased 295 acres of the former Silent Ranch estate. In October 1955, Camp Aventura was officially dedicated and opened. By 1956, four buildings and 12 tent pads were present at the site. The area had been cleared of orchard trees and in 1956, Girl Scouts planted trees and other vegetation around the new camp. In 1959, the Los Angeles Council of Girl Scouts made its final payment on Camp Aventura in Glendora, owning the property outright. The camp continued to operate until at least 1971, and in 1974, the Los Angeles Council of Girl Scouts sold the Camp property to George and Jean Deukmejian . The Deukmejians demolished the remaining Girl Scout buildings on the property, but donated a 30-acre parcel to the City of Glendora to use as dedicated open space (LAT 1953, 1956, 1958, 1959; Leagle 2019; Valley News 1956; UCSB 2019). According to legal documentation:

> The donated property consists of 28.93 acres, of which 0.29 acres are subject to a Flood Control District easement, leaving a net area of 28.64 acres. The property has an "L" shape measuring 1,650 feet long and a width of 1,320 feet along the northern boundary and a width along the irregular southern boundary of 440 feet. The parcel is located about 0.25 miles north of Palm Drive and about 0.25 miles west of Grand Avenue, if it were extended which it had not been at the time of trial (George Deukmejian and Jean Deukmejian v. Commissioner 1981).

Silent Ranch Estates Residential Subdivision (1974-present)

George Deukmeijian first applies for a demolition permit for the Girl Scout Camp in 1974. Deukmejian began building a new residence at the site of the former Rancho Los Alisos house in 1976 and it was completed by 1980. By 1981, the property also had a pool house, pool, and landscaped lawns, and small immature orchard northwest of the building. In 1982, Deukmejian's company, Deukmejian Enterprises, began redeveloping the surrounding property into a residential subdivision called Silent Ranch Estates with 15 lots. Lots were prepared and custom-built homes offered beginning in 1984, and later the same year, City of Glendora allowed it to become a private, gated community. By 2003, all 15 lots were filled (LAT 1984a, 1984b, 1985; UCSB 2019).

Associated People: Judge Charles Silent (1842-1918)

Charles K. Silent was born in 1842 in Prussia, but emigrated in 1848 to Columbus Ohio with his family due to the Revolutions of 1848. In 1856, at 14 Silent left home for New York and then onto a ship for San Francisco. Silent earned a teacher's certificate by age 17 and worked as a teacher for several years before enrolling in University of the Pacific in 1862. He married Emma Daniel in 1864 and had three children before her death in 1870. Silent passed the California bar exam in 1868 and became partner to San Jose law firm of Moore, Laine & Silent. He remarried Mary Tantau in 1874 and developed connections in law and to the railroad industry. In 1878, President Rutherford B. Hayes appointed Silent as an associate justice of the Supreme Court of Arizona, however, Silent continued financial interests in railroads in mining during his tenure and in 1880 was investigated by the U.S. Attorney general for his conflict of interest, and soon after the investigation, resigned from the court and returned to practicing law. Silent grew wealthy from his law practice in Tuscon but due to declining health, relocated to Los Angeles California in 1885 (LAT 1918; SFE 1878; Spitzzeri 2019).

In California, Silent joined W.P. Wade and W.F Fitzgerald in a law practice and continued serving wealthy clients in the metropolitan area, while simultaneously investing in the booming Southern California real estate. Silent joined many other wealthy Los Angeles elite in forming real estate companies such as Centinela-Inglewood Land Company (1887), and creating coastal towns such as Redondo Beach and Inglewood, and investing heavily in Azusa, Redlands, and the Foothill Boulevard road. Later he formed the firm Houghton, Silent, and Campbell with men he met through Wade and Fitzgerald's connections. Silent moved into Nathan Vail's mansion and formed the gated subdivision called Chester Place in 1899, creating a private park just southwest of the metropolitan center. Silent also practiced horticulture as a hobby, and perhaps as a result of this hobby and his multitude of connections to wealthy Los Angeles personalities and government officials, he was appointed to the head of the Los Angeles Parks Commission. There he worked on remodeling Pershing Square and Elysian Park, and secured Griffith Park from Colonel Griffith J. Griffith (LAT 1918; Spitzzeri 2019).

In 1907, one of Silent's children died, and Silent responded by withdrawing from his legal practice and purchasing a large tract of land in Glendora from P. Shorey, which he would call Rancho Los Alisos. Silent had a home built in Glendora and effectively retired there by 1910. Silent remained active in pomological societies, horticultural societies, and hobby groups in Glendora, raising avocados, oranges, and lemons in addition to several exotic species. He also opened his Rancho Los Alisos property as a public park to Glendorans on Sundays. Silent died in 1918 leaving his wife and remaining four children (LAT 1918; Spitzzeri 2019).

B10. Significance (continued): NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The Rancho Los Alisos/Camp Aventura property has two phases: Rancho Los Alisos extending from 1907 through 1953 and Camp Aventura extending from 1953 through 1974. The Rancho Los Alisos phase is representative of the retirement years of wealthy lawyer, real estate investor and former judge Charles K. Silent. Silent's property, though private, was opened as a public park for citizens of Glendora from 1907 to Silent's death in 1918, then for years afterwards operated by the Silent Estate. Major components of this park and private property have been destroyed including most exotic plantings, the original orchards, and the original Greene & Greene designed house, however some key features of the landscaping remain including rock lined roads and paths, rock-lined water features, and a fish pool. The park likely made an impression on local Glendora visitors, however, the private home and garden does not appear to be host to a major historical event or influenced the growth of Glendora in any way.

Camp Aventura was one of nearly 40 Girl Scouts of America organizations camps established in Southern California between 1930 and 1970. Only one remaining feature of the original camp, established in 1953 remains: a 3-stall restroom and washroom building. The other buildings were demolished by the Navy Seabees and George Deukmeijian between 1973 and 1974. As with Rancho Los Alisos, the camp may have made an impression on its occasional users, but did not particularly influence the growth of Glendora, or host any significant historical events. Despite local popularity as a public park and later as a Girl Scout campground, no significant historical associations were found in the course of research. Due to a lack of identified significant associations with events important to history, the subject property does not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research identified a single important person, Judge Charles K. Silent (1842-1918), associated with the rancho Los Alisos/ Camp Avenura property. Silent was an influential lawyer, real estate investor, and former judge at a formative period in the history of Los Angeles. He was instrumental in the formation of Redondo Beach and Inglewood via his company the Centinela-Inglewood Land Company (1887). Silent also created the first gated community In Los Angeles (Chester Place), and was influential in his role as City of Los Angeles Parks Commissioner. Despite this association, Silent's relationship with rancho Los Alisos/Camp Aventura is after the influential period of his life, after he had retired from his law practice and stopped working as Parks Commissioner. Rancho Los Alisos was not associated with the period of historical influence in Silent's life; therefore the subject property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The Rancho Los Alisos property was initially built between 1907 and 1910, in a mixed Rustic style and Spanish Colonial Revival style romantically associated with old California ranchos. The grounds around the house were landscaped, and contained horticultural gardens, walks, retaining walls, stone benches, fountains, pools, fish-stocked ponds, orchards and experimental orchards, during the time Charles Silent was alive. The original house was probably designed by master architects Greene & Greene, however this could not be determined as the house and all associated outbuildings were demolished in the late 1960s. The only remaining features of the original 1907-1910 property are the rock-lined landscaping features, including a pool, fountain, rock retaining walls, rock stairs and rock-lined paths throughout the property. These features have been allowed to deteriorate or were partially demolished as more modern portions of the property were added, such as the partial demolition of a rock retaining wall to allow a channel outlet for the West crib dam (1970) structure. These concrete and rock structures have also been damaged or altered by fires and flood and subsequent repairs. While interesting in construction, the majority of rock structures, original landscaping, and the original buildings on the property have been lost and the remaining structures lack the integrity to convey significance under this criteria. They cannot be positively identified as the work of a master, as the Greene & Greene house plans from 1907 do not include landscaping or structures aside from the main house. The structure have deteriorated and no longer possess high artistic value, and are not part of a district or entity whose components lack individual distinction.

The later Camp Aventura building has a similar issue. The only remaining building of the original 12 buildings and camp grounds is one Mid-Century Modern-style restroom building, badly deteriorated since its abandonment in the 1970s. Constructed in 1955-1956, the restroom building retains few character defining features of the style including thin, upright supports and a flat roof with angled fascia board detailing. The original architect was narrowed down to either Paul R. Hunter or Tryon & Foy, neither of which can be considered master architects. The building has no artistic value and while it was originally a component of a larger Girl Scout-related campground, it is the only remaining features and as such does not adequately convey this distinctive association. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not likely to yield information important to understanding prehistory or history. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

As stated above in Criteria A/1 and C/3, the remaining stone landscaping structures (1907-1910) and remaining restroom building (1955-1956) do not reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage of Glendora. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research identified an association with influential lawyer, real estate developer and former judge Charles K. Silent, who is likely a significant person at the local and possibly state level. However, the Rancho Los Alisos property and Camp Aventura property do not retain an association with the influential period of Silent's life, and are indicative only of his retirement and his posthumous estate transactions. No important person was identified in association with the Girl Scout camp. Therefore, Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

Rancho Los Alisos/Camp Aventura no longer embody the characteristics of their original styles, periods, or methods of construction due to integrity issues and overall loss of the majority of concurrent features (i.e. Rancho Los Alisos has lost the original house, all associated outbuildings, and all original landscaping; Camp Aventura has lost the original 11 other campground buildings and major activity surfaces). Therefore, Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research failed to resolve whether the Rancho Los Alisos stone structures were designed by architects Greene & Greene as landscaping plans for the property have not been retained. Archival research also failed to identify if the Camp Aventura restroom is associated with architect Paul R. Hunter or Tryon & Foy, nor is the building definitively visibly the work of either architect. In both cases, the remaining Rancho Los Alisos/Camp Aventura structures and buildings are not representative of the notable work of a builder, designer, or architect. Therefore, Rancho Los Alisos/Camp Aventura are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

The Rancho Los Alisos/Camp Aventura buildings and structures retain only integrity of location, as they remain in their original locations. These features do not retain integrity of setting as the setting of both Rancho Los Alisos and Camp Aventura have been lost in subsequent fires, residential subdivision development, and flood control structure development. No discernable portions of the Rancho Los Alisos or Camp Aventura settings are intact. These features also do not retain integrity of design, materials or workmanship as all stone and concrete structures are in advanced states of decay, sometimes with the entire stone facing section missing. The Camp Aventura building has had several material portions removed so discerning original design intent, materials or workmanship was not possible. All features do not retain integrity of feeling as they do not convey the feeling of a mid-century Girl Scout camp with both accessible and remote camp sites nor convey the feeling of an early twentieth century several hundred-acre estate and intermittent park. Finally, no features retain integrity of association as all association with the Silent Estate and with the Los Angeles Girl Scout Council has been lost by the encroaching residential subdivision development.

B12. References (continued):

Argus (Covina Argus). 1910. "Above the Haze-Clouds on Sun-Flooded Los Alisos." Newspapers.com: *Covina Argus* (Covina, California). May 28, 1910, pg. 2.

Argus. 1921. "The Silent Homestead." Newspapers.com: *Covina Argus*. July 15, 1921, pg. 8.

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LAT. 1907b. "Lofty Bridge for Highway: Novelty Urged in Route of Foothill Boulevard." Newspapers.com: *The Los Angeles Times*. December 19, 1907, pg. 23.

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LAT. 1956. "Girls' Camps Nestle Among Rare Flora on Ranch Made Into Garden." Newspapers.com: *The Los Angeles Times*. September 2, 1956, pg. 107.

LAT. 1958. "Fashions to Aid Girl Scout Camp." Newspapers.com: *The Los Angeles Times*. August 15, 1958, pg. 31.

LAT. 1959. "Girl Scouts Complete Payments on Camp." Newspapers.com: *The Los Angeles Times*. February 12, 1959, pg. 56.

LAT. 1984a. Advertisement. "Silent Ranch Estates." Newspapers.com: *The Los Angeles Times*. March 31, 1984, pg. 293.

LAT. 1984b. "San Gabriel Valley Digest Glendora." Newspapers.com: *The Los Angeles Times*. May 10, 1984, pg. 308

LAT. 1985. Advertisement. "At Home." Newspapers.com: *The Los Angeles Times*. June 1, 1985, pg. 25.

Leagle. 2019. "41 T.C.M. 738 (1981). T.C. Memo. 1981-24. *George Deukmejian and Jean Deukmejian v. Commissioner.* United States Tax Court. Filed January 26, 1981. Accessed August 8, 2019. https://www.leagle.com/decision/198177941gdtcm7381594

Price, R.L. 2008. *Glendora (Postcard History Series)*. Arcadia Publishing. Charleston, South Carolina.

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State of California ♁ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6Z

Other Listings
Review Code | Reviewer | Date

Page 1 **of** 10 ***Resource Name or #:** (Assigned by recorder) USFS/LACFCD Dams and channel
P1. Other Identifier:

*P2. **Location:** ☐ **Not for Publication** ☒ **Unrestricted**
***a. *a. County** Los Angeles **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)
***b. USGS 7.5' Quad** Glendora **Date** 1995 **T** 1N; **R** 10W; SE ¼ **of** SE ¼ **of Sec** 24; San Bernardino **B.M.**
c. Address 950 Silent Ranch Drive City Glendora Zip 91741
d. UTM: (Give more than one for large and/or linear resources) Zone 11S , 419277 mE/ 3779446 mN
Zone 11S , 419366 mE/ 3779454 mN; Zone 11S , 419531 mE/ 3779488 mN
e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate)
These dams and channel are located in three minor riparian drainages on a 27-acre parcel at 950 North Silent Ranch Drive (APN: 8684-045-004), at the northern terminus of Grand Avenue in the City of Glendora. Elevation: 1099 feet amsl

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
In three of the small riparian canyons in the proposed project APE, there are crib dams and one flood control channel. In 1970 the US Forest Service, City of Glendora, Los Angeles County Flood Control District, and Army Corps of Engineers, responded to a 1968 fire and 1969 mudslide in the City of Glendora by installing these crib dams to abate future flood and mudslide damages. (See Continuation Sheet)

***P3b. Resource Attributes:** (List attributes and codes) HP21 – dam; AH6 – water conveyance system
***P4. Resources Present:** ☐ Building ☒ Structure ☐ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)

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



P5b. Description of Photo: (view, date, accession #) East Crib Dam and channel, looking north (IMG_4024)

***P6. Date Constructed/Age and Source:** ☒ Historic ☐ Prehistoric ☐ Both 1970; LAT 1970

***P7. Owner and Address:**
Joint: US Forest Service (Angeles National Forest), Los Angeles County Flood Control District and City of Glendora

***P8. Recorded by:** (Name, affiliation, and address Kate Kaiser, MSHP
DUDEK, 38 N Marengo Ave
Pasadena, CA 91101

***P9. Date Recorded:** 8/1/2019

***P10. Survey Type:** pedestrian

***P11. Report Citation**: Dudek. 2019. *Historical Resources Technical Report for Silent Ranch Hillside Subdivision Project.* Prepared for City of Glendora Planning Department.

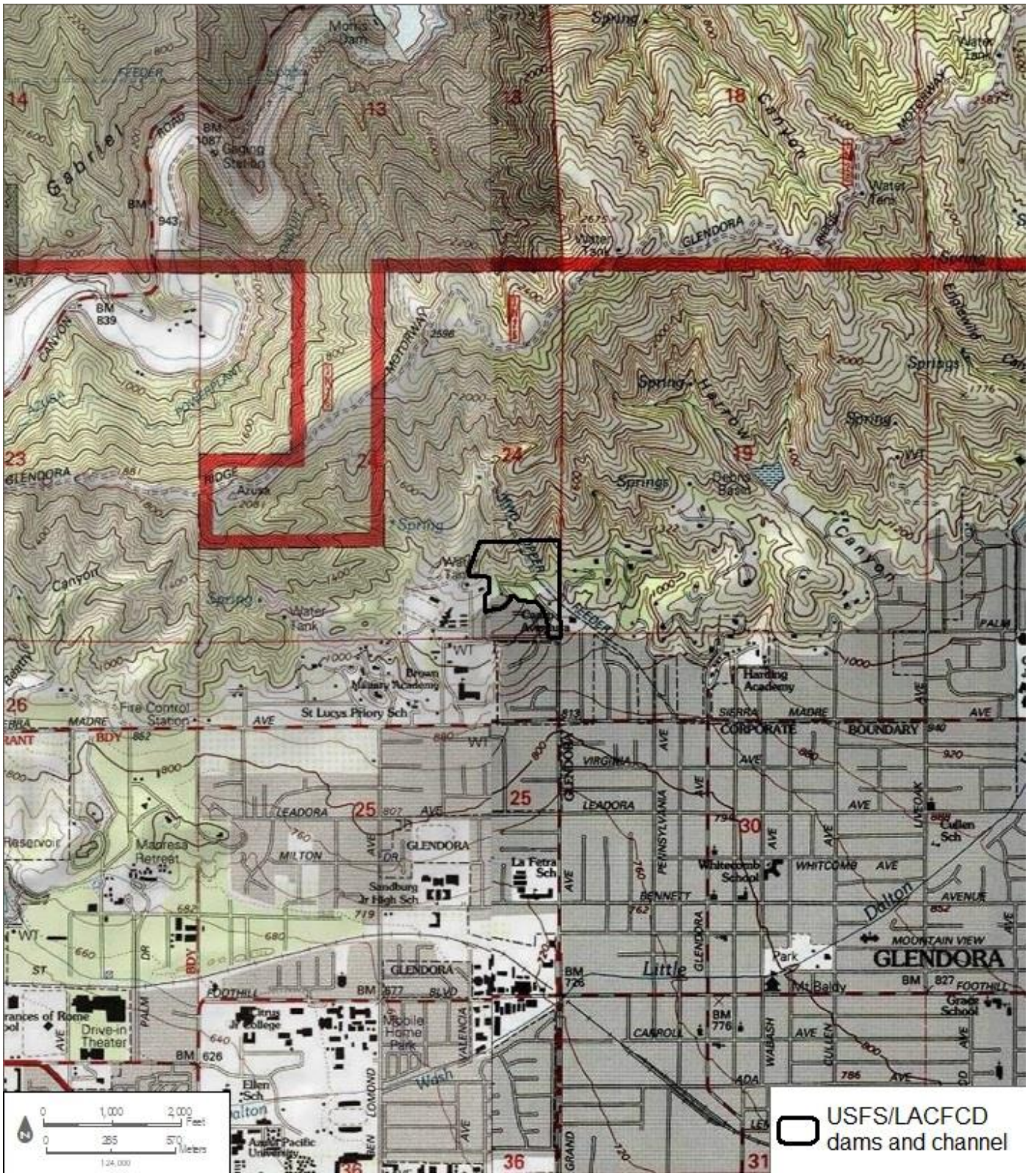
***Attachments:** ☐NONE ☐Location Map ☐Continuation Sheet ☐Building, Structure, and Object Record
☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record
☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California ♘ Natural Resources Agency
DEPARTMENT OF PARKS AND RECREATION

LOCATION MAP

Primary #
HRI#
Trinomial

Page 2 **of** 10 ***Resource Name or #** (Assigned by recorder) USFS/LACFCD Dams and channel
***Map Name:** Glendora, Calif. ***Scale:** 1:24,000 ***Date of map:** 1995



State of California ♘ The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI#

BUILDING, STRUCTURE, AND OBJECT RECORD

***Resource Name or #** (Assigned by recorder) USFS/LACFCD Dams and channel ***NRHP Status Code** 6Z
Page 3 **of** 10

B1. Historic Name: USFS/LACFCD Dams and channel
B2. Common Name: USFS/LACFCD Dams and channel
B3. Original Use: Flood and erosion control B4. Present Use Flood and erosion control
***B5. Architectural Style:** Crib-style dams
***B6. Construction History:** (Construction date, alterations, and date of alterations)

(See Continuation Sheet)

***B7. Moved?** ☒No ☐Yes ☐Unknown **Date:** _____ **Original Location:** _____
***B8. Related Features:**

Same Parcel: Rancho Los Alisos/ Camp Aventura
Same Parcel: Monrovia Runnel No. 1 (MWD Upper Feeder) segment

B9a. Architect: unknown b. Builder: USFS and LACFCD
***B10. Significance: Theme** n/a **Area** n/a
Period of Significance n/a **Property Type** n/a **Applicable Criteria** n/a
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

(See Continuation Sheet)

B11. Additional Resource Attributes: (List attributes and codes) _____

***B12. References:**

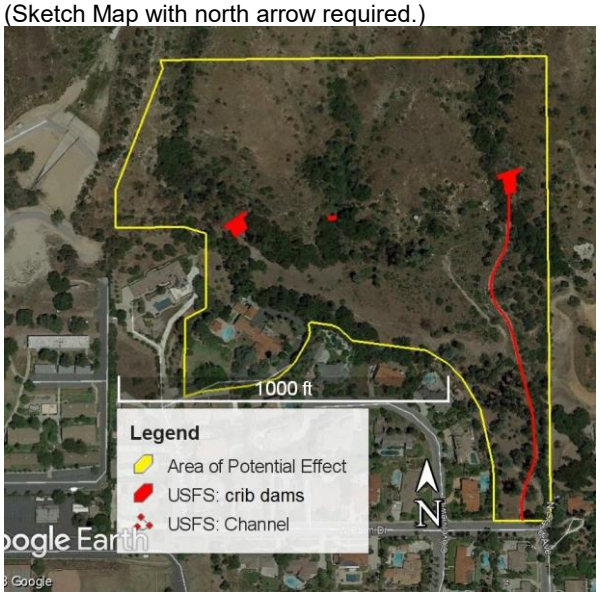
(See Continuation Sheet)

B13. Remarks:

***B14. Evaluator:** Kate Kaiser, MSHP architectural historian
***Date of Evaluation:** 8/26/2019

(This space reserved for official comments.)

(Sketch Map with north arrow required.)



P3a. Description (continued):

West crib dam (1970)

The West crib dam is a concrete crib check dam, built in 1970 located in the west-most canyon of the property, northwest of the 950 Silent Ranch Drive house (Figure X). The dam was one of forty such concrete crib check dams constructed after a fire and flooding event in 1969. The dam is constructed of reinforced concrete beams laid in crib bays with no mortar and metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. The dam portion is a squared U shape, extending 75 feet wide (11 visible crib widths) by 6 feet thick, and rises near 20 feet at its height and 15 feet in the middle. A concrete slurry mix called gunnite was applied to a central crib to form a spillway/pour-over location. The lower concrete sill below the dam rises roughly 2-3 feet above the ground surface. Between the dam and sill the hillside to the north and south are both covered with a gunnite, which was intended to prevent erosion of the hillside between the dam and sill, and erosion around the dam footings. One concrete beam on the upper right side of the dam bears the incised mark of "USFS 1970 W 12" and a metal plaque from the LACFCD. A pair of metal bars are attached to right side of the dam face, to act as ladder with the crib beams as rungs.



Figure 1. West crib dam, with dam in background, concrete sill in foreground, looking northwest (IMG_1264)

Center crib dam (1970)

The Center crib dam is a concrete crib check dam, built in 1970 located in the second-from-west canyon of the property, northeast of the 950 Silent Ranch Drive house (Figure X). The dam was one of forty such concrete crib check dams constructed after a fire and flooding event in 1969. The dam is constructed of reinforced concrete beams laid in crib bays with no mortar and metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. The dam portion is a squared

U shape, extending 15 feet wide (4 visible crib widths) by 6 feet thick, and rises approximately 12 feet at its height and 8 feet in the middle. Gunnite was applied to the central crib from ground surface to top of dam to form a spillway. No lower sill was visible, through thick vegetation growth. The hillside to the east and west of the area below the dam are covered with a gunnite, rising from visible ground surface to a few feet above the lip of the dam. One concrete beam on the upper right side of the dam bears a metal plaque from the LACFCD. A pair of metal bars are attached to right side of the dam face, to act as ladder with the crib beams as rungs.



Figure 2. Center crib dam, looking north (IMG_1332)

East crib dam and channel (1970)

The East crib dam is a concrete crib check dam, built in 1970 located in the east-most canyon of the property, northeast of the 950 Silent Ranch Drive house (Figure X). The dam was one of forty such concrete crib check dams constructed after a fire and flooding event in 1969. The dam is constructed of reinforced concrete beams laid in crib bays with metal netting behind which rock and soil may accumulate in a debris cone while allowing water the pass through the dam. The dam portion is a squared U shape, extending approximately 85 feet wide (14 visible crib widths) by 6 feet thick, and rises approximately 24 feet at its height and 20 feet in the middle. Gunnite was applied to a central crib to form a spillway/pour-over location. The lower concrete sill below the dam rises roughly 3 feet above the channel surface. Between the dam and sill, as well as south of the sill, the hillside to the east and west are both covered with gunnite to stabilize the hillside. On the west hillside gunnite slurry wall, however an oak tree is actively growing out a large crack and concavity in the slurry wall, showing a wall thickness of roughly 2 inches. One concrete beam on the upper right side of the dam bears the incised mark of "USFS 1970 E 4" and a metal plaque from the LACFCD. A pair of metal bars are attached to right side of the dam face, to act as ladder with the crib beams as rungs.

South of the crib dam, a gunnite-lined channel meanders south towards a culvert along Palm Drive. The channel width varies along the length with a shallow smooth-bottomed basin shape approximately 30 feet wide immediately below the dam. 200 feet south of the dam, the channel is a steep V-shape, 16 feet wide and 5 feet deep. 550 feet south of the dam, the channel is a steep V-shape, 10 feet wide and 5 feet deep (Figure Y). 900 feet south of the dam, a dirt road crosses the channel and the channel walls slope to accommodate the road; here the channel is 0 feet deep and 12 feet wide. At the culvert along Palm Drive, the channel is 8 feet wide and 6 feet deep.



Figure 3. East crib dam, looking north (IMG_1320)



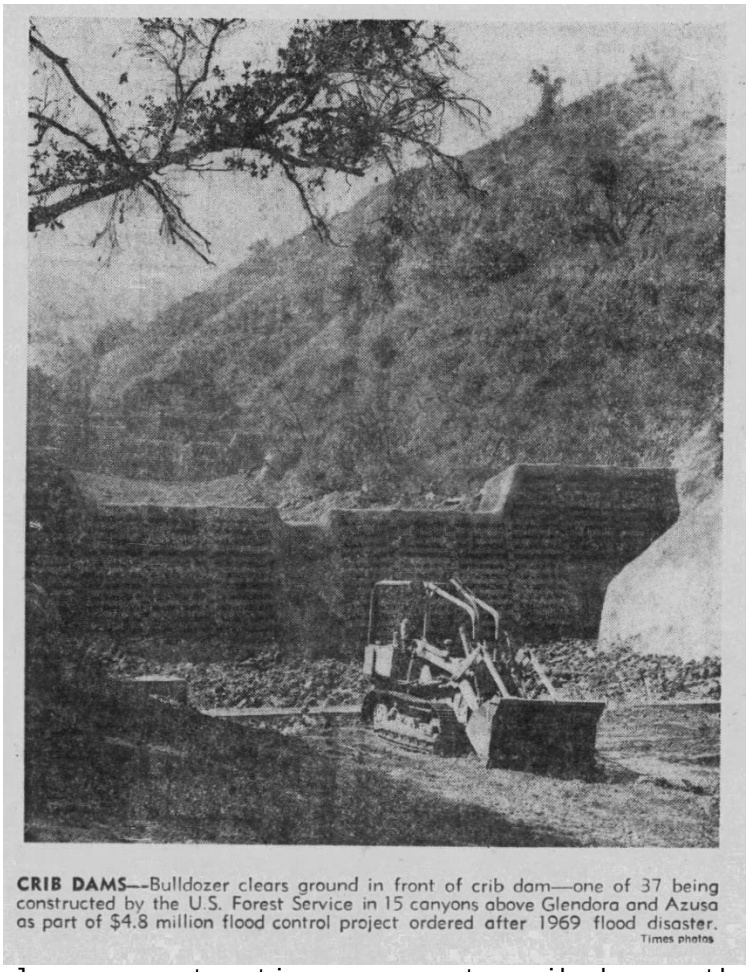
Figure 4. Concrete lined channel, 550 feet south of dam, looking north (IMG_4019)

Identified Alterations

No permits were available from the Los Angeles County Department of Public Works for the concrete crib dams or channel. No observed alterations were noted in the course of survey. The crib dams are in fair condition, but heavily overgrown by vegetation and the debris cone behind each dam has completely filled and level to the top of each dam.

B6. Construction History (continued): *Los Angeles County Flood Control District and Forest Service Crib Dams (circa 1969-present)*

In 1968, a large wildfire in the foothills north of Glendora and Azusa burned 20,000 acres and decimated the underbrush and trees. The following January through March 1969, Glendora experienced heavy rains which led to flooding, devastating mudslides, and cascading boulders damaging homes and schools. Mudslides were especially damaging along Rainbow Drive, just two blocks east of Grand Avenue. Glendora sought relief and received $1.5 million in federal aid. One of the first projects to go through was the $340,000 debris control dam and basin just west of the proposed project APE in Hook Canyon, started in 1969. In spring 1970, City of Glendora, US Army Corps of Engineers, Los Angeles County Flood Control District (LACFCD), and the USDA Forest Service (USFS) began constructing 45 concrete crib dams in 15 canyons north of Glendora (Figure 10). The purpose of the crib dams was to allow debris and soil to accumulate behind the dams while allowing water through. Still more erosion control measures were taken by instating planting programs, and seeding areas of then 1968 burn scar. These efforts were rewarded in 1974 (LAT 1969b, 1969c, 1970; Pasadena Independent 1968; USFS 1975).



CRIB DAMS—Bulldozer clears ground in front of crib dam—one of 37 being constructed by the U.S. Forest Service in 15 canyons above Glendora and Azusa as part of $4.8 million flood control project ordered after 1969 flood disaster. Times photos

Figure 5. USFS employees constructing a concrete crib dam north of Glendora. (Los Angeles Times 1970)

B10. Significance (continued): NRHP/CRHR Statement of Significance

Criterion A/1: That are associated with events that have made a significant contribution to the broad patterns of our history.

The three crib dams and channel were constructed in 1970 in response to a 1968 fire and subsequent flooding and mudslides in 1969, in order to prevent further damage to the residential subdivisions of City of Glendora, which had been slowly reaching further and further north into the San Gabriel Mountain foothills. Though the 1969 fire was a substantial fire and brought about positive civil infrastructure changes, the fire and flood is one of many in the history of Glendora and its damages were not particularly exceptional or historic in their proportions. Fire and flood/mudslide patterns were typical to this area and most down-stream communities south the canyon outlets of San Gabriel Mountains. The crib dams were constructed as part of a larger joint USFS and LACFCD infrastructure program which created the larger Hook Canyon debris dam and channel, as well as 40 other concrete crib dams. AS such, the dams on the subject property do not distinguish themselves as particularly important structures that made a significant contribution to the broad patterns of local Glendora history. Therefore, the three crib dams and channel do not appear eligible under NRHP/CRHR Criterion A/1.

Criterion B/2: That are associated with the lives of persons significant in our past.

Archival research failed to identify any associations with significant persons. Due to a lack of identified significant associations with important persons in history, the subject property does not appear eligible under NRHP/CRHR Criterion B/2.

Criterion C/3: That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

The three dams and channel were constructed in 1970 as a joint project between USFS, LACFCD, with financial aid from the Army Corps of Engineers and the City of Glendora. They are typically constructed of concrete beams arranged in cribs and built to various heights. Crib dams were not a new, novel, or improved engineering method for dealing with debris floods. The technique of using crib dams to control land erosion and heavy sediment flow originated in Europe and was used in the San Gabriel Mountains by the USFS as early as 1915. Because the dams are meant to slowly backfill, the multiple historical flood events in Los Angeles (1916, 1938) eventually covered and made obsolete earlier crib dams. Multiple crib dam building periods were identified by the USFS as important projects: a concrete arch check dam in Arroyo Seco Canyon (1942); the Coon Canyon Stabilization Project (1950); and the Los Angeles River Watershed Project (1954-1974), however this last did not provide crib dams in Glendora. The three crib dams in the study area are typical in their construction and offer no insight into engineering techniques or identified major projects. Archival research did not indicate an association between the dams and channel and a master engineer. The dams are of utilitarian construction and do not possess artistic value. While the dams and channel are part of an entity of dams built after the 1969 mudslides and flood, they are neither significant or distinguishable from earlier period crib dams constructed for similar regions throughout the San Gabriel National Forest. Therefore, the crib dams and channel not appear eligible under NRHP/CRHR Criterion C/3.

Criterion D/4: That have yielded, or may be likely to yield, information important in prehistory or history.

The subject property is not likely to yield information important to understanding prehistory or history. Therefore, the subject property does not appear eligible under NRHP/CRHR Criterion D/4.

City of Glendora Historic Resource or Landmark Designation Criteria

1. The proposed preserved features exemplify or reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage.

The three crib dams and channel are utilitarian in construction and constructed by the USFS and LACFCD in 1970, in response to a flood and mudslide event in 1969. However, in the larger Glendora-area history this flood and mudslide event was one of many in Glendora's history, and resulted in the construction of 40 similar structures. These structures neither exemplify nor reflect special elements of historical, architectural, archaeological, cultural, or aesthetic heritage of Glendora. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 1.

2. The proposed preserved features are identified with persons or events significant in local, state, or national history.

Archival research failed to identify any associations with significant persons at the local, state, or national level. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 2.

3. The proposed features embody distinctive characteristics of a style, type, period or method of construction or are valuable examples of the use of indigenous materials or craftsmanship.

The three crib dams are 1970s-era concrete crib dams, and typical of the method of construction of crib dams by USFS. They are utilitarian in construction and do not embody a particular style, type, or period. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 3.

4. The proposed preserved features are representative of the notable work of a builder, designer or architect.

Archival research failed to identify any associations with a specific architect, designer, or engineer. Therefore, the crib dams and channel are not eligible as a City of Glendora Historic Resource or Landmark under Criterion 4.

Integrity Discussion

All three dams and the channel maintain integrity of location and setting as neither have changed since their construction in 1970. The dams have infilled, however there appear to be no notable alterations, repairs, demolitions, or additions, and therefore the three dams and channel maintain integrity of design, materials and workmanship. The dams and channel still evoke the feeling of utilitarian flood control structures and therefore retain integrity of feeling. Though the dams retain signage by USFS and LACFCD, they appear to not be actively maintained and do not retain integrity of association.

B12. References (continued):

LAT (Los Angeles Times). 1969a. "Foothills Might Have Been Spared the Flood." Newspapers.com: *The Los Angeles Times*. April 6, 1969, pg. 198.

LAT. 1969b. "Debris Control Dam to Be Built." Newspapers.com: *The Los Angeles Times*. May 11, 1969, pg. 153.

LAT. 1969c. "Watershed Flood Work Will Be Undertaken." Newspapers.com: *The Los Angeles Times*. October 30, 1969, pg. 136.

LAT. 1970. "Crib Dams." Newspapers.com: *The Los Angeles Times*. July 19, 1970, pg. 230.

Pasadena Independent. 1968. "Glendora 6-day Fire Contained." Newspapers.com: *Pasadena Independent*. August 29, 1968, pg. 26.

USFS (US Forest Service). 1975. "Concrete Crib Check Dams." *Engineering Technical Information System: Field Notes*. Volume 7, Number 6, revised. Published June 1975, accessed August 9, 2019. https://www.fs.fed.us/t-d/pubs/pdfpubs/pdf75713806/pdf75713806.pdf

Appendix D

MWD Letter

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

MWD Upper Feeder
Sta. 2252+00 to 2257+44
Substr. Job No. 2002-14-004

July 8, 2019

Ms. Amy L. Bledsoe, PE, PLS, QSD
Giron Engineers, Inc.
654 South Glendora Avenue
Glendora, CA 91740

Dear Ms. Bledsoe:

Tentative Tract Map No.72413 – Revised Plans

Thank you for your email dated June 25, 2019, submitting prints of your revised preliminary site development plans (Sheets 1 through 4 of 4), for the proposed development located generally north of Palm Drive and Grand Avenue in the city of Glendora. Included with your submittal was a response to our letter dated June 6, 2019.

Metropolitan wants to state our condition throughout the engineering review process for your proposed development, which includes but is not limited to, grading and utilities over our pipeline easement, which is subjected to granting Metropolitan an unrestricted access easement for ingress and egress from Palm Drive by means of tract map recordation. Please submit a copy of the Tract Map for our review prior to final acceptance and recordation.

We have reviewed your revised plans, and our comments and requirements are as follows:

1. The locations of Metropolitan's 10-foot-3-inch-inside-diameter precast concrete Upper Feeder pipeline, appurtenant manhole structures, accompanying 40-foot-wide permanent easement, and 100-foot-wide tunnel easement right-of-way, as shown on all pertinent sheets of your plans, are generally in agreement with our records.

2. We understand that a soils report and/or settlement analysis showing the predicted settlement of our pipeline at 10-foot intervals along with the method of settlement analysis, laboratory testing results and any other supporting documents must be submitted

for our review, as noted in Item 10 of "Metropolitan Water District Notes" on Sheet 2 of 4 of your revised preliminary site development plans.

3. We note that provision for a 16-foot-wide driveway approach centered over our pipeline is provided on the north side of the road intersecting our right-of-way. A 10 percent unpaved access ramp will also be provided from the driveway approach. Gates or removable bollards, capable of accommodating Metropolitan's locks, must be installed at this location to prevent unauthorized entry to our right-of-way.

4. We note that the location of the 6-foot-high retaining wall has been revised approximately 4 feet north of our manhole structure (at our Station 2256+93), as shown on Sheet 2 of 4 of your revised preliminary site plans, is acceptable to Metropolitan. We would like to request that bollards be placed on the south side of City of Glendora Flood Control's maintenance road to protect Metropolitan 10-foot-inside-diameter air vent shaft (at our Station 2280+51) from damage.

   Please provide details of the retaining wall, foundations, and supporting calculations stamped and signed for our review and written approval.

5. Please submit detail of the non-potable utility with the required secondary containment for our review, when available.

6. We note you have included provisions for construction and notification of Metropolitan on Sheet 2 of 4 of your revised preliminary site development plans. Please revise minor typo on Item 3 as "MWD Access" and on Item 8 "When the cover is between 3 and 4 feet, equipment must be restricted to that which imposes no loads greater than AASHTO H-20 loading."

Provided that the settlement analysis is submitted for the proposed fill over our pipeline and right-of-way for our review and subject to the grant of access of easement to Metropolitan, your plans are generally acceptable to Metropolitan. We are returning prints of Sheets 1 through 4 of 4 of your revised preliminary site development plans Tentative Tract Map No. 72413, stamped "REVIEWED — CORRECTIONS NOTED — NO RESUBMITTAL REQUIRED."

Plans for any landscaping or other improvements proposed within our right-of-way must also be submitted for our review and written approval. Please note that no structures of any kind or trees are allowed within the limits of our right-of-way, but ground cover is permitted. The landscape plans must contain provisions to maintain access along our right-of-way.

Facilities constructed within Metropolitan's easement shall be subject to the paramount right of Metropolitan to use the easement for the purpose for which it was acquired. If at any time Metropolitan or its assigns should, in the exercise of their rights, find it necessary to remove any

of the facilities from the easement, such removal and replacement shall be at the expense of the owner of the facility.

Please note that access to Lots 7, 8, and 9 immediately to the northeast of our pipeline and right-of-way could be unavailable at any time, for a period of time, in the event excavation of our pipeline becomes necessary for maintenance and repair, replacement, or the addition of another pipeline. Metropolitan will not be responsible for any disruptions to the access if this were to occur.

For any further correspondence with Metropolitan relating to this project, please make reference to the Substructures Job Number shown in the upper right-hand corner of the first page of this letter. Should you require any additional information, please contact Ken Chung, telephone (213) 217-7670.

Very truly yours,

for Shoreh Zareh, P.E.
Manager, Substructures Team

KC/mc
DOC#: 2002-14-004c

Enclosures (4)

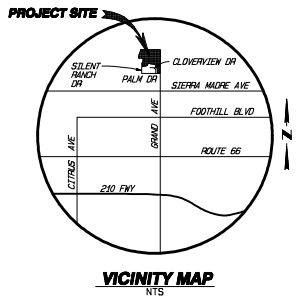
cc: City of Glendora w/plans
Engineering Division
116 East Foothill Boulevard
Glendora, CA 91741-3380

RECEIVED 06/25/19

TENTATIVE TRACT MAP NO. 72413

IN THE CITY OF GLENDORA, COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

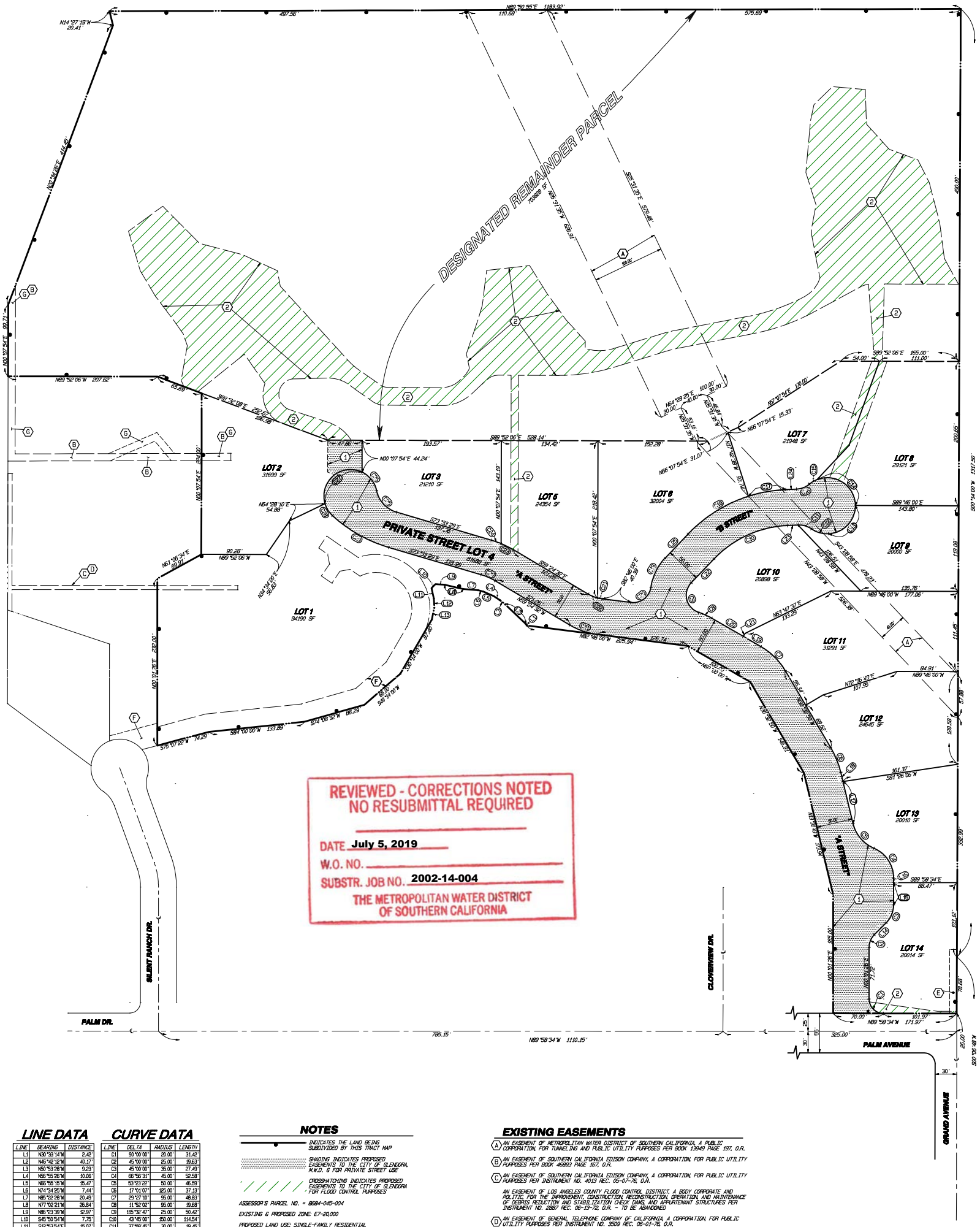
BEING A SUBDIVISION OF PARCEL NO. 1 AS SHOWN ON PARCEL MAP NO. 25942, RECORDED IN BOOK 302, PAGES 57 THROUGH 60, INCLUSIVE, RECORDS OF SAID COUNTY



VICINITY MAP
NTS



SCALE: 1" = 50'



REVIEWED - CORRECTIONS NOTED
NO RESUBMITTAL REQUIRED
DATE July 5, 2019
W.O. NO.
SUBSTR. JOB NO. 2002-14-004
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

LINE DATA

LINE	BEARING	DISTANCE
L1	N30°33'14"W	2.42'
L2	N45°42'12"W	40.17'
L3	N50°53'28"W	9.23'
L4	N55°55'26"W	10.66'
L5	N66°55'15"W	15.47'
L6	N74°34'25"W	7.44'
L7	N85°22'28"W	20.49'
L8	N77°02'21"W	26.84'
L9	N86°23'39"W	12.97'
L10	S45°50'54"W	7.75'
L11	S12°53'54"E	15.07'
L12	S82°43'57"E	12.64'
L13	S11°24'15"W	15.64'
L14	S45°01'26"W	23.23'
L15	S00°01'26"W	31.23'
L16	N00°01'26"E	6.37'
L17	S13°31'43"E	60.12'
L18	S13°31'43"E	12.95'
L19	S60°00'00"E	28.18'
L20	S60°00'00"E	50.93'
L21	N30°00'00"E	4.95'
L22	S43°40'44"W	46.11'
L23	S87°25'44"W	15.07'
L24	N87°25'44"E	15.07'
L25	N43°40'44"E	46.11'

CURVE DATA

LINE	DELTA	RADIUS	LENGTH
C1	90°00'00"	20.00	31.42'
C2	45°00'00"	25.00	19.63'
C3	45°00'00"	35.00	27.49'
C4	66°56'31"	45.00	52.59'
C5	53°23'22"	50.00	46.59'
C6	17°01'07"	125.00	37.13'
C7	29°27'10"	95.00	48.83'
C8	11°52'02"	95.00	19.68'
C9	115°32'47"	25.00	50.42'
C10	43°45'00"	150.00	114.54'
C11	37°08'45"	30.00	19.45'
C12	37°06'43"	39.00	25.26'
C13	88°09'33"	39.00	60.01'
C14	110°28'08"	39.00	75.19'
C15	18°33'06"	39.00	12.63'
C16	37°08'45"	30.00	19.45'
C17	15°08'22"	200.00	52.85'
C18	28°36'38"	200.00	99.87'
C19	35°12'19"	75.00	46.08'
C20	88°45'35"	25.00	38.73'
C21	7°12'50"	50.00	6.30'
C22	16°08'39"	50.00	14.09'
C23	8°01'47"	135.00	18.92'
C24	6°07'10"	135.00	14.42'
C25	61°32'23"	40.00	42.96'
C26	52°23'51"	37.00	33.84'
C27	132°20'12"	37.00	85.46'
C28	30°57'33"	37.00	19.99'
C29	25°50'48"	200.00	90.22'
C30	14°08'57"	85.00	20.99'
C31	23°21'28"	100.00	40.77'

NOTES

- INDICATES THE LAND BEING SUBDIVIDED BY THIS TRACT MAP
- SHADING INDICATES PROPOSED EASEMENTS TO THE CITY OF GLENDORA, M.W.D. & FOR PRIVATE STREET USE
- CROSSHATCHING INDICATES PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES

ASSESSOR'S PARCEL NO. - 8684-045-004

EXISTING & PROPOSED ZONE: E7-20,000

PROPOSED LAND USE: SINGLE-FAMILY RESIDENTIAL

CITY DEVIATIONS: NONE

UTILITIES:
WATER: CITY OF GLENDORA
SEWER: LOS ANGELES COUNTY SANITATION DISTRICT #22

PRESERVATION OF FOUND METROPOLITAN WATER DISTRICT (MWD) EASEMENT MONUMENTS: PRIOR TO THE CONSTRUCTION OF ANY IMPROVEMENTS, THE PROJECT LAND SURVEYOR MUST FILE WITH THE COUNTY OF LOS ANGELES, CORNER RECORDS FOR THE PRESERVATION OF ANY EXISTING MWD MONUMENTS WITHIN THE AREAS OF PROPOSED IMPROVEMENTS AND/OR GRADING. ANY MONUMENTS DESTROYED DURING GRADING/CONSTRUCTION MUST BE REPLACED ACCORDINGLY.

MWD NOTIFICATION REQUIREMENTS: NOTIFY JESSE FRANCO, JR. OF THE MWD WATER SYSTEM OPERATIONS GROUP, OFFICE TELEPHONE (909) 392-7194 OR CELL PHONE (818) 469-5188, AT LEAST TWO WORKING DAYS (MONDAY THROUGH THURSDAY) PRIOR TO STARTING ANY WORK IN THE VICINITY OF MWD FACILITIES.

EXISTING EASEMENTS

(A) AN EASEMENT OF METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA, A PUBLIC CORPORATION, FOR TUNNELING AND PUBLIC UTILITY PURPOSES PER BOOK 13949 PAGE 197, O.R.

(B) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER BOOK 46883 PAGE 167, O.R.

(C) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 4013 REC. 05-07-76, O.R.

AN EASEMENT OF LOS ANGELES COUNTY FLOOD CONTROL DISTRICT, A BODY CORPORATE AND POLITIC, FOR THE IMPROVEMENT, CONSTRUCTION, RECONSTRUCTION, OPERATION, AND MAINTENANCE OF DEBRIS REDUCTION AND STABILIZATION CHECK DAMS, AND APPURTENANT STRUCTURES PER INSTRUMENT NO. 2897 REC. 06-13-72, O.R. - TO BE ABANDONED

(D) AN EASEMENT OF GENERAL TELEPHONE COMPANY OF CALIFORNIA, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 3509 REC. 06-01-76, O.R.

(E) AN EASEMENT OF SOUTHERN CALIFORNIA GAS COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 85-184744 REC. 02-15-85, O.R.

(F) PRIVATE DRIVEWAY AND FIRELANE (PER PARCEL MAP, NO. 25942, PM8302, PG57-60)

(G) AN EASEMENT OF SOUTHERN CALIFORNIA EDISON COMPANY, A CORPORATION, FOR PUBLIC UTILITY PURPOSES PER INSTRUMENT NO. 04-0451467 REC. 02-26-2004, O.R.

PROPOSED EASEMENTS

(1) PROPOSED EASEMENTS TO THE CITY OF GLENDORA, M.W.D. & FOR PRIVATE STREET USE

(2) PROPOSED EASEMENTS TO THE CITY OF GLENDORA FOR FLOOD CONTROL PURPOSES

GIRON ENGINEERS EXPRESSLY RESERVES ITS COMMON LAW COPYRIGHT & OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE REUSED, CHANGED, OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO A THIRD PARTY WITHOUT FIRST OBTAINING THE WRITTEN PERMISSION AND CONSENT OF GIRON ENGINEERS. GIRON ENGINEERS SHALL BE HELD HARMLESS FROM THE UNAUTHORIZED USE OF THESE PLANS.

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Prepared By:
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btravis@WESTconsultants.com

REGISTERED PROFESSIONAL ENGINEER — SAMUEL T. GIRON — NO. 27885 — CIVIL — STATE OF CALIFORNIA

CITY OF GLENDORA — ENGINEERING DIVISION

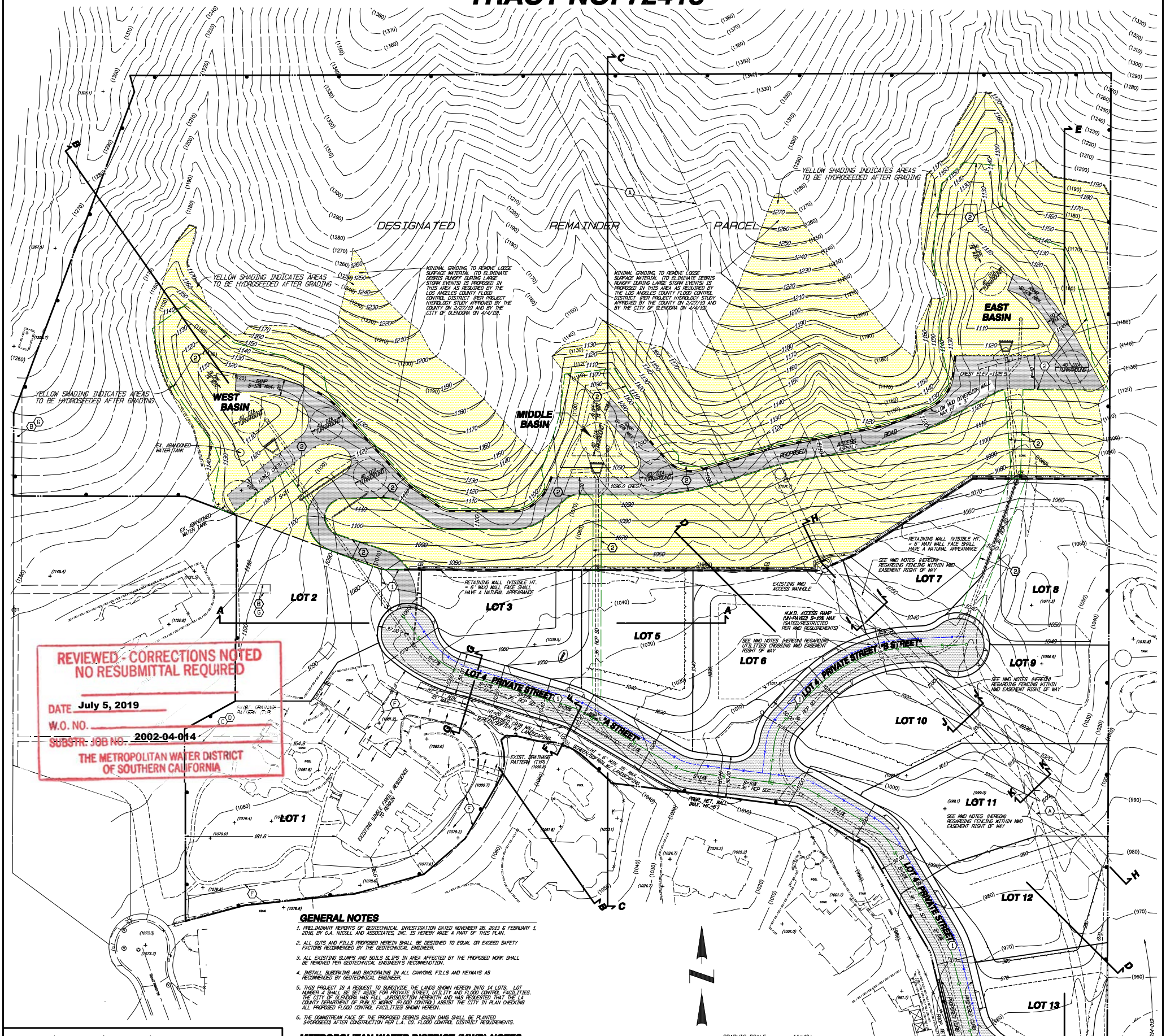
TENTATIVE TRACT MAP & PRELIMINARY SITE DEVELOPMENT PLAN
TRACT NO. 72413

Scale: AS SHOWN
Drawn By: ALB
Sheet 1 Of 4 Sheets

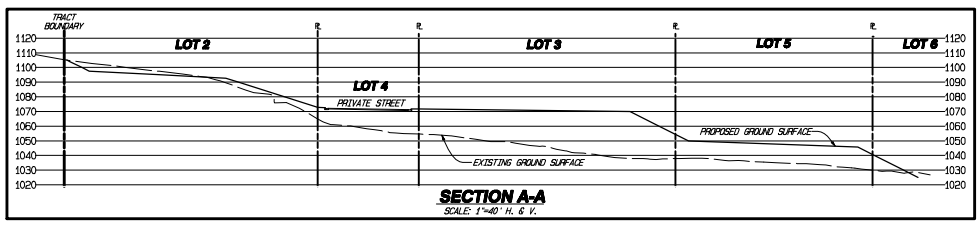
JOB No: 2084 PLOTTED: 6/20/2019

PRELIMINARY SITE DEVELOPMENT PLAN

TRACT NO. 72413


DESIGNATED REMAINDER PARCEL
YELLOW SHADING INDICATES AREAS TO BE HYDROSEEDED AFTER GRADING
MINIMAL GRADING, TO REMOVE LOOSE SURFACE MATERIAL (TO ELIMINATE DEBRIS RUNOFF DURING LARGE STORM EVENTS) IS PROPOSED IN THIS AREA AS REQUIRED BY THE LOS ANGELES COUNTY FLOOD CONTROL DISTRICT (PER PROJECT HYDROLOGY STUDY APPROVED BY THE COUNTY ON 2/27/19 AND BY THE CITY OF GLENDORA ON 4/4/19).
WEST BASIN
MIDDLE BASIN
EAST BASIN
EX. ABANDONED WATER TANK
PROPOSED ACCESS ASPHALT ROAD
RETAINING WALL (VISIBLE HT. = 6' MAX) WALL FACE SHALL HAVE A NATURAL APPEARANCE
SEE MWD NOTES (HEREON) REGARDING FENCING WITHIN MWD EASEMENT RIGHT OF WAY
EXISTING MWD ACCESS MANHOLE
M.W.D. ACCESS RAMP (UN-PAVED) S=10% MAX (GATED/RESTRICTED PER MWD REQUIREMENTS)
SEE MWD NOTES (HEREON) REGARDING UTILITIES CROSSING MWD EASEMENT RIGHT OF WAY
LOT 1
LOT 2
LOT 3
LOT 4 PRIVATE STREET "A STREET"
LOT 4 PRIVATE STREET "B STREET"
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
EXISTING SINGLE FAMILY RESIDENCE TO REMAIN
EXISTING POWER POLE TO BE RELOCATED
EXISTING STREET LIGHT TO REMAIN IN PLACE
PROP. RET. WALL (MAX. HT.=10') SCREEN/SOFTEN W/ LANDSCAPING
PROP. RET. WALL (MAX. HT.=6')
PROPOSED CURB
EX. CURB OUTLET
EXISTING CATCH BASIN WITH 30" RCP CONNECTION TO 36" RCP IN STREET; CONNECT NEW 36" RCP FROM SITE INTO WEST SIDE OF CB
PALM DRIVE
GRAND AVENUE
PROP. PRIVATE STREET
EXISTING POWER POLE TO REMAIN IN PLACE
PROPOSED CURB OUTLET
EX. CURB OUTLET & WALK
PROPOSED CURB & GUTTER
PROPOSED ACCESS ASPHALT ROAD
PROPOSED ACCESS ASPHALT ROAD
CREST ELEV.=1125.5
1056.0 CREST
LOW MID DIVERSION WALL
SCREEN/SOFTEN W/ LANDSCAPING
EXIST. DRAINAGE PATTERN (TYP.)
EXIST. 24" RCP
EX. 36" RCP
EX. 30" RCP
EX. 18" RCP
EX. 15" RCP
EX. 12" RCP
EX. 8" RCP
EX. 6" RCP
EX. 4" RCP
EX. 3" RCP
EX. 2" RCP
EX. 1" RCP
EX. 36" RCP
EX. 30" RCP
EX. 24" RCP
EX. 18" RCP
EX. 15" RCP
EX. 12" RCP
EX. 8" RCP
EX. 6" RCP
EX. 4" RCP
EX. 3" RCP
EX. 2" RCP
EX. 1" RCP
PROP. 36" RCP
PROP. 30" RCP
PROP. 24" RCP
PROP. 18" RCP
PROP. 15" RCP
PROP. 12" RCP
PROP. 8" RCP
PROP. 6" RCP
PROP. 4" RCP
PROP. 3" RCP
PROP. 2" RCP
PROP. 1" RCP
PROP. 36" RCP
PROP. 30" RCP
PROP. 24" RCP
PROP. 18" RCP
PROP. 15" RCP
PROP. 12" RCP
PROP. 8" RCP
PROP. 6" RCP
PROP. 4" RCP
PROP. 3" RCP
PROP. 2" RCP
PROP. 1" RCP
APN 8636-021-034
APN 8636-021-035
APN 8636-014-019
PRIVATE STREET EASEMENT PER PARCEL MAP 26376, PM 302-85, PG 13, AS LOT A MAP BOOK
EX. CURB OUTLET & WALK
EX. CURB OUTLET & WALK
EX. CURB & GUTTER
EX. CURB & GUTTER

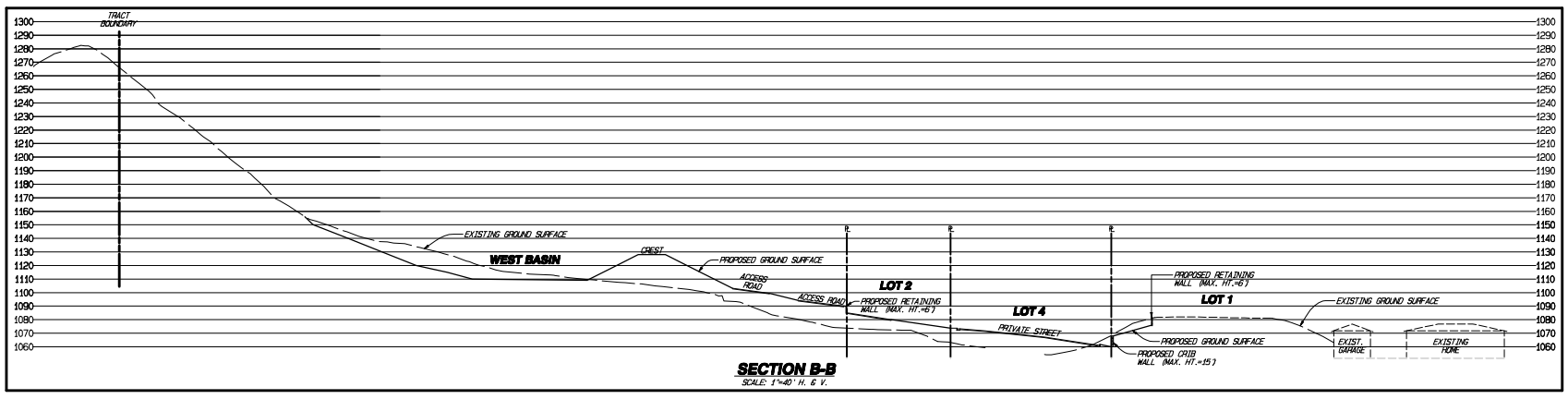
CROSS-SECTIONS



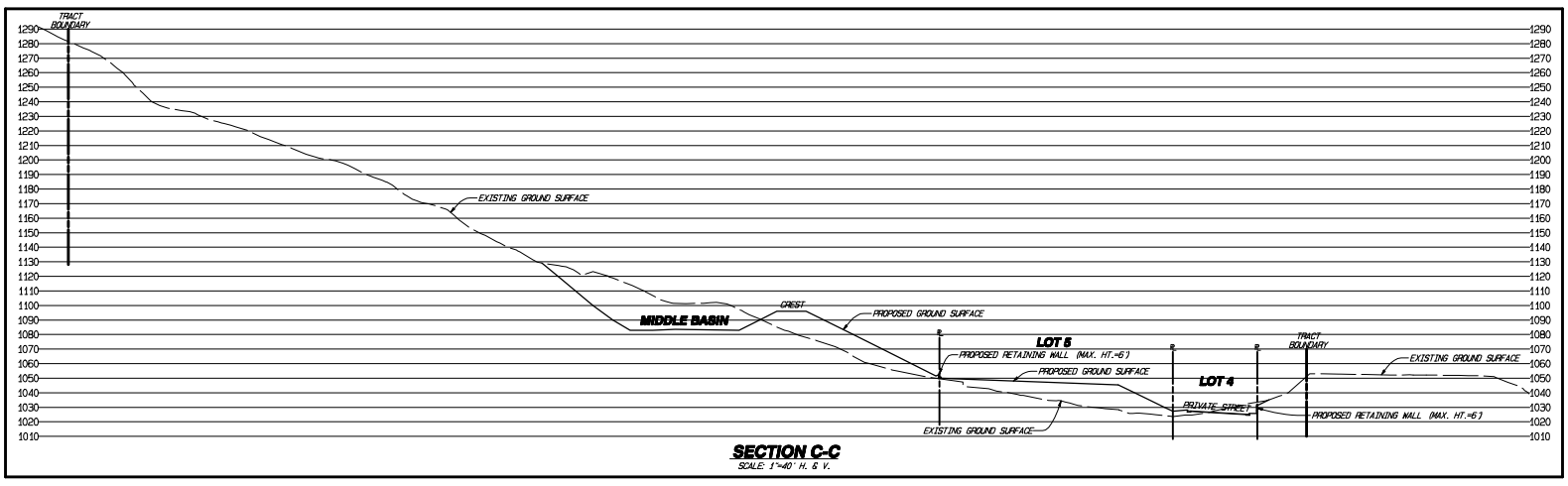
SECTION A-A
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REVIEWED - CORRECTIONS NOTED
NO RESUBMITTAL REQUIRED

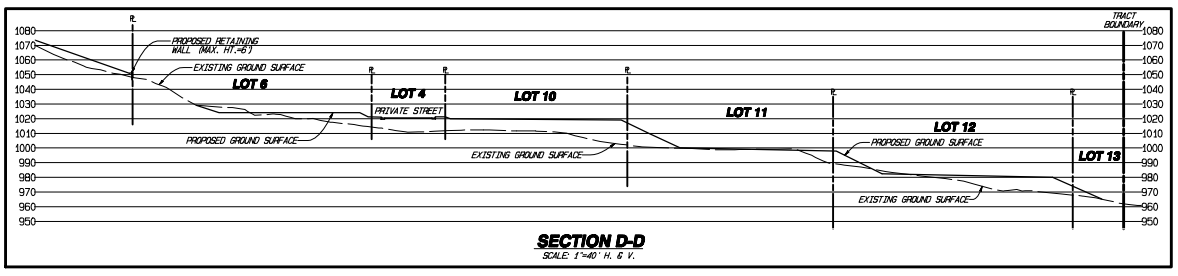
DATE July 5, 2019
W.O. NO.
SUBSTR. JOB NO. 2002-14-004
THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA



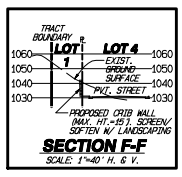
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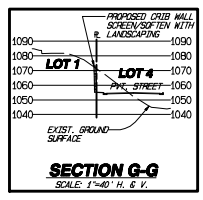
SECTION C-C
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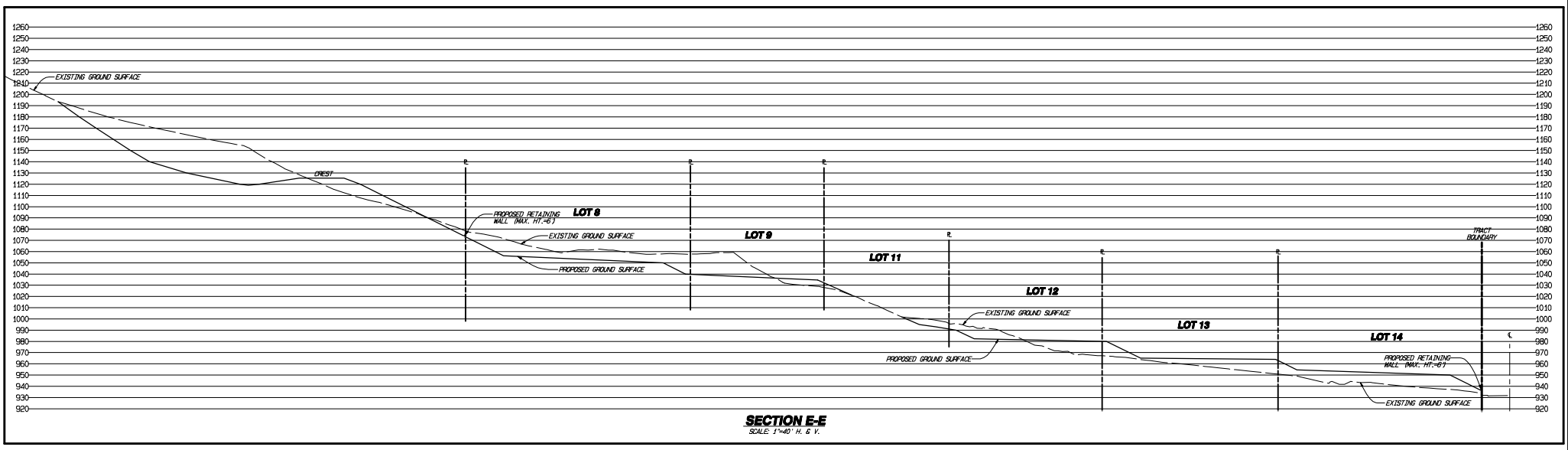
SECTION D-D
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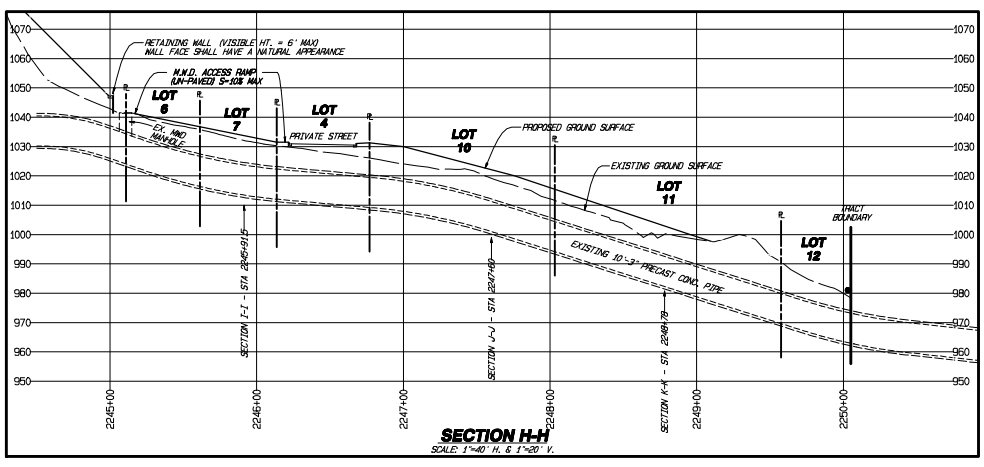
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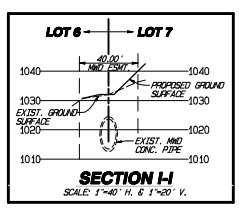
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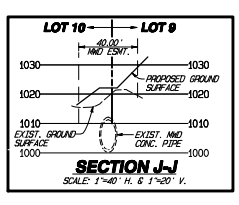
SECTION E-E
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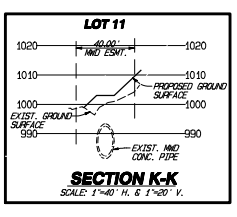
SECTION H-H
SCALE: 1"=40' H. & 1"=20' V.



SECTION I-I
SCALE: 1"=40' H. & 1"=20' V.



SECTION J-J
SCALE: 1"=40' H. & 1"=20' V.



SECTION K-K
SCALE: 1"=40' H. & 1"=20' V.

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CITY OF GLENDORA — ENGINEERING DIVISION

TENTATIVE TRACT & PRELIMINARY SITE DEVELOPMENT PLAN
TRACT NO. 72413

Prepared For:
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(909) 287-0658
alan@dreamlandinvestments1lc.com

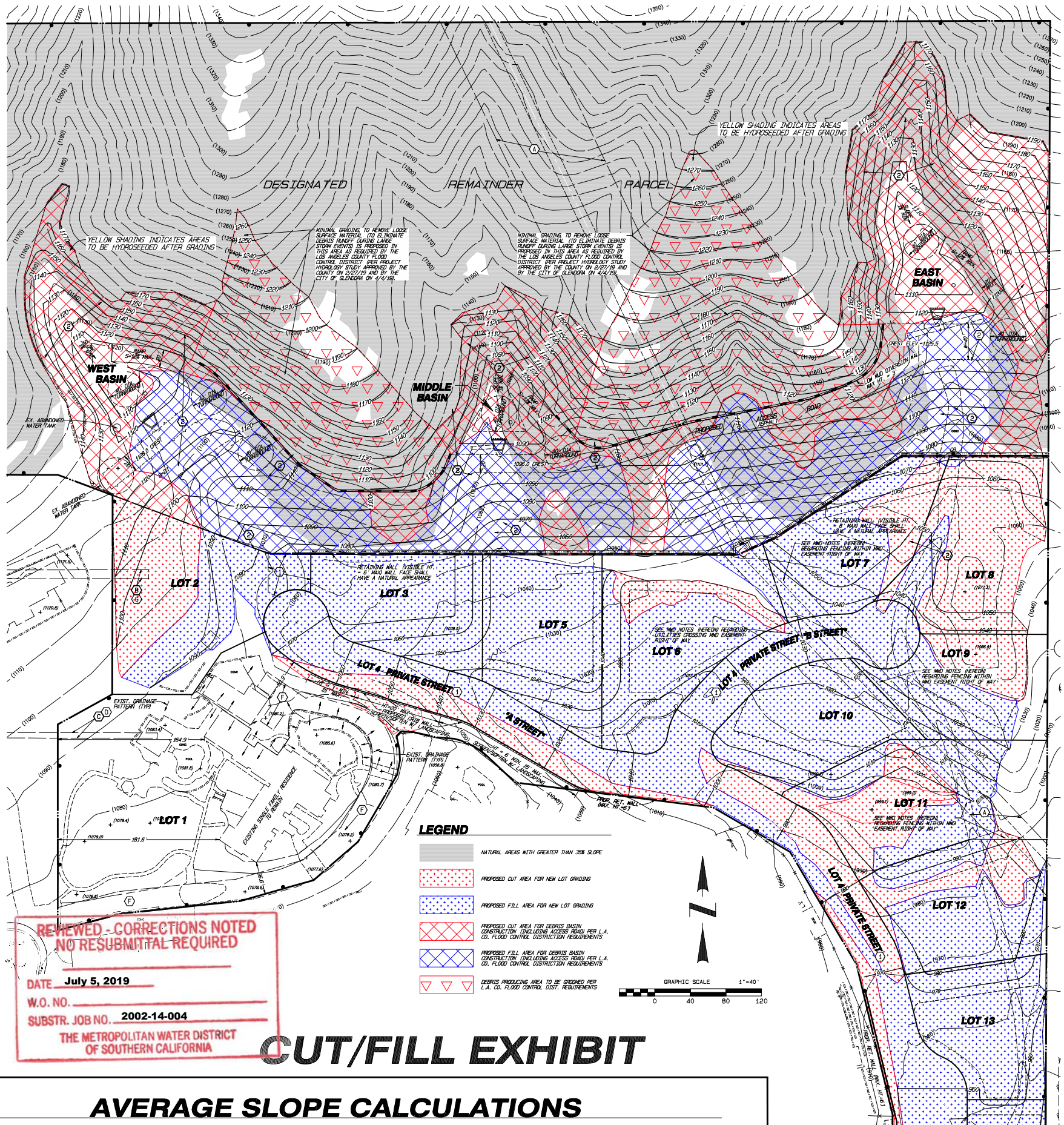
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btravis@WESTconsultants.com

REGISTERED PROFESSIONAL ENGINEER — SHERI T. GIRON — NO. 27886 — CIVIL — STATE OF CALIFORNIA

Scale: AS SHOWN
Drawn By: ALB
Sheet 4 Of 4 Sheets

JOB NO: 2084 PLOTTED: 6/20/2019



REVIEWED - CORRECTIONS NOTED
NO RESUBMITTAL REQUIRED
DATE July 5, 2019
W.O. NO.
SUBSTR. JOB NO. 2002-14-004
THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA

CUT/FILL EXHIBIT

AVERAGE SLOPE CALCULATIONS

A - Overall lot before subdivision
S = [0.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 114850 ft CUMULATIVE LENGTH OF CONTOURS
A = 27.072 ac AREA OF LOT
S = 48.79 % AVERAGE SLOPE

B - South portion of overall lot - before grading
S = [0.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 22255 ft CUMULATIVE LENGTH OF CONTOURS
A = 10.860 ac AREA OF LOT
S = 23.17 % AVERAGE SLOPE

C - Remainder parcel
S = [0.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 92587 ft CUMULATIVE LENGTH OF CONTOURS
A = 16.212 ac AREA OF LOT
S = 65.58 % AVERAGE SLOPE

Lot 2 - after grading
S = [0.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 1375 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.73 ac AREA OF LOT
S = 21.66 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 7949.7 SF

Lot 3 - after grading
S = [0.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 691 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.49 ac AREA OF LOT
S = 21.26 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 5336.1 SF

Lot 5 - after grading
S = [0.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 858 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.56 ac AREA OF LOT
S = 17.63 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 6098.4 SF

Lot 6 - after grading
S = [0.0023(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 1894 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.73 ac AREA OF LOT
S = 21.84 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
20% 6359.8 SF

Lot 7 - after grading
S = [0.0021(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 1.07 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.50 ac AREA OF LOT
S = 25.46 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
20% 4356. SF

Lot 8 - after grading
S = [0.0021(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 1181 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.67 ac AREA OF LOT
S = 28.7 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 7296.3 SF

Lot 9 - after grading
S = [0.0021(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 933 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.46 ac AREA OF LOT
S = 21.33 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 5009.4 SF

Lot 10 - after grading
S = [0.0021(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 853 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.48 ac AREA OF LOT
S = 21.85 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 5227.2 SF

Lot 11 - after grading
S = [0.0021(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 1999 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.72 ac AREA OF LOT
S = 31.93 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
20% 6272.4 SF

Lot 12 - after grading
S = [0.0021(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 947 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.57 ac AREA OF LOT
S = 19.11 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 6207.1 SF

Lot 13 - after grading
S = [0.0021(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 841 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.46 ac AREA OF LOT
S = 21.03 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 5009.4 SF

Lot 14 - after grading
S = [0.0021(I)(L)]/A
I = 5 ft CONTOUR INTERVAL
L = 861 ft CUMULATIVE LENGTH OF CONTOURS
A = 0.46 ac AREA OF LOT
S = 20.28 % AVERAGE SLOPE
LOT COVERAGE ALLOWED
15% 5009.4 SF

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CITY OF GLENDORA — ENGINEERING DIVISION

TENTATIVE TRACT & PRELIMINARY SITE DEVELOPMENT PLAN
TRACT NO. 72413

Prepared For:
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Prepared By:
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btravis@WESTconsultants.com

REGISTERED PROFESSIONAL ENGINEER SAMUEL I. GIRON NO. 27886 CIVIL STATE OF CALIFORNIA

Scale: AS SHOWN
Drawn By: ALB
Sheet 3 Of 4 Sheets
JOB No: 2084 PLOTTED: 6/20/2019

Appendix D

Geotechnical Investigations

G.A. Nicoll
and Associates, Inc.

November 26, 2013
Project 6817-04

Mr. Alan Chou
Dreamland Investments, LLC
c/o Giron Engineers, Inc.
654 S. Glendora Avenue
Glendora, California 91740

Subject: **PRELIMINARY REPORT OF GEOTECHNICAL INVESTIGATION**
Tentative Tract 72413
North Grand Avenue and West Palm Drive
Glendora, California
APN 8684-045-004

Dear Mr. Chou:

1. INTRODUCTION

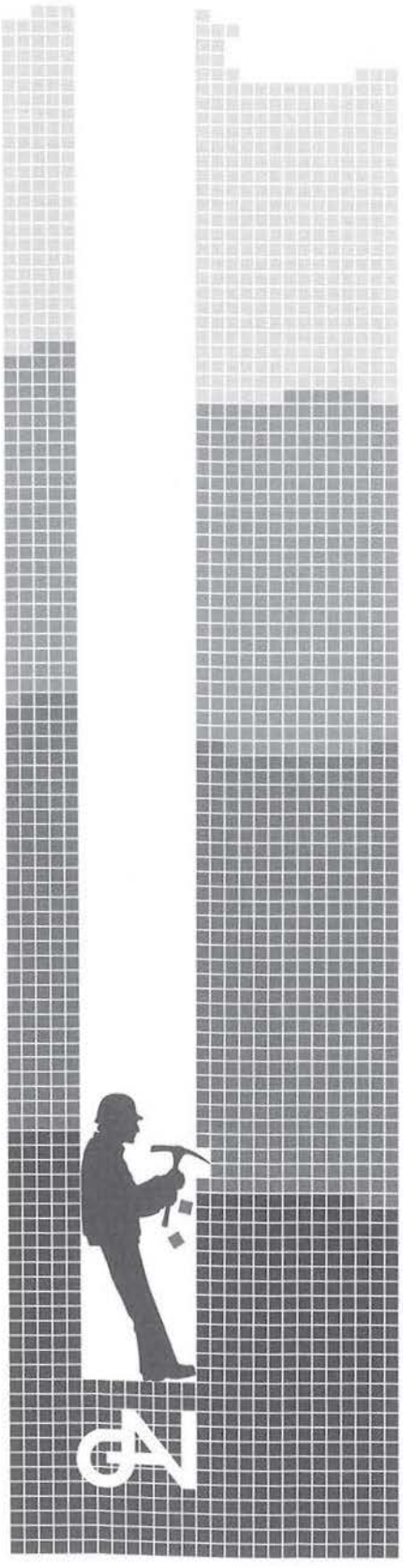
a) This report presents the results of our geotechnical investigation for Tentative Tract 72413 located in Glendora, California. For this report, the proposed development will be referred to as the Development Site and The Tentative Tract boundary as the Project Site.

b) The purpose of our investigation was to determine the geologic conditions at the Project Site and to provide geotechnical recommendations for the future site development.

c) Reports, plans, maps and photographs utilized during our investigation are listed in *References, Appendix A*.

d) A Tentative Tract Map showing topography, the proposed development boundaries and site conditions has been provided by Giron Engineering, Inc. A copy of this plan was modified and utilized as base maps for our *Geologic Map, Plate 1* in the *Field Exploration, Appendix B*.

e) The proposed improvements are anticipated to include 12 to 14 lots, access roads and drainage improvements. The development of the Site Development will be by cut/fill grading to construct building pads, slopes and other improvements. Access to the Project Site will be from the north end of North Grand Avenue.



2. SCOPE

The scope of our services for the project was as follows:

a) Review of available reports, geologic maps, plans and aerial photographs pertaining to the site and general area with regard to soils and geology. (A list of references is included in *References – appendix A*);

b) Review of fault hazard studies and site seismicity;

c) Subsurface exploration consisting of 27 test pits and 10 borings to determine the subsurface conditions at the site;

d) Sampling and logging of subsurface materials;

e) Surface geologic mapping at the site and on the surrounding hillsides and in the main canyons to the north;

f) Laboratory testing of selected samples;

g) Engineering and geologic analyses of the field and laboratory data;

h) Evaluation of rockfall hazard;

i) Preparation of graphic illustrations;

j) Preparation of this report presenting our findings, conclusions and recommendations.

3. FIELD INVESTIGATION

Details of the field investigation, including *Logs of Test Pits and Borings* are presented in *Appendix B*.

4. LABORATORY TESTING

Descriptions of the laboratory testing and the results are presented in *Laboratory Testing Program, Appendix C*.

5. SLOPE STABILITY ANALYSES

The details and results of our slope stability analyses are presented in *Slope Stability Analyses, Appendix D*.

6. SITE CONDITIONS

6.1 Site Location

a) The Project Site address is North Grand Avenue and West Palm Drive. The site is located north of West Palm Drive and the residential development at Cloverview Drive, in the City of Glendora. Future access to the Site will be via the north end of North Grand Avenue.

b) The site location is shown on the *Location Map, Figure 1.*

6.2 Site Conditions

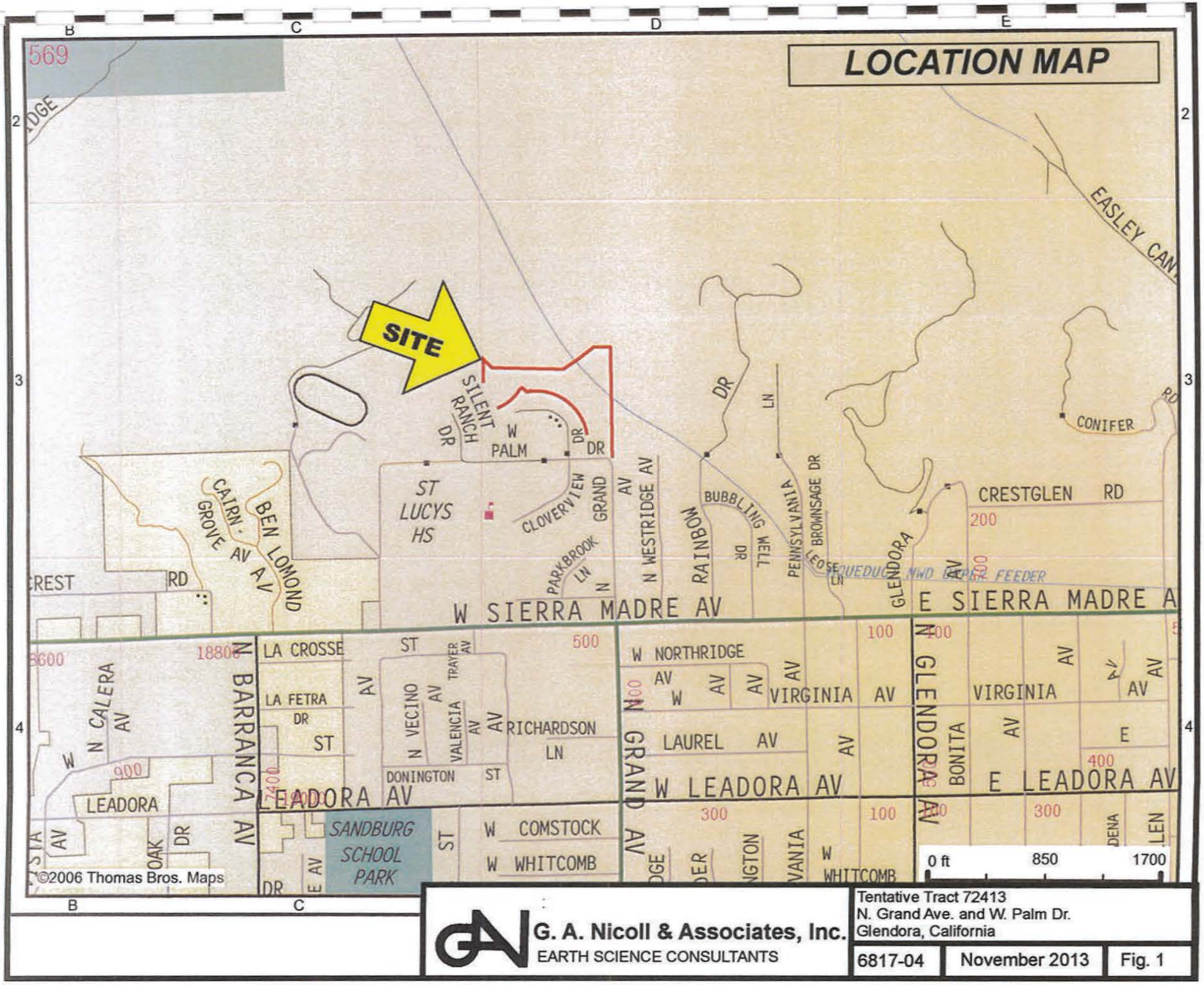
a) The conditions at the Project Site and surrounding area are shown on the *Project Site Map, Figure 2.*

b) The Site Development is located within a roughly east-west-trending valley, having several small canyons and gullies and contiguous ridges on the north side, and a narrow, north-south-trending ridge located along the east side of the site. For the most part the canyons, gullies and ridges are situated off the planned development boundaries.

c) The main canyon bottom proper slopes at gradients ranging from 6:1 to 10:1 (H:V) toward the east and south. The amsl elevations range from 1,130 feet at the west end of the Development Site, to 934 at the south end. The topographic conditions at the Project Site are shown on the *Site Map, Figure 2.*

d) The slopes north of the Development Site are natural slopes consisting of granitic rock. The slopes along the east side are a mixture of Granitic and Volcanic rocks. Man-made fill slopes and some natural slope consisting of old alluvium are situated along and south and west tract boundary. The gradients of the natural slopes in the north half of the Development Site range from 1.5:1 (H:V) to 2:1 (H:V), with some local areas that are steeper and flatter.

e) Most of the Development Site has been disturbed by the construction of earthen roads, rock retaining walls and stairways, pads for small buildings and during the construction of the MWD Upper Feeder Pipeline and the concrete drainage ditch. Cuts in the natural slope were made along the northerly Development Site boundary during the grading for an existing road and the construction of rock retaining walls and steps. Some of these features were constructed many years ago.

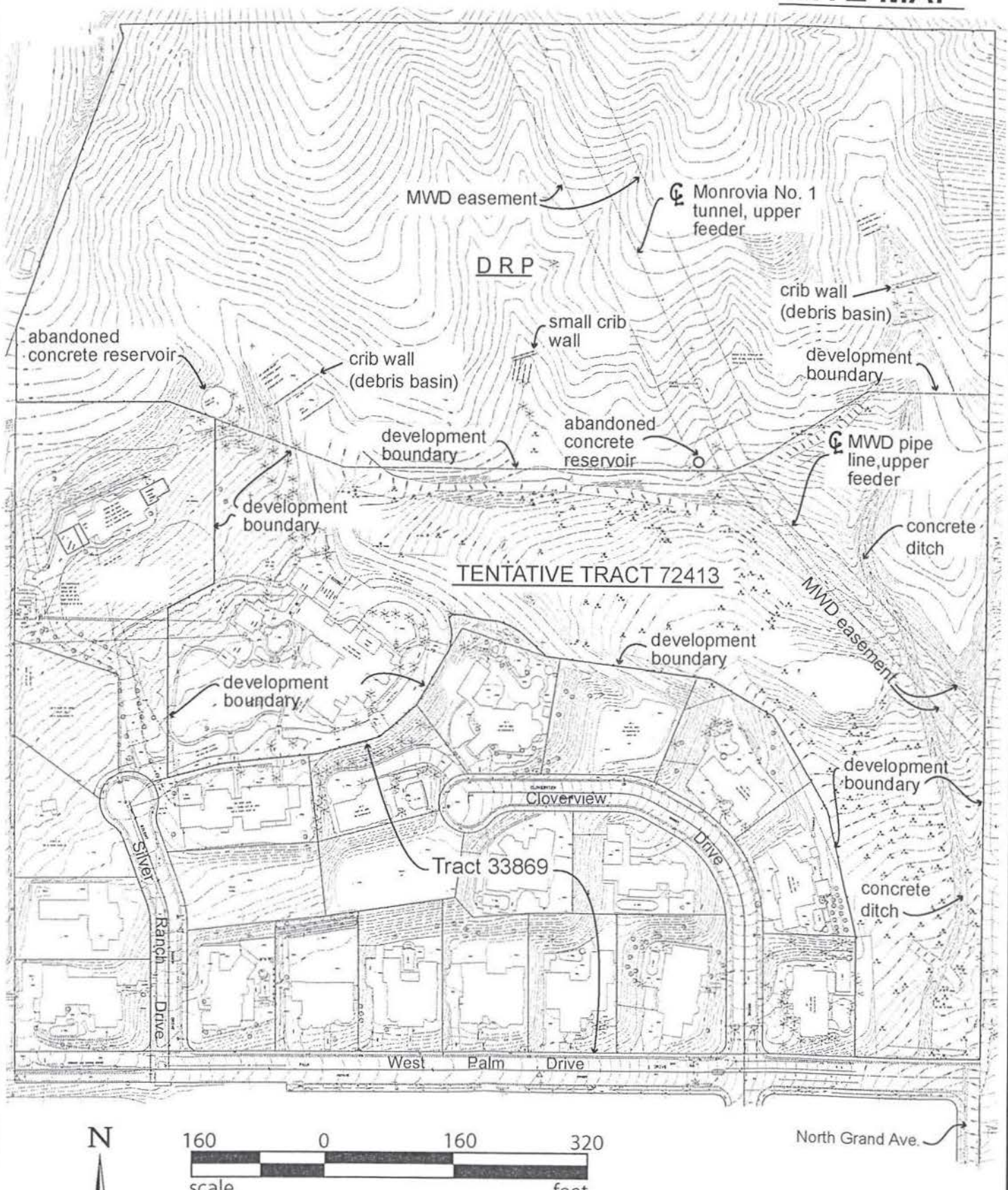


G. A. Nicoll & Associates, Inc.
EARTH SCIENCE CONSULTANTS

Tentative Tract 72413
N. Grand Ave. and W. Palm Dr.
Glendora, California

6817-04	November 2013	Fig. 1

SITE MAP



G. A. Nicoll & Associates, Inc.
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Tentative Tract 72413
N. Grand Ave. and W. Palm Dr.
Glendora, California

6817-04	November 2013	Fig. 2

6.3 MWD Upper Feeder, Tunnel and Pipeline

a) A portion of the MWD Upper Feeder water supply system consisting of a 10-foot diameter, pre-cast, reinforced concrete pipe crosses beneath the Development Site. It connects to the southeast portal of the Monrovia No. 1 tunnel at a location 60 feet off the northerly tract boundary. The tunnel consists of a circular, 10-foot diameter, concrete-lined structure. The tunnel and pipeline are part of the Colorado River Aqueduct System.

b) The tunnel was constructed during 1937. It was completed May 17, 1937. The tunnel slopes down to the northwest at a 0.75% grade. The pipeline was constructed during 1937-38. The pipe sections were bedded in a concrete cradle and backfill was accomplished by a combination of "puddling and flooding". The location of the pipeline and the tunnel portal area are shown on the *Site Map, Figure 2*.

c) An MWD, As-Constructed/Graded Plan and Profile, MWD Figure B-21426, dated 1966, shows the pipeline on the site and the area to the southeast. The tunnel portal is located at the west end of the figure. The profile shows ground cover over the pipe ranging from less than 2 feet under the concrete ditch, to about 16 feet at the tunnel's east portal. A copy of the plan and profile is shown in the *MWD Upper Feeder Plan and Profile, Figure 3*. The figure includes the locations of borings, test pits and geologic cross sections in the map and profile view.

7. GEOLOGY

7.1 Regional Setting

a) The Project Site is located in the southerly foothills of the San Gabriel Mountains, which are part of the Transverse Ranges Geomorphic Province of Southern California.

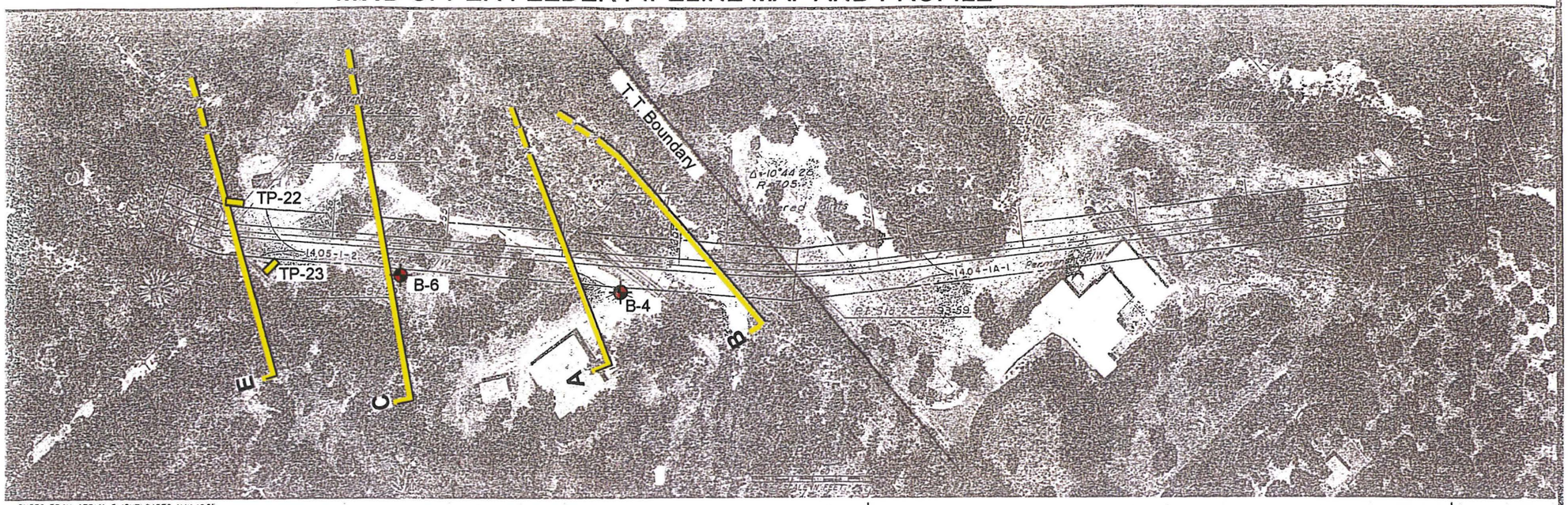
b) The San Gabriel Mountains are composed primarily of basement complex consisting of igneous and metamorphic rocks, covered locally by Tertiary-age rocks of the Glendora Volcanics. Older and Younger Alluvial deposits are located in valley and canyon areas. Some landslides are present. Manmade fills are located in the developed areas.

MWD UPPER FEEDER PIPELINE MAP AND PROFILE

SPECIFICATIONS No. 115 SHEET No

KEY

- B-6 — Boring, Plan View
- B-6 — Boring, Profile View
- TP-23 — Test Pit
- Geologic Cross Section, Map View (from Geologic Map)
- E-E' — Geologic Cross Section Line Intersection



c) The primary fault in the area associated with the San Gabriel Mountains is the Sierra Madre Fault. The Sierra Madre Fault north of Pasadena splits into two fault segments. The south branch appears to be overridden by the Sierra Madre Thrust in the area of Glendora.

d) The prevalent geologic conditions, from a regional perspective, are shown on the *Regional Geologic Map, Figure B-1,* in Appendix B.

7.2 Project Site Geology

a) The geologic units underlying Tentative Tract 72413 consist primarily of Cretaceous-age granitic rock and Tertiary age volcanic rock that is covered in the valley area of the site by younger and older alluvium and a relatively thin layer of fill. Some colluvial soils are present at the base of the slopes.

b) Soil slips and slumps are present in the steep slopes. A small landslide is present along the northerly development boundary. A moderate size, questionable landslide may be present along the northerly development boundary.

c) The slope area in the northwest corner of the tentative tract was mapped as a rock slide in the 1964 Preliminary Geologic Map of the SW ¼ of the Glendora Development Quadrangle *(Reference 4)*. It is our opinion that the rock slide is not present.

d) A mapped segment of the Sierra Madre Fault crosses the Development Site. An unnamed, east-west trending fault cuts the narrow ridge along the east side of the development area.

e) The geologic conditions at the Project Site are shown on the *Geologic Map, Plate 1*. Profiles of the subsurface conditions are shown on *Geologic Cross Section A-A' through I-I', Figures B-2 through B-5*, respectively.

7.2.1 Cretaceous Age Granitic Rocks (Cgr)*

a) Cretaceous Age Granitic Rocks underlie the young and old alluvium in the valley beneath most of the Development Site, and are exposed in the hillsides to the north, and a portion of the narrow ridge along the east side of the Development Site.

b) The granitic rock consists of generally massive, light gray granodiorite containing some apilite dikes. The granitic rock was found to be soft to moderately hard in the weathered zone and hard where unweathered. It is generally closely to very closely fractured due to past tectonic folding and faulting of the bedrock in the area.

c) The granitic rocks appear pale yellowish-gray to white where they lie in close proximity of faults or fault-related shear zones. Some clay gouge is present in shear zones.

7.2.2 Glendora Volcanics (Tgv)*

a) Bedrock of the Glendora Volcanics underlies the south half of the narrow ridge and the end of the Development Site. The volcanic rock underlies the younger and older alluvium in the southeast portion of the Development Site.

b) The Glendora Volcanics consist of gray to brown andesite flows and breccia. The volcanics exposed in the steep, southerly slopes of the narrow ridge are light gray to white, soft and weathered. The volcanic rock in this area is sheared and closely fractured due to nearby faulting.

7.2.3 Old Alluvium (Qalo)*

a) Pleistocene age Old Alluvium overlies bedrock and is covered by younger alluvium in the valley area, beneath most of the Development Site. The old alluvium underlies the elevated terrace area that supports the existing Tract 33869 to the south and is exposed along portions of the north-facing slope at the southerly tract boundary. The old alluvium underlies the elevated terrace area at the northwest corner of the Development Site.

b) The Old Alluvium encountered in our test pits and borings consisted of fine- to coarse-grained, yellowish-brown, medium dense to dense Silty SAND with rock fragments and Gravelly SAND with Silt. With the exception of the very moist, old alluvium found in the area of Boring B-1, the material is mostly slightly moist to moist.

c) The rocks in the old alluvium were found to be angular to sub angular, mostly gravel-size clasts of granitic composition.

Some cobble-size rocks were found. The rock constituents in the old alluvium in Boring B-4 had a mixture of volcanic and granitic clasts.

d) The volume of rocks in the old alluvium ranged from 15 to 35%. The grain-size test results indicated that the material is generally a well-graded mixture of sand and gravel-size rocks.

e) The data from our boring and test pits excavated in the area of the MWD pipeline indicate that the pipe is embedded in dense old alluvium. The profile in *Figure 3* shows that the pipe is embedded in similar material, which is interpreted as being the old alluvium.

7.2.4 Younger Alluvium (Qal)*

a) Holocene age Younger Alluvium underlies fill. It consists of mixtures of generally loose to medium dense, slightly moist, fine- to coarse-grained Gravelly SAND with Silt and Silty SAND with Gravel cover the Old Alluvium. Some layers of Sandy GRAVEL are present.

b) Grain-size analyses of various samples indicate that the volume of rocks ranges from 20 percent to 35 percent, and up to 50 percent in some of the more gravelly layers and lenses. Some cobble- to boulder-size rocks are present, usually found as isolated rocks and crude lenses.

c) The rocks were found to be mostly angular to sub-angular, with some having moderately rounded edges. The young alluvial materials are of granitic origin derived from the slopes and canyons to the north and west.

7.2.5 Colluvium (Qcol)*

a) Colluvial deposits were found at the base of the slopes along the proposed development boundary and in the topographic saddle along the east side of the Development Site. In some areas the colluvium is covered with fill.

b) The colluvium consists of mixtures of generally loose, Gravelly SAND and Silty SAND with Gravel. The colluvial deposits in the saddle appear to be older than those found along the toe of the natural slopes. The deposits in the saddle area, as shown in

Test Pit TP-27, consisted of mixtures of sand and gravel-size rocks with some isolated cobble-size rocks and some clay.

7.2.6 Landslides (Qls)*

a) A small landslide is present, mostly within the DRP area, near the westerly boundary of the tentative tract.

b) The landslide appears to have occurred within old alluvium, along a sandy clay layer at the base of the old alluvium. A clay gouge layer was found at the base of the slide. The slide probably occurred prior to the deposition of the younger alluvium when the valley was deeper. The subsequent deposition of the younger alluvium has formed a natural buttress at the toe of the slide.

c) No ground water was found within the landslide material. Seepage water was encountered within the bedrock below the old alluvium.

d) Stability analyses conducted for the landslide resulted in favorable static and pseudostatic factors of safety.

7.2.7 Questionable Landslide (Qls?)*

a) An area designated as a questionable landslide may be present at to the northerly Development Site boundary.

b) The topographic expression of the slope area above the boundary line and the possibility that some of the shears observed in Borings B-2 and B-3 may be related to landslide movement and not all tectonic features is the basis for this interpretation.

c) No ground water was observed in the material within the suspected landslide. Slight seepage was found in the bedrock about 22 feet below the suspected slide in Boring B-2.

d) If the questionable landslide is present, the toe of the slide has been covered by old alluvium and fill. Stability analyses resulted in favorable static and pseudostatic factors of safety.

7.2.8 Slumps ( ) *

a) Several slumps were observed during subsurface exploration and field mapping within and just north of the proposed development area.

b) The slumps occur with areas of thick colluvium along the northwesterly development boundary and along the very steep slopes in the soft and faulted granitic and volcanic rock on the west side of the narrow ridge within the development area.

c) The observed and estimated depths of these slumps range from 7 to 10 feet.

7.2.9 Soil Slips ( )*

a) Soil slips occur as relatively thin features in the very steep slopes on the east, west and south sides of the narrow ridge. The slips occur within the residual soils and very weathered and fractured granitic and volcanic rocks.

b) The soil slips on the west and south slopes of the ridge were initiated following the manmade cuts made for the concrete drainage ditch and the MWD pipeline construction.

7.2.10 Undocumented Fill (FILL)*

a) Undocumented fill covers most of the valley bottom area within the proposed development area, covering mostly old alluvium. The observed thickness ranges from 3 to 8 feet, with an average of 4 feet.

b) The materials encountered consisted of fine- to coarse-grained, dry to slightly moist, loose to medium dense Silty SAND with Gravel and Gravelly SAND with Silt. The volume of rocks ranged from 20 to 50 percent, based on field observations and the results of grain-size analyses.

c) The undocumented fill was placed during the early road and pipeline construction, and during the construction of the MWD pipeline and Girl Scout camp improvements.

*Indicates the symbol on the Geologic Map, Plate 1

d) No documentation was found during our search of the MWD archives that recorded the compactive effort for the pipeline backfill along the sides and over the pipe. From our research, the available data indicates that the backfill is granular and that it was flooded to achieve compaction. The bottom of the pipe is supported by a concrete cradle.

7.2.11 Compacted Fill ($FILL_c$)*

Compacted fill is present on the adjacent Tract 33869. The Report of Compaction Tests for Tract 33869 by Duco Engineering, Inc. *(Reference 10)* documents the testing and approval of the fill placed during tract grading.

7.3 Geologic Structure

a) The granitic rocks are mostly massive, lacking foliation structure. Some minor foliation was observed during field mapping that was probably related to flow banding within the granitics.

b) Tectonic activity along segments of the Sierra Madre Fault has caused folding and shearing of the bedrock on the site and the slopes to the north. The bedrock on the Project Site is closely fractured with omni-directional fracturing.

c) Only crude, generally horizontal to slightly dipping layers were found within the old alluvium.

7.4 Faults

a) The Sierra Madre Fault Zone is often divided into five segments labeled as A through E. Segment D of the fault zone has a number of strands that cut the bedrock and underlie the valley alluvium in the Glendora area. A review of the USGS data base for the "D" segment of the Sierra Madre fault zone indicates that the mapped splays of the fault in the Glendora area are listed as Quaternary age, with movement younger than 130,000 years and older than 15,000 years, indicating that the faults are not active.

b) A Regional Fault Map, prepared by *RBF Consulting for the City of Glendora Safety Element Program, Figure B-6*, shows the "North Branch" of the Sierra Madre Fault located about one-half mile north of the Project Site. The map shows an east-north, east-trending segment of the Sierra Madre Fault that crosses the site.

*Indicates the symbol on the Geologic Map, Plate 1

c) The *Dibblee Geologic Map of the Glendora and Mt. Wilson Quadrangles, Figure B-1*, shows a dashed fault line with an east-west trend crossing the narrow ridge and separating the Glendora Volcanics on the south side from the Cretaceous granitic rocks to the north.

d) The Dibblee Map shows portions of the fault line buried beneath an exposure of Pleistocene-Age older alluvium east of the site and beneath the old alluvium at the Development Site, indicating that the last movement along the fault to be pre-Holocene and not active. The USGS Quaternary fault database shows this strand as having movement older than 15,000 years.

e) A photographic lineament study was conducted using aerial photographs dated 1928, 1938 and 1953, and a Google Earth image dated 3/15/2006. Four lineaments, PL-1 through PL-4, were evaluated and plotted. The lineaments are shown on the *Photographic Lineament Map, Figure B-7, in appendix B*. The Google Earth image and the 1953 photo were used for Figure B-7 since they had the best resolution.

f) Photo Lineament PL-1 is located along the general alignment of the aforementioned east-northeast-trending fault that crosses the site. Photo Lineament PL-3 is located along the trend of the Dibblee fault that cuts the narrow ridge on the site. PL-2 is located along an old road and PL-4 lies along the MWD pipeline.

g) A number of shears were found in the borings that were excavated in the granitic bedrock in the area of the two fault segments that cross the site. None of the shears observed had any striations or grooves that would indicate a trend of fault movement, such as normal or strike-slip displacement.

h) The borings that encountered older alluvium overlying sheared bedrock showed no signs of disturbance within the old alluvium, indicating that the latest fault movement was older than the Pleistocene-age old alluvium.

i) The segment of the Sierra Madre Fault that crosses the site was investigated by Bob Dickie Geotechnical, Inc. on Tract 33869 to the south *(Reference 3)*. 200 feet of fault trenching within the old alluvium showed no indication of faulting. No reports of fault-related disturbance were found during removal and in cuts in the old alluvium on Tract 33869 during rough grading.

j) No active faults were found during the MWD investigation or construction phase for the Monrovia No. 1 Tunnel or the pipeline.

k) Based on our findings, it is our opinion that there are no active faults on the site.

7.5 Landslides

a) Based on a review of published and unpublished geologic maps, including the CGS Landslide Inventory Map and SHZR-021 and SHZR-025, no landslides designated as definite or probable landslides are present. No evidence for landsliding was found within the Tentative Tract.

b) The *Landslide Inventory Map for the Glendora Quadrangle, Figure B-8*, shows a landslide listed questionable and dormant located west of the Tentative Tract. A very small segment of the west side of this feature is located at the east tentative tract boundary, as shown on the *Geologic Map, Plate 1*. The future movement of landsliding within the area of this questionable landslide feature is considered unlikely. If movement were to occur, it would only impact a very small portion of the NEC of the proposed development area.

c) The known landslide and the questionable landslide addressed in Sections 7.2.6 and 7.2.7 were analyzed and are considered grossly stable in their current conditions. Some removal of loose materials at the toe of the known landslide is anticipated.

7.6 Rock Slides

a) The CDMG 1964 Preliminary Geologic Map of the SW ¼ of the Glendora Quadrangle shows a mapped rockslide within the tentative tract boundaries, in the hillside area west of the MWD Upper Feeder Tunnel *(see Plate 1)*.

b) Based on surface mapping on the hillside and in the canyon along the west side of the site, the presence of a rockslide in this area is considered unlikely. Furthermore, no mapped landslides are shown on the more current geologic maps in the area.

8. GROUND WATER

a) The project site does not have a ground water scheme typical of an alluvial valley and no free ground water is present beneath the Development Site. No ground water is shown to be present beneath the Project Site on the City of Glendora General Plan Map SAF-4, or in the USGS OFR 98-16.

b) Several springs are present at elevations of approximately 1400 feet in the canyons to the east and west of the tentative tract. The springs may be related to a fault or shear zone that may be present in the hills north of the site, and acting as a ground water barrier to the flow of the perched water in the fractured granitic bedrock above.

c) During the early years at the site, perched ground water was tapped from the fractured granitic rock by the use of water tunnels and iron pipes excavated into the hillside north of the Development Site. The water was used for domestic and irrigation at the site and the area to the south.

d) Perched water was encountered in the fractured granitic rock in Boring B-1 at a depth of 24 feet. The level in the boring stabilized at 22 feet (elevation 1041 feet), within the lower 2 feet of the old alluvium.

e) Very slight seepage was encountered in Boring B-2, approximately 300 feet to the east of Boring B-1, and at an elevation of 989 feet, or 52 feet deeper than the Boring B-1 level. No seepage water was found in Boring B-3; maximum depth drilled 59 feet, elevation 966 feet.

f) This would indicate that a fault-controlled ground water barrier may be present between Borings B-1 and B-2.

g) If a fault-controlled barrier is present, it would be located on the northwest side of the branch of the Sierra Madre Fault that crosses the site.

h) Perched water was found in the fractured granitic rock in Boring B-7, located at the northeast corner of the Development Site. Seepage water was encountered at 16.5 feet; elevation 1,059 feet. Since no seepages were found in Boring B-8 to the maximum depth drilled of 65 feet, elevation 1,011 feet, a difference of 48 feet, a fault-controlled ground water barrier may be present in the saddle area between the two borings.

i) No seepages were encountered in any of the borings drilled along the MWD pipeline; maximum depth drilled of 50 feet or elevation 950 feet.

9. SEISMICITY

9.1 General

a) Seismic risk in Southern California is a well-recognized factor, and is directly related to geologic fault proximity to active or potentially active fault zones, and on the type of geologic structures. In relative terms, seismic damage is generally less intense in consolidated formations, i.e. bedrock, than in unconsolidated materials, such as alluvium.

b) In Southern California, most of the seismic damage to man-made structure results from ground shaking, and to a lesser degree from liquefaction and ground rupture caused by earthquakes along active fault zones. In general, the greater the magnitude of the earthquake, the greater the potential damage.

c) Seismic hazards at this site are attributed to ground shaking as a result of an earthquake epicentered on an active fault. Ground rupture is not expected to occur on the property as a consequence of fault movement during an earthquake.

d) Slight to intense seismic shaking can be expected during an earthquake centered on the active faults in the Southern California area.

9.2 Engineering Seismology

a) The site is not located within a currently established Alquist-Priolo Special Studies zone. The closest approach of a known active fault to the site is the Sierra Madre Fault, located 2.9 miles or 4.7 km to the west. The magnitude of a credible earthquake on that fault is on the order of 7.2 and the estimated peak ground acceleration is 0.634 (Campbell and Bozorgnia, 1997 Rev. – Alluvium).

b) The site is not located within an Alquist-Priolo Earthquake Fault.

c) The site details and seismic parameters are listed below:

i. Geographic Location: Latitude: 34.151261
Longitude: -117.873074

ii. Site Classification: D

iii. Site Occupancy Category: II

d) The 2010 CBC Seismic Parameters, utilizing the ASCE-7 Standard Analysis Option, are as follows:

i. Special Response Accelerations: $S_s = 2.617g$ $S_1 = 0.981g$

ii. Site Coefficients: $F_a = 1.0$ $F_v = 1.5$

iii. Maximum Considered Earthquake Spectral Response Accelerations:

$SM_S = 2.617g$ (0.2 sec. period)
$SM_1 = 1.471g$ (1.0 sec. period)

iv. Design Spectral Response Accelerations:

$SD_s = 1.744g$ (0.2 sec. period)
$SD_1 = 0.981g$ (1.0 sec. period)

v. Seismic Design Category:

E (based on occupancy category II and value of S_1 being greater than 0.75g, as indicated in Section 1613.5.6 of the 2010 CBC).

10. GEOLOGIC HAZARDS ASSESSMENT

This section generally follows the guidelines prepared by the California Division of Mines and Geology and most of the conclusions are presented on a subjective scale.

10.1 Seismic Hazards

10.1.1 Ground Surface Rupture

The property is not located within an Alquist-Priolo Earthquake Fault Zone for active faults and, therefore, ground rupture along a fault plane is not expected at the site.

10.1.2 Seismic Ground Shaking

a) Slight to intense ground shaking is possible at the site if an earthquake occurs on a segment of the active faults in the Southern California area.

b) Some areas of the project site are underlain by deposits of unconsolidated colluvium and uncertified fill, which will tend to amplify earthquake produced ground motion. However, it is planned to remove these materials within proposed structural areas of the site. Buildings and retaining walls should be designed to resist seismic lateral loads.

10.2 Secondary Seismic Hazards

10.2.1 Liquefaction

a) The site is not located within a mapped liquefaction hazard area, as shown on the State of California Seismic Hazard zones Map for the Glendora Quadrangle and on the City of Glendora General Plan Map SAF-4.

b) Liquefaction at the site will not occur since the site is underlain by coarse, granular, alluvial deposits and bedrock, and no shallow free ground water is present.

10.2.2 Seismically-Induced Landslides

a) The areas of proposed development are not located within an area designated as having a high potential for earthquake-induced landsliding, as indicated on the City of Glendora General Plan Map SAF-4 or the State of California Seismic Hazard Zones Map for the Glendora Quadrangle.

b) The project site and the surrounding area have endured some of the heaviest periods of rainfall recorded in the Los Angeles area, including the record rainfall in 2004-2005, and the powerful San Fernando and Northridge earthquakes, including a number of 5.0 to 5.9 magnitude of nearby active faults within the past 23 years, without the occurrence of landsliding in the hillside areas of the tentative tract.

c) Pseudostatic slope stability analyses conducted in the hills to the north of the area of proposed development resulted in favorable gross stability values. The results for granitic rocks are shown in *Appendix D*.

d) Therefore, we regard the potential for the occurrence of earthquake-induced landsliding as low.

10.2.3 Rockfall Hazards

a) Detailed mapping of the hillside areas found no areas of loose rocks or rock outcrops that would result in rock fall impacting the site.

b) The results of our rockfall evaluation indicate that the rockfall potential at the site is low.

10.2.4 Seismically-Induced Settlement/Compressible Soils

a) Strong seismic shaking can cause settlement by allowing sediment particles to become more tightly packed, thereby reducing pore space. Loose colluvium and fill is more susceptible to this phenomenon than others. Also, artificial fills, if not adequately compacted, may also experience seismically-induced settlement.

b) Since the existing fill and colluvium will be removed and replaced with compacted fill, settlement due to seismic shaking will not occur.

10.2.5 Tsunamis and Seiches

The conditions for tsunamis and seiches occurring are not present at the site.

10.3 Other Geologic Hazards

10.3.1 Expansive Soils

a) The observed on-site soils are mixtures of mostly sand and gravel-size rocks, and are considered to be low to non-expansive.

b) Samples of imported fill materials should be sampled and evaluated for their expansion potential.

10.3.2 Flooding, Erosion and Sedimentation

a) The planned development is not situated within a 100-year flood zone.

b) The site is located outside of any dam inundation areas, as shown on the City of Glendora General Planning Map SAF-5.

c) The existing old on-site and nearby concrete reservoirs are abandoned and will not pose a flood hazard.

10.3.3 Compressible Soils/Hydro Consolidation

a) Since all the colluvial and existing fill soils will be removed within the development areas during grading and the underlying alluvial soils are suitably dense, the potential for settlement due to compressibility of these soils is considered unlikely.

b) New fill will be placed and compacted to 90 percent relative compaction and optimum moisture content so that hydro consolidation will not occur in these materials.

10.3.4 Soil Slips and Slumps

The existing slumps and soil slips located within the Development Site will require removal or stabilization.

11. CONCLUSIONS AND RECOMMENDATIONS

11.1 General

a) Based on the field inspection, exploration and the laboratory test results and our experience, it is our opinion that the site will be suitable for the proposed development, from a geotechnical aspect, assuming that our recommendations are implemented.

b) We consider that the anticipated development at the site will not adversely affect, nor be adversely affected by the adjoining properties, with due precautions being taken.

c) Since the Tentative Tract Map does not have a grading plan, the recommendations in this report will be general in content and focused on providing the information needed for the most efficient use of the site and design of the future residential development.

d) Our findings and conclusions are based on our research, surface and subsurface exploration, laboratory test results and geologic and

engineering analyses, and our experience in the geotechnical field. Our conclusions and recommendations are listed as follows.

11.2 Grading

11.2.1 Removals

a) The existing fill, colluvium, soil slumps and loose younger alluvium are not considered adequate to support future fills and building loads and should be removed. The loose alluvium beneath the fill should be removed until at lest a minimum relative density of 85% is reached.

b) It is estimated that an average of 5 feet of removal will be required. Some deeper removals may be needed in areas where existing fill overlies colluvium and soil slumps, and in the toe area of the small landslide. All subsurface obstructions, such as pipes, concrete and rock foundations, the concrete drainage ditch, etc. should be removed offsite.

c) The removals should extend 5 feet beyond the future planned grading.

11.2.2 Overexcavation

a) Where future cut/fill transits will occur, or in cuts where there will be a transition from a soil unit to bedrock, the area should be overexcavated to provide at least 3 feet of compacted fill.

b) Cuts in the narrow ridge area at the east side of the Development Site will require at least 5 feet of overexcavation to compensate for irregularities in the subgrade and the presence of highly the expansive clay gouge, caused by faulting and shearing of the bedrock in this area.

c) The depth of disturbance from the removal of tree root bowls ranges from 3 to 5 feet deep. Some overexcavation where large trees are removed may be required beyond the normal removal depth of loose soils.

d) The depths of overexcavation should be reviewed by the Soil Engineer after grading plans are available and during rough grading.

11.2.3 Processing of Fill and Material Selection

a) The volume of rocks in the fill and alluvial deposits ranges from 20 to 50%. Most of the rocks are gravel size and can be reused as compacted fill. Any rocks exceeding 3 inches in diameter are considered oversize for use as fill.

b) However, to reduce the volume of potential export and subsequent import to replace the oversize rocks, it is recommended that rocks ranging from 3 inches to 6 inches can be placed as long as they are not concentrated, but scattered in the fill, and not placed within 12 inches of the bottom of the footing or slabs. They should not exceed 20% of the total fill volume.

c) In addition, future grading plans may show that there may be areas of deep fill that can accommodate rock disposal beds for oversize rocks.

d) If the faulted material in the narrow ridge area is excavated and used as fill, any expansive material should be mixed with the granular fill or buried in the deeper fills.

e) Import soils should consist of non-cohesive, low to non-expansive materials, with organic matter not exceeding 1%. All import materials should be observed and tested prior to import to the site. The import materials should be inspected upon delivery at the site prior to placement as fill.

11.2.4 Compaction Requirements

a) Reworking/compaction shall include moisture-conditioning/drying as needed to bring the soils to slightly above the optimum moisture content. All reworked soils and structural fills should be densified to achieve at least 90 percent relative compaction with reference to the laboratory compaction standard. The optimum moisture content and maximum dry density should be determined in the laboratory in accordance with the current ASTM Test Designation D1557.

b) Fill should be compacted in lifts not exceeding 8 inches (loose).

11.2.5 Excavating Conditions

a) Excavation of the fill and native soils may be accomplished using standard earthmoving or trenching equipment.

b) Moderate ripping will be required for the bedrock excavations. Blasting of the bedrock is not anticipated.

11.2.6 Shrinkage/Bulking

a) For preliminary earthwork computations shrinkage factor of roughly 10 percent for the loose alluvial soils is estimated. The shrinkage factor will increase if a significant amount of oversize rock requires export. (These do not include losses due to handling).

b) A 5 to 10% bulking factor is estimated for the granitic and volcanic rock

11.2.7 Expansion Potential/Sulphate Content

a) Based on our visual observations and our experience with similar materials in the area, the expansivity of the existing site soils are considered to be low to non-expansive. Generally granular soils and granitic rocks have a low sulphate content. The volcanic bedrock in the area generally has a high sulphate content that will require special provisions for concrete and for the protection of metal pipes.

b) Any imported material or doubtful material exposed during grading should be evaluated for its expansive properties and sulphate content.

11.3 Slope Stabilization

11.3.1 The Narrow Ridge Area

a) Buttressing of cut slopes excavated in the granitic and volcanic bedrock will be required to stabilize the faulted and sheared rock.

b) Buttress key dimensions are estimated to range from 20 to 40 feet wide and 3 to 5 feet deep, below the future pad grades. The backcut are typically cut at gradients of 1.5:1 (H:V).

11.3.2 Valley Area NE of MWD Pipeline

a) Future cut slopes in the area of the canyon outlet northeast of the MWD pipeline will require stabilization fills and small buttresses with key dimensions ranging from 12 to 20 feet. The key dimensions will depend on the cut slope height and the materials encountered. A backcut gradient of 1.5:1 is estimated.

b) The buttressing in this area should include the removal of a portion of the slump in the area of Boring B-9 (Section D-D') and the added fill will be sufficiently thick to buttress the remaining material.

c) Additional removals beyond the development boundary line may be needed if conditions exposed during rough grading warrant more removals.

11.3.3 Northerly, East-West Development Boundary

a) Stabilization fills will be required along the northerly east-west trending development boundary, from the MWD pipeline, west to the small landslide at Boring B-1.

b) The stabilization key should remove all the old fill, colluvium and loose alluvium, and extend to the development boundary. The keys should be 12 to 15 feet wide with backcut cut at a gradient of 1:1, with a possible 5-foot vertical cut at the top.

c) The stabilization should be constructed so as to stabilize the remaining thick colluvium and soft, fractured granitic rock north of the development boundary.

d) The extension of the stabilization backcut to the north, beyond the development boundary line, may be required if conditions exposed during rough grading warrant additional removals.

11.3.4 Northwest Corner Elevated Area

a) Any proposed cut slopes in the elevated, northeast corner of the development area should be undercut and stabilized with a 12- to 15-foot-wide stability fill.

b) The area of old fill, placed for the abandoned reservoir pad at the NEC of the Project Site, will require removal and/or stabilization if a future cut slope extends into the old fill.

11.3.5 Southerly Tract Boundary

Any proposed cut slopes in the existing north-facing slopes along the southerly tract boundary will require an 8- to 12-foot-wide stabilization fill.

11.3.6 Valley Area Proper

Where fill over cut slopes are planned, a minimum 12-foot wide stabilization key and fill will be needed to remediate the fill over cut transition, forming a uniform fill slope.

11.4 Fill Slopes

a) Fill slopes should be constructed at a 2:1 (H:V) gradient or flatter. Fill slopes constructed at 2:1 (H:V) or flatter should be grossly stable to heights of at least 30 feet, utilizing the on-site materials.

b) Based on the laboratory shear strength results, most of the on-site soils and the reconstituted granitic rocks are very granular and have very low cohesion values. The surficial stability analyses using the low cohesion values resulted in unstable surficial slope stability conditions.

c) Therefore, unless fines are added to the fill mixture, fill slopes, whether planned fill slopes or buttress fills, will require geofabric stabilization in the outer 10 feet. A second option, although probably more costly, would be the use of soil cement.

d) All fill slopes where the toe of the slope will be situated on a cut pad, will require an 8- to 12-foot-wide fill key, with a depth of 2 feet at the toe and 3 feet at the heel.

11.5 Subdrains and Backdrains

11.5.1 Canyon Subdrains

a) A system of subdrains will be required in areas of the development site where the accumulation of subsurface water may occur from the infiltration of rainfall and irrigation water.

b) Subdrain outlets should be connected to future storm drains. A typical canyon subdrain system includes 4- to 6-inch schedule 40 PVC pipe placed with the holes down, incased in 3 to 5 feet of gravel, all wrapped in filter fabric. The pipes should be placed at a 1 to 2% grade for proper flow.

11.5.2 Key and Backdrains

a) Subdrains will be required for the fill, stability and buttress keys. Backdrains will be required along the backcuts for stability fill and buttress keys.

b) A typical key and backcut drain should consist of a 4-inch diameter, schedule 40 PVC pipe with holes placed down encased in 2 to 3 cubic yards of gravel, wrapped in filter fabric.

11.5.3 Additional Recommendations

When grading plans are available, specific details regarding the location and placement of canyon, key and backdrains will be provided.

11.6 Surface Drainage Provisions

a) Positive surface gradients and other drainage provisions will be provided to replace the natural flow of surface water through the canyon and to replace the existing concrete drainage ditch.

b) A brow ditch should be placed at the top of slopes. A mid-slope drain and down drain will be required for slopes 25 feet or higher.

12. LIMITATIONS

a) Soils over an area show variations in geological structure, type, strength and other properties from what can be observed, sampled and tested from specimens extracted from necessarily limited exploratory borings. Therefore, there are natural limitations inherent in making geologic and soil engineering studies and analyses. Our findings, interpretations, analyses and recommendations are based on observation, laboratory data and our professional experience, and the projections we make are professional judgments conforming to the usual standards of the profession. No other warranty is herein expressed or implied.

b) In the event that during construction conditions are exposed which are significantly different from those described in this report, they should be brought to the attention of the Soil Engineer.

We appreciate the opportunity to be of service. If you have any questions, please contact us.

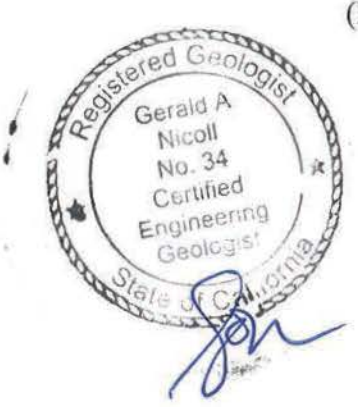
Very truly yours,

G. A. NICOLL AND ASSOCIATES, INC.

Gerald A. Nicoll
President, Engineering Geologist
CEG 34
(Exp. 12/31/13)

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Geotechnical Engineer
RGE 631
(Exp. 12/31/13)

GAN/WGN/GDH:cs





Enclosures:

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Direct Shear Tests	Figures C-7 through C-13
Slope Stability Analyses	Appendix D
Geologic Map	Plate 1

APPENDIX A

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Flight ID	**Date**	**Frame Numbers**
c-300_I.jpg	1928	L-171, L-172, L-173, L-145, L-146 and L-147
Axj-1938_3.jpg	1938	42-107 to 42-110
Axj-1952_15.jpg	1952	Axj-9k-82 to axj-9k-84

APPENDIX B

Field Exploration

a) The site was explored utilizing a backhoe with sampling capabilities to excavate 27 test pits, and 10 borings using a truck-mounted bucket auger drill rig and a track-mounted auger drill rig. The test pits and borings are shown on the *Geologic Map, Plate 1.*

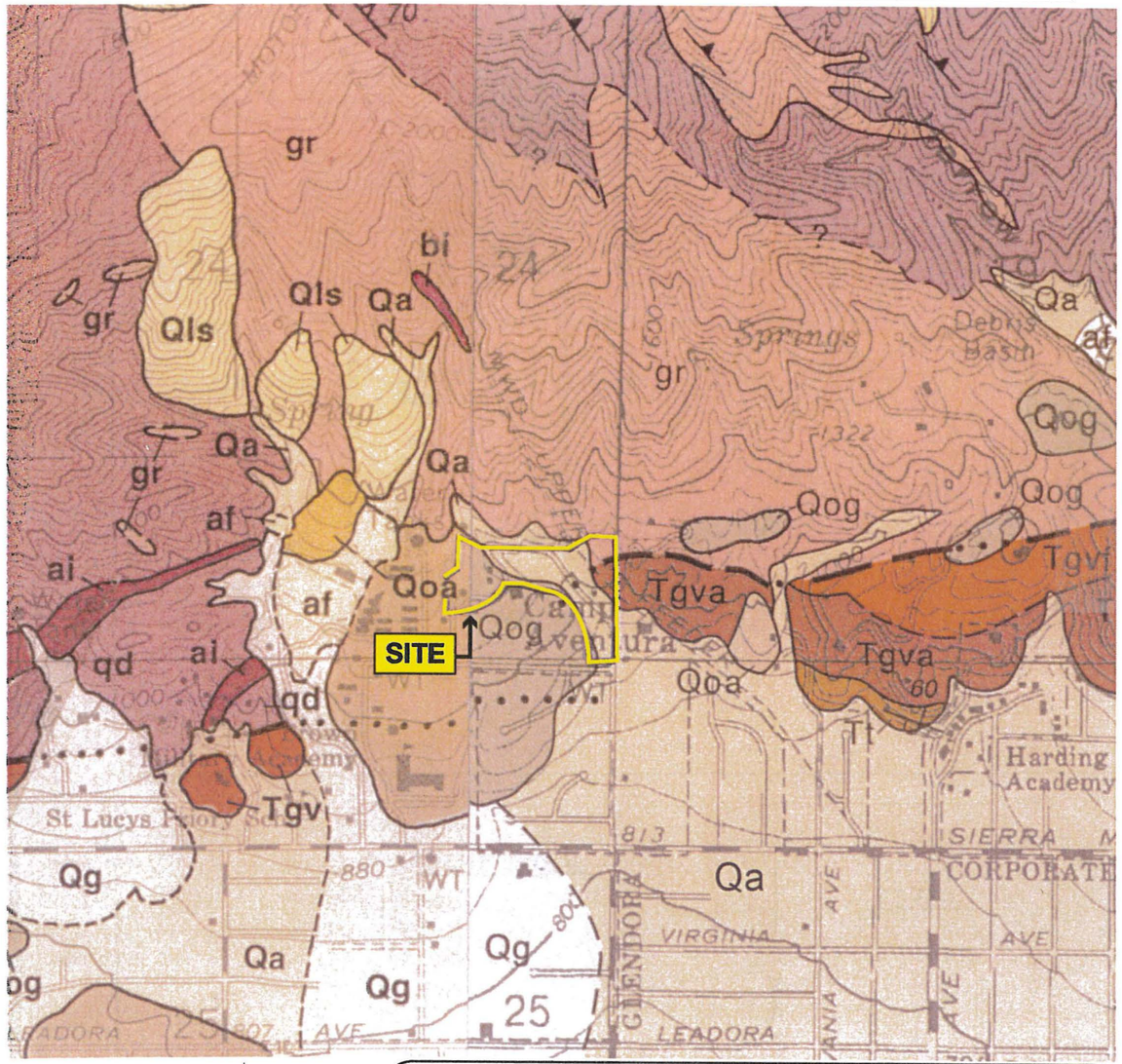
b) The soils and bedrock encountered in the excavations were logged and sampled by our Engineering geologist. The materials were classified in accordance with the Unified Soil Classification System described in *Figure B-10.* The Logs of the Test Pits and Borings are presented in *Figures B-11 through B-34.* The logs, as presented, are based on the field logs, modified as required from the results of the laboratory tests. Driven ring and bulk samples were obtained from the excavation for laboratory inspection and testing. The depths at which the samples were obtained are indicated on the logs.

c) No free ground water was encountered in any of the excavations. Seepage water was found in three borings as indicated on the logs.

d) Some caving occurred in several borings.

e) Extensive field mapping was conducted within the site and the off-site hillside and canyon areas to the north, to determine the geologic condition related to structure, landslides, rockfall, debris flows and soil slips that might impact the site.

REGIONAL GEOLOGIC MAP



KEY

Qa	Younger Alluvium	**gr**	Granitic Rocks
Qls	Landslide	**qd**	Quartz Diorite
Qoa/Qog	Older Alluvium	70	Strike and dip of Foliation
Tgvt/Tgva	Glendora Volcanics		Fault, dotted where buried
Tt	Topanga Formation		Geologic Contact, dashed where location uncertain

N

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scale feet

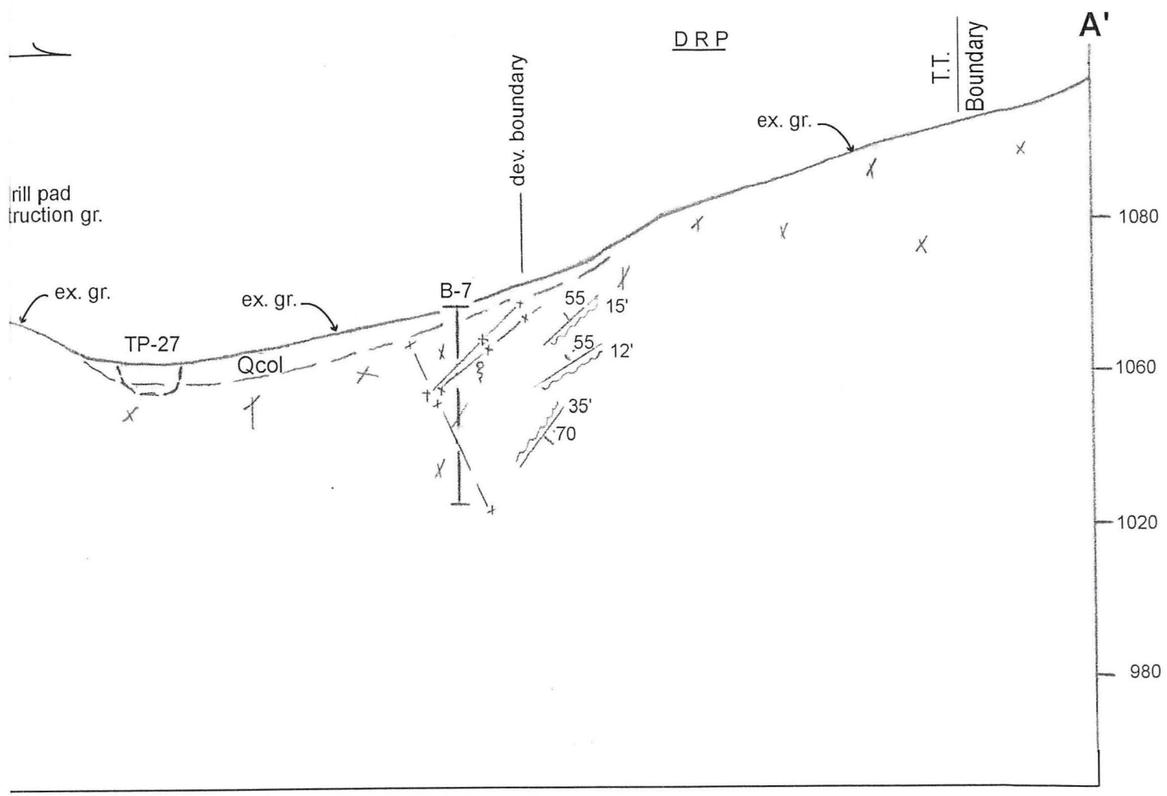
NOTE: Base Map modified from Thomas W. Dibblee, Jr., 2002, portions of the Geologic Map of The Glendora and Mt. Wilson/Azusa Quandrangles

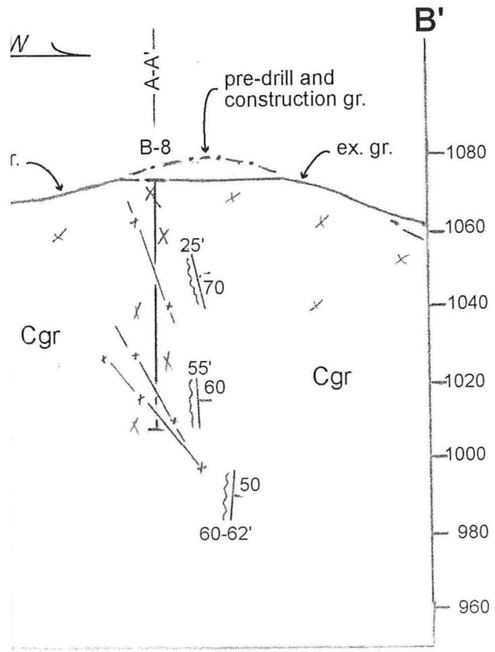
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Tentative Tract 72413
N. Grand Ave. and W. Palm Dr.
Glendora, CA

6817-04 | Nov 2013 | Fig. B-1

GEOLOGIC CROSS SECTIONS A AND B





40 0 40 80
scale feet

NOTE: See Key on Geologic Map, Figure B-1 for identification of symbols

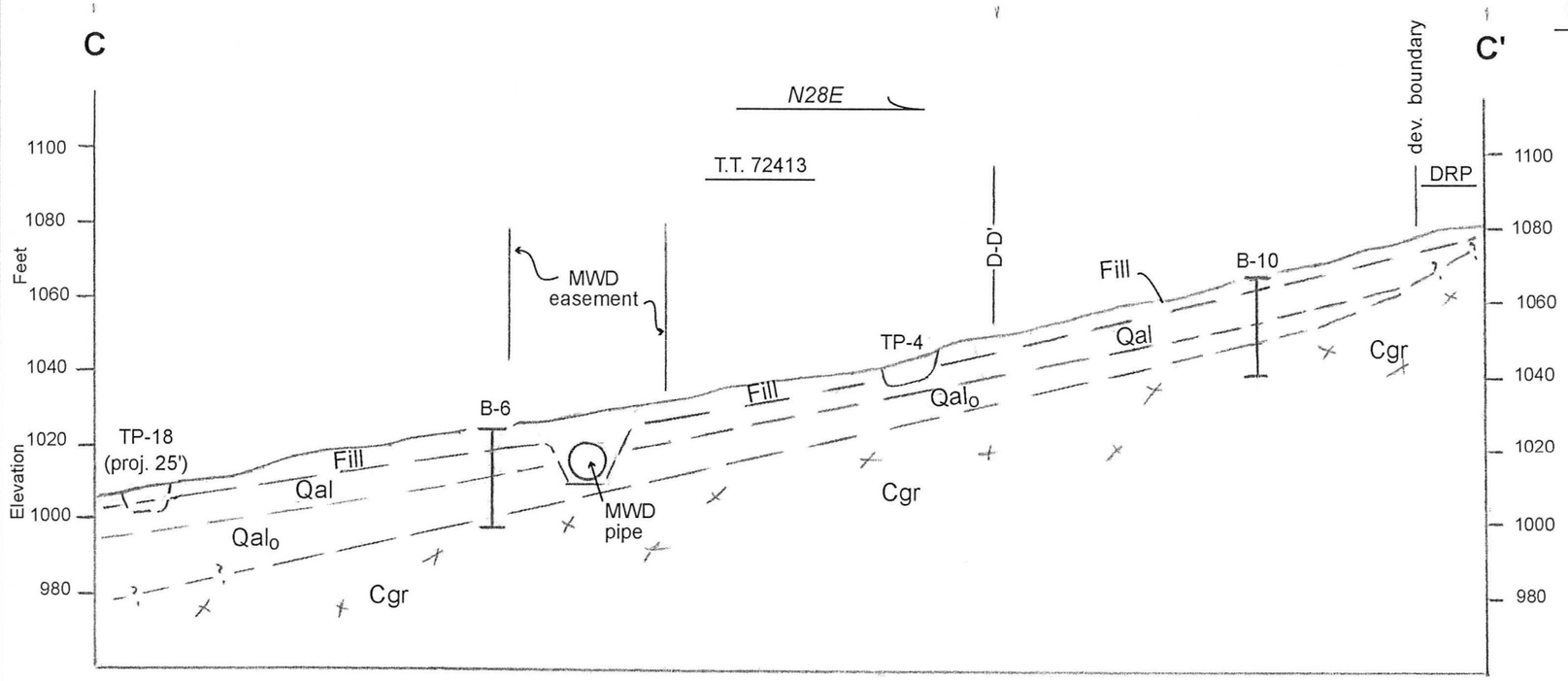
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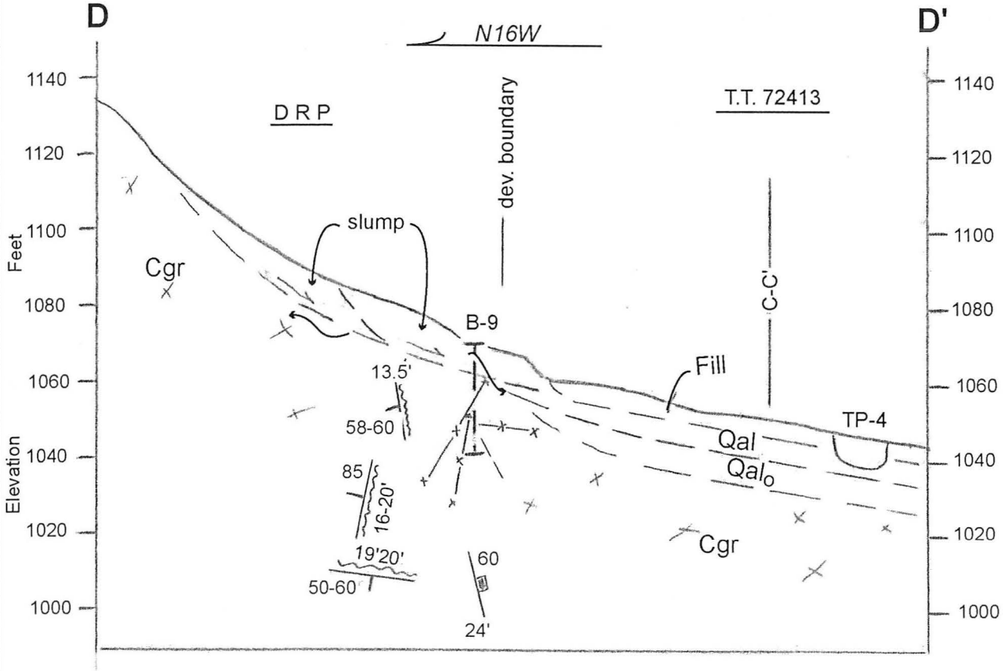
Tentative Tract 72413
N. Grand Ave. and
W. Palm Dr.,Glendora, CA

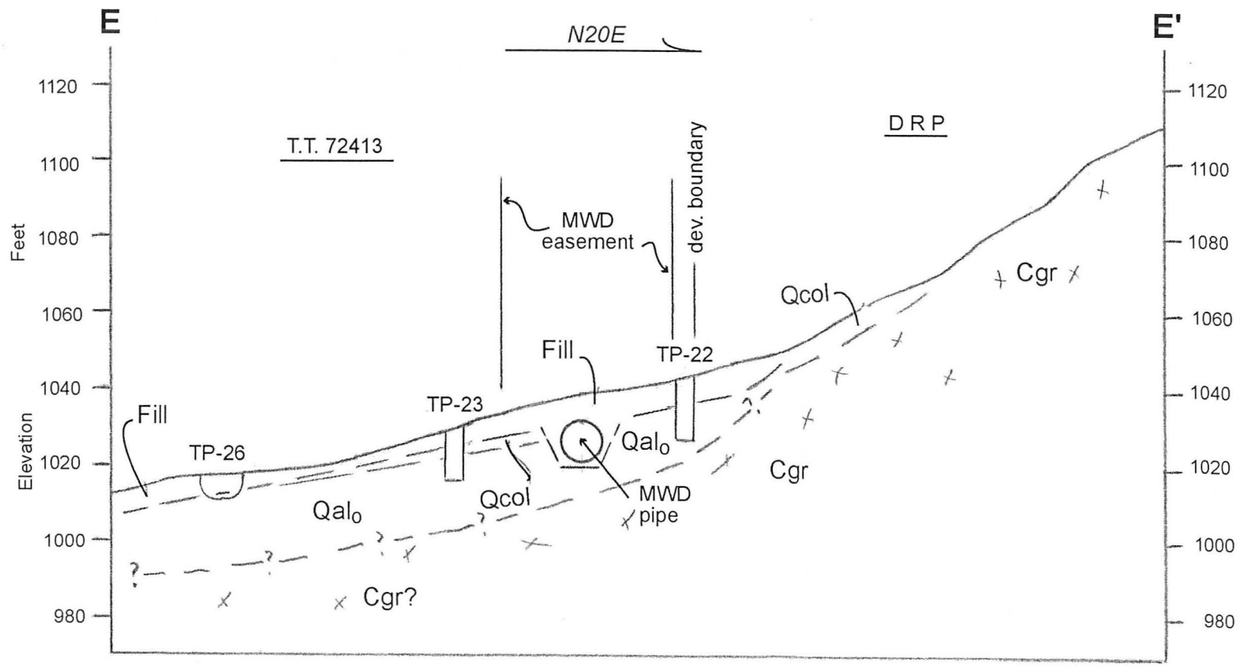
Nov 2013

6817-04 | Fig. B-2

GEOLOGIC CROSS SECTIONS C, D AND E







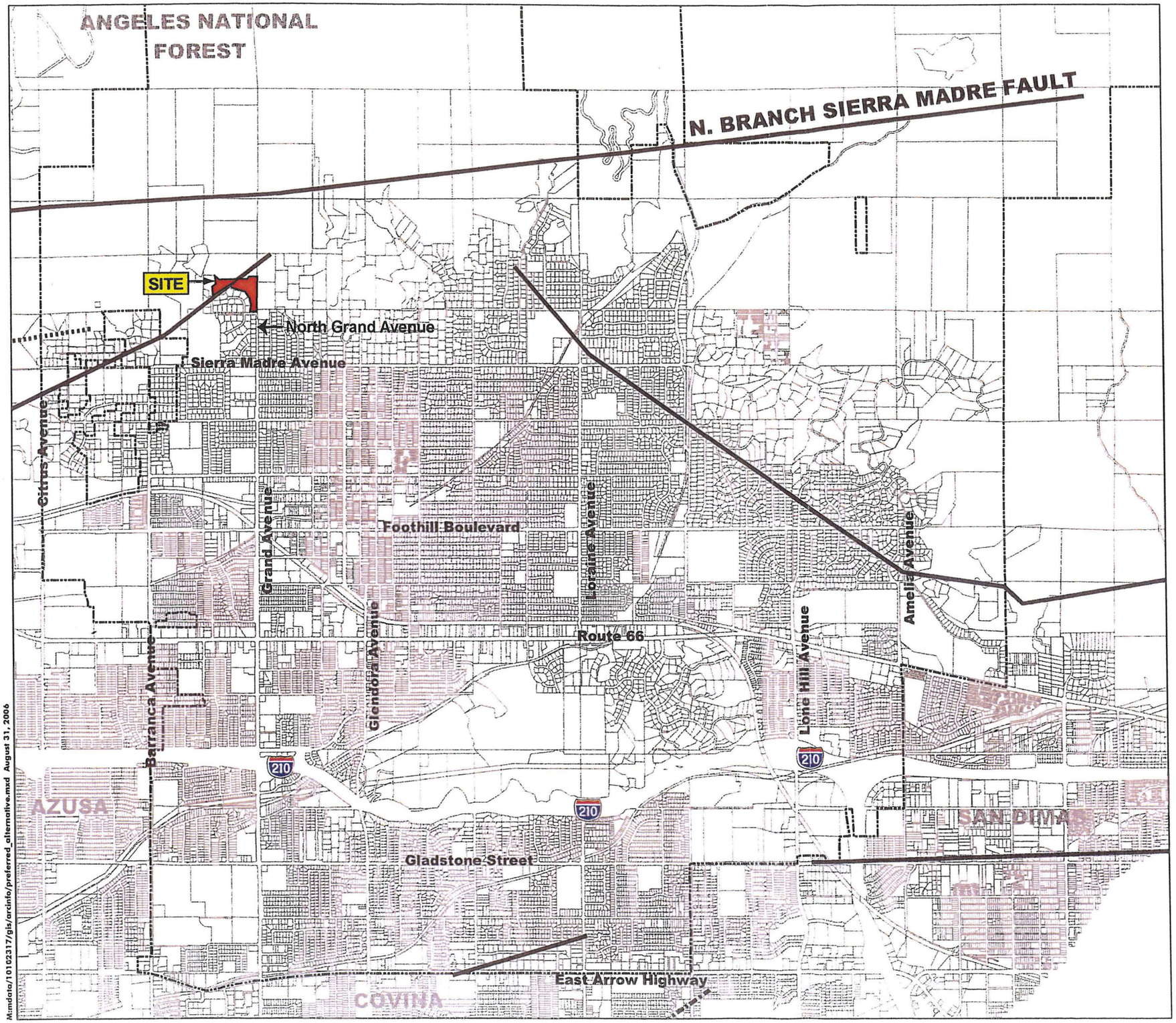
NOTE: See Geologic Map, Figure B- for identification of symbols

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scale feet

G. A. Nicoll & Associates, Inc.
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Tentative Tract 72413
N. Grand Ave. and W. Palm Dr.
Glendora, California

6817-04 | Nov 2013 | Fig. B-3



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REGIONAL FAULT MAP

SAF - 3

LEGEND

- HOLOCENE fault displacement (during past 10,000 years) without historic record.
- LATE QUATERNARY fault discplacement (during past 700,000 years)
- QUATERNARY fault (age undifferentiated)
- CITY LIMITS

N

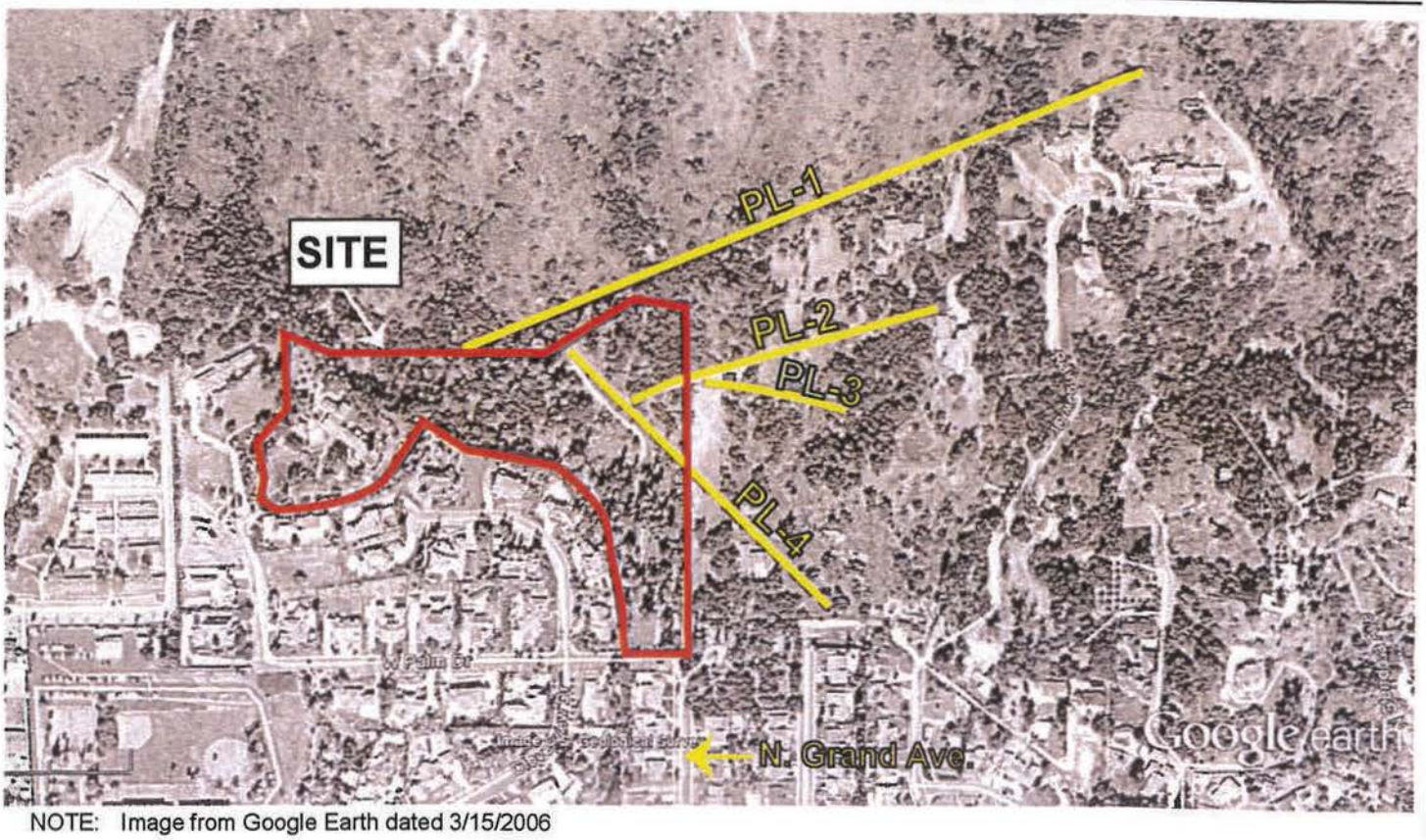
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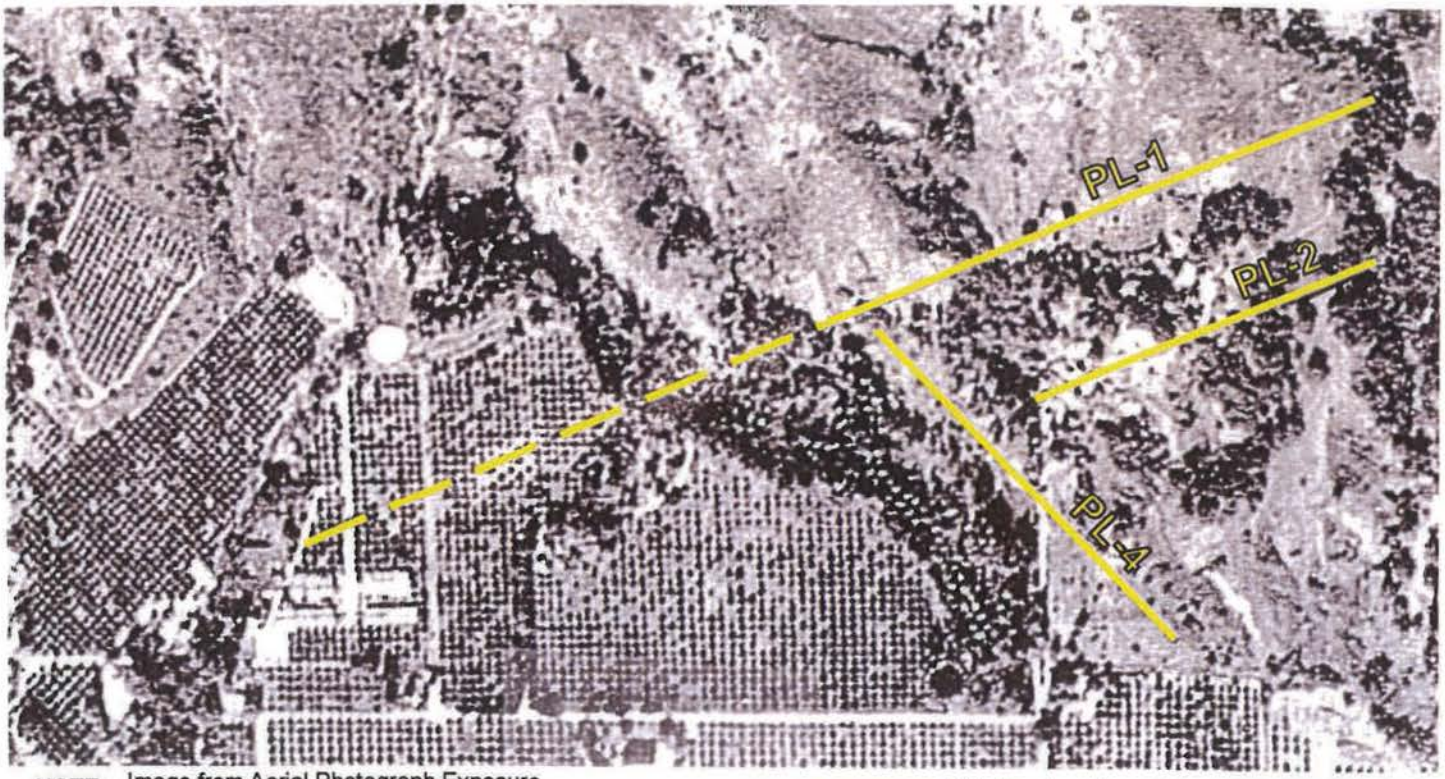
NOTE: Base Map modified from RBF Consultants Regional Fault Map, SAF-3 to show the site location

G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	Tentative Tract 72413 N. Grand Ave. and W. Palm Dr. Glendora, California		
	6817-04	Nov 2013	Fig. B-6

PHOTOGRAPHIC LINEAMENTS



NOTE: Image from Google Earth dated 3/15/2006



NOTE: Image from Aerial Photograph Exposure AXJ-1952-92-84, dated 1/2/1953

PL-4 Location of photographic lineament

PL-1 Dashed where projected

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400 0 400 800

scale feet

G. A. Nicoll & Associates, Inc.
EARTH SCIENCE CONSULTANTS

Tentative Tract 72413
950 N. Silent Ranch Drive
Glendora, California

6817-04	Nov 2013	Fig. B-7

February 1, 2016
Project 6950-04

Mr. Alan Chou
Dreamland Investments, LLC
c/o Giron Engineers, Inc.
654 S. Glendora Avenue
Glendora, California 91740

Subject: **PRELIMINARY REPORT OF GEOTECHNICAL INVESTIGATION**
Proposed Debris Basins, Dams and Access Roads
APN 8684-045-004
Glendora, California

Dear Mr. Chou:

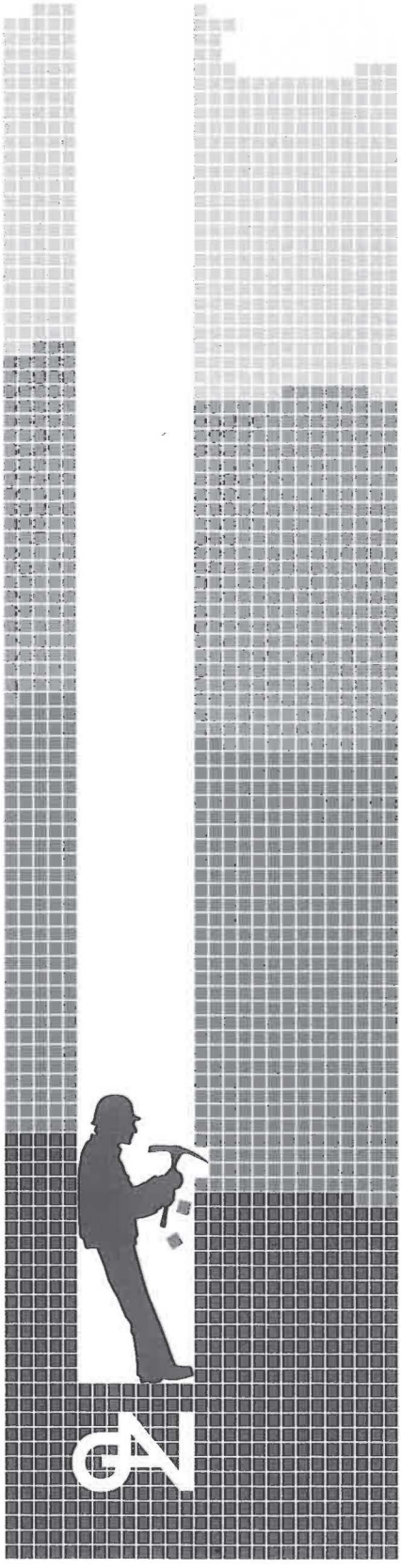
1. INTRODUCTION

a) This report presents the results of our geotechnical investigation for the subject Debris Basins, Dams and Access Roads to be located in the development remaining parcel (DRP) north of TT 72413, APN 8684-045-004, in Glendora, California. For this report, the Development Remaining Parcel (DRP) will be referred to as the Project Site.

b) The purpose of our investigation was to determine the geologic conditions at the Project Site and to provide geotechnical recommendations for the future site improvements.

c) Reports, plans, maps and photographs utilized during our investigation are listed in *References, Appendix A*.

d) A map of the project site showing the proposed three dams, access roads, conceptual grades, topography, site conditions and a portion of TT 72413 to the south, was provided by Giron Engineering, Inc. A copy of this plan was modified and utilized as base map for our *Geologic Map, Plate 1* in the pocket.



2. PROPOSED IMPROVEMENTS

a) The proposed improvements are to include three earth debris dams to be located in the west, central and east canyons, at the terminus of the three canyons on the site.

b) Access roads are planned for access to the debris basins for removal of debris that collects during periods of rainfall. The basins behind the dams will be constructed by excavating the sides of the canyons and removing some of the canyon bottom alluvium. Cut and fill grading is planned for construction of the dams and roads.

c) Concrete aprons are planned for the back of the dams. Outflow towers will be constructed for normal outflow of water and spillways for emergency outflow.

d) Surface drains and storm drains are planned for the collection of incipient surface water, and subdrains for subsurface water.

3. SCOPE

The scope of our services for the project was as follows:

a) Review of available reports, geologic maps, plans and aerial photographs pertaining to the site and general area with regard to soils and geology. (A list of references is included in *References – appendix A*);

b) Review of fault hazard studies and site seismicity;

c) Subsurface exploration consisting of 9 test pits and 9 borings to determine the subsurface conditions at the site;

d) Sampling and logging of subsurface materials;

e) Surface geologic mapping at the site and on the surrounding hillsides and in the main canyons;

f) Laboratory testing of selected samples;

g) Engineering and geologic analyses of the field and laboratory data;

h) Slope Stability Analyses;

i) Preparation of graphic illustrations;

j) Preparation of this report presenting our findings, conclusions and recommendations.

4. FIELD INVESTIGATION

Details of the field investigation, including *Logs of Borings and Test Pits* are presented in *Appendix B*.

5. LABORATORY TESTING

Descriptions of the laboratory testing and the results are presented in *Laboratory Testing Program, Appendix C.*

6. SLOPE STABILITY ANALYSES

The details and results of our slope stability analyses are presented in *Slope Stability Analyses, Appendix D.*

7. SITE CONDITIONS

7.1 Site Location

a) APN 8684-045-004 address is 950 N. Silent Ranch Drive in the City of Glendora. The Project Site is located in the north half of APN 8684-045-004, in the Development Remaining Parcel (DRP) north of TT 72413. Future access to the Project Site will be from Grand Avenue via TT 72413.

b) The site location is shown on the *Location Map, Figure 1.*

7.2 Site Conditions

a) The conditions at the Project Site and surrounding area are shown on the *Site Map, Figure 2.*

b) The Project Site is located within generally north-south-trending ridges, canyons and gulleys located at the base and in the lower, southerly elevations of the San Gabriel Mountains in Glendora. The gently sloping, valley area of TT 72413 is situated to the south. The site and conditions are shown on the *Site Map, Figure 2* and on the *Geologic Map, Plate 1.*

c) Two large, deeply-incised canyons situated on the east and west sides provide avenues for surface water drainage from the hills to the north. A large gully located in the south central part of the site drains the hillsides in the central portion of the Project Site.

d) The hillside areas drain toward the east and west into the two canyons and the gully, and by sheet flow down the south-facing slopes. These drainages and the south-facing slopes carry the surface water south to the broad valley of TT-72413. From here, it flows through the tentative tract area via sheet flow and a concrete ditch, to a catch basin at the north end of Grand Avenue.

e) Three crib-wall type erosion control structures are situated near the south ends of the canyons and the gully. The structures were constructed by the Army Corp of Engineers in the early 1960's to reduce the rate of erosion in the up-slope channels and hillsides by reducing the channel gradients.

f) The west dam has 16 feet of exposure in the front and filled to the spillway level with sediments. The east dam has 21 feet of exposure in the front and filled to the spillway levels. The debris dam in the central gully has about 7 feet of exposure and completely filled with sediments.

g) The dams were constructed using about a 1/4:1 (H.V.) batter, with cobbles filling the inside of the cribs. An as-built construction plan could not be found, so the depth of embedment or the type of embedment materials is not known. It is not known if the back of the cribs are supported by concrete rakers, a sloped backfill, or by other means.

h) A small 18-24 inch high exposed concrete wall is located about 30 feet down stream from the toe of the two large debris dams. Sediments have filled the area behind the walls to the top.

i) A wire reinforced, gunnite drainage channel was constructed from the small wall in front of the east dam. The channel continues to the south through the tentative tract to the catch basin at Grand Avenue.

j) The Colby Fire of January 2014 burned most of the vegetation in the upper hillside slopes and gullies in the DRP area of the site. The vegetation in the upper elevations of the two main drainages and their subsidiary drainages was destroyed in the fire. Some regrowth of native vegetation has occurred in the past 2 years.

k) The vegetation, including mature oak, sycamore, eucalyptus and pine trees was spared in the lower slope and canyon areas. A number of these mature trees are located in the flat basin areas behind the dams and along the fringes of the basins. Heavy vegetation and mature trees are situated in the areas planned for dam and access road construction.

l) A number of old, abandoned steel water pipes protrude from the ground surface near the base of the slopes. These were placed by drilling nearly horizontal holes in the bedrock to place the pipes to use as a water source.

m) Several subterranean water tank shells are present. One large shell is situated at the west abutment for the west debris dam. The abandoned tanks are shown on *Figure 2* and on *Plate 1.*

7.3 MWD Upper Feeder, Tunnel and Pipeline

a) A 100-foot wide MWD easement crosses diagonally across the center of the DRP and the Project Site. The 10-foot diameter Monrovia No. 1 upper feeder tunnel, consisting of a 10-foot diameter, reinforced concrete-lined structure, is located in the bedrock, deep beneath the hillside in the center of the easement.

b) The tunnel connects to a 10-foot diameter, MWD water pipe at the east portal of the tunnel 60 feet north of the northerly tentative tract boundary.

c) The tunnel was constructed during 1937. It was completed May 17, 1937. The tunnel slopes down to the northwest at a .75% grade. The pipeline was constructed during 1937-38 as pre-cast concrete sections. The pipe sections were bedded in a concrete cradle and backfilled.

d) The pipe continues to the southeast across the tentative tract. The tunnel and pipe system supply water to water agencies to the south. The location of the pipeline and the tunnel portal area are shown on the *Site Map, Figure 2* and on the *Geologic Map, Plate 1.*

8. GEOLOGY

8.1 Regional Setting

a) The Project Site is located in the southerly foothills of the San Gabriel Mountains, which are part of the Transverse Ranges Geomorphic Province of Southern California.

b) The San Gabriel Mountains are composed primarily of basement complex consisting of igneous and metamorphic rocks, covered locally by Tertiary-age rocks of the Glendora Volcanics. Older and Younger Alluvium and Terrace Deposits are located in valley and canyon areas. Some landslides are present. Manmade fills are located in the developed areas.

c) The primary fault system in the area associated with the San Gabriel Mountains is the Sierra Madre Fault. The Sierra Madre Fault north of Pasadena splits into two fault segments. The south branch appears to be overridden by the Sierra Madre Thrust in the area of Glendora.

d) The prevalent geologic conditions, from a regional perspective, are shown on the *Regional Geologic Map, Figure B-1,* in Appendix B.

8.2 Project Site Geology

a) The geologic units underlying the Project site and Tentative Tract 72413 to the south consist primarily of Cretaceous-age granitic rock. Tertiary age volcanic rock is present beneath a portion of the tentative tract. Younger and older alluvium is present in the canyons and the small gully. A relatively thin layer of fill is present in the valley areas and below the two large dams. Colluvium is present in some of the lower slope areas.

b) Soil slips and slumps are present in the steeper slopes. A small landslide is situated in the southwest facing slope near the west dam site. The California Geologic Survey Landslide Inventory Map for the Glendora and Azusa Quadrangles (Reference 6) show a possible landslide just east of the site.

c) A mapped segment of the Sierra Madre Fault crosses a corner of the Project Site. The fault segment is shown on the *Regional fault Map, SAF-3, Figure B-24* which was prepared for the City of Glendora Environmental Impact Study (Reference 7).

*Indicates the bedrock or soil unit symbol shown on the Geologic Map, Plate 1

d) The geologic conditions at the Project Site are shown on the *Geologic Map, Plate 1*. Profiles of the subsurface conditions are shown on *Geologic Cross Section 1-1' through 22-22', Figures B-2 through B-23*, respectively.

8.2.1 Cretaceous Age Granitic Rocks (Cgr)*

a) Cretaceous Age Granitic Rocks underlie the young and old alluvium and Terrace Deposits beneath the Project Site and are exposed in the canyons and hillsides.

b) The granitic rock consists of generally massive, light gray granodiorite containing some apilite dikes. The granitic rock was found to be soft to hard in the weathered zone and hard where unweathered. It is generally closely to very closely fractured due to past tectonic folding and faulting of the bedrock in the area.

c) The granitic rocks appear pale yellowish-gray to white where they lie in close proximity of faults or fault-related shear zones. Some clay gouge is present in the shear zones.

8.2.2 Glendora Volcanics

Bedrock of the Glendora Volcanics underlies a portion of the Tentative Tract area to the south. A description and the distribution of this unit is discussed in our previous report for TT-72413 (Reference 13).

8.2.3 Old Alluvium (Qalo)*

a) Pleistocene age Old Alluvium overlies bedrock and is covered by younger alluvium in the valley area to the south of the Project site, and below the two large dam sites.

b) The Old Alluvium was encountered in test pits and borings during our current and past exploration at the site and on TT-72416. It consisted of fine- to coarse-grained, yellowish-brown, medium dense to dense Silty SAND with rock fragments and Gravelly SAND with Silt. The material was found to be slightly moist to moist.

c) The rocks in the old alluvium were angular to sub- angular, mostly gravel-size clasts of granitic composition. Some

*Indicates the bedrock or soil unit symbol shown on the Geologic Map, Plate 1

cobble-size rocks were found. The rock constituents in the old alluvium consists of granitic clasts.

d) The volume of rocks in the old alluvium ranged from 15 to 35%. The grain-size test results indicated that the material is generally a well-graded mixture of sand and gravel-size rocks with some silt.

e) The data from our boring and test pits excavated in the area of the MWD pipeline indicate that the pipe is embedded in dense old alluvium.

8.2.4 Younger Alluvium (Qal)*

a) Holocene age, Younger Alluvium underlies fill and is exposed within the major drainages on the site, where it overlies Terrace Deposits and bedrock. It consists of mixtures of generally loose to medium dense, slightly moist, fine- to coarse-grained Sandy Gravel and Gravelly SAND with Silt and Silty SAND with Gravel.

b) Grain-size analyses of various samples indicate that the volume of rocks ranges from 20 percent to 35 percent, and up to 50 percent in some of the more gravelly layers and lenses. Some cobble- to boulder-size rocks are present, usually found as isolated rocks and crude lenses.

c) A few rock fragments up to 6-feet in the long dimension were observed toward the narrower sections of the two large canyons.

d) The rocks were found to be mostly angular to sub-angular, with some having moderately rounded edges. The young alluvial materials are of granitic and metamorphic origin derived from the slopes and canyons on the Project Site and from the higher elevations to the north.

8.2.5 Colluvium (Qcol)*

a) Colluvial deposits were found at the base or lower elevations of the slopes. In some areas the colluvium is covered with uncertified fill.

*Indicates the bedrock or soil unit symbol shown on the Geologic Map, Plate 1

b) The colluvium consists of mixtures of generally loose to medium dense, Gravelly SAND and Silty and clayey SAND with Gravel and Sandy CLAY. The colluvial deposits in the saddle south of the easterly dam appear to be older than those found along the toe of the natural slopes based on observations of clay bed development in that soil.

8.2.6 Landslides (Qls)*

a) A small landslide is present, partly within the Project Site and partly within the tentative tract to the south.

b) The landslide appears to have occurred within old alluvium, along a sandy clay layer at the base of the old alluvium and in the granitics to the east. A clay gouge layer was found at the base of the slide. The slide probably occurred prior to the deposition of the younger alluvium when the valley was deeper. The subsequent deposition of the younger alluvium has formed a natural buttress at the toe of the slide.

c) The upper portion of the slide displaces a section of soft, very closely fractured bedrock. The slide was subsequently covered with colluvium for the most part.

d) A profile of the landslide is shown in *Geologic Cross Section 6-6', Figure B-7.* The landslide will be removed during remedial grading as stated in Section 12.2 of this report.

e) No ground water was found within the landslide material. Seepage water was encountered within the bedrock below the old alluvium.

f) Stability analyses conducted for the landslide resulted in favorable static and pseudostatic factors of safety.

8.2.7 Questionable Landslide (Qls?)*

The questionable off-site landslide referred to earlier, located east of the property, is part of a "*Questionable Landslide*" shown in the *Landslide Inventory Map for the Glendora and Azusa Quadrangle*, and shown in *Figure B-29* of this report. This landslide does not impact the project site, as indicated in Section 8.5 of this report.

*Indicates the bedrock or soil unit symbol shown on the Geologic Map, Plate 1

8.2.8 Slump ( ) *

a) Several slumps were observed during subsurface exploration and field mapping in the lower slope areas, along the south project boundary.

b) The slumps occur within areas of thick colluvium, and where colluvium overlies very weathered, very soft granitics.

c) The observed and estimated depths of these slumps range from 5 to 10 feet.

8.2.9 Soil Slips ( )*

a) Soil slips occur as relatively thin features in the very steep slopes where thick residual soils are present.

b) The materials consist of mixtures of silt, sand and rock fragments with some minor clay content.

8.2.10 Undocumented Fill (FILL)*

a) Undocumented fill covers most of the valley bottom within the tentative tract area, covering mostly young and old alluvium. The observed thickness on the Project Site ranged from 4 to 5 feet.

b) The materials encountered consisted of fine- to coarse-grained, dry to slightly moist, loose Silty SAND with Gravel and Gravelly SAND with Silt. The volume of rocks ranged from 20 to 35 percent, based on field observations and the results of grain-size analyses.

c) The undocumented fill was placed during the construction of the erosion control dams and the MWD pipeline.

d) No documentation was found during our search of the MWD archives that recorded the compactive effort for the pipeline backfill along the sides and over the pipe. From our research, the available data indicates that the backfill is granular and that it was flooded to achieve compaction. The bottom of the pipe is supported by a concrete cradle.

*Indicates the bedrock or soil unit symbol shown on the Geologic Map, Plate 1

8.3 Geologic Structure

a) The granitic rocks are mostly massive, for the most part lacking foliation structure. Some minor foliation was observed during field mapping that was probably related to flow banding within the granitics.

b) Tectonic activity along segments of the Sierra Madre Fault has caused folding and shearing of the bedrock on the site and the slopes to the north. The bedrock on the Project Site is closely fractured with typical omni-directional fracturing.

c) Only crude, generally horizontal to slightly dipping layers were found within the old alluvium.

8.4 Faults

a) The Sierra Madre Fault Zone is often divided into five segments labeled as A through E. Segment D of the fault zone has a number of strands that cut the bedrock and underlie the valley alluvium in the Glendora area. A review of the USGS data base for the "D" segment of the Sierra Madre fault zone indicates that the mapped splays of the fault in the Glendora area are listed as Quaternary age, with movement younger than 130,000 years and older than 15,000 years, indicating that the faults are not active.

b) A *Regional Fault Map*, prepared by *RBF Consulting for the City of Glendora Safety Element Program, Figure B-24*, shows the "North Branch" of the Sierra Madre Fault located about one-half mile north of the Project Site. The map shows an east-northeast-trending fault segment of the Sierra Madre Fault that crosses from the tentative tract, through the southeast corner of the Project Site.

c) The *Dibblee Geologic Map of the Glendora and Mt. Wilson Quadrangles, Figure B-1*, shows a dashed fault line with an east-west trend crossing the narrow ridge in the tentative tract area, and separating the Glendora Volcanics on the south side from the Cretaceous granitic rocks to the north.

d) The Dibblee Map shows portions of the fault line buried beneath an exposure of Pleistocene-Age older alluvium east of the site and beneath the old alluvium on the tentative tract, indicating that the last movement along the fault to be pre-Holocene and not active. The USGS Quaternary fault database shows this strand as having movement older than 15,000 years.

e) A photographic lineament study was conducted using aerial photographs dated 1928, 1938 and 1953, and a Google Earth image dated 3/15/2006. Four lineaments, PL-1 through PL-4, were evaluated and plotted. The lineaments are shown on the *Photographic Lineament Map, Figure B-25, in Appendix B.* Since the Google Earth image and the 1953 photo had the best resolution they were used in preparing *Figure B-25.*

f) Photo Lineament PL-1 is located along the general alignment of the aforementioned east-northeast-trending fault that crosses the site. Photo Lineament PL-3 is located along the trend of the Dibblee fault that cuts the narrow ridge on the site. PL-2 is located along an old road and PL-4 lies along the MWD pipeline.

g) A number of shears were found in borings excavated in the granitic bedrock in the area of the PL-1 photo lineament. None of the shears observed had any striations or grooves that would indicate a trend of fault movement, such as normal or strike-slip displacement.

h) The borings excavated in Terrace Deposits overlying sheared bedrock east of the east basin showed no signs of disturbance within the old alluvium, indicating that the latest fault movement was older than the estimated Pleistocene-age of the Terrace Deposits.

i) The segment of the Sierra Madre Fault that crosses the site (see photo lineament L-1 on *Figure B-25*), was investigated by Bob Dickie Geotechnical, Inc. on Tract 33869 to the south *(Reference 3).* 200 feet of fault trenching within the old alluvium showed no indication of faulting. No reports of fault-related disturbance were found during removal and in cuts in the old alluvium during rough grading on Tract 33869, to the south of the Project Site.

j) No active faults were reported during the MWD investigation or construction phase for the Monrovia No. 1 Tunnel or the pipeline.

k) Based on our findings, it is our opinion that there are no active faults on the site.

8.5 Landslides

a) Based on a review of published and unpublished geologic maps, including the CGS Landslide Inventory Map and SHZR-021 and SHZR-025, no landslides designated as definite or probable landslides are present. Other than the aforementioned small landslide, no evidence for landsliding was found on the Project Site or within Tentative Tract 72413 to the south.

b) The *Landslide Inventory Map for the Glendora Quadrangle, Figure B-29*, shows a landslide listed questionable and dormant located east of the Project Site and the Tentative Tract. The westerly edge of this feature is shown on the *Geologic Map, Plate 1*. The future movement of landsliding within the area of this questionable landslide feature is considered unlikely. If movement were to occur, it would not impact the Project Site.

c) The small landslide addressed in Section 8.2.6 will be removed and replaced by compacted fill, as stated in Section 12.2 of this report.

8.6 Rock Slides – Debris Flows

a) Minor rock slides and debris flows have occurred within the steep slopes where the surface water is concentrated in narrow gulleys and deeply incised slope areas.

b) Past rock falls and debris flows have occurred mostly along the sides of the two large canyons at the east and west ends of the Project site, depositing their rock and soil debris along the slopes and onto the canyon bottoms.

c) Removal of this debris will be part of the future cleanout process for the proposed debris basins. Rock fall and debris flows are not expected to have significant affect on the integrity of the future dams and access roads.

9. GROUND WATER

a) The Project Site does not have a ground water scheme typical of an alluvial valley and no free ground water is present beneath the Development Site. No ground water is shown to be present beneath the Project Site on the City of Glendora General Plan Map SAF-4, or in the USGS OFR 98-16.

b) Several springs are present at elevations of approximately 1400 feet in the upper reaches of the large westerly canyon and a canyon east of the site. The springs may be related to a fault or shear zone that may be present in the hills north of the site, and acting as ground water barriers to the flow of the perched water in the fractured granitic bedrock above.

c) During the early years at the site, perched ground water was tapped from the fractured, granitic rock by the use of water tunnels and iron pipes placed in near-horizontal borings. The water was used for nearby domestic use and irrigation.

d) Perched water was found in the valley area southeast of the west dam during our previous investigation for TT 72413. The perched water was encountered at 24 feet in Boring B-1 (6817-04) in the fractured bedrock beneath the old alluvium. The water was encountered at 24 feet and stabilized at 22 feet in the boring.

e) Very slight to moderate seepages were encountered in Borings B-1 and B-2, in fractured bedrock during this investigation. The borings are located in the alignment of the previously mentioned east-northeast-trending fault segment along photo lineament PL-1. This may indicate that a fault-controlled ground water barrier may be present in the area of Borings B-1 and B-2.

f) If a fault-controlled barrier is present, it would be located on the northwest side of the branch of the Sierra Madre Fault that crosses the site as it is currently mapped and shown in *Figure B-24.*

10. SEISMICITY

10.1 General

a) Seismic risk in Southern California is a well-recognized factor, and is directly related to geologic fault proximity to active or potentially active fault zones, and on the type of geologic structures. In relative terms, seismic damage is generally less intense in consolidated formations, i.e. bedrock, than in unconsolidated materials, such as alluvium.

b) In Southern California, most of the seismic damage to man-made structure results from ground shaking, and to a lesser degree from liquefaction and ground rupture caused by earthquakes along active fault zones. In general, the greater the magnitude of the earthquake, the greater the potential damage.

c) Seismic hazards at this site are attributed to ground shaking as a result of an earthquake epicentered on an active fault. Ground rupture is not expected to occur on the property as a consequence of fault movement during an earthquake.

d) Slight to intense seismic shaking can be expected during an earthquake centered on the active faults in the Southern California area.

10.2 Engineering Seismology

a) The site is not located within a currently established Alquist-Priolo Special Studies zone. The closest approach of a known active fault segment to the site is the Sierra Madre Fault, located 2.9 miles or 4.7 km to the west. The magnitude of a credible earthquake on that fault is on the order of 7.2.

b) The site is not located within an Alquist-Priolo Earthquake Fault.

c) The site details and seismic parameters are listed below:

i. Geographic Location: Latitude: 34.153008 degrees
Longitude: -117.874527 degrees

ii. Site Classification: D

iii. Site Occupancy Category: II

d) The 2013 CBC Seismic Parameters, utilizing the ASCE-7 with March 2013 errata, are as follows:

i. Special Response Accelerations: $S_s = 2.456g$ $S_1 = 0.922g$

ii. Site Coefficients: $F_a = 1.0$ $F_v = 1.5$

iii. Maximum Considered Earthquake Spectral Response Accelerations:

$SM_S = 2.456g$ (0.2 sec. period)
$SM_1 = 1.383g$ (1.0 sec. period)

iv. Design Spectral Response Accelerations:

$SD_s = 1.637g$ (0.2 sec. period)
$SD_1 = 0.922g$ (1.0 sec. period)

v. Seismic Design Category:

E (based on the criteria found in Section 1613.5.6 of the 2013 CBC).

vi. Peak Ground Acceleration: PGA = 0.893g

11. GEOLOGIC HAZARDS ASSESSMENT

This section generally follows the guidelines prepared by the California Division of Mines and Geology and most of the conclusions are presented on a subjective scale.

11.1 Seismic Hazards

11.1.1 Ground Surface Rupture

The property is not located within an Alquist-Priolo Earthquake Fault Zone for active faults and, therefore, ground rupture along a fault plane is not expected at the site.

11.1.2 Seismic Ground Shaking

a) Slight to intense ground shaking is possible at the site if an earthquake occurs on a segment of the active faults in the Southern California area.

b) Some areas of the Project Site are underlain by deposits of unconsolidated colluvium, loose alluvium and uncertified fill, which will tend to amplify earthquake produced ground motion. However, it is planned to remove these materials within proposed structural areas of the site. Structures, such as the outflow towers and spillways, should be designed to resist seismic lateral loads.

11.2 Secondary Seismic Hazards

11.2.1 Liquefaction

The site is not located within a mapped liquefaction hazard area, as shown on the State of California Seismic Hazard zones Map for the Glendora Quadrangle and on the City of Glendora General Plan Map SAF-4. Therefore, liquefaction at the site is not anticipated.

11.2.2 Seismically-Induced Landslides

a) The areas of proposed development are not located within an area designated as having a high potential for earthquake-induced landsliding, as indicated on the City of Glendora General Plan Map SAF-4 or the State of California Seismic Hazard Zones Map for the Glendora Quadrangle.

b) The project site and the surrounding area have endured some of the heaviest periods of rainfall recorded in the Los Angeles area, including the record rainfall in 2004-2005, and the powerful San Fernando and Northridge earthquakes, including a number of 5.0 to 5.9 magnitude of nearby active faults within the past 25 years, without the occurrence of landsliding in the hillside areas of the project site.

c) Pseudostatic slope stability analyses conducted in the hillsides of the project site resulted in favorable gross stability values. The results are shown in *Appendix D*.

d) Therefore, we regard the potential for the occurrence of earthquake-induced landsliding as low.

11.2.3 Rockfall Hazards

a) Detailed mapping of the hillside areas found no areas of loose rocks or rock outcrops that would have a significant rock fall impact at the site.

b) The results of our rockfall evaluation indicate that the rockfall potential at the site is low.

11.2.4 Seismically-Induced Settlement/Compressible Soils

a) Strong seismic shaking can cause settlement by allowing sediment particles to become more tightly packed, thereby reducing pore space. Loose colluvium, alluvium and fill is more susceptible to this phenomenon than others. Also, artificial fills, if not adequately compacted, may also experience seismically-induced settlement.

b) Since the existing fill, loose alluvium and colluvium will be removed and replaced with compacted fill, settlement due to seismic shaking will not occur.

11.2.5 Tsunamis and Seiches

The conditions for tsunamis and seiches occurring are not present at the site.

11.3 Other Geologic Hazards

11.3.1 Expansive Soils

a) The observed on-site soils are mixtures of mostly sand and gravel-size rocks, and are considered to be low to non-expansive.

b) Samples of imported fill materials should be sampled and evaluated for their expansion potential.

11.3.2 Flooding, Erosion and Sedimentation

a) The existing erosion control dams will be demolished and replaced with the proposed debris dams.

b) The construction of the proposed debris dams and related improvements at the site will significantly reduce the potential for flooding, erosion and sedimentation on TT 72314 and the existing community to the south.

c) The existing old on-site and nearby concrete reservoirs are abandoned and will be removed and therefore will not pose a flood hazard.

11.3.3 Compressible Soils/Hydro Consolidation

a) Since all the colluvium, loose alluvium, and existing fill soils will be removed within the development areas during grading and the underlying alluvial soils are suitably dense, the potential for settlement due to compressibility of these soils is considered unlikely.

b) New fill will be placed and compacted to 90 percent relative compaction and above optimum moisture content so that hydro consolidation will not occur in these materials.

11.3.4 Soil Slips and Slumps

The existing slumps and soil slips located in the slopes above the dams and access roads will be removed or stabilized. If soil slips should occur in the hillsides above the debris basins, the materials will be removed as part of future scheduled basin cleanout.

12. CONCLUSIONS AND RECOMMENDATIONS

12.1 General

a) Based on the field inspection, exploration and the laboratory test results and our experience, it is our opinion that the site will be suitable for the proposed improvements, from a geotechnical aspect, assuming that our recommendations are implemented.

b) We consider that the proposed structures and grading at the site will not adversely affect, nor be adversely affected by the adjoining properties, with due precautions being taken.

c) Since the grading and development plans are conceptual at this time, the recommendations in this report will be general in content and focused on providing the information needed for the most efficient use of the site and design of the proposed improvements. Additional evaluation and recommendations should be provided when final plans are available.

d) Our findings and conclusions are based on our research, surface and subsurface exploration, laboratory test results and geologic and engineering analyses, and our experience in the geotechnical field. Our conclusions and recommendations are listed as follows.

12.2 Grading

12.2.1 Removals

a) The existing fill, colluvium, soil slumps, and small landslide and loose younger alluvium are not considered adequate to support future fills for the dams and access roads and the concrete outflow towers and should be removed.

b) Removals beneath the access roads should be to bedrock or to a depth where native materials with a relative compaction of at least 85% is present. This would be determined on a case-by-case basis during grading.

c) The removals beneath the dam and the outflow towers should be to competent bedrock.

d) Removals for the dam abutments should be extended laterally at least 3 feet into competent bedrock or 5 feet into competent terrace deposits.

e) The removals should extend beyond the proposed grading limits equal to at least the vertical depth of the removal.

f) The existing crib wall dams, the small concrete walls and the grout curtains in front of the dams should be demolished and removed off site.

g) All vegetation, man-made structures such as abandoned reservoir tanks, steel pipes, etc. should be removed off the site.

12.2.2 Removal Depths

The following table provides our best estimate of the removal depths of fill, alluvium, landslide debris and other deleterious materials in the areas of the proposed improvements.

TABLE OF REMOVALS

Area/Improvement	Cross Section Reference	Material Type To Be Removed	Estimate Depth of Removal
West Debris Basin - Dam & Outflow Tower	2-2' & 3-3'	Young Alluvium Fill, Colluvium	15 – 30 feet
Middle Debis Basin - Dam & Outflow Tower	8-8' & 9-9'	Young Alluvium & Colluvium	5 – 10 feet
East Debris Basin – Dam & Outflow Tower	16-16', 18-18' & 22-22'	Young Alluvium, Fill, Colluviuim & Old Alluvium	15 – 35 feet
Small Landslide – Access Road	6-6'	Colluvium, Young Alluvium, Fill, Displaced Granitics	20 – 25 feet
Access Roads – Slumps, Fill & Colluvium	12-12', 13-13', 14-14', 16-16' & other colluvial areas not shown on sections	Slumps, Fill, Collluvium	5 – 15 feet

12.2.3 Overexcavation

Overexcavation of cut/fill transits should be evaluated during the review of final plans.

12.2.4 Processing of Fill and Material Selection

a) The volume of rocks in the alluvium ranges from 20 to about 55%. Some layers in the Terrace Deposits contain up to 35% rocks. Some of the layers of alluvium contain up to 20% cobble-size rocks. Most of the rocks are gravel size and can be reused as compacted fill. Any rocks exceeding 3 inches in diameter are considered oversize for use as fill.

b) However, to reduce the volume of potential export and subsequent import to replace the oversize rocks, it is recommended that rocks ranging from 3 inches to 6 inches can be placed as long as they are not concentrated, but scattered in the fill, and not placed within 24 inches of the bottom of any concrete footing. They should not exceed 20% of the total fill volume.

c) In addition, there will most likely be areas of deep fill that can accommodate rock disposal beds for oversize rocks.

d) Import soils should consist of non-cohesive, low to non-expansive materials, with organic matter not exceeding 1% by weight. All import materials should be observed and tested prior to import to the site. The import materials should be sampled and tested prior to delivery at site.

12.2.5 Compaction Requirements

a) Reworking/compaction shall include moisture-conditioning/drying as needed to bring the soils to slightly above the optimum moisture content. All reworked soils and structural fills should be densified to achieve at least 90 percent relative compaction with reference to the laboratory compaction standard. The optimum moisture content and maximum dry density should be determined in the laboratory in accordance with the current ASTM Test Designation D1557.

b) Fill should be compacted in lifts not exceeding 8 inches in loose conditions.

12.2.6 Excavating Conditions

a) Excavation of the fill and native soils may be accomplished using standard earthmoving or trenching equipment.

b) Moderate to heavy ripping will be required for the bedrock excavations. Blasting of the bedrock is not anticipated.

12.2.7 Shrinkage/Bulking

a) For preliminary earthwork computations shrinkage factor of roughly 10 percent for the loose alluvial soils is estimated. The shrinkage factor will increase if a significant amount of oversize rock requires export. (These do not include losses due to handling).

b) A 5 to 10% bulking factor is estimated for the granitic volcanic rock.

c) A 5% shrinkage to 5% bulking factor for the Terrace Deposits is estimated.

12.2.8 Expansion Potential/Sulfate Content

a) Based on our visual observations and our experience with similar materials in the area, the expansivity of the existing site soils are considered to be low to non-expansive. Generally granular soils and granitic rocks have a low sulfate content.

b) Any imported material or doubtful material exposed during grading should be evaluated for its expansive properties and sulphate content.

12.3 Fill Slopes

a) Fill slopes are planned for the dams and portions of the access roads. The slope gradients for the east dam, both sides, and the fronts of the west dam and the middle dam are planned at 2:1 (H:V), these slopes meet the required safety factor. Grades for the back of the west dam and the middle dam are shown at 1:1 (H:V). These slopes should be flattened to 2:1 (H:V).

b) The grades for the proposed fill slopes below the access roads between dams range from 1.5:1 to 2:1 (H:V). These slopes meet the required safety factor.

c) The slope stability for a number of fill slopes have been analyzed. The details and results are found in *Slope Stability, Appendix D.*

d) The fill slopes steeper than 2:1 will require geogrid reinforcement for surficial stability. The geogrid manufacturers should design the reinforcement required for the stability of the individual slopes, based in part on the soil characteristics provided by the geotechnical consultant.

e) All fill slopes where the toe of the slope will be situated on a cut pad, will require an 8- to 12-foot-wide fill key, with a depth of 2 feet at the toe and 3 feet at the heel.

f) All fill slopes should be planned and constructed per current CBC and Los Angeles County grading codes.

12.4 Cut Slopes

a) The primary cut slopes are planned along the sides of the debris basins and the dams. Secondary cut slopes are planned above portions of the access road in the ridges between the gullies.

b) A description of the major cut slopes shown on the Giron Conceptual Grading Plan and in the Geologic Cross Sections are presented in the Table of Cut slopes below:

TABLE OF CUT SLOPES

Improvement Area	Cross Section Reference	SlopeHeight/ Gradient (H:V)	Material Type
West Debris Basin-East Side	4-4'	35 ft/1:1	Cgr
West Debris Basin-West Side	1-1'	40ft/1:1	Qt
Middle Debris Basin-East & West Sides & North End	15-15', 17-17' & 22-22'	20-70 ft/1.5:1	Mostly Cgr
East Debris Basin – West Side	15-15'&20-20'	30-6- ft/1:1	Cgr
East Debris Basin – East Side	15-15', 17-17' & 22-22'	20-60 ft/1.5:1	Qt
Access Roads-Access Ridges & slopes	7-7', 11-11', 13-13' & 16-16'	15-50 ft/1:1	Cgr

c) The cut slope along the west side of the west debris basin should be flattened from 1:1 to 1.5:1 (H:V) to obtain a 1.5 Factor of Safety (see *Geologic Cross Section 1-1', Figure B-2 and Appendix D*).

12.5 Subdrains and Backdrains

12.5.1 Canyon Subdrains

a) A system of subdrains will be required in the canyon bottoms beneath the dams and access roads. Subdrains should be placed within the dam fill and along the dam abutments.

b) Subdrain outlets should be connected to future storm drains. A typical canyon subdrain system includes 4- to 6-inch schedule 40 PVC pipe placed with the holes down, incased in 3 to 5 feet of gravel, all wrapped in filter fabric. The pipes should be placed at a 1 to 2% grade for proper flow.

12.5.2 Key and Backdrains

a) Subdrains will be required for the fill, stability and buttress keys. Backdrains will be required along the backcuts for stability fill and buttress keys.

b) A typical key and backcut drain should consist of a 4-inch diameter, schedule 40 PVC pipe with holes placed down encased in 2 to 3 cubic yards of gravel, wrapped in filter fabric.

12.5.3 Additional Recommendations

When grading plans are available, specific details regarding the location and placement of canyon, key and backdrains will be provided.

12.6 Surface Drainage Provisions

a) Positive surface gradients and other drainage provisions will be provided to replace the natural flow of surface water through the canyon and to replace the existing concrete drainage ditch.

b) A brow ditch should be placed at the top of slopes. A mid-slope drain and down drain will be required for slopes 25 feet or higher.

c) Surface drains should be designed based on the details provided in the Los Angeles County Flood Control District Design Manual for Debris Dams and Basins, and current CBC codes.

12.7 Foundation Recommendations for Outlet Structure

a) Foundation for outlet structure should be embedded at least one foot into competent bedrock and may be designed for an allowable bearing capacity of 6,000 pounds per square foot. Lateral resistance may be provided by combining the frictional resistance and passive resistance. A passive earth pressure of 600 pounds per square foot per foot of depth, to a maximum value of 6,000 pounds per square foot, may be used to determine lateral bearing resistance for footings.

b) In addition, a coefficient of friction of 0.45 times the dead load forces may be used between concrete and the supporting soils to determine lateral sliding resistance. The above values may be increased by one-third when designing for transient wind or seismic forces.

12.8 Spillway Structures

Per Section E-2.2 of Los Angeles County Flood Control District Design Manual, Debris Dams and Basins, the horizontal loads on spillway walls should be considered for "Spillway Empty" and "Spillway Full" Conditions.

12.8.1 Spillway Empty

Per abovementioned Design Manual, the spillway walls should be designed for a lateral soil force applied on the earth face of the wall equivalent to:

$$P = \frac{1}{2} * w.K * H^{2} * + 3/8 * w * H^{2} * a/g$$

Where:

P = Total force, pounds per lateral foot of spillway wall
w = Soil unit weight, pounds per cubic foot
H = Wall Height, feet
K = Coefficient of active earth pressure = 0.33
a = 1/3 the horizontal site acceleration = 0.30g
g = gravity acceleration

12.8.2 Spillway Full

Per abovementioned Design Manual, the spillway walls should be designed for equivalent fluid pressure of 40 pounds per cubic foot applied on the water side of the wall.

13. SLOPE STABILITY

Slope Stability Analyses were performed utilizing GSTABLE7/STEDwin, vol. 2 (2008) program, prepared by Gregory Geotechnical Software. Modified Bishop method was used to find minimum factors of safety for various loading conditions. Shear strength parameters used in stability analyses results of stability analyses are provided in *Appendix D*.

13.1 Dam Embankments

a) As shown in Appendix D (Cross Section 18a), safety factor for the proposed 2:1 downstream embankment are greater than 1.5 and 1.1 for static and pseudostatic conditions, respectively.

b) Safety factor for proposed 2:1 upstream slope for full reservoir and rapid drawdown conditions are greater than 1.5 and 1.1 for static and pseudostatic conditions, respectively.

13.2 Cut Slopes

a) As shown in stability analyses for Cross Sections 6-6', 7-7', 13-13', 15-15', and 17-17', are greater than 1.5 and 1.1 for static and pseudostatic conditions, respectively.

b) Static factor (FS) for proposed cut slopes as shown on Cross Sections 1-1' (FS = 1.43), 4-4' (FS = 1.33), 8-8' (FS = 1.48), and 20-20' (FS = 1.39) are less than 1.5. Considering the consequence of instability of these slopes is not anticipated to affect any adjacent improvements, these safety factors may be acceptable to the reviewing agency. If not acceptable, appropriate mitigation such as flattening the design cut slope and/or installation of tiebacks may be considered. For example, if the proposed design cut slope of 1:1 shown on Cross Section 1-1' is changed to 1.5:1, a factor of safety of 1.5 can be achieved (Appendix D).

13.3 Other Slopes

Fill in front of natural or cut slopes are shown on Cross Sections 14-14' and 16-16'. Safety factors for these slopes are greater than 1.5 and 1.1 for static and pseudostatic conditions, respectively.

14. LIMITATIONS

a) Soils over an area show variations in geological structure, type, strength and other properties from what can be observed, sampled and tested from specimens extracted from necessarily limited exploratory borings. Therefore, there are natural limitations inherent in making geologic and soil engineering studies and analyses. Our findings, interpretations, analyses and recommendations are based on observation, laboratory data and our professional experience, and the projections we make are professional judgments conforming to the usual standards of the profession. No other warranty is herein expressed or implied.

b) In the event that during construction conditions are exposed which are significantly different from those described in this report, they should be brought to the attention of the Soil Engineer.

We appreciate the opportunity to be of service. If you have any questions, please contact us.

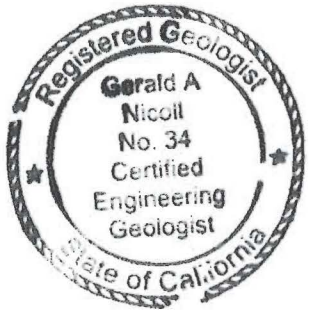
Very truly yours,

G. A. NICOLL AND ASSOCIATES, INC.

Gerald A. Nicoll
President, Engineering Geologist
CEG 34

Ahmad Ghazinoor 2/4/16
Geotechnical Engineer
RGE 2019

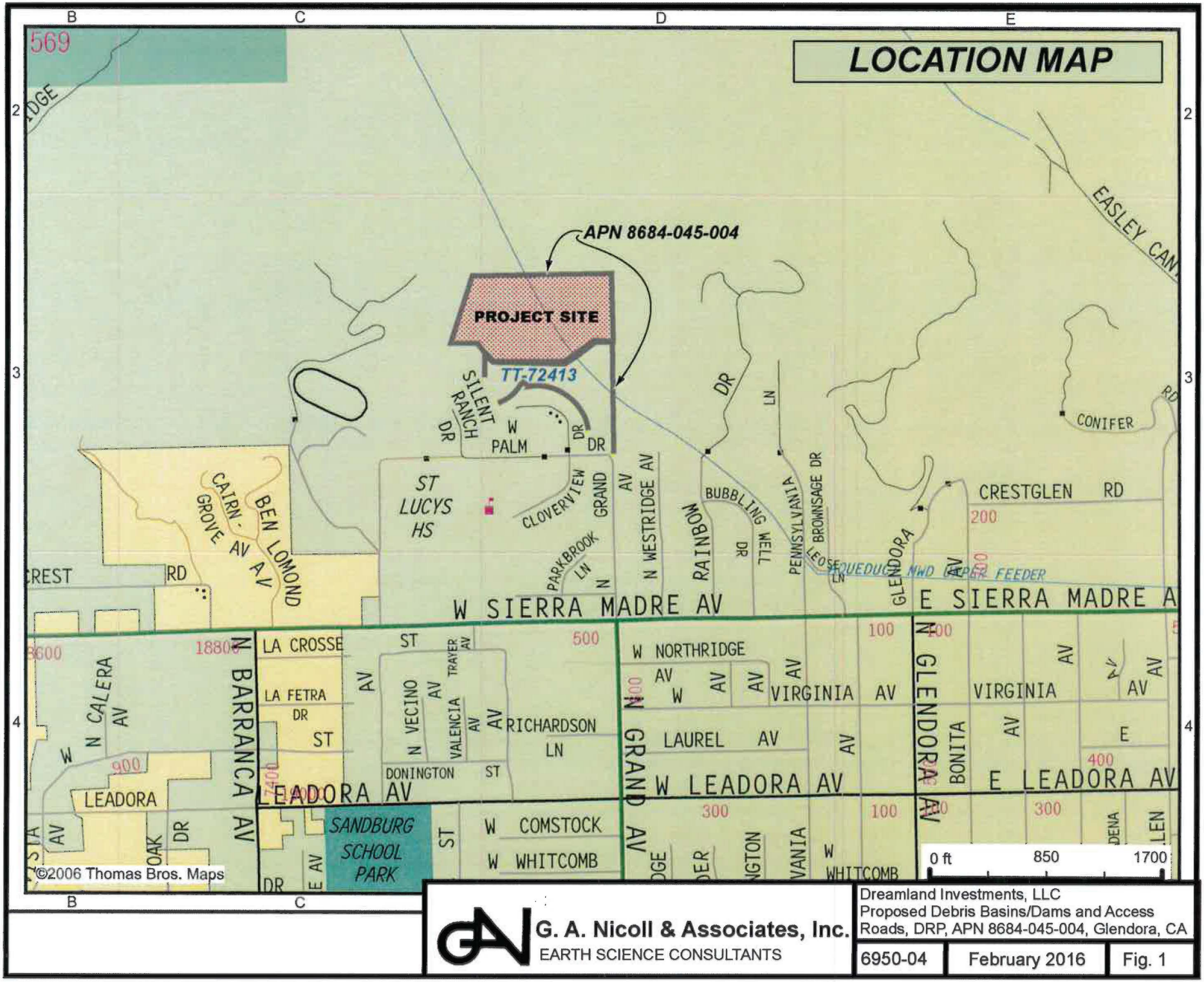
GAN/AG/GDH:cs/cw





Enclosures:

Location Map	Figure 1
Site Map	Figure 2
References	Appendix A
Field Exploration	Appendix B
Regional Geologic Map	Figure B-1
Geologic Cross Sections 1-1' through 22-22'	Figures B-2 through B-23
Regional Fault Map	Figure B-24
Photographic Lineaments Map	Figure B-25
Fairchild Aerial Photos	Figures B-26 through B-28
Landslide Inventory Map	Figure B-29
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Boring & Test Pits Logs from PN 6817-04	Follows Figure 45
Laboratory Testing Program	Appendix C
Grain-Size Distribution Charts	Figures C-1 through C-5
Direct Shear Tests	Figures C-7 through C-16
Slope Stability Analyses	Appendix D
Geologic Map	Plate 1

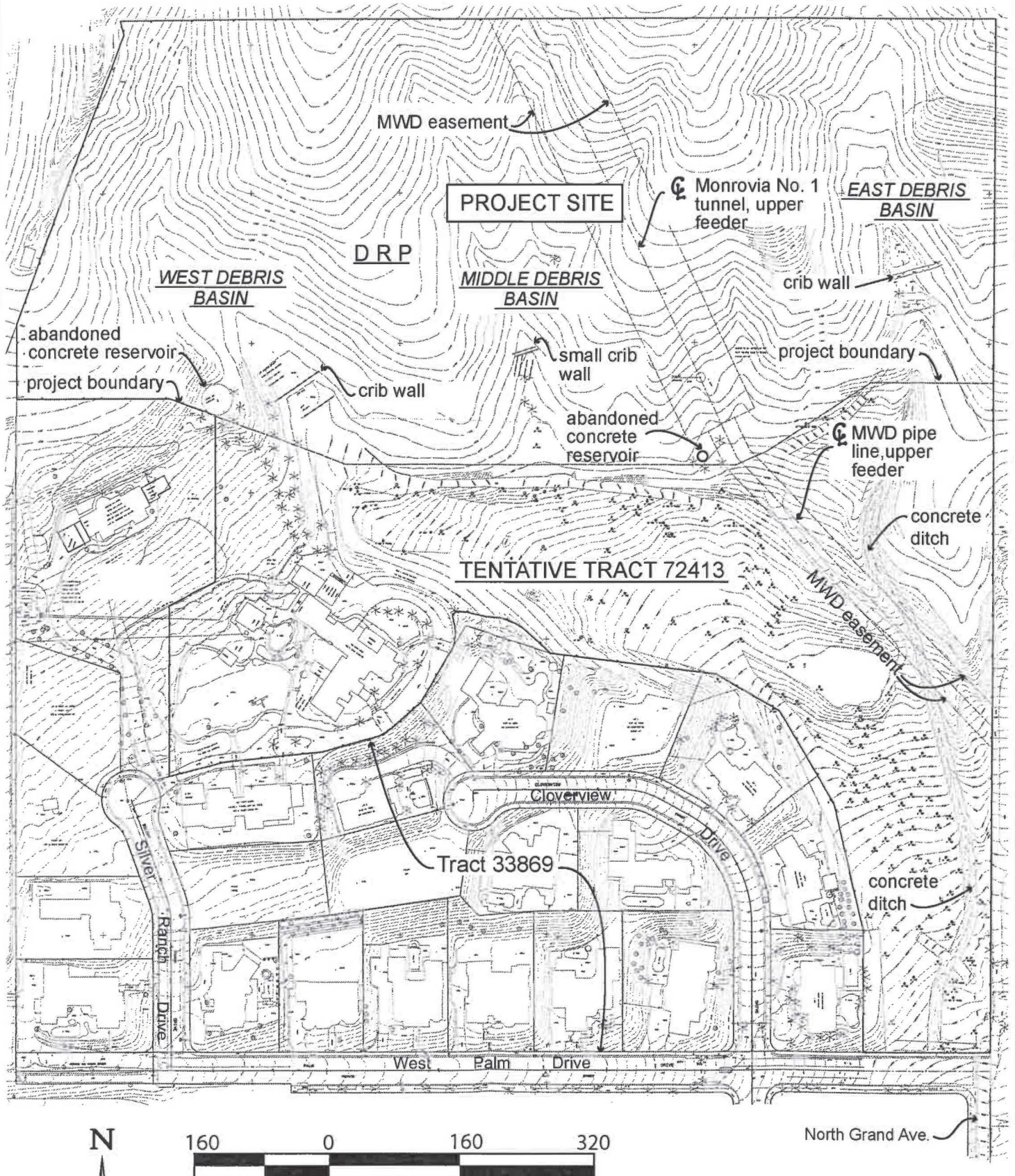


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6950-04	February 2016	Fig. 1

SITE MAP



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	6950-04	February 2016	Fig. 2

APPENDIX A

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AERIAL PHOTOGRAPHS – UCSB LIBRARY		
Flight ID	**Date**	**Frame Numbers**
c-300 I.jpg	1928	L-171, L-172, L-173, L-145, L-146 and L-147
Axj-1938_3.jpg	1938	42-107 to 42-110
Axj-1952_15.jpg	1952	Axj-9k-82 to axj-9k-84

APPENDIX B

Field Exploration

The site was explored utilizing hand tools to excavate 9 test pits, and 9 borings using a track-mounted LoDrill auger drill rig. The test pit and boring locations are shown on the *Geologic Map, Plate 1.*

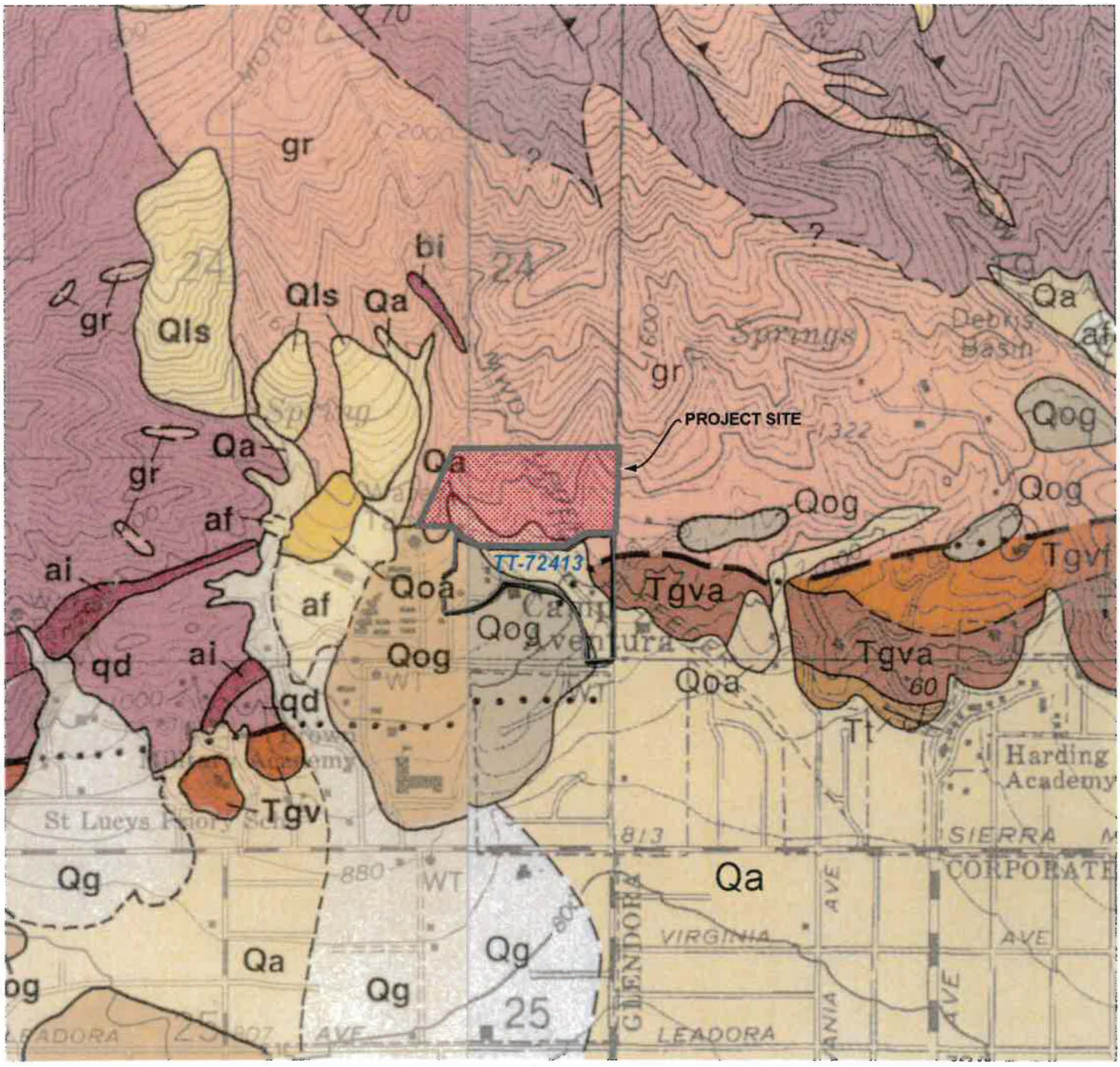
The soils and bedrock encountered in the excavations were logged and sampled by our Engineering geologist. The materials were classified in accordance with the *Unified Soil Classification System* described in *Figure B-31.* The *Logs of the Test Pits and Borings* are presented in *Figures B-32 through B-45.* The logs, as presented, are based on the field logs, modified as required from the results of the laboratory tests. Driven ring and bulk samples were obtained from the excavation for laboratory inspection and testing. The depths at which the samples were obtained are indicated on the logs.

No free ground water was encountered in any of the excavations. Seepage water was found in several of the borings as indicated on the logs.

Some minor caving occurred in several borings.

Extensive field mapping was conducted within the site and the off-site hillside and canyon areas to determine the geologic condition related to structure, landslides, rockfall, debris flows and soil slips that might impact the site.

REGIONAL GEOLOGIC MAP



KEY

Qa	Younger Alluvium	gr	Granitic Rocks
Qls	Landslide	qd	Quartz Diorite
Qoa/Qog	Older Alluvium	70	Strike and dip of Foliation
Tgvt/Tgva	Glendora Volcanics		Fault, dotted where buried
Tt	Topanga Formation		Geologic Contact, dashed where location uncertain

N

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scale feet

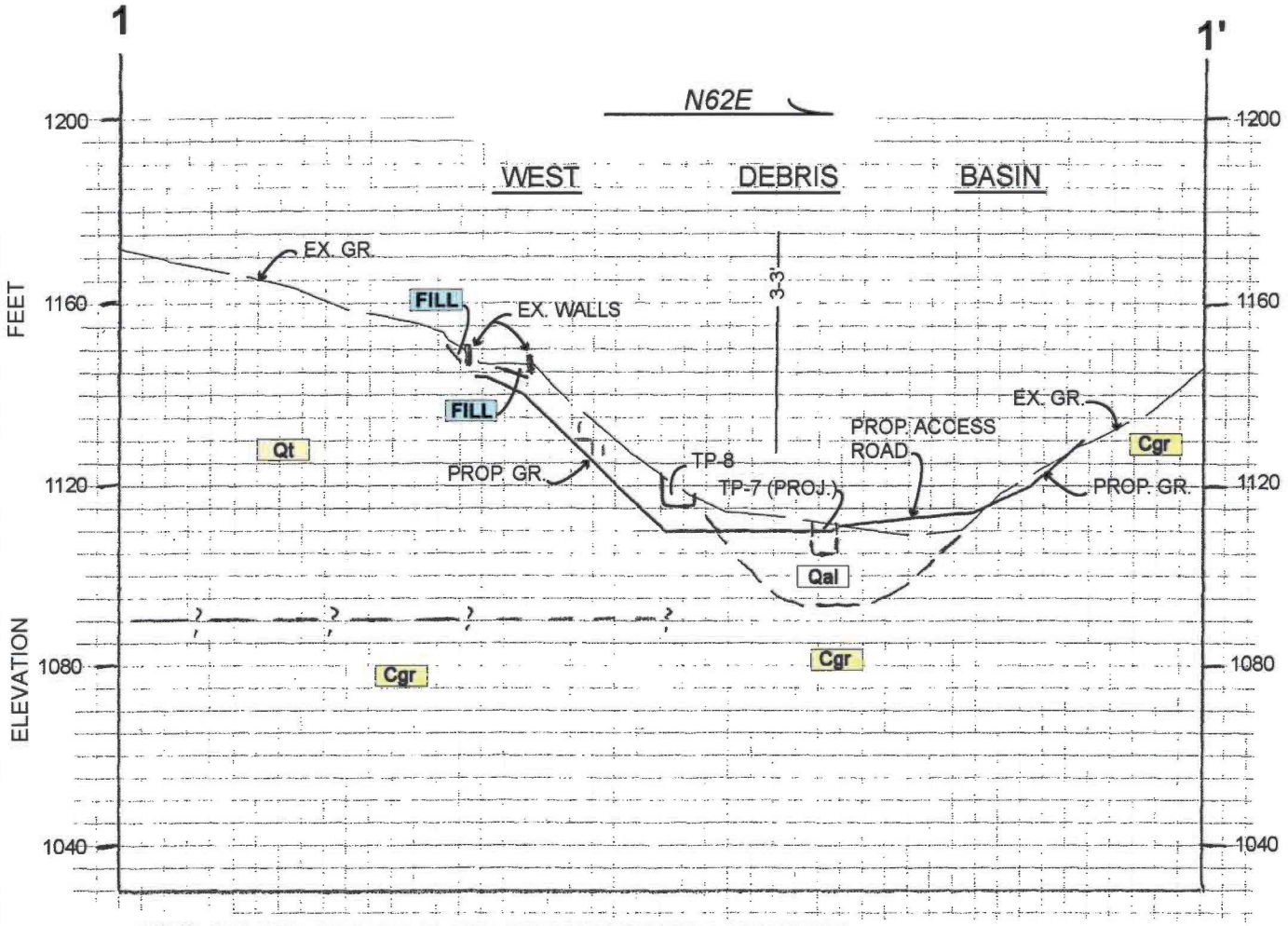
NOTE: Base Map modified from Thomas W. Dibblee, Jr., 2002, portions of the Geologic Map of The Glendora and Mt. Wilson/Azusa Quandrangles

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6950-04	February 2016	Fig. B-1

GEOLOGIC CROSS SECTION 1-1'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

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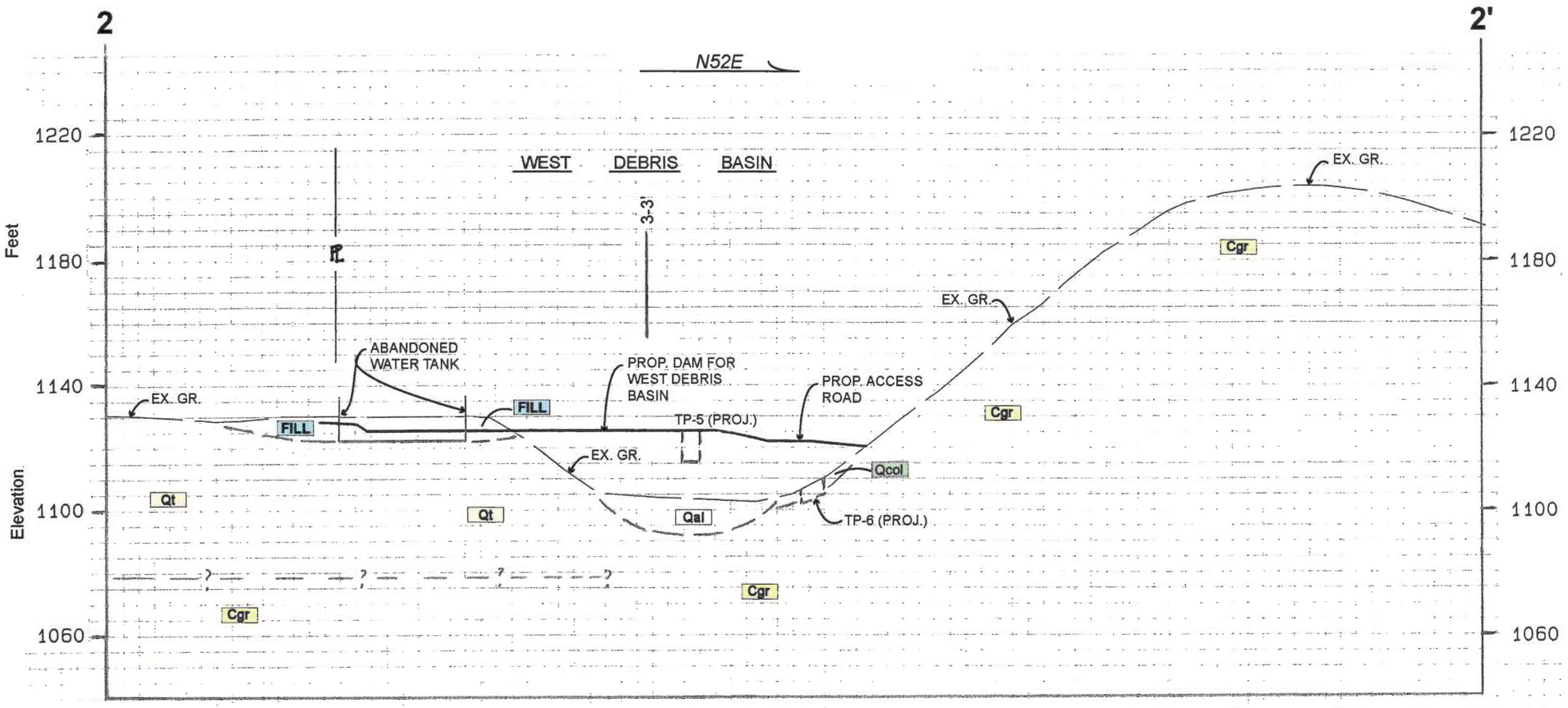
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6950-04	FEBRUARY 2016	FIG. B-2

GEOLOGIC CROSS SECTION 2-2'

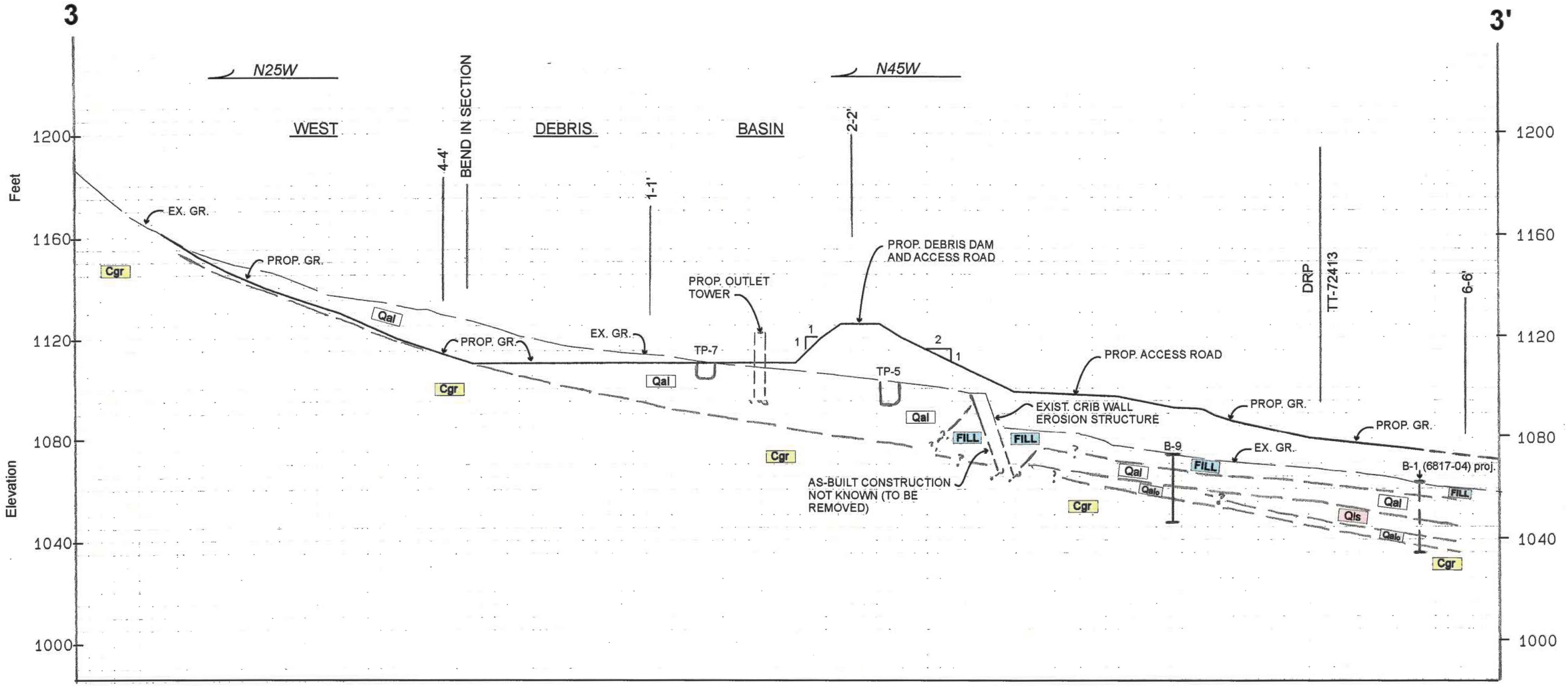


NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

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	6950-04	FEBRUARY 2016	FIG. B-3

GEOLOGIC CROSS SECTION 3-3'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

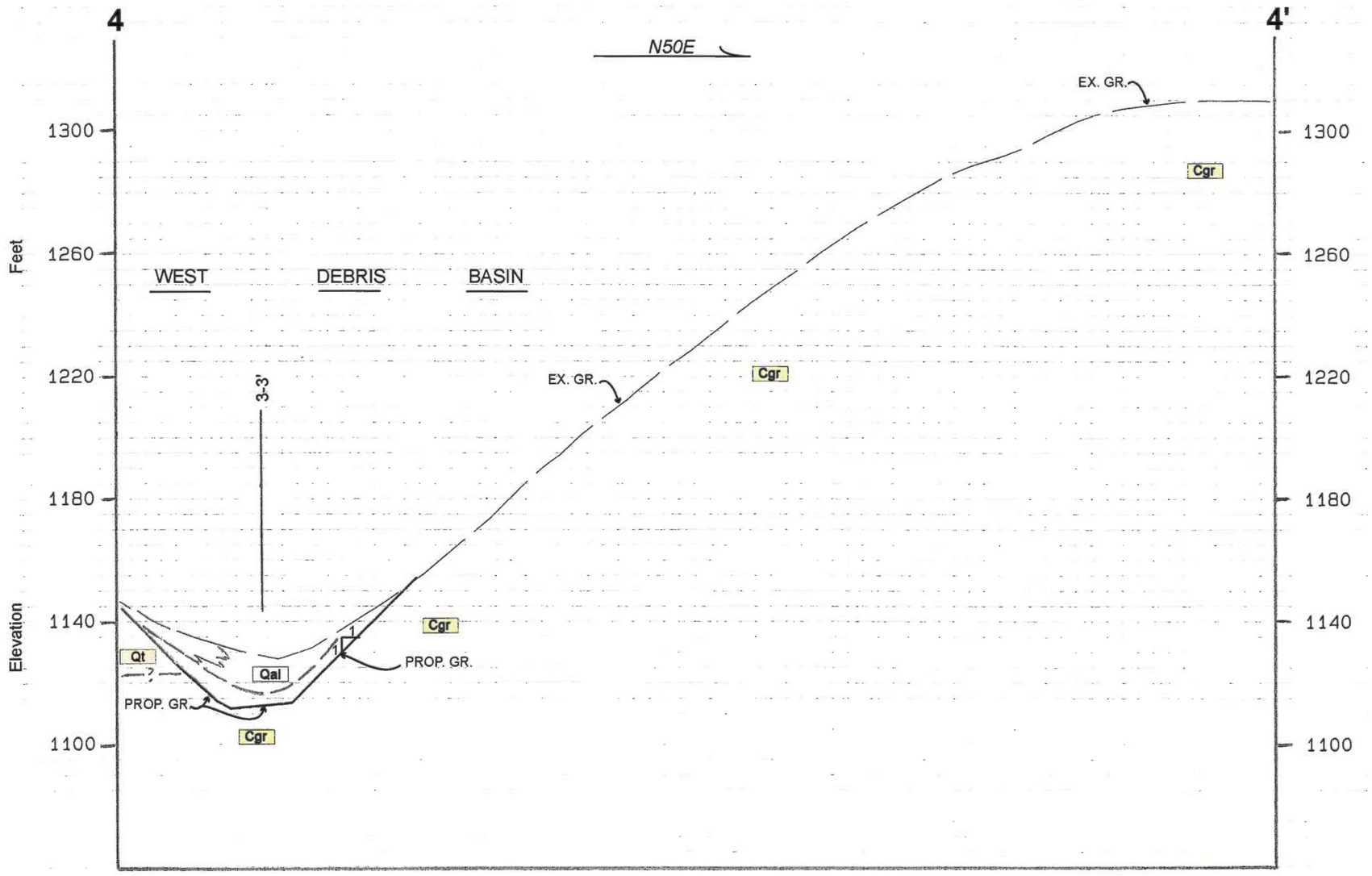
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6950-04	FEBRUARY 2016	FIG. B-4

GEOLOGIC CROSS SECTION 4-4'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

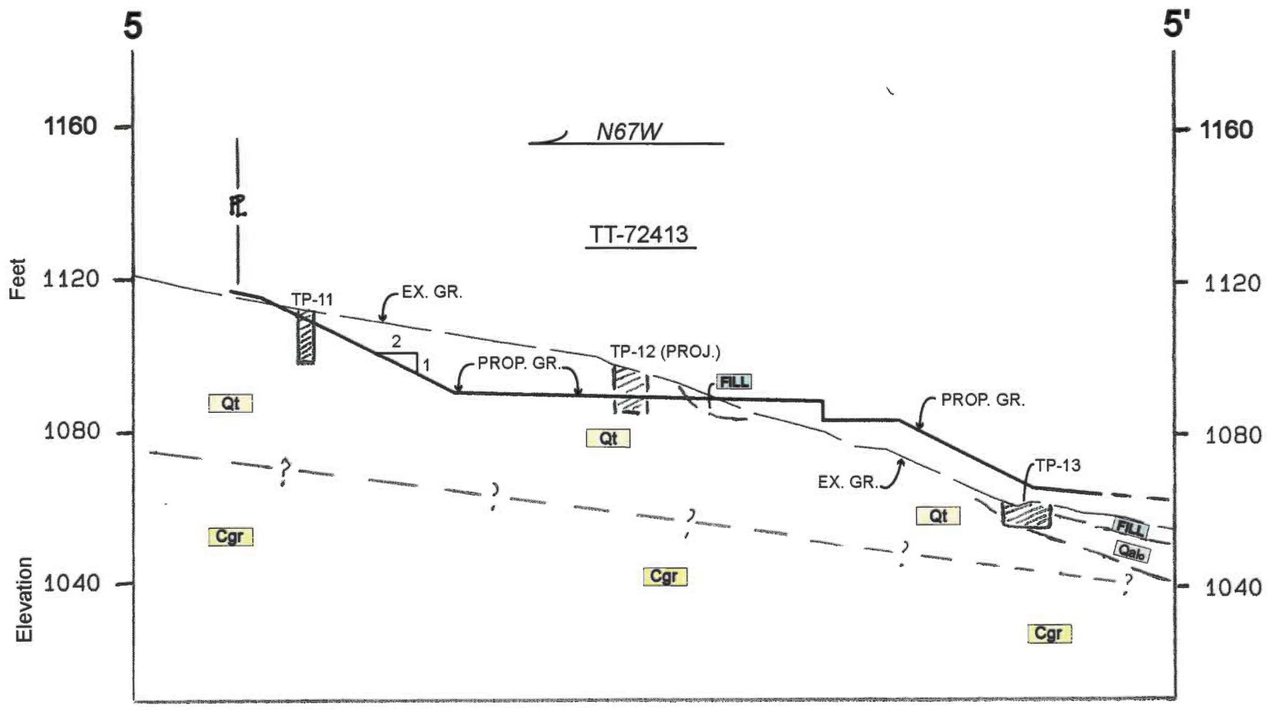
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GEOLOGIC CROSS SECTION 5-5'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

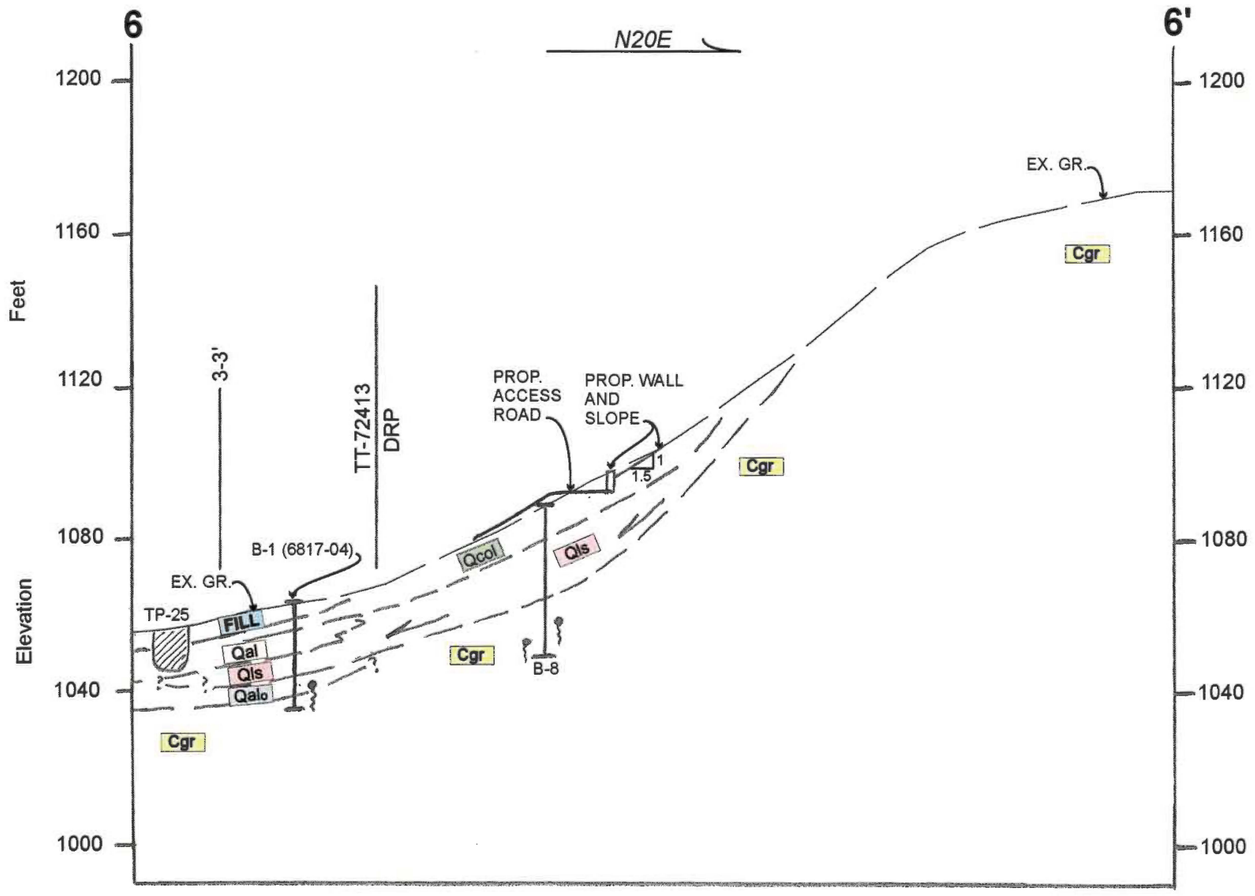
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6950-04	FEBRUARY 2016	FIG. B-6

GEOLOGIC CROSS SECTION 6-6'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

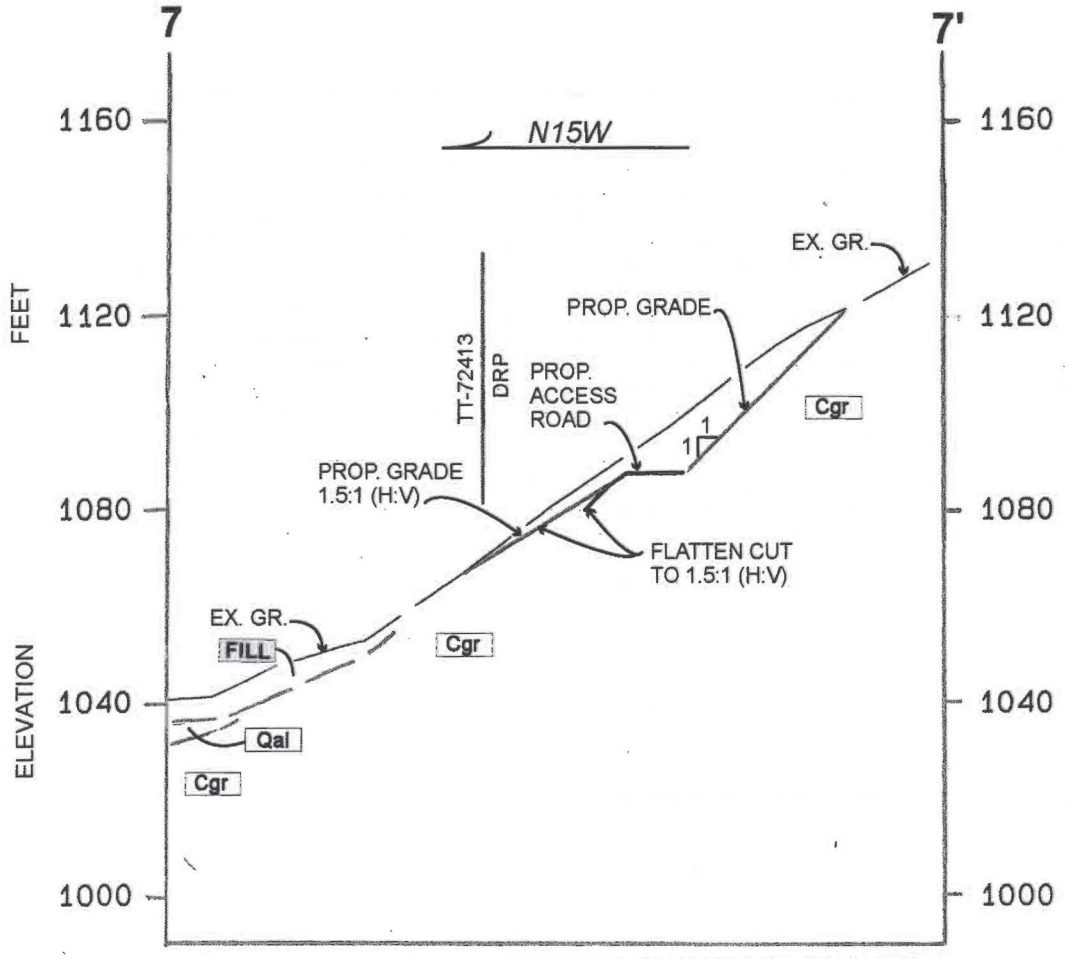
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GEOLOGIC CROSS SECTION 7-7'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

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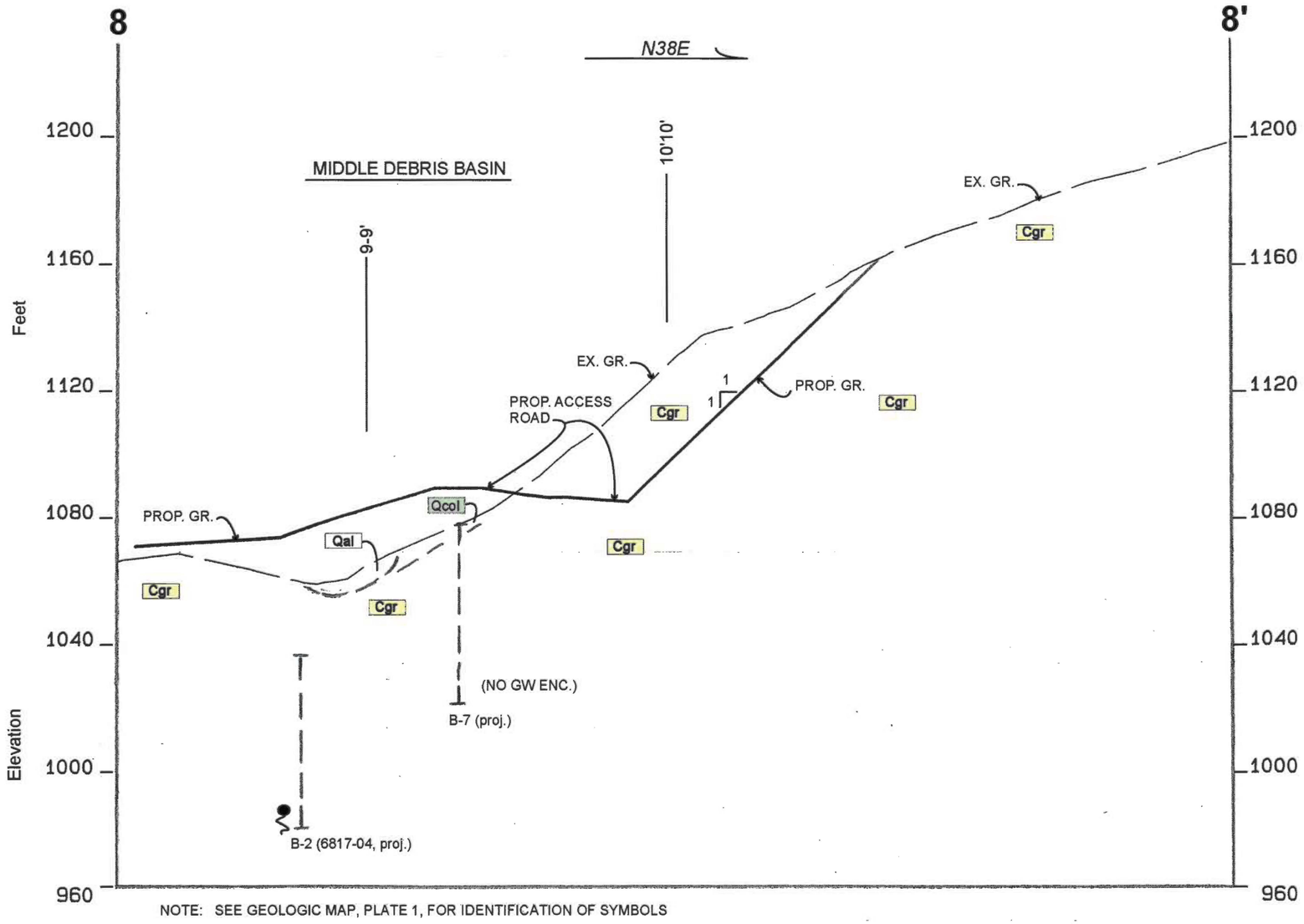
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GEOLOGIC CROSS SECTION 8-8'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

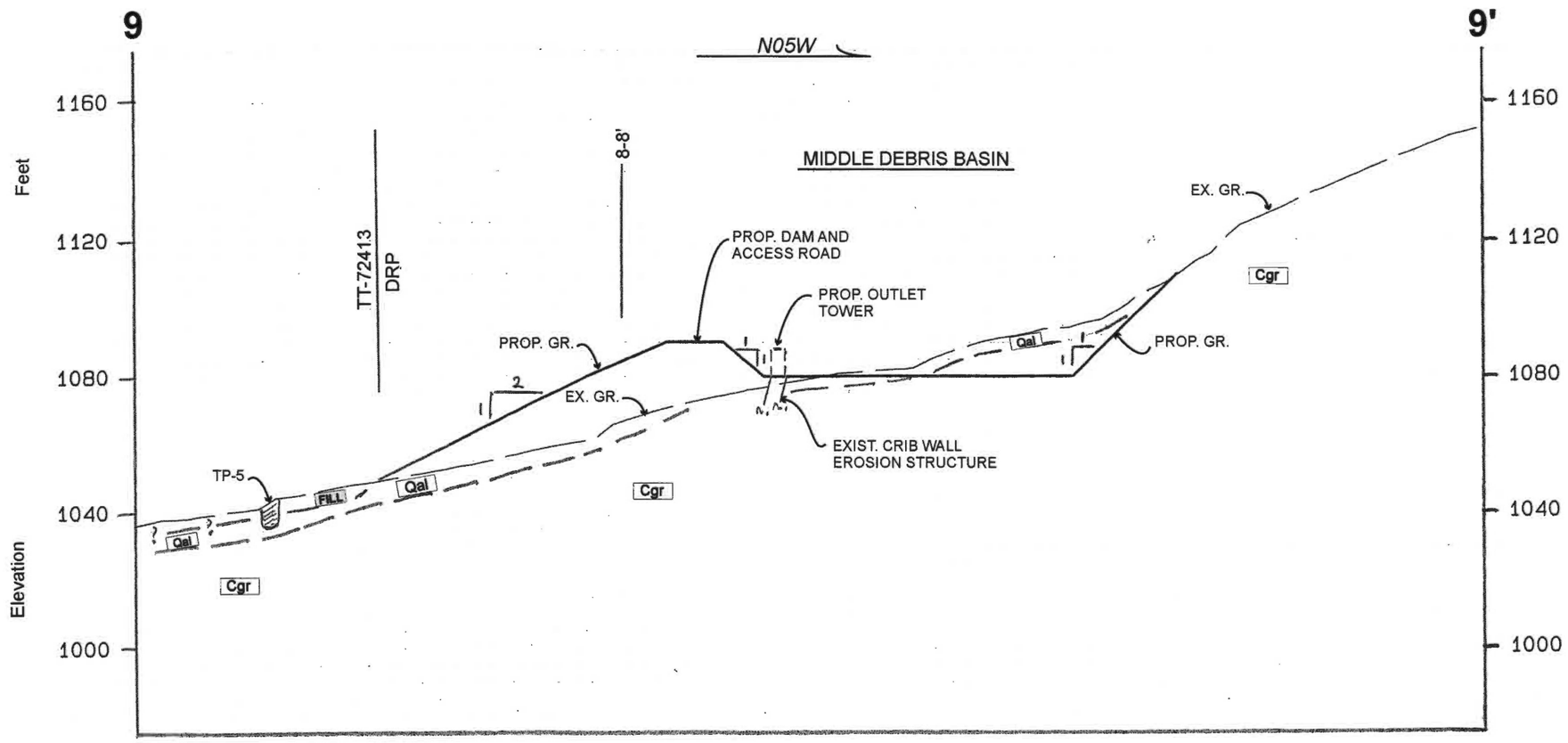
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6950-04	FEBRUARY 2016	FIG. B-9

GEOLOGIC CROSS SECTION 9-9'

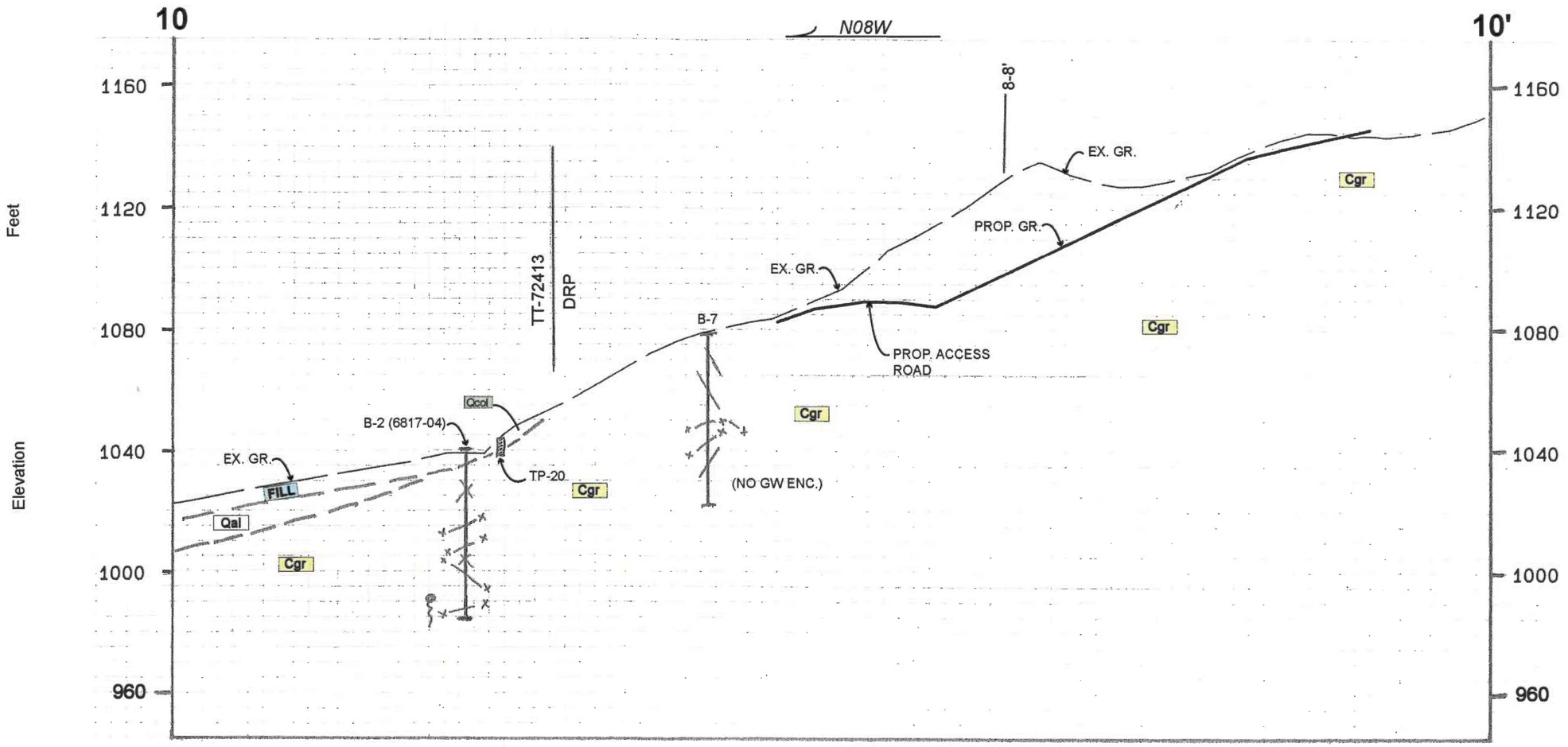


NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

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	6950-04	FEBRUARY 2016	FIG. B-10

GEOLOGIC CROSS SECTION 10-10'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

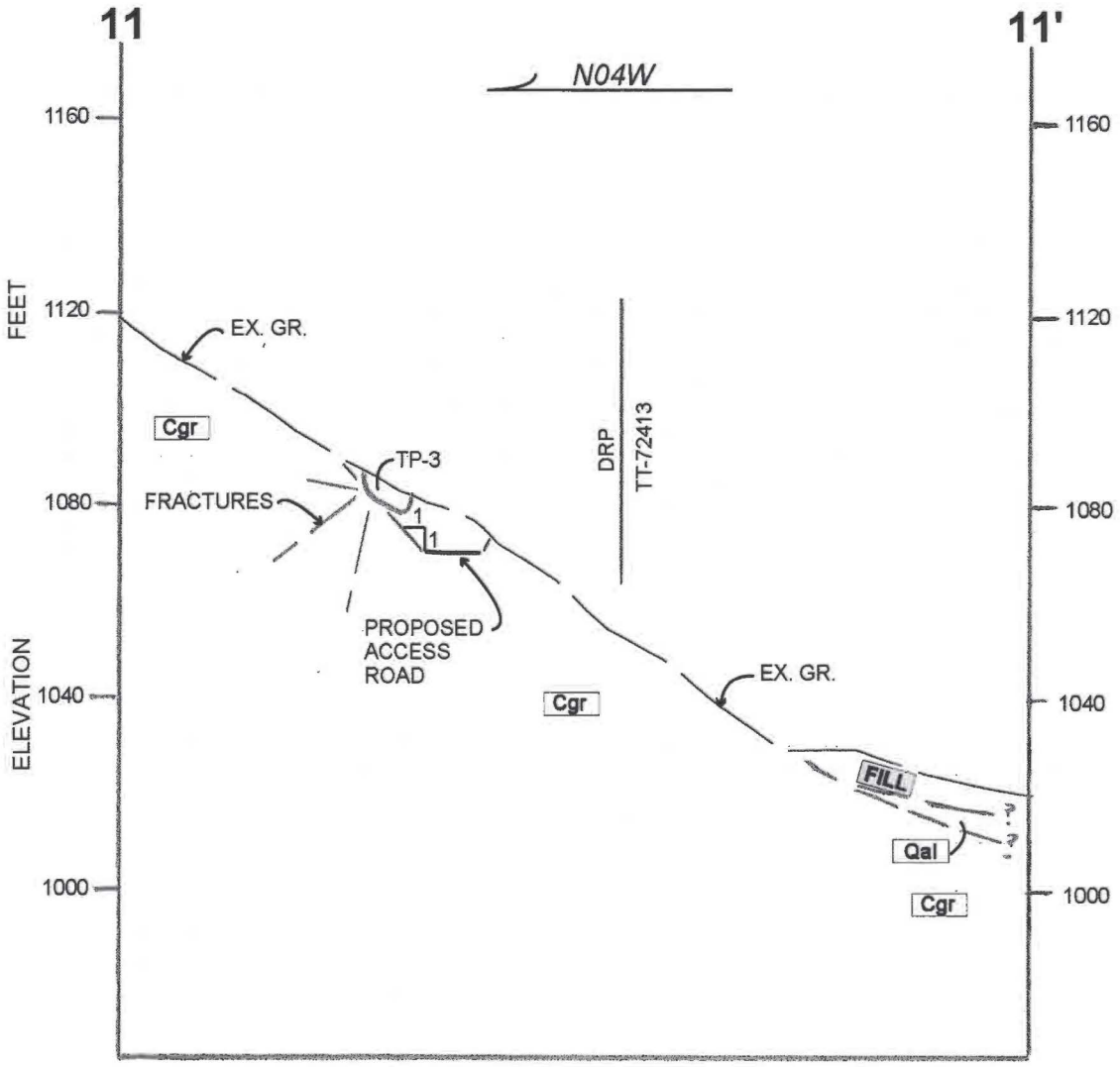
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GEOLOGIC CROSS SECTION 11-11'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

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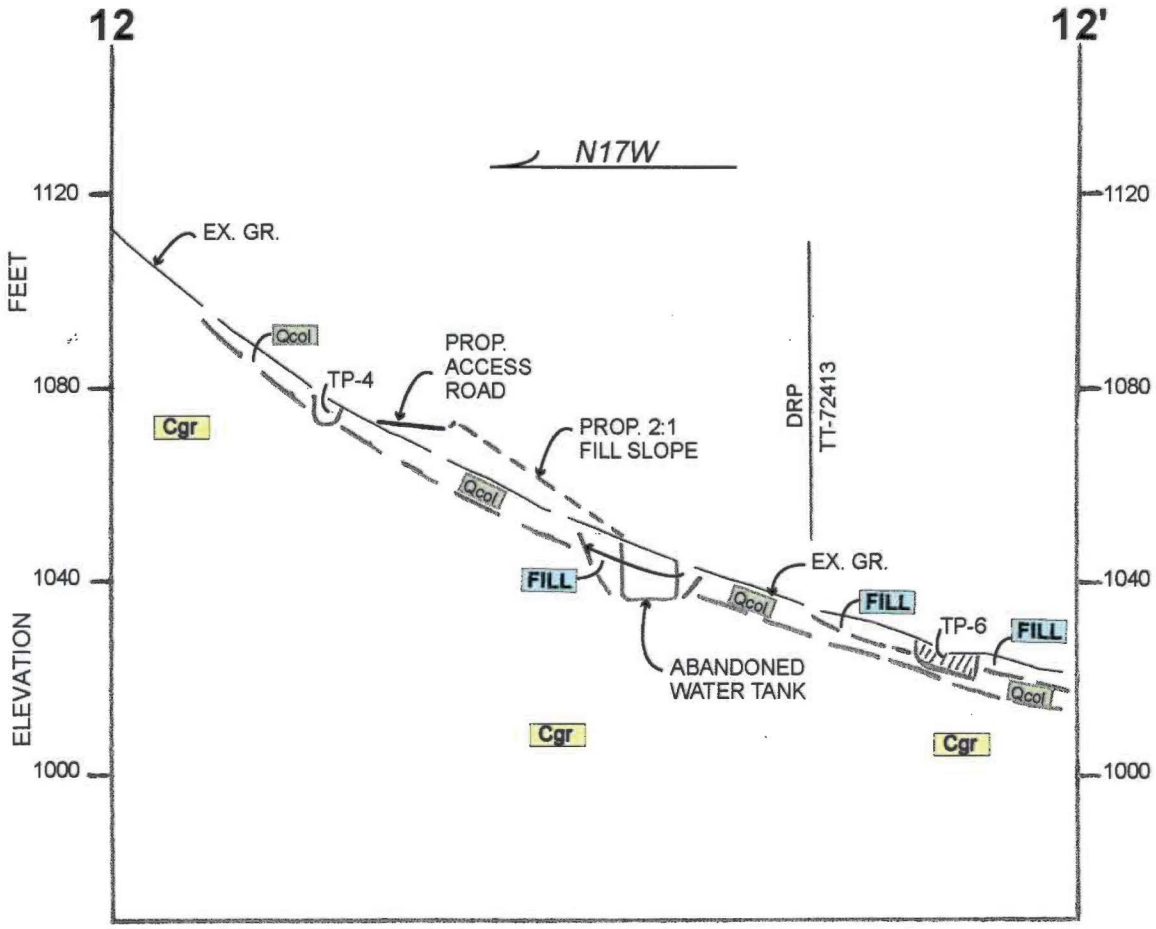
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GEOLOGIC CROSS SECTION 12-12'



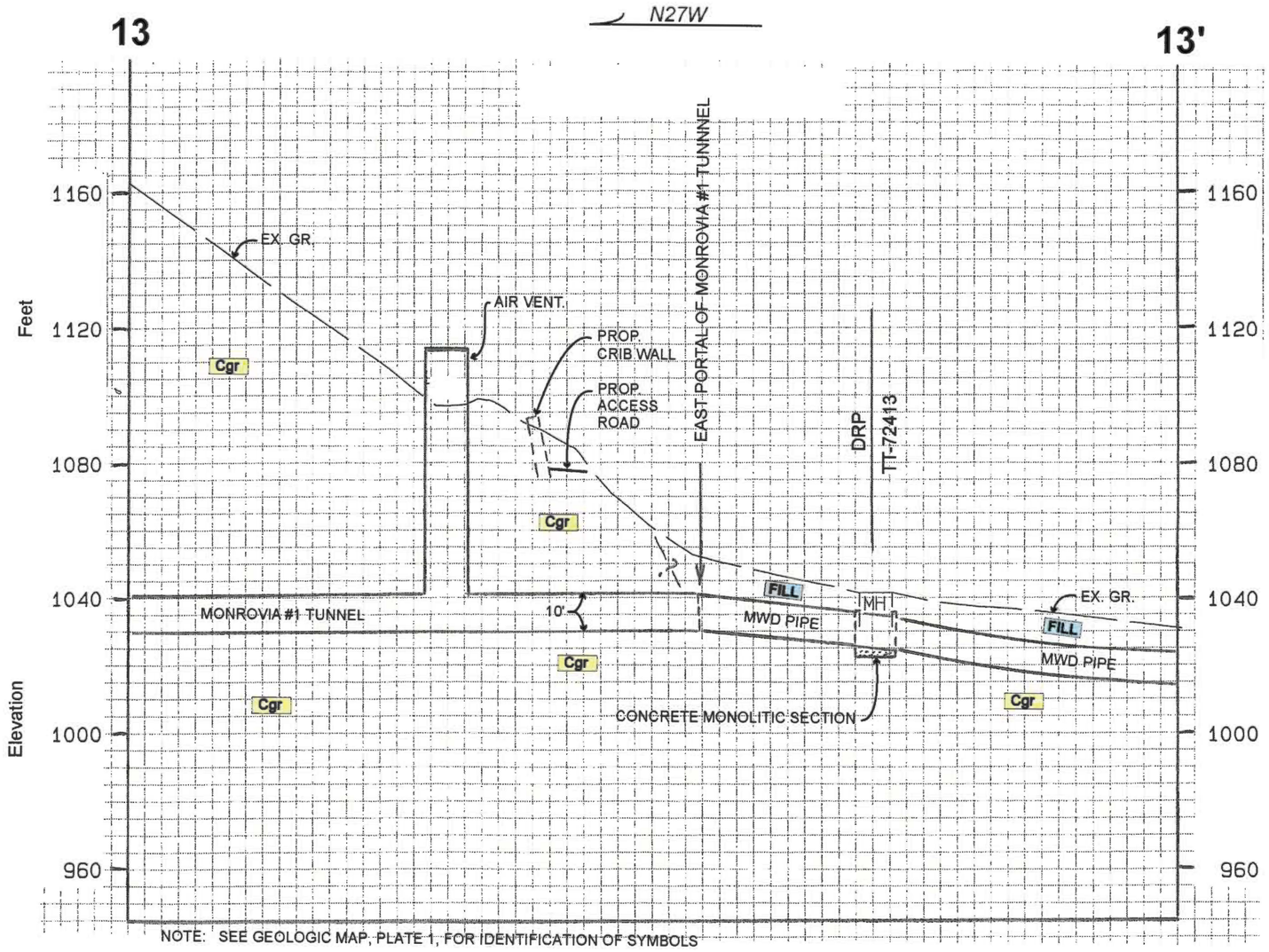
NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

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	6950-04	FEBRUARY 2016	FIG. B-13

GEOLOGIC CROSS SECTION 13-13'

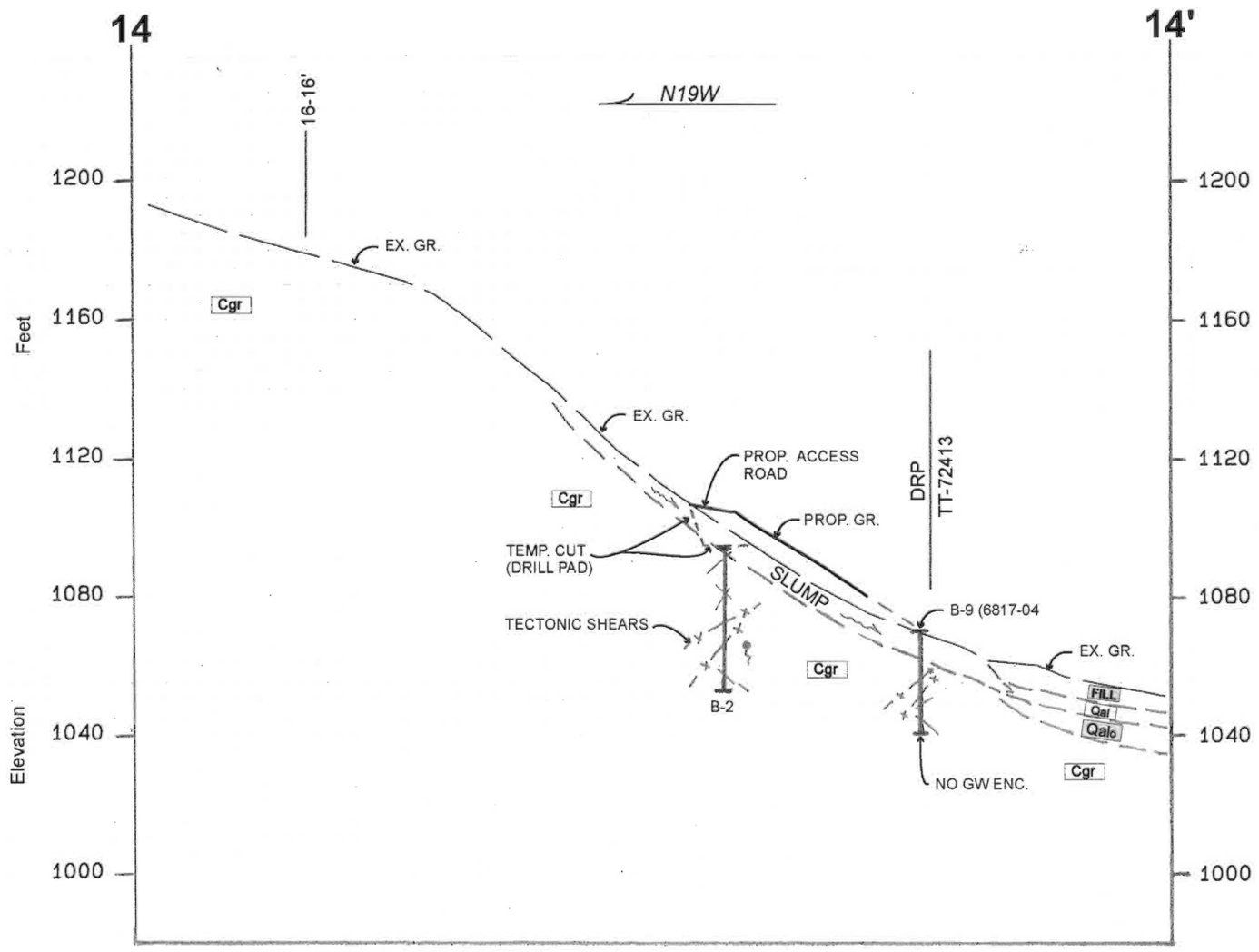


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PROPOSED DEBRIS BASINS/DAMS AND
ACCESS ROADS, DRP, APN 8684-045-004
GLENDORA, CA

6950-04	FEBRUARY 2016	FIG. B-14

GEOLOGIC CROSS SECTION 14-14'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

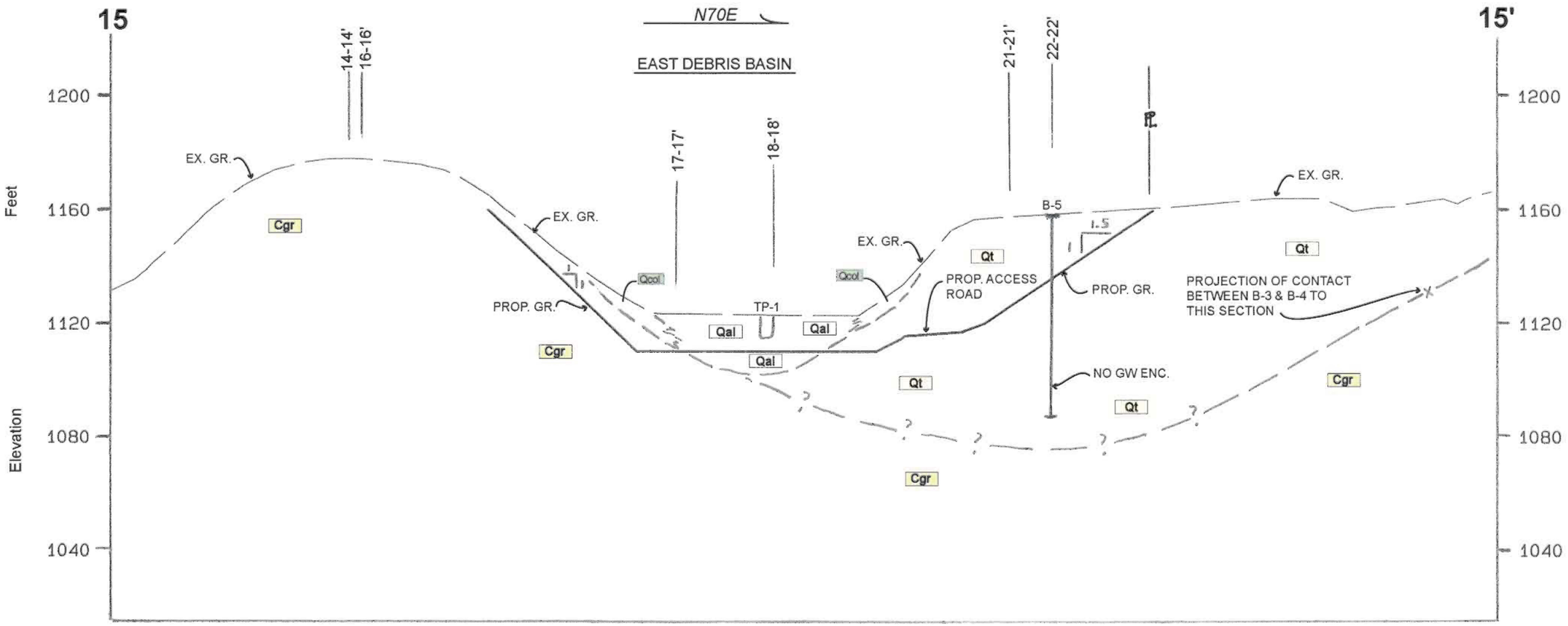
40 0 40 80
scale feet

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ACCESS ROADS, DRP, APN 8684-045-004
GLENDORA, CA

6950-04	FEBRUARY 2016	FIG. B-15

GEOLOGIC CROSS SECTION 15-15'

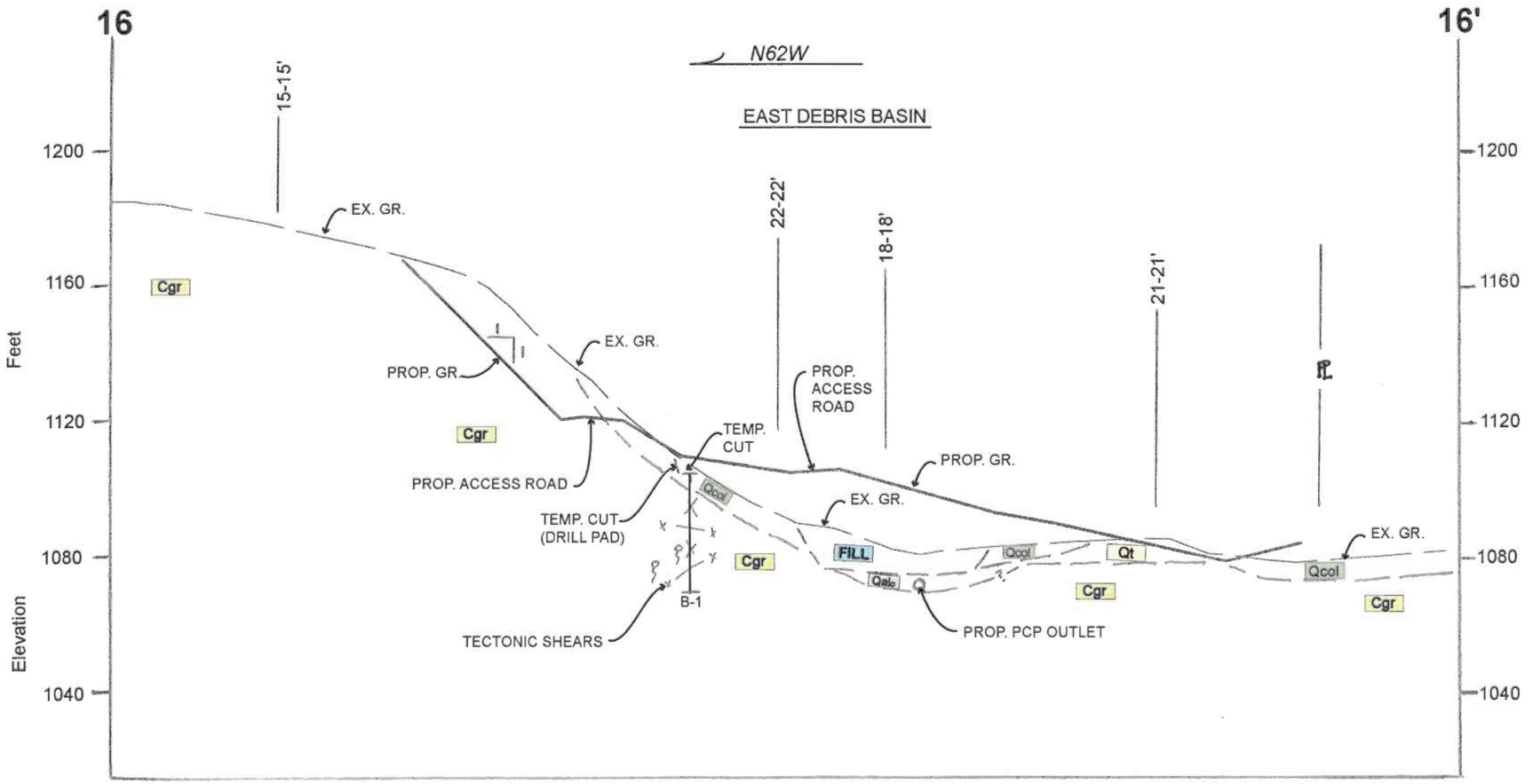


NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

40 0 40 80
scale feet

G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	DREAMLAND INVESTMENTS, LLC PROPOSED DEBRIS BASINS/DAMS AND ACCESS ROADS, DRP, APN 8684-045-004 GLENDORA, CA		
	6950-04	FEBRUARY 2016	FIG. B-16

GEOLOGIC CROSS SECTION 16-16'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

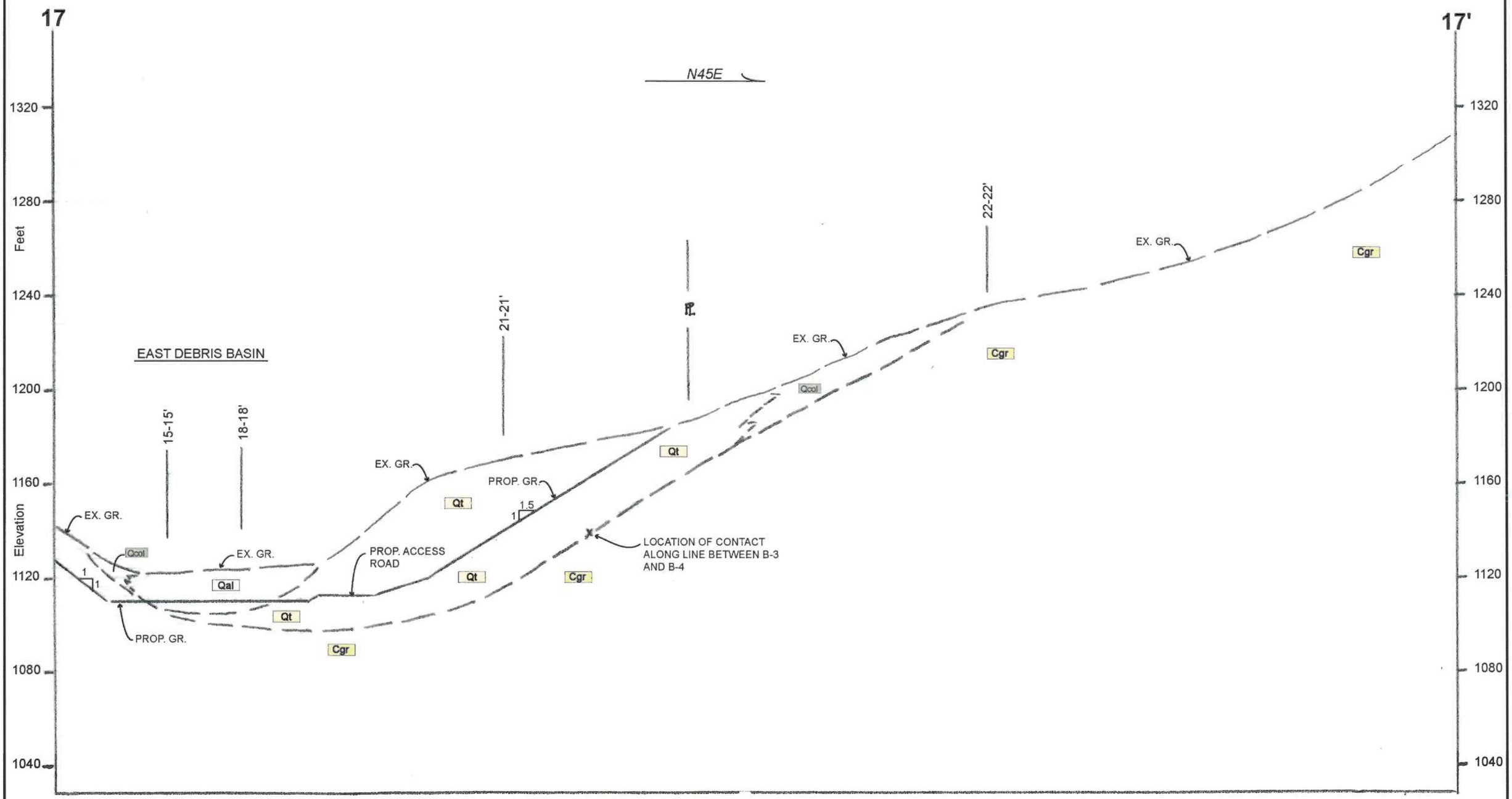
40 0 40 80
scale feet

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GLENDORA, CA

6950-04	FEBRUARY 2016	FIG. B-17

GEOLOGIC CROSS SECTION 17-17'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

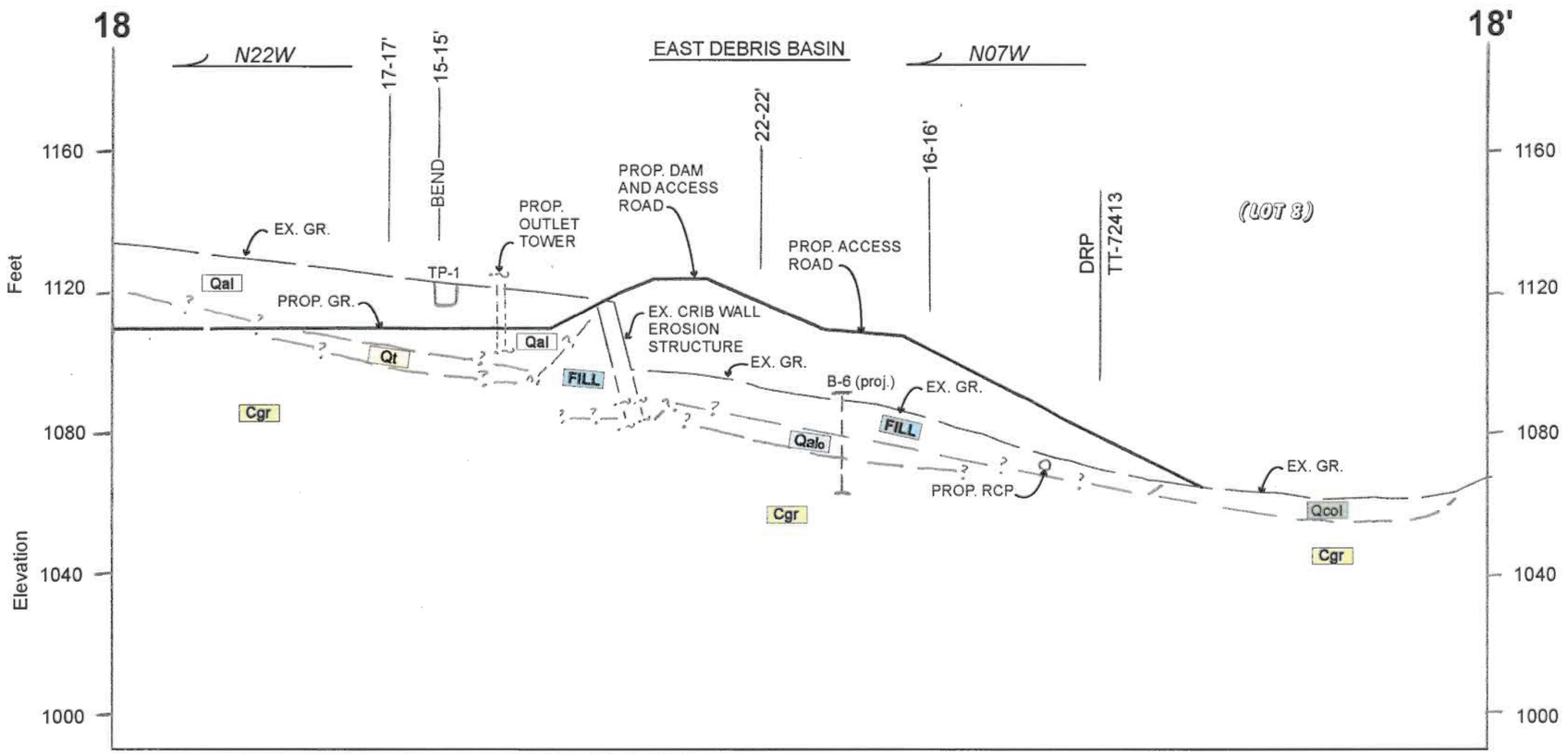
40 0 40 80
scale feet

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6950-04	FEBRUARY 2016	FIG. B-18

GEOLOGIC CROSS SECTION 18-18'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

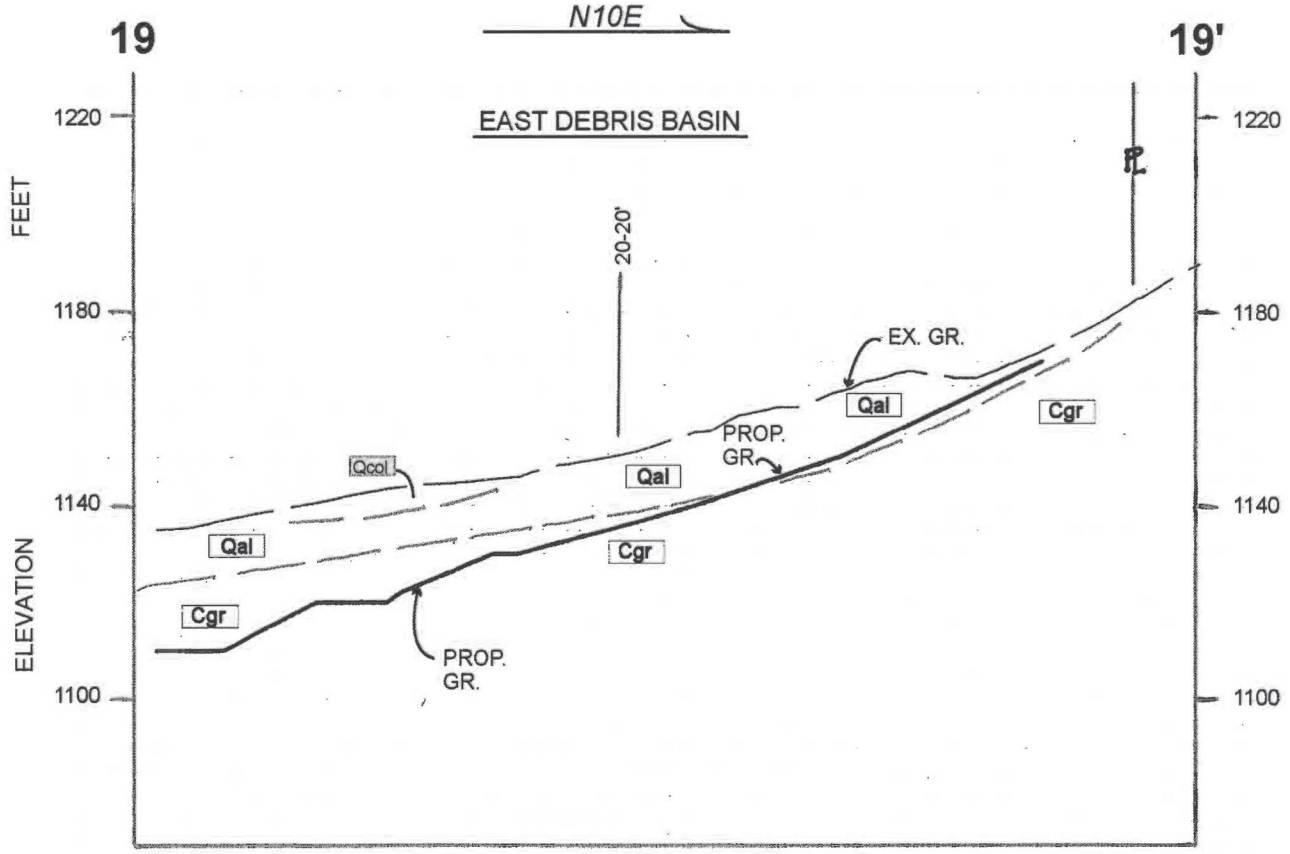
40 0 40 80
scale feet

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ACCESS ROADS, DRP, APN 8684-045-004
GLENDORA, CA

6950-04	FEBRUARY 2016	FIG. B-19

GEOLOGIC CROSS SECTION 19-19'

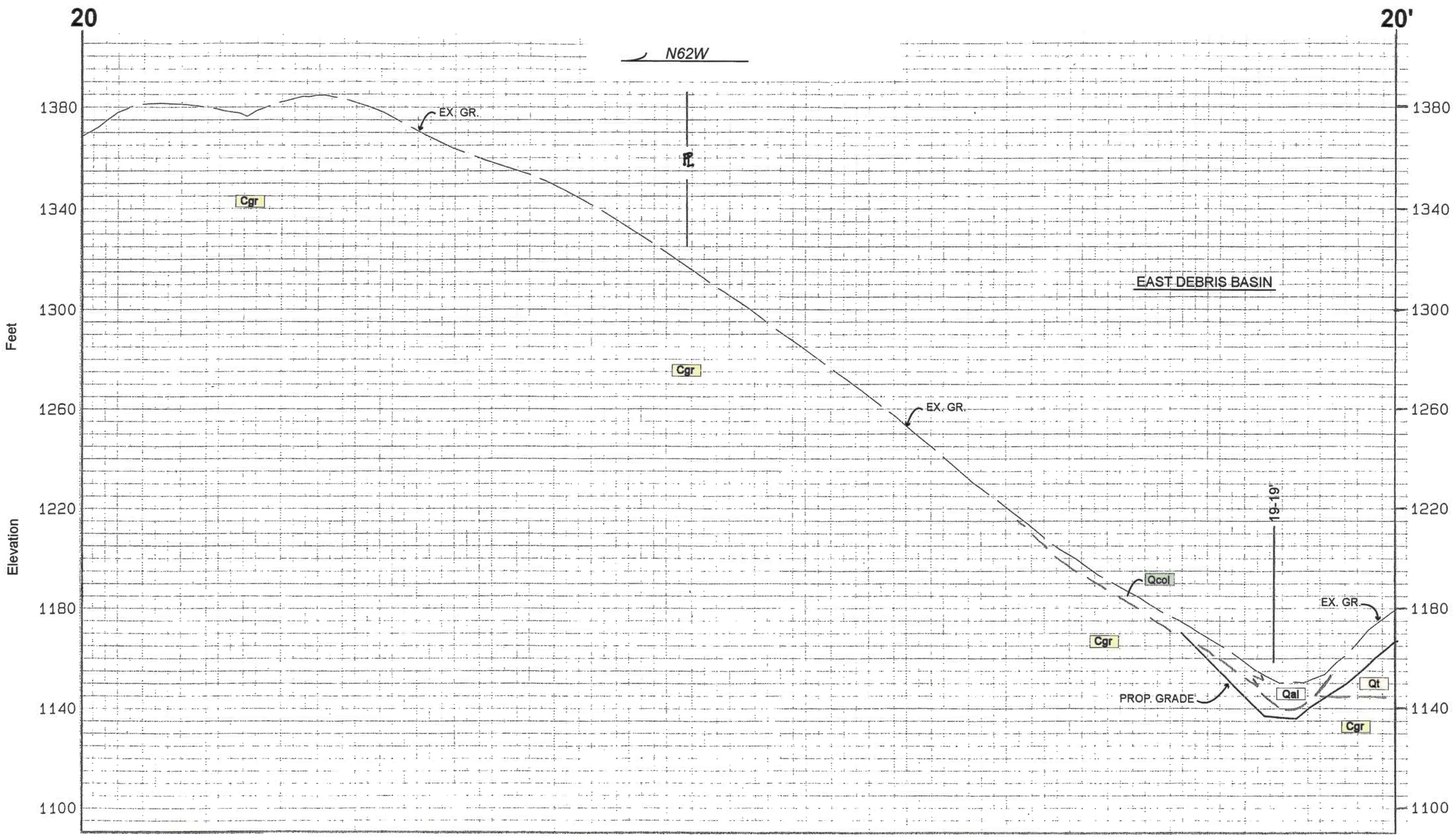


NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS



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	6950-04	FEBRUARY 2016	FIG. B-20

GEOLOGIC CROSS SECTION 20-20'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

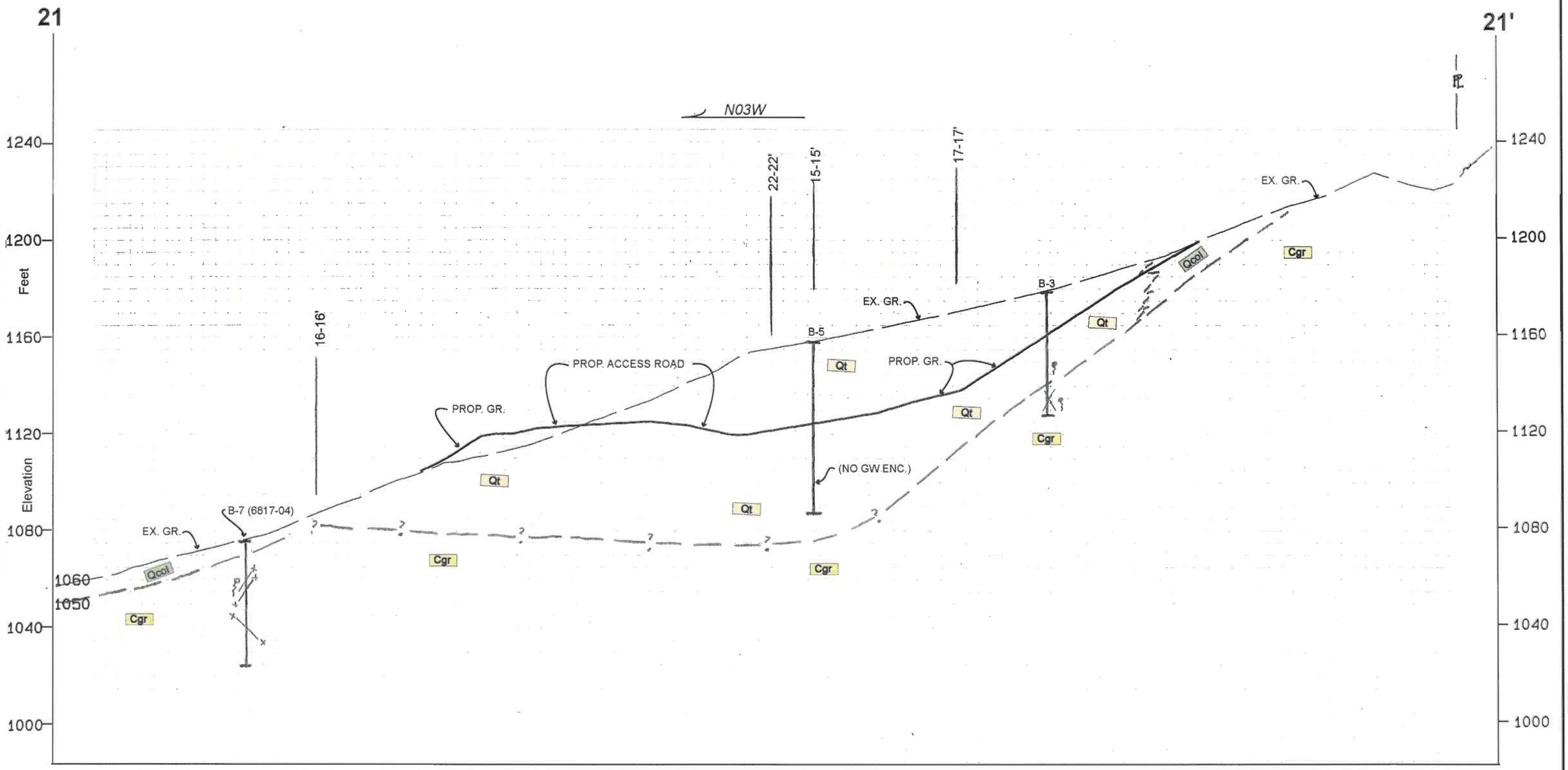
40 0 40 80
scale feet

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ACCESS ROADS, DRP, APN 8684-045-004
GLENDORA, CA

6950-04	FEBRUARY 2016	FIG. B-21

GEOLOGIC CROSS SECTION 21-21'



NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

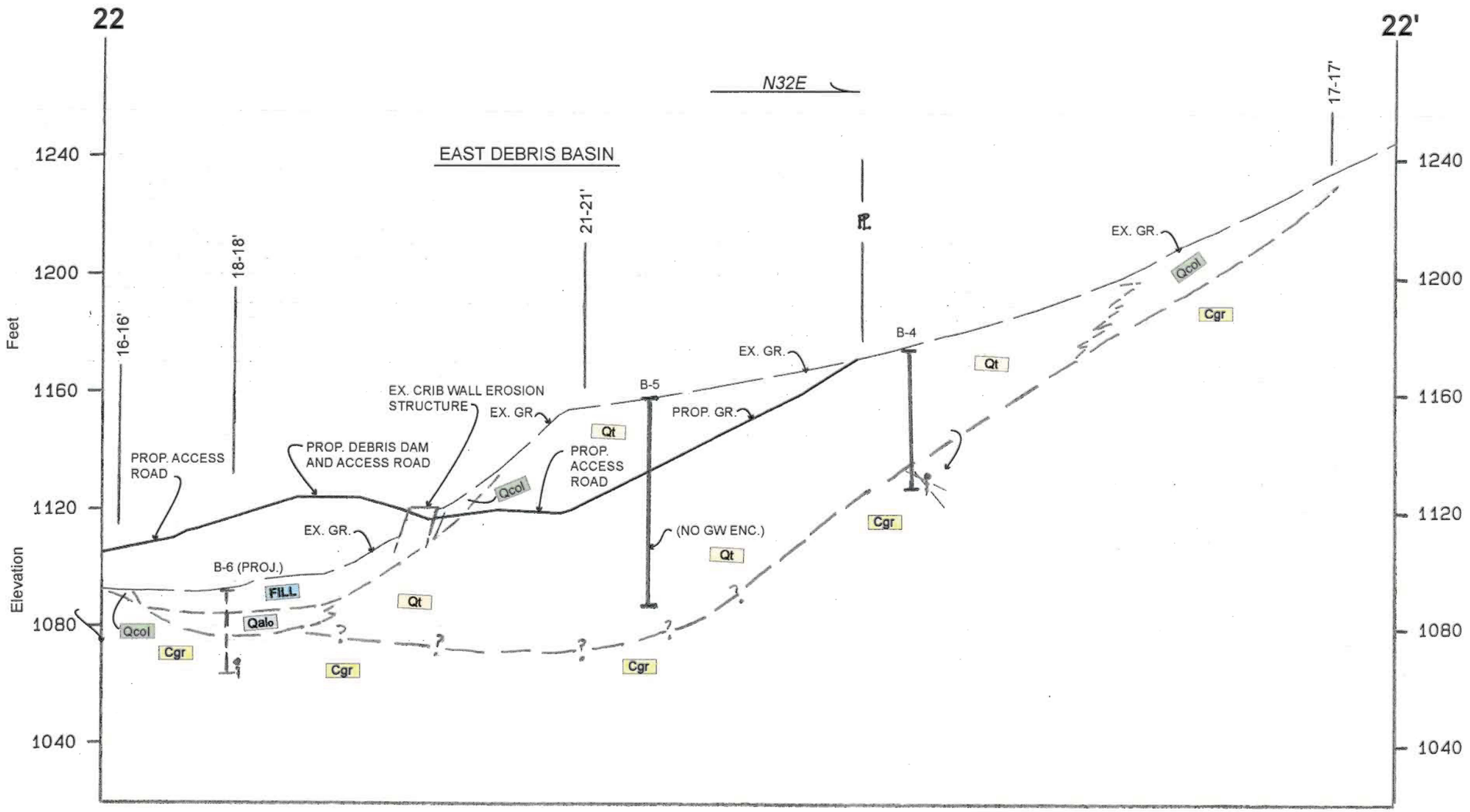
40 0 40 80
scale feet

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ACCESS ROADS, DRP, APN 8684-045-004
GLENDORA, CA

6950-04	FEBRUARY 2016	FIG. B-22

GEOLOGIC CROSS SECTION 22-22'



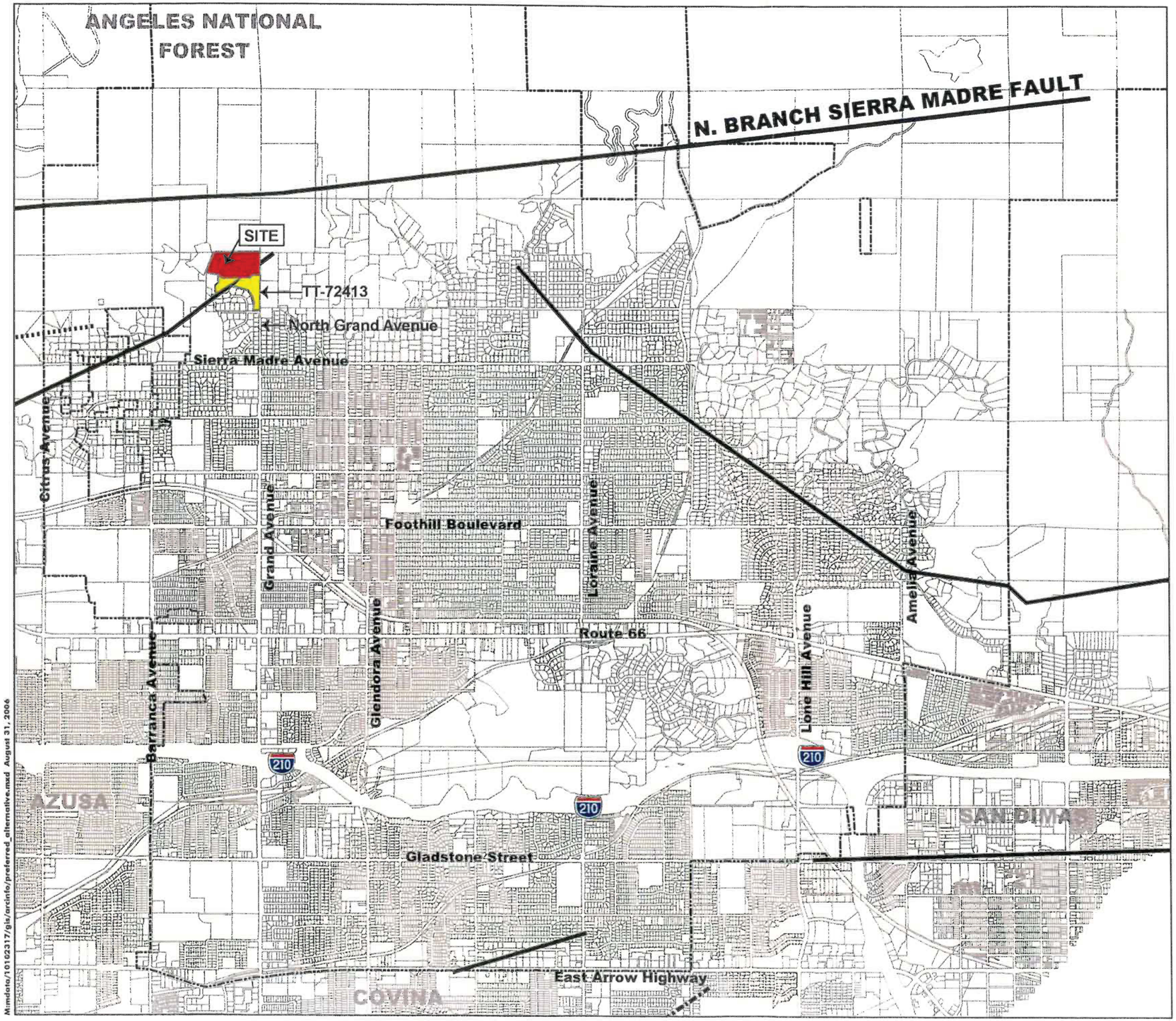
NOTE: SEE GEOLOGIC MAP, PLATE 1, FOR IDENTIFICATION OF SYMBOLS

40 0 40 80
scale feet

G. A. Nicoll & Associates, Inc.
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DREAMLAND INVESTMENTS, LLC
PROPOSED DEBRIS BASINS/DAMS AND ACCESS ROADS, DRP, APN 8684-045-004
GLENDORA, CA

6950-04	FEBRUARY 2016	FIG. B-23



M:\data\10102317\gis\arcinfo\preferred_alternative.mxd August 31, 2006

REGIONAL FAULT MAP

SAF - 3

LEGEND

- HOLOCENE fault displacement (during past 10,000 years) without historic record.
- LATE QUATERNARY fault discplacement (during past 700,000 years)
- QUATERNARY fault (age undifferentiated)
- CITY LIMITS

N

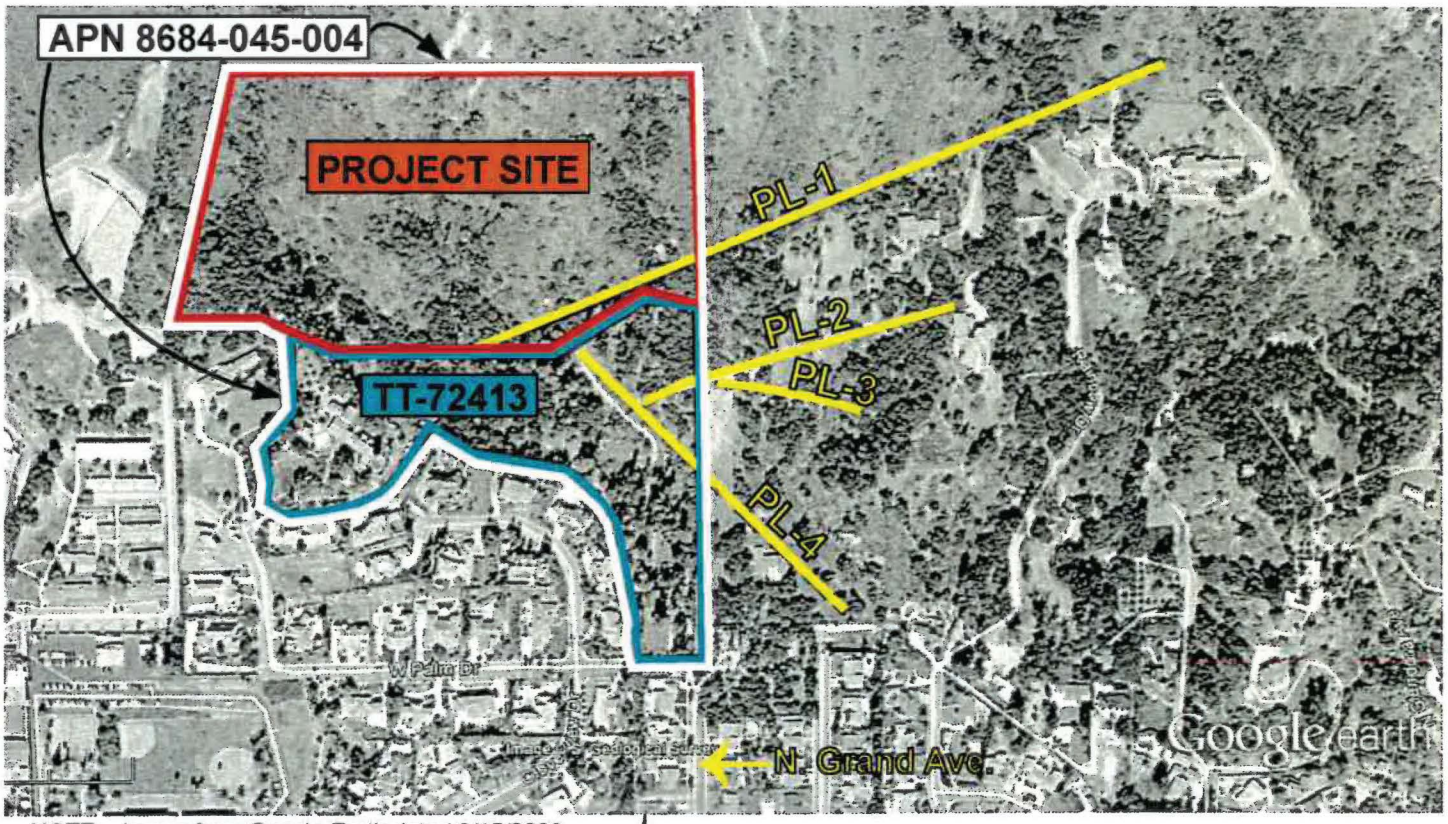
2900 0 2900 5800

scale feet

NOTE: Base Map modified from RBF Consultants Regional Fault Map, SAF-3 to show the site location

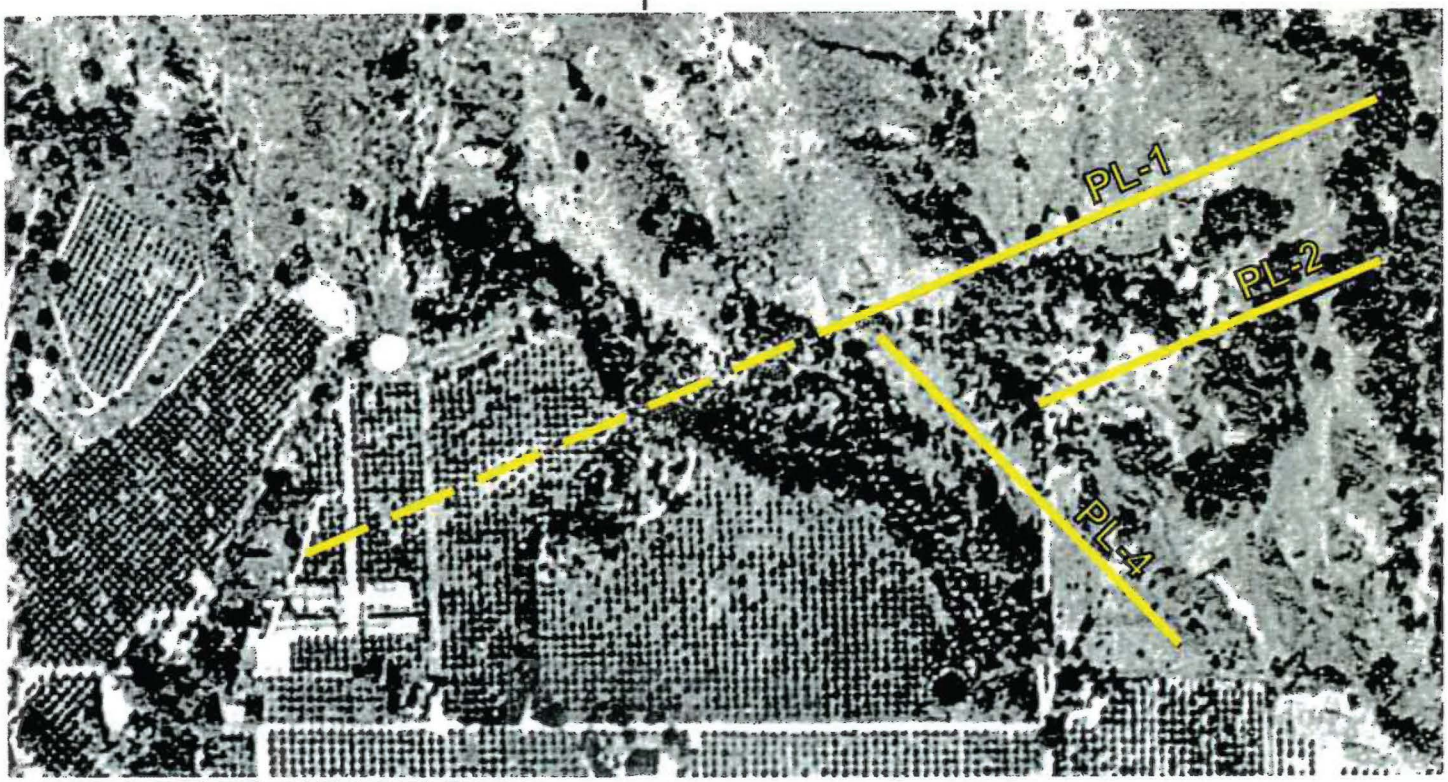
G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	Dreamland Investments, LLC Proposed Debris Basins/Dams and Access Roads, DRP, APN 8684-045-004 Glendora, California		
	6950-04	Feb 2016	Fig. B-24

PHOTOGRAPHIC LINEAMENTS



NOTE: Image from Google Earth dated 3/15/2006

N



NOTE: Image from Aerial Photograph Exposure AXJ-1952-92-84, dated 1/2/1953

PL-4 Location of photographic lineament

PL-1 Dashed where projected

N

400 0 400 800

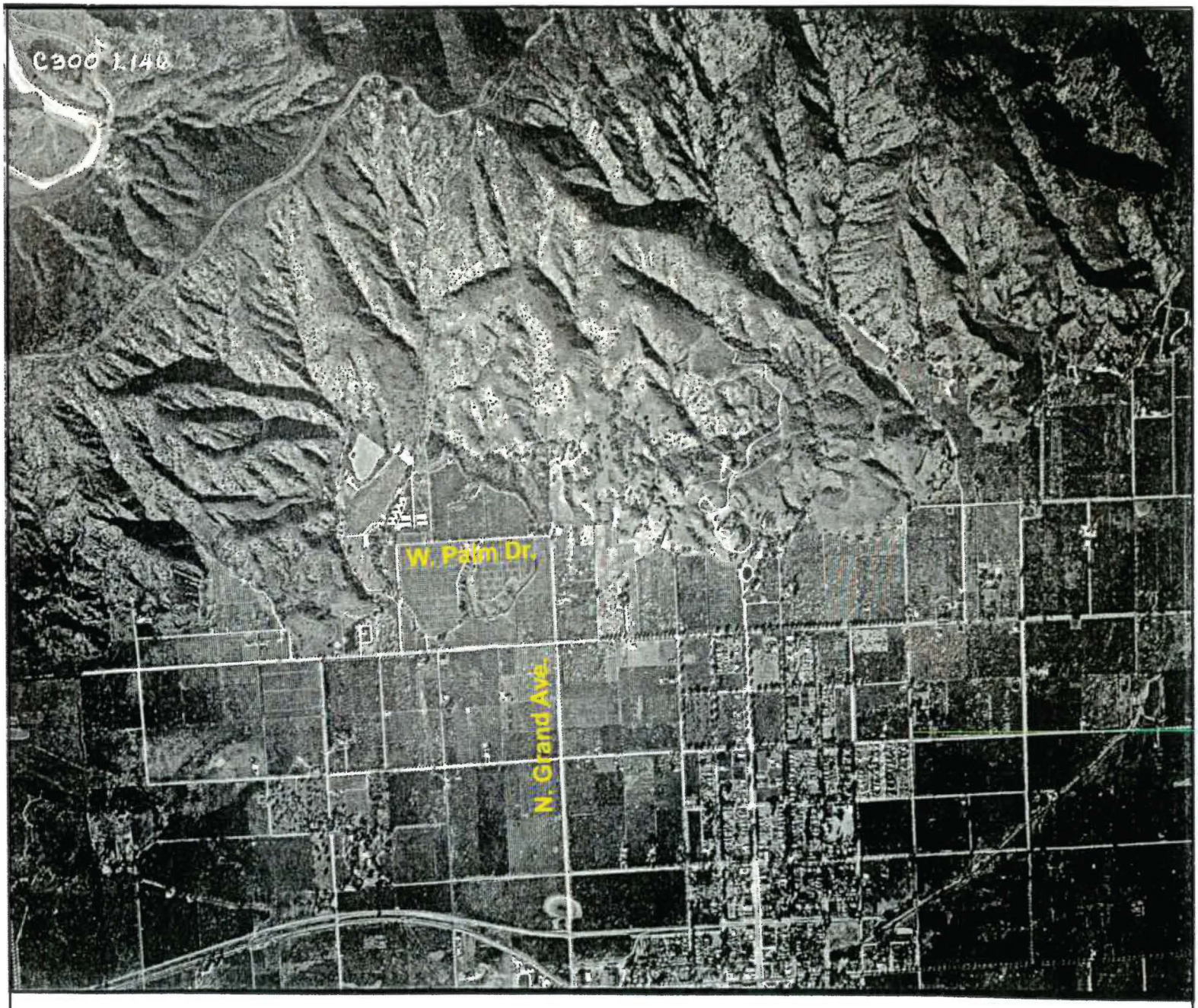
scale feet

G. A. Nicoll & Associates, Inc.
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Dreamland Investments, LLC
Proposed Debris Basins/Dams and Access Roads
DRP, APN 8684-045-004, Glendora, CA

6817-04	Nov 2013	Fig. B-25

Fairchild Collection Aerial Photos - L. A. Basin

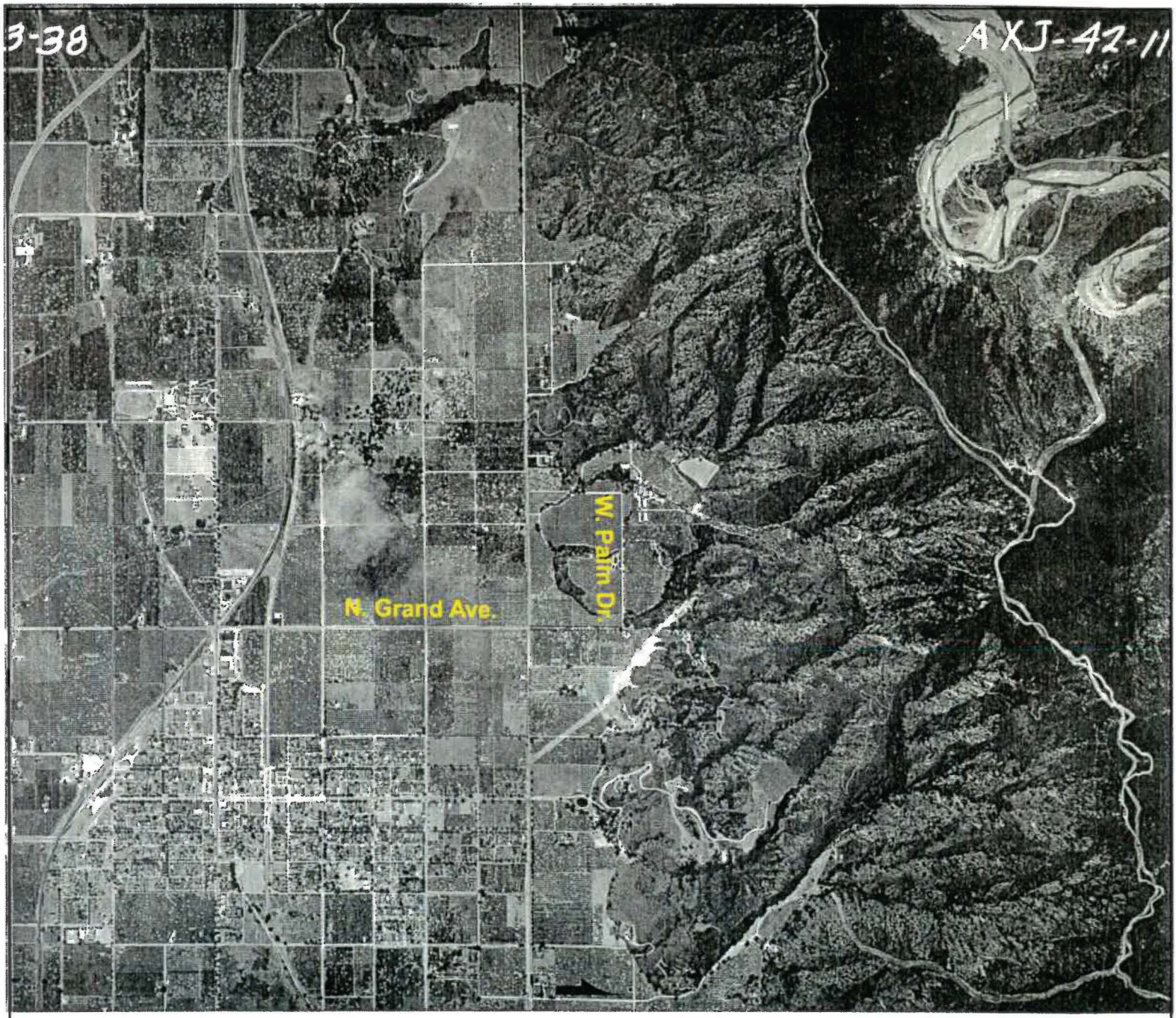


1929, Exposure C300-L140

N

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	6950-04	Feb 2016	Fig. B-26

Fairchild Collection Aerial Photos - L. A. Basin

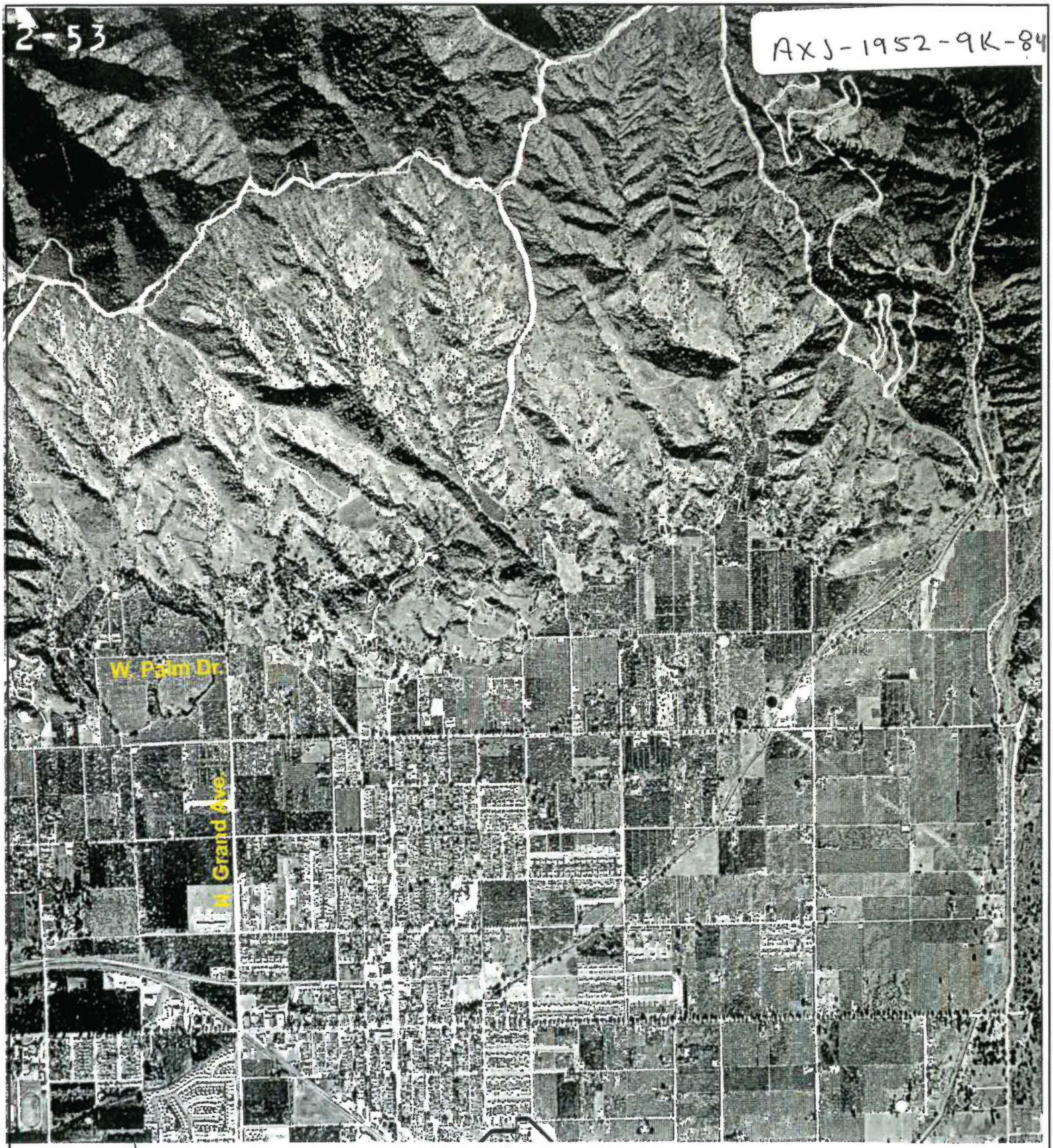


6/3/1938 Exposure AXJ-42-110

N

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	6950-04	Feb 2016	Fig. B-27

Fairchild Collection Aerial Photos - L. A. Basin



1/2/1953, Exposure AXJ-1952-9K-84

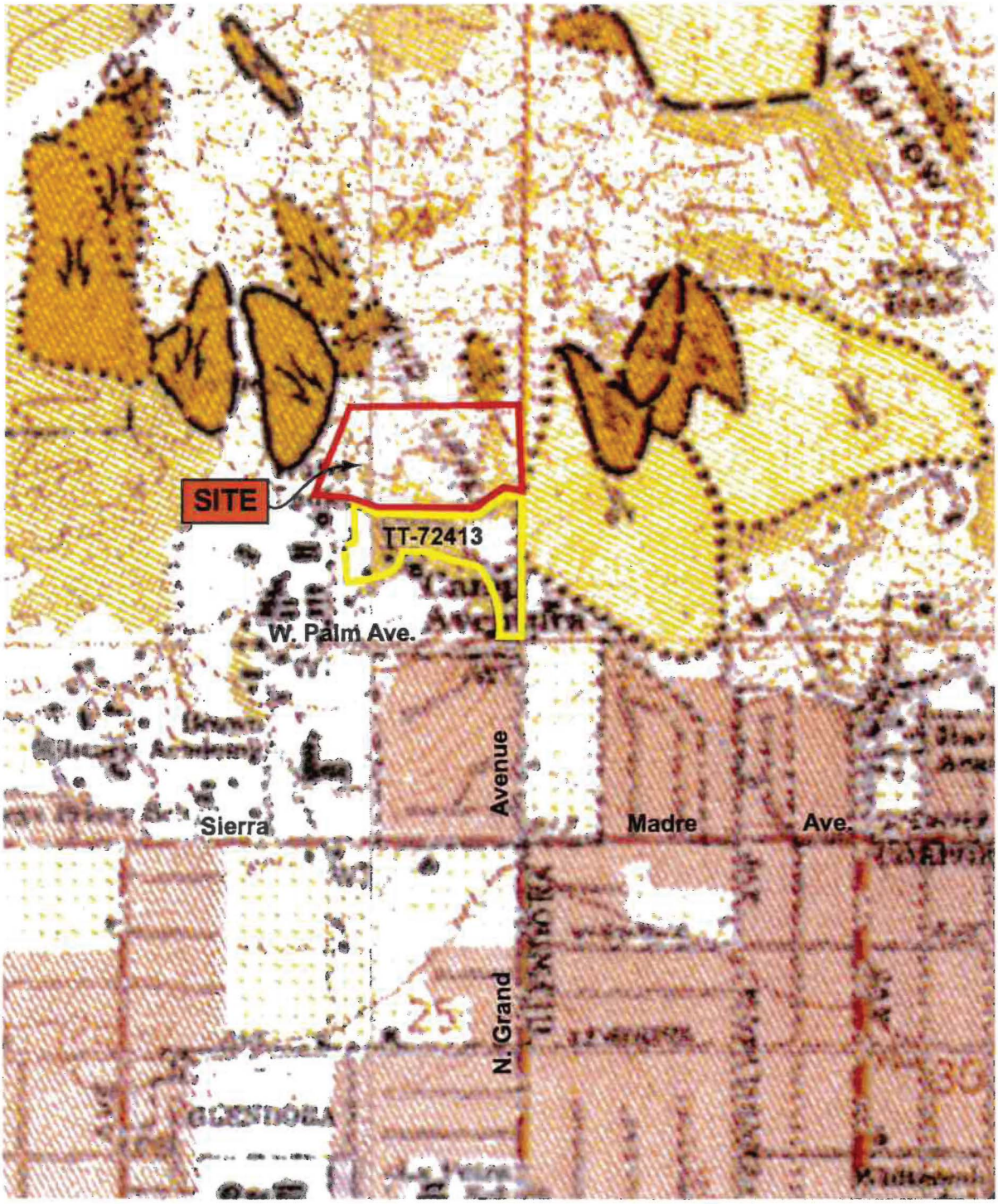
N

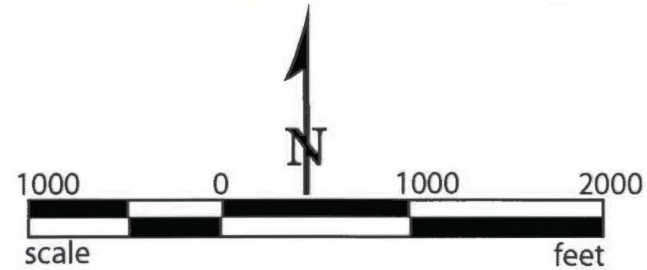
G. A. Nicoll & Associates, Inc.
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Access Roads, DRP, APN 8684-045-004
Glendora, CA

6950-04	Feb 2016	Fig. B-28

LANDSLIDE INVENTORY MAP





KEY

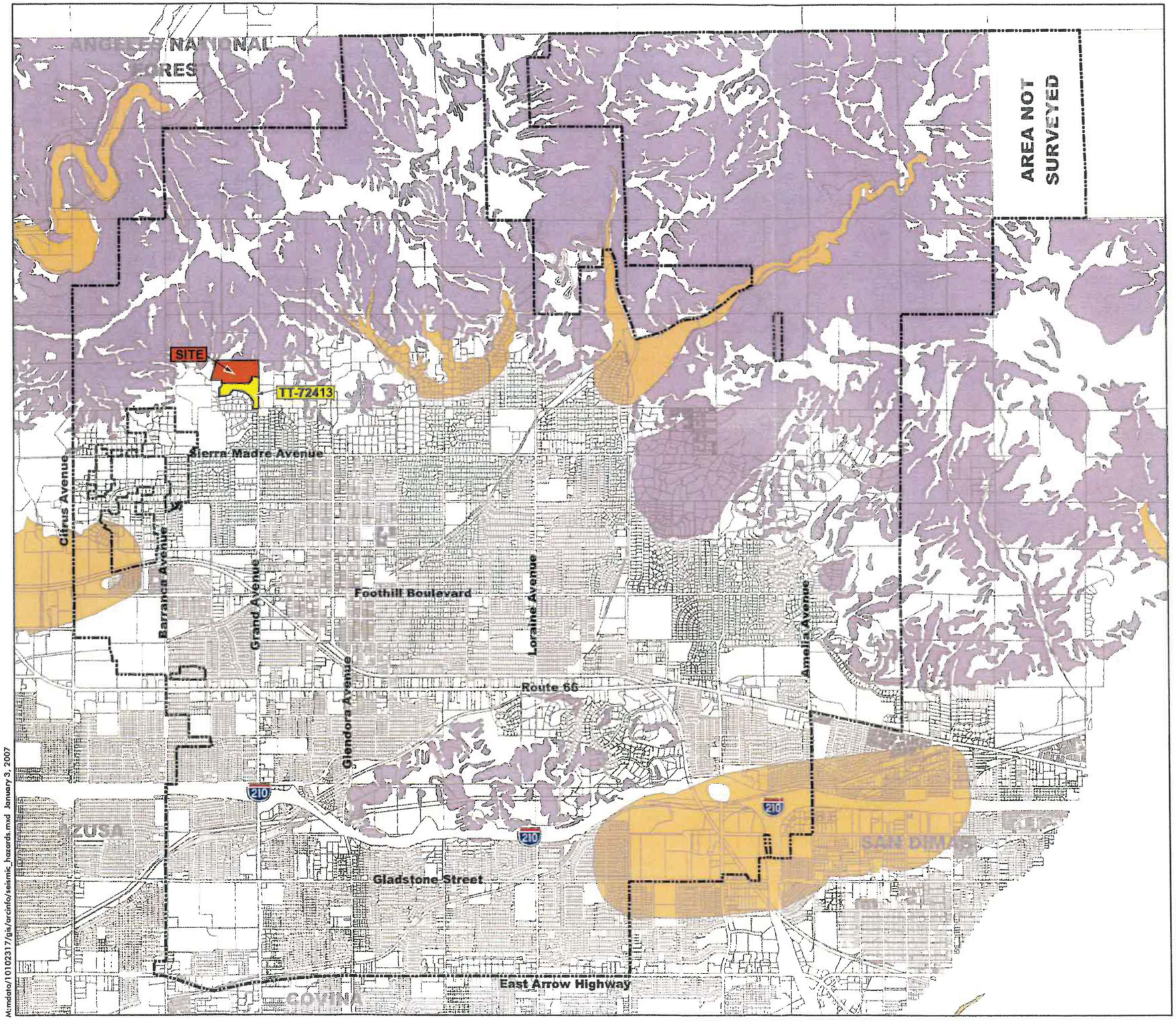
Historic	Definite Landslide
Dormant	Probable Landslide
Dormant - Old	Questionable Landslide

NOTE: Base Map modified from California Geologic Survey, 2007, Landslide Inventory Map of portions of the Glendora and Azusa Quadrangle, L.os Angeles, CA

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Proposed Debris Basins/Dams and Access Roads, DRP, APN 8684-045-004, Glendora, CA

6950-04	Feb 2016	Fig. B-29



M:\data\10102317\gis\arcinfo\seismic_hazards.mxd January 3, 2007

POTENTIAL SEISMIC HAZARDS

SAF - 4

LEGEND

EARTHQUAKE - INDUCED LANDSLIDES

Areas where previous occurrence of landslide movement, or local topographical, geological, geotechnical, and subsurface water conditions indicated a potential for permanent ground displacements.

LIQUEFACTION

Areas where historic occurrence of liquefaction of local geological, geotechnical and groundwater conditions indicate a potential fore permanent ground displacement.

CITY LIMITS

N

2900 0 2900 5800

scale feet

NOTE: Base Map modified from RBF Consultants Potential Seismic Hazards Map, SAF-4 to show the site location

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	6950-04	Feb 2016	Fig. B-30

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS		DESCRIPTIONS
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size.)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines)		GW	Well graded gravels, gravel-sand mixtures, little or no fines.
				GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amount of fines)		GM	Silty gravels, gravel-sand-silt mixtures.
				GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 sieve size.)	CLEAN SANDS (Little or no fines)		SW	Well graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand-silt mixtures.
				SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size.)	SILTS AND CLAYS (Liquid limit LESS than 50)			ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
				CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays.
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				Pt	Peat and other highly organic soils.

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

SILT OR CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

No. 200 No. 40 No. 10 No.4 ¾ in. 3 in. 12 in.

U.S. STANDARD SIEVE SIZE

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EARTH SCIENCE CONSULTANTS
Tustin, California

Dreamland Investments, LLC
Proposed Debris Basins/Dams and Access Roads
DRP, APN 8684-045-004, Glendora, CA

Date: February 2016

Project No.: 6950-04

Figure No.: B-31

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Lo Drill Auger Rig	24 inches	1105 feet	B-1

Date Drilled: 10/20/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
								SM	Silty SAND with Gravel: fine- to coarse-grained, dark brown, dry, loose @ 2 feet, grading to very fractured and weathered granite COLLUVIUM
		7				5		BEDROCK	GRANITICS: pale yellow and light gray (2.5Y-8/2 and 2.5Y-7/2), weathered, very closely fractured, omni-directional fractures @ 3 to 8 feet, Irregular Tectonic Shear: N20E,85NW to vertical w/ 1/2-1-inch light gray, Silty and Sandy Clay gouge @ 6 feet, Fracture: N35W,73NE @ 8 feet, Fracture: E-W,75S
	*	10	0.3	120.5		10			@ 12 feet, Fractures: N55W,75NE and N-S,68W
		15	4.2	121.0		15			@ 16 to 19 feet, Fracture Zone, 2 to 4 inches wide with oxide staining, moist to very moist: N20W,58NE, dry above and below @ 18 to 21 feet, Shear Zone: N45W,45-50NE, 1/8-inch coating of pale greenish-brown (5Y-6/4) at base, 1 to 3-inch zone crushed rock, moist below, tectonic origin
						20			@ 21.5 feet, becomes very moist, still very closely fractured @ 22.5 feet, very slight seepage on southwest side @ 23 to 26 feet, folded, Fractures: N40W,65SW and N20W,65NE, some pockets of pale yellow (5Y-6/4) clayey gouge
		17	6.6	123.9		25			@ 26 feet, seepage begins on the southeast side @ 29 feet, Irregular Tectonic Shear Zone: E-W,50-55N, some small pockets of light brownish-yellow (10YR-6/6) clayey gouge

* Partial Recovery

G. A. Nicoll & Associates, Inc.
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Tustin, California

Dreamland Investments, LLC
Proposed Debris Basins/Dams and Access Roads
DRP, APN 8684-045-004
Glendora, California

Project No.:	Figure No.:
6950-04	B-32.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Lo Drill Auger Rig	24 inches	1105 feet	B-1

Date Drilled: 10/20/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
								BEDROCK	@ 32 feet, Fracture: N32W,85NE
						35			CRYSTALLINE BASEMENT ROCK
									Bottom of Boring at 35 feet. NOTE: 1) Seepage at 23 and 26 feet. 2) No caving. 3) Boring backfilled and tamped.
						40			
						45			
						50			
						55			

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Tustin, California

Dreamland Investments, LLC
Proposed Debris Basins/Dams and Access Roads
DRP, APN 8684-045-004
Glendora, California

Project No.:	Figure No.:
6950-04	B-32.2

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Low Drill Auger Rig	24 inches	1095 feet	B-2

Date Drilled: 10/20/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE BULK	SAMPLE TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
								SM	Silty SAND with Rock Fragments: dark brown, dry, loose mix of rock fragments and soil, grading to granitic rock NOTE: boring drilled in cut with 4-ft. vertical exposing 4 feet of Clayey SAND with Rock Fragments) @ 1 foot, irregular contact COLLUVIUM/SLUMP
		16	3.0	126.3		5			GRANITICS: pale yellow and light gray (2.5Y-8/2 and 2.5Y-7/2) very weathered and very closely fractured, with omni-directional fractures @ 3 feet, Fracture Zone: N80W,60NE, some light yellowish-brown oxide staining, small roots, zone is approximately 12 wide within very hard granite
		22							
						10			@ 9 feet, Fracture: N75W,73-75NE (primary) and N40E,85SE (secondary) @ 10 to 13 feet, Fracture Zone: N60E,65NW; very hard on SW side and some clay coating
		25	2.9	121.8		15		BEDROCK	@ 14 feet, Fractures: N55E,60NW (prim.) and N25W,52NW
									@ 18 feet, light gray (2.5Y-7/2)
						20			@ 20 feet, Fracture: N70W,65NE
		27	1.5	117.4					@ 22 to 24 feet, Shear Zone: N50-55W,50NE with 1/2-inch to 1.5 inch pale greenish-brown (5Y-6/4), very moist, Silty CLAY/Clayey SILT gouge, increase in moisture, tectonic origin
						25			@ 27 feet, Fractures: N68E,73NW (prim.) and N70E,46NW @ 29 feet, seepage starts @ 29 to 33 feet, Shear Zone: N35-40E,75-80NW, with white Clayey SILT gouge with fine rock fragments, tectonic origin

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Tustin, California

Dreamland Investments, LLC
Proposed Debris Basins/Dams and Access Roads
DRP, APN 8684-045-004
Glendora, California

Project No.:	Figure No.:
6950-04	B-33.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Low Drill Auger Rig	24 inches	1095 feet	B-2

Date Drilled: 10/21/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE BULK	SAMPLE TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		28	1.7	123.9					
						35		BEDROCK	@ 33 feet, becoming moist to very moist
									@ 34 to 37 feet, Fracture Zone: N60W,70-75SW
									@ 37.5 feet, heavier seepage from fractures, still light gray to pale yellow and closely fractured
	* *	33				40			CRYSTALLINE BEDROCK
									Bottom of Boring at 41 feet.
						45			NOTE: 1) Seepage begins at 29 feet and heavier at 37.5 feet. Water level at 37.5 feet after 1.5 hours. 2) No caving. 3) Boring down-hole logged. 4) Boring backfilled and compacted.
						50			
						55			

** No Recovery

G. A. Nicoll & Associates, Inc.
EARTH SCIENCE CONSULTANTS
Tustin, California

Dreamland Investments, LLC
Proposed Debris Basins/Dams and Access Roads
DRP, APN 8684-045-004
Glendora, California

Project No.:	Figure No.:
6950-04	B-33.2

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
LowDrill Auger rig	24 inches	1178.8 feet	B-3

Date Drilled: 10/22/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE BULK	SAMPLE TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									Silty SAND with Clay: fine- to coarse-grained, yellowish-brown, dry, loose, angular rock fragments, gravel to cobble size
									@ 2 feet, tight
						5			
		15	1.5	117.2					@ 5 feet, becomes Silty SAND with Gravel to Sandy GRAVEL, some cobble-size, angular rocks
								SM	
									@ 8 to 11 feet, some hard, dark gray layers and lenses of gravel- to cobble-size angular rocks in Silty to Clayey SAND matrix
						10			
		25	2.3	103.3					
									@ 13 to 15 feet, some black, soft, very weathered, diorite cobbles and small boulders in Silty SAND matrix
						15			
		24	5.3	120.2					@ 15 to 18 feet, Gravelly SAND with Silt
								SP	
									TERRACE DEPOSITS
									Clayey SAND with Rocks: fine- to coarse-grained, dark yellowish-brown (10YR-4/4), tight
								SC	@ 20 feet, more clayey, more rocks, very moist
						20			
									TERRACE DEPOSITS
		25	14.8	116.6					Sandy Clay with Rocks: dark yellowish-brown to reddish-brown (10YR-4/4 to 5YR-4/4), very moist, stiff, gravel-size angular to sub-angular rocks
									@ 23.5 to 26 feet, some crude, greenish-gray (5Y-5/2) Sandy CLAY with few black carbon fragments
						25			@ 27.5 to 28.7 feet, medium greenish-gray (5Y-5/2), very moist, irregular, Sandy CLAY layer with angular to sub-angular, mostly gravel-size rocks with few cobble-size rocks, with 1/8 to 1/2-inch layer and pockets of dark brown Silty CLAY at the base of the layer: slope roughly 38 to 42°SW, no slicks or striations found, less moisture below on NW side
		28						CL	
									@ 29.5 feet, more moisture and lighter colored Sandy CLAY with small sub-angular to sub-rounded rocks

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Glendora, California

Project No.:	Figure No.:
6950-04	B-34.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Lo Drill Auger Rig	24 inches	1178.8 feet	B-3

Date Drilled: 10/22/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		30						CL	@ 30 feet, medium greenish-gray Silty CLAY with small (pea-gravel-size) rock fragments, slight seepage on one side
									@ 31 feet, less moisture
									@ 32 feet, irregular 2 to 4-inch thick, greenish-gray, very moist to saturated clay layer, plastic, with sub-rounded to sub-angular, gravel to cobble-size rocks embedded, some white, coarse sand-size inclusions layer slope approximately 10°SSW
						35		SC	@ 32.5 feet, becomes dark yellowish-brown Clayey SAND with some very weathered, white granite on the NE side to 33.5 feet
		33	7.9	118.5					@ 33 to 34 feet, on SSW side pocket of dark gray Clayey SAND with black carbon inclusions
									@ 37 feet, Contact: approximately E-W,27S — TERRACE DEPOSITS
		35	8.7	127.1		40		BEDROCK	GRANITICS: white, pale yellow and light gray (2.5Y-8/1,2.5Y-8/2 and 2.5Y-7/2) very weathered and closely fractured, with omni-directional fractures, hard
						45			@ 45 feet, Fractures: N35E,83SE and N60W,67NE, seepage
	*	* 40							@ 47.5 feet, Water level after 1.5 hours
						50			CRYSTALLINE BEDROCK
						55			Bottom of Boring at 50 feet. NOTE: 1) Seepage at 30 and 45 feet, water level at 47.5 feet after 1.5 hours. 2) No caving. 3) Boring down-hole logged. 4) Boring backfilled and tamped.

** No recovery

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Project No.:	Figure No.:
6950-04	B-34.2

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
LowDrill Auger Rig	24 inches	1175.2 feet	B-4

Date Drilled: 10/22/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE BULK	SAMPLE TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
						5		SM	Silty SAND with Clay: fine- to coarse-grained, grayish-brown to 18 inches then becomes dark yellowish-brown (10YR-4/4), gravel-size angular to sub-angular rocks (approximately 10 to 20%) @ 6 to 8 feet, more rocks, 20 to 30%, mostly gravel size, few cobbles @ 8 feet, fewer rocks
						10			
						15			@ 14 to 19 feet, more rocks, gravel- to cobble-size, approximately 20 to 30%
						20			TERRACE DEPOSITS
						25		SC	Clayey SAND: fine- to coarse-grained, dark yellowish-brown (10YR-4/4), moist, tight, mostly gravel-size angular to sub-angular rocks, few cobbles @ 24 feet, very moist and more clayey @ 27 feet, more clayey, very moist with some sub-rounded rocks @ 28 to 30 feet, less clayey and moist

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Glendora, California

Project No.:	Figure No.:
6950-04	B-35.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Low Drill Auger Rig	24 inches	1175.2 feet	B-4

Date Drilled: 10/22/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
						35		SC	@ 30 feet, very moist, lighter colored, more gravel-size rocks, some sub-angular to sub-rounded rocks, fine coarse gravels with some cobbles (granitic) @ 32 feet, strong brown (7.5YR-5/6) and reddish-yellow (7.5YR-6/6) @ 36 to 38 feet, Clay layer, pale yellow (2.5Y-8/2 to light gray (2.5Y-7/2) Silty to Sandy CLAY with some fine rock fragments Irregular Shear at Base: N75-80E, 55-58SE; thin, discontinuous, white silt at the base, probable tectonic origin?
								CL	@ 38 feet, mix of Sandy CLAY with gravel-size rocks, very moist to saturated, contact very irregular, approximately 8-10°SSE with some pale yellow to light greenish-gray (2.5Y-8/2 to 5Y-6/2); clay coating to 1/4-inch clay at the base TERRACE DEPOSITS
						40		BEDROCK	GRANITICS: white to pale yellow (2.5Y-8/1 to 2.5Y-8/2), very weathered, very closely to closely fractured, mostly omni-directional, tight fractures @ 42 feet, Fractures: N10W,83NE and N65E,85NW and harder @ 43 feet, slight seepage and light yellowish-brown oxide staining @ 44.5 feet, water level after 1.5 hours
						45			CRYSTALLINE BEDROCK
						50			Bottom of boring at 46 feet. NOTE: 1) Seepage at 43 feet. 2) No caving. 3) Boring down-hole logged. 4) Boring backfilled and tamped.
						55			

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Glendora, California

Project No.:	Figure No.:
6950-04	B-35.2

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Low Drill Auger Rig	24 inches	1157.5 feet	B-5

Date Drilled: 10/22/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE									
BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									Silty to Clayey SAND with Gravel: yellowish-brown (10YR-5/4), fine- to coarse-grained with mostly gravel-size average rocks (approximately 15-20%)
									@ 3 to 12 feet, more rocks and some small cobbles, tight, slightly moist
		15	1.6	104.2		5			
		20	2.2	122.1		10			
								SM/ SC	@ 12 feet, more moisture
						15			
		33	5.7	129.5					@ 17 feet, fewer rocks, very tight
						20			
									@ 21 feet, moist
		30				25			@ 25 feet, slightly more moisture and fewer rocks and dark yellowish-brown (10YR-4/4)

* Partial recovery, too rocky

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Glendora, California

Project No.:	Figure No.:
6950-04	B-36.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Low Drill Auger Rig	24 inches	1157.5 feet	B-5

Date Drilled: 10/22/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE									
BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
								SM/ SC	@ 30 feet, moist and dark yellowish-brown
									TERRACE DEPOSITS
						35			
		32						SC	Clayey SAND with Gravel: very moist, dark brown (7.5YR-3/3), mostly fine, sub-angular to sub-rounded gravel-size rocks (15-20%)
						40			
									TERRACE DEPOSITS
									Silty SAND with Gravel: fine- to coarse-grained, dark brown, moist, gravel-size rocks (20-30%)
						45			
						50		SM	@ 50 feet, fewer rocks (15-25%)
						55			

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Glendora, California

Project No.:	Figure No.:
6950-04	B-36.2

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Low-Drill Auger Rig	24 inches	1157.5 feet	B-5

Date Drilled: 10/22/2015 GDH

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SAMPLE									
BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									@ 60 feet, more gravel-size rocks (20-30%)
									@ 63 feet, lighter colored
						65		SM	@ 64 feet, more rocks, few small cobble-size
									@ 65 feet, very moist
						70			TERRACE DEPOSITS
									Bottom of boring at 70 feet. NOTE: 1) No ground water encountered. 2) No caving. 3) Down-hole logged. 4) Boring backfilled and tamped.
						75			
						80			
						85			

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Project No.:	Figure No.:
6950-04	B-36.3

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
LowDrill Auger Rig	24 inches	1092 feet	B-6

Date Drilled: 10/22/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE BULK	SAMPLE TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
	*	12	1.9	105.7				SM	Silty SAND with Gravel: fine- to coarse-grained, dark brown, dry, loose gravel- to small cobble-size rocks (25-30%) @ 3 feet, yellowish-brown, more rocks FILL
	*	15	1.5	128.3		5		SM	Silty and Gravelly SAND and Sandy GRAVEL: dry to slightly moist ALLUVIUM
		15	2.6	111.5		10		SM	Silty SAND and Gravelly with Rock Fragments: few cobble-size rocks, tight (dense) @ 12.5 feet, increase in volume of rocks (25-35%) @ 15 feet, grading to granite OLD? ALLUVIUM
		18	7.8	124.2		15		BEDROCK	GRANITICS: light gray to pale yellow (2.5Y-7/2 to 2.5Y-8/2), weathered, closely fractured with omni-directional fractures, hard @ 17 feet, Fractures: N50W,65NE (primary) and N40W,85SW @ 18 to 22.5 feet, Irregular Tectonic Shear Zone: N-S to N10E,75-78 E to SE, some greenish-brown Sandy CLAY gouge with small rock fragments @ 22 feet, very moist @ 23 feet, very slight seepage on SSE side @ 22.5 to 24 feet, Tectonic Shear: N40E,80NW to vertical, some pockets of light greenish-brown (2.5Y-5/6) Silty to Sandy CLAY
	* *	25				20			CRYSTALLINE BEDROCK Bottom of Boring at 28 feet. NOTE: 1) Seepage at 24 feet. 2) No caving. 3) Boring down-hole logged. 4) Boring backfilled and tamped.
						25			

* Partial Recovery, rocky

** No Recovery, wet

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Project No.:	Figure No.:
6950-04	B-37

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
LowDrill Auger Rig	24 inches	1078.3 feet	B-7

Date Drilled: 10/23/2015 GDH

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SAMPLE BULK	SAMPLE TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
								SM	Silty SAND with Rocks: light yellowish-brown, dry, loose, roots
									COLLUVIUM
									GRANITICS: light gray with light yellowish-brown oxide staining, very closely fractured but tight and hard, weathered, dry to slightly moist cuttings
	*	13	2.9	109.6		5			
									@ 7 feet, Fracture: N60W,62NE
						10			@ 10 feet, harder
	*	15	1.8	112.8					
						15		BEDROCK	
									@ 18 feet, slightly more moisture
						20			@ 20 feet, Fracture Zone, 1 to 2 inches wide: N50E,62NW
		24							
						25			@ 25 feet, slightly more moisture
									@ 28 feet, Fracture: N48W,77SW

*Partial recovery, too rocky

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Glendora, California

Project No.:	Figure No.:
6950-04	B-38.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Low Drill Auger Rig	24 inches	1078.3 feet	B-7

Date Drilled: 10/23/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
		25	3.0	110.0					
						35			@ 33.5 to 35 feet, very irregular tectonic shear with some light greenish-gray gouge, coating to 1-inch thick: N18W,55NE to
						40		BEDROCK	@ 40 feet, Tectonic Shear: N30E,55SE, some Sandy CLAY gouge with rock fragments
						45			
						50			@ 48 feet, moist to very moist
			4.4	122.3					@ 52 feet, very moist
									@ 53 feet, Fracture: N43E,75SE
						55			CRYSTALLINE BEDROCK
									Bottom of Boring at 55 feet. NOTE: 1) No ground water encountered. 2) No caving. 3) Boring down-hole logged. 4) Boring backfilled and tamped.

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Glendora, California

Project No.:	Figure No.:
6950-04	B-38.2

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
LowDrill Auger Rig	24 inches	1089 feet	B-8

Date Drilled: 10/23/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE BULK	SAMPLE TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
								SM	Silty SAND with Gravel: brown, dry, loose, fine- to coarse-grained, mostly gravel-size angular rocks, medium size roots to 18 inches
									@ 3.5 to 4 feet, more rocks up to cobble size
	*	13	3.5	115.2		5			@ 5.5 feet, becomes light yellow-brown to pale yellow (2.5Y-7/4) with some strong brown (7.5YR-5/6)
									@ 5 to 7 feet, boulders to 18 inch diameter
									@ 7.5 to 8.5 feet, Irregular Contact dips roughly 35°to the W
									COLLUVIUM / SLUMP
						10		LANDSLIDE	Displaced GRANITICS: pale yellow (10YR-8/3-7/4), pale yellow (10YR-8/3-7/4), very weathered, very closely fractured with omni-directional fractures
		23							
									@ 14 feet, Fractures: N5W,85SW (prim.) and N80E,80SE
						15			
									@ 16 to 18 feet, Irregular Fracture Zone: approximately N-S,60E, more weathered and soft on the east side and hard, fractured rock on the west side
									@ 20 feet, hard
						20			
	*	25	2.3	102.4					@ 23 to 24.3 feet, very moist to saturated, strong brown (7.5YR-5/6), mixture of Clayey SAND and Sandy CLAY with some very weathered granitics and few gravel-size, sub-rounded rocks
		23							@ 24.3 to 24.8 feet, Slide Plane: N70E,18-19SE, 1 to 2 inches yellowish-brown (10YT-5/4 to 5/6) with sub-rounded rocks and white granitic fragments embedded, no striations found
						25			LANDSLIDE MATERIAL
								BEDROCK	GRANITICS: white to pale yellow (2.5Y-8/1 to 8/2), very weathered, very closely fractured, disturbed to 25.3 feet, then harder
									@ 25.3 to 27 feet, Shear: N55E,68SE, with greenish-brown Clayey gouge on SE side

* Partial Recovery, too rocky

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Glendora, California

Project No.:	Figure No.:
6950-04	B-39.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Low Drill Auger Rig	24 inches	1089 feet	B-8

Date Drilled: 10/23/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
						35		BEDROCK	@ 31 feet, very slight seepage from fracture: N45E,74NW, some black manganese oxide staining @ 32.5 feet, water level after 1 hour @ 35 feet, heavy seepage
						40			CRYSTALLINE BEDROCK
						45			Bottom of Boring at 40 feet. NOTE: 1) Seepages at 31 and 35 feet. Water level stabilized in boring at 32.5 feet. 2) No caving. 3) Boring down-hole logged. 4) Boring backfilled and tamped.
						50			
						55			

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Project No.:	Figure No.:
6950-04	B-39.2

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
LowDrill Auger Rig	24 inches	1073.3 feet	B-9

Date Drilled: 10/23/2015 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE

BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
								SM	Silty SAND with Rocks: fine- to coarse-grained, dry to slightly moist, loose, gravel- to cobble-size rocks, some wood debris @ 3 to 5 feet, minor caving FILL
						5		SP	Gravelly SAND with Silt: fine- to coarse-grained, slightly moist, loose to medium dense, light brown, some cobble-size rocks ALLUVIUM
						10		CL	Sandy CLAY: very dark greenish-gray, soft, very moist to saturated, some small gravel-size rocks @ 15 feet, becomes dark grayish-green, soft and saturated OLD ALLUVIUM
	*	20	5.7	107.0		15		BEDROCK	GRANITICS: pale yellow (2.5Y-8/2), very weathered, soft, very closely fractured with some strong brown oxidation and clay coating along fractures @ 20 feet, hard and less weathered
		20	9.0	128.4		20			@ 25 feet, hard CRYSTALLINE BEDROCK
						25			Bottom of Boring at 25 feet. NOTE: 1) No ground water encountered. 2) Some minor caving at 3 to 5 feet. 3) Boring backfilled and tamped.

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Glendora, California

Project No.:	Figure No.:
6950-04	B-40

LOG OF TEST PITS

Surface Elevation:	1122.6 feet	**Logged By:**	GDH
Pit Orientation:	N-S	**Date:**	9/16/2015
Pit Dimensions:	2x4x6'	**Equipment:**	Hand Equipment
Ground Water Depth:	None Encountered		

Test Pit Number TP-1

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SP	Gravelly SAND: fine- to coarse-grained, yellowish-brown, moist to slightly moist, loose, some thin lenses of coarse sand and pebbly sand — ALLUVIUM
			5				GP	Sandy GRAVEL with Silt: fine- to coarse-grained, light yellowish- to grayish-brown, slightly moist to dry, some 6-inch angular rocks, mostly angular to sub-angular material @ 3 feet, one boulder in the pit: 20"x12"x8" sub-angular rock @ 4.5 feet, more sandy and more moisture, mostly Gravelly SAND to Sandy GRAVEL with rocks up to 4 inches — ALLUVIUM
			10					Bottom of Pit at 6 feet. NOTE: 1) No caving. 2) Pit backfilled.
			15					

Surface Elevation:	1178 feet	**Logged By:**	GDH
Pit Orientation:	N45W	**Date:**	9/16/2015
Pit Dimensions:	2x3x5'	**Equipment:**	Hand Equipment
Ground Water Depth:	None Encountered		

Test Pit Number TP-2

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM/SC	Silty to Clayey SAND with Gravel: fine- to coarse-grained, dark grayish-brown, moist, loose, some isolated rock fragments, roots — COLLUVIUM / TOPSOIL
							CL	Sandy CLAY: dark yellowish-brown to orange-brown, moist, stiff, some gravel- to cobble-size, angular rocks
				11.6	96.7			@ 2.5 feet, lighter colored and several 8-14" sub-angular to sub-rounded, weathered rocks, becoming very weathered and soft bedrock — COLLUVIUM
			5				WEATHERED BEDROCK	GRANITICS: very weathered, soft, light yellowish, some less weathered, hard inclusions @ 5 feet, refusal — WEATHERED BEDROCK
			10					Bottom of Pit at 5 feet. NOTE: 1) No caving. 2) Pit backfilled.
			15					

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Dreamland Investments, LLC
Proposed Debris Basins/Dams and Access Roads
DRP, APN 8684-045-004, Glendora, CA

Date: February 2016
Project No: 6950-04 **Figure No.** B-41

LOG OF TEST PITS

Surface Elevation:	1084-1086	**Logged By:**	GDH
Pit Orientation:	N10W	**Date:**	9/16/2015
Pit Dimensions:	2x5X3'	**Equipment:**	Hand Equipment with Demolition Hammer
Ground Water Depth:	None Encountered		

Test Pit Number TP-3

Samples: Blow Count 140# 30" drop	Bulk	Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SC	Clayey SAND: fine- to coarse-grained, brown, moist, loose to medium dense, some isolated grave-size, angular rocks
				2.8	129.2			@ 1 foot, grading to weathered bedrock and lighter colored — COLLUVIUM
							BEDROCK	GRANITICS: coarse, light gray, closely fractured, very weathered; soft and more weathered in center of pit to 2.5 feet, then becomes hard, no shear zone found
								@ 1 foot, on N. end of pit, Fractures: N75W,37NE (dominant fracture)
			5					@ 2 feet, Fractures: N15E,63SE and N60W,80NE
								CRYSTALLINE BEDROCK
			10					Bottom of Pit at 3 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.
			15					

Surface Elevation:	1077-78 feet	**Logged By:**	GDH
Pit Orientation:	N10W	**Date:**	9/16/2015
Pit Dimensions:	2x3x4'	**Equipment:**	Hand Equipment
Ground Water Depth:	None Encountered		

Test Pit Number TP-4

Depth (ft.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
		SP	Gravelly SAND: fine- to coarse-grained, dry, loose, 20 to 25% mostly gravel-size, angular rocks
			COLLUVIUM
		BEDROCK	GRANITICS: fine to medium, light gray to white, weathered, fractured
			CRYSTALLINE BEDROCK
5			Bottom of Pit at 4 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.
10			
15			

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Proposed Debris Basins/Dams and Access Roads
DRP, APN 8684-045-004, Glendora, CA

Date: February 2016
Project No: 6950-04 **Figure No.** B-42

LOG OF TEST PITS

Surface Elevation:	1101.5 feet	**Logged By:**	GDH
Pit Orientation:	N45W	**Date:**	9/17/2015
Pit Dimensions:	2x4x9 feet	**Equipment:**	Hand Equipment
Ground Water Depth:	None Encountered		

Test Pit Number TP-5

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SP	Gravelly SAND: fine- to coarse-grained, slightly moist to moist in upper 18 inches, some rocks to 4 inches, mostly angular ALLUVIUM
							GP	Sandy GRAVEL with Silt: fine to coarse, light brown, dry to slightly moist, medium dense, approx. 20% cobble-size rocks ALLUVIUM
			5				SP	Gravelly SAND with Silt: light yellowish-brown, slightly moist, medium dense, gravel portion is mostly fine, some clean sand layers
				9.7	95.2		CL	@ 8.4 feet, thin layer of dark grayish-brown, very moist, Sandy CLAY
							GP	@ 8.6 feet, becomes Sandy GRAVEL ALLUVIUM
			10					Bottom of Pit at 9 feet. NOTE: 1) No caving. 2) Pit backfilled.
			15					

Surface Elevation:	1108.5-112.5 feet	**Logged By:**	GDH
Pit Orientation:	N40E	**Date:**	9/17/2015
Pit Dimensions:	2x5x4'	**Equipment:**	Hand Equipment
Ground Water Depth:	None Encountered		

Test Pit Number TP-6

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
	*						SM	Silty SAND with Gravel: dark grayish-brown, slightly moist to moist, loose, roots, some isolated gravel-size angular rocks @ 1 to 3 feet, on SE side, loose block of bedrock and soil COLLUVIUM
							BEDROCK	GRANITICS: fine, light gray, weathered, closely fractured, tight fractures @ 2 feet, Fracture: E-W,64S @ 2 feet, Fracture: N65E,65SE } dominant fractures @ 3 feet, Fracture: N15W,52SW CRYSTALLINE BEDROCK
			5					Bottom of Pit at 4 feet. NOTE: 1) No caving. 2) Pit backfilled. * partially disturbed with rock in sample
			10					
			15					

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Date: February 2016
Project No: 6950-04 **Figure No.** B-43

LOG OF TEST PITS

Surface Elevation:	1110 feet	**Logged By:**	GDH
Pit Orientation:	N45W	**Date:**	9/17/2015
Pit Dimensions:	2x4x6'	**Equipment:**	Hand Equipment
Ground Water Depth:	None Encountered		

Test Pit Number TP-7

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SP	Gravelly SAND with Silt: fine- to coarse-grained, dark brown, slightly moist to moist, mostly fine gravel-size rocks, loose, some cobble-size rock at the surface ALLUVIUM
							GP	Sandy GRAVEL with trace of Silt: fine to coarse gravel, and fine to coarse sand, light brown, dry to slightly moist, loose to medium dense, some pebbly sand lenses, few fine, cobble-size rocks (approx. 20%) ALLUVIUM
			5				SP	@ 3 feet, gravel-size rocks are finer-grained Gravelly SAND: fine- to coarse-grained, slightly moist, yellowish-brown, gravel portion is mostly fine-grained ALLUVIUM
			10					Bottom of Pit at 6 feet. NOTE: 1) No caving. 2) Pit backfilled.
			15					

Surface Elevation:	1113.5-1117.5 feet	**Logged By:**	GDH
Pit Orientation:	N45E	**Date:**	9/17/2015
Pit Dimensions:	3x4x4'	**Equipment:**	Hand Equipment
Ground Water Depth:	None Encountered		

Test Pit Number TP-8

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM	Silty SAND with Gravel: fine- to coarse-grained, dark brown, slightly moist to moist, loose, some cobble- to boulder-size rocks @ 1 foot, 14 inches, rock on NW side of pit COLLUVIUM
							CL	Sandy CLAY with Gravel: brown to strong brown (7.5 Y/R - 4/4 to 4/6), slightly moist to moist, very stiff, gravel portion mostly sub-angular OLD ALLUVIUM
			5					Bottom of Pit at 4 feet. NOTE: 1) No caving. 2) Pit backfilled.
			10					
			15					

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Date: February 2016
Project No: 6950-04 **Figure No.** B-44

LOG OF TEST PITS

Surface Elevation:	1081-1083 feet	**Logged By:**	GDH	**Test Pit Number**	
Pit Orientation:	N20E	**Date:**	9/17/2015	**TP-9**	
Pit Dimensions:	2x4x5'	**Equipment:**	Hand Equipment		
Ground Water Depth:	None Encountered				

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM/ SC	Silty and Clayey SAND with Gravel: dark grayish-brown,fine- to coarse-grained, moist; gravel is mostly fine
								@ 2.5 feet, becomes lighter colored and more clayey COLLUVIUM
							SC/ SM	Clayey SAND with Gravel: fine- to coarse-grained, yellowish-brown, slightly moist, dense, very tight and difficult to excavate
								@ 3.5 feet, more gravelly and tighter
			5					@ 4 feet, less clayey, very tight, may be grading to weathered bedrock COLLUVIUM
			10					Bottom of Pit at 5 feet. NOTE: 1) No caving. 2) Pit backfilled.
			15					

Surface Elevation:		**Logged By:**		**Test Pit Number**	
Pit Orientation:		**Date:**			
Pit Dimensions:		**Equipment:**			
Ground Water Depth:					

			5					
			10					
			15					

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DRP, APN 8684-045-004, Glendora, CA

Date: February 2016
Project No: 6950-04 **Figure No.** B-45

APPLICABLE BORING AND TEST PIT LOGS

FROM PN 6817-04

Borings and Test Pits from adjacent site in 2013

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Bucket Auger	24 inches	1063 feet	B-1

Date Drilled: 9/25/2013 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE Dr. Wt. - 12" Drop 2400#	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									SM	Silty SAND with Rock Fragments: fine- to coarse-grained, yellowish-brown, dry to slightly moist, approximately 25% gravel-size angular fragments @ 3 to 4 feet, layer of cobble-size rock fragments FILL
		* *	6				5		SP	Gravelly SAND with Silt: fine- to coarse-grained, slightly moist, yellowish-brown COLLUVIUM
		*	12	4.5	132.3		10		SM	Silty SAND with Clay and rock fragments: slightly moist to moist, dense @ 13 feet, moist ALLUVIUM
			7	7.1	128.9		15		SC	@ 14 feet, very moist Clayey SAND with numerous rock fragments of granitic origin, light yellowish-brown; may be very disturbed Qalo @ 17 feet, light brown to grayish-brown @ 18 to 19 feet, light gray and light orange-brown mix of Sandy CLAY with small rock fragments @18.9 to 19 feet, yellowish-brown, Silty CLAY gouge with Sand and small rock fragments, very moist @ 19.5 feet, 2 to 3-inch thick clay gouge; N45W, 20SW BURIED LANDSLIDE
			5	10.5	128.9					
1650#			8	8.9	126.6		20		CL	Sandy CLAY: strong brown (7.5YR-4/6), very moist, firm to stiff @ 22 feet, very moist to saturated OLD ALLUVIUM
			10	9.6	131.8		25		BEDROCK	Granitic Rock: very closely fractured, heavy seepage from fractures CRYSTALLINE BASEMENT ROCK
										Bottom of boring at 27 feet. NOTE: 1) Ground water stabilized at 22 feet. 2) Minor spalling. 3) Boring down-hole logged and backfilled.

* Partial recovery

* No recovery, too many rocks

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Project No.:	Figure No.:
6817-04	B-11

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Bucket Auger	24 inches	1038 feet	B-2
Date Drilled: 9/25/2013 GDH	This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.		

SAMPLE Dr. Wt. - 12" Drop 2400#	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
									SM	Silty SAND with Rock Fragments: fine- to coarse-grained, yellowish-brown, dry to slightly moist FILL
		*	10/6"	2.3	116.4		5		LANDSLIDE?	DISPLACED (?) GRANITIC ROCK: light gray with light brown oxide staining, very closely fractured, some pinkish-gray, very weathered, some loose pockets with Silty SAND texture
		*	10/7"	4.5	112.2		10			@ 15 feet, slightly less weathered, closely fractured
							15			@ 17 feet, moist
										@ 18 feet, some inclusions of black micaceous rock
							20			@ 21 feet, cuttings are moist, yellowish-brown
										@ 22 feet, irregular shear with 1 to 3-inch clay gouge: N30E,25-27SE POSSIBLE LANDSLIDE
1650#							25		BEDROCK	GRANITIC ROCK: gray with yellowish-brown oxide staining, very closely fractured, some tectonic shears, slightly moist
										@ 27 feet, Fracture: N15E,45SE
										@ 28 feet, very moist
										@ 29 feet, Discontinuous Fractures: N-S,55E
										@ 29 to 30 feet, pockets of loose, fractured granitics

* Partial recovery, hard

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Glendora, California

Project No.:	Figure No.:
6817-04	B-12.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Bucket Auger	24 inches	1038 feet	B-2

Date Drilled: 9/25/2013 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE 1650#	SAMPLE BULK	SAMPLE TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
▼				9.0	128.5				BEDROCK	@ 30 to 32 feet, 1 to 2-inch strong brown to dark yellowish-brown, Sandy CLAY with Rock Fragments in irregular shear: approximately N20E,45SE, tectonic @ 32 feet, Rock Fragments in Sandy CLAY Matrix, very moist
							35			
										@ 37 to 38 feet, NW side in exposure of light gray, hard, fractured granitic with irregular tectonic shear on the NE side: N25W,60NE
							40			
										@ 42 feet, Fractures: N70W,66NE
							45			
										@ 46 feet, irregular 1 to 2-inch brown, Sandy CLAY fault gouge: N60E,16NW @ 48 feet, some black phillite @ 48.5 feet, very slight seepage from very closely fractured rock @ 50.3 to 51 feet, gray-brown Sandy CLAY fault gouge with small angular rock fragments, soft and saturated: N20W,20-22SW
							50			
							55			CRYSTALLINE BASEMENT ROCK
										Bottom of boring at 55 feet. NOTE: 1) Seepage at 48.5 feet. 2) No caving. 3) Boring down-hole logged and backfilled.

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Project No.:	Figure No.:
6817-04	B-12.2

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Track-Mounted Auger Drill Rig	24 inches	1084 feet	B-7

Date Drilled: 10/22/2013 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE Dr. Wt. - 12" Drop	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
2,162									SM	Silty SAND with Gravel: fine- to coarse-grained, dark brown, dry, loose, numerous roots to 2.5 feet deep
										@ 3 feet, grading to granitic rock
										COLLUVIUM
										GRANITIC ROCK: light gray and light brown, very weathered and very closely fractured, generally omni-directional fractures, tectonic shears
		*	8	5.9	127.4		10			@ 11 feet, moist, some small roots in fractures
1,349			9	10.3	129.6		15		BEDROCK	@ 15 feet, tectonic Shear zone: N25W,55SW with white to pale yellowish-white clayey silt fault gouge, some rounded, polished, pebble-size granitics in the gouge, very moist to saturated
										@ 16.5 feet, very slight seepage and minor caving pale greenish-gray
										@ 17 feet, tectonic Shear: N15W,55SW, no polish, no striations
										Fractures below the Shear: N25W,80SW
										@ 17.5 feet, moderate seepage from NE wall, some exposures of hard, medium gray rock in pale, greenish-gray granitics
							20			@ 20.5-21.5 feet, harder
										@ 21.5 feet, softer, still very closely fractured
			12	9.0	122.4		25			@ 25 feet, still soft bedrock and pale greenish-gray, some light yellowish-brown oxide staining
										@ 28 feet, Fractures: N30W,75-80SW

* Partial recovery

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Glendora, California

Project No.:	Figure No.:
6817-04	B-17.1

LOG OF BORING

Drill Rig:	Boring Diameter:	Boring Elevation:	Boring No.
Track-Mounted Auger Drill Rig	24 inches	1070 feet	B-9

Date Drilled: 10/23/2013 GDH

This log is a representation of subsurface conditions at the time and place of drilling. With the passage of time or at any other location, there may be consequential changes in conditions.

SAMPLE										
Dr. Wt. - 12" Drop	BULK	TUBE	BLOWS/FT.	FIELD MOISTURE % DRY WEIGHT	DRY DENSITY LB./CU. FT	SHEAR RESISTANCE KIPS/SQ. FT	DEPTH FEET	SOIL/ROCK SYMBOL	SOIL/ROCK TYPE	Descriptions and Remarks
2,162										Silty SAND with Rock Fragments: fine- to coarse-grained, grayish-brown, dry, loose, angular gravel-size rocks, numerous large roots
									SM	
			8	2.6	118.5		5			@ 6 to 7 feet, very irregular contact with granitics
										SLUMP
										GRANITIC ROCK: light gray, very closely fractured and weathered
										@ 7 to 8 feet, Fractures: N75W,45NE
										@ 8 feet, becoming white to pale yellowish-brown
			10	2.3	125.8		10			
										@ 13.5 feet, tectonic shear zone, irregular, some thin clay gouge: N65E,58-60NW
							15			
1,349										@ 16 to 20 feet, very irregular tectonic shear zone: N85E,85NW; N65E,65NW, some thin pale greenish-brown (5Y-6/3) gouge; below are light gray granitics with yellowish-brown oxide staining
			13	1.9	117.6				BEDROCK	
							20			@ 19 to 22 feet, irregular tectonic shear zone approx. 12-inches thick, approximate: N10W,50-60SW with some pale greenish-brown (5Y-6/3) gouge with polished, rounded pebble-size granitics, becomes white to pale yellow-brown below
			19	3.8	125.2					
							25			@ 24 feet, several parallel fractures: N60E,60SE
										CRYSTALLINE BASEMENT ROCK
										Bottom of boring at 28 feet. NOTE: 1) No ground water encountered. 2) No caving 3) Boring backfilled and tamped.

* Partial recovery

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Glendora, California

Project No.:	Figure No.:
6817-04	B-19

LOG OF TEST PITS

Surface Elevation:	987-989 feet	**Logged By:**	GDH
Pit Orientation:	N20E	**Date:**	9/9/2013
Pit Dimensions:	2x10x8'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-3

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
			0				SM	Silty SAND with Gravel: fine- to coarse-grained, yellowish-brown, dry to slightly moist, loose, approximately 20% gravel FILL
20		N	5	2.5	105.0		SP/SM	Gravelly SAND with Silt: fine- to coarse-grained, yellowish- and grayish-brown, dry to slightly moist, up to 50% fine to coarse gravel-size rocks
		N		3.1	108.2			@ 6.5 feet, more rocks gravel to cobble-size and more silty, medium dense @ 7.5 feet, lens of light yellowish-brown Silty SAND with fine gravel ALLUVIUM
			10					Bottom of pit at 8 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped. "N" Nuclear Gauge Test
			15					

Surface Elevation:	1043-1045 feet	**Logged By:**	GDH
Pit Orientation:	N40E	**Date:**	9/9/2013
Pit Dimensions:	2x10x7 feet	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-4

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
			0				SP/SM	Gravelly SAND with Silt: fine- to coarse-grained, yellowish-brown, slightly cemented, small roots, 15% gravel-size angular rocks @ 2 feet, piece of plastic FILL
25		*	5	1.0	113.0		SP/SM	Gravelly SAND with Silt: fine- to coarse-grained, light yellowish-brown, crude layering of sandy gravel, angular to sub-angular gravel to cobble-size rocks, few small sub-rounded boulders, slightly moist, medium dense ALLUVIUM
			10					Bottom of pit at 7 feet. NOTE: 1) Minor raveling. 2) Pit backfilled and tamped. *Partial Recovery "N" Nuclear Gauge Test
			15					

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Glendora, CA

Date:	November 2013
Project No: 6817-04	**Figure No.** B-22

LOG OF TEST PITS

Surface Elevation:	1043 feet	**Logged By:**	GDH
Pit Orientation:	E-W	**Date:**	9/9/2013
Pit Dimensions:	2x8x7'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-5

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM	Silty SAND with Gravel: fine- to coarse-grained, grayish-brown, slightly moist, slightly cemented to 18 inches, 10 to 15% gravel-size rock fragments FILL
			5				SP/SM	Gravelly SAND with Silt: fine- to coarse-grained, yellowish-brown, slightly moist, medium dense, 25% gravel to small cobble-size rocks, some roots to 1-inch diameter, some crude gravelly layers COLLUVIUM
			10					Bottom of pit at 8 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.
			15					

Surface Elevation:	1026-1030 feet	**Logged By:**	GDH
Pit Orientation:	N-S	**Date:**	9/9/2013
Pit Dimensions:	2x8x7'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-6

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM	Silty SAND with Gravel: fine- to coarse-grained, grayish-brown, dry to slightly moist, loose, numerous small to large roots; rock steps removed in upper 12 to 18 inches FILL
			5				SP/SM	Gravelly SAND with Silt: fine- to coarse-grained, grayish-brown, slightly moist, loose to medium dense, some cobble-size rock fragments COLLUVIUM
			10					Bottom of pit at 6 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.
			15					

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Glendora, CA

Date:	November 2013
Project No: 6817-04	**Figure No.** B-23

LOG OF TEST PITS

Surface Elevation:	1112-1113 feet	**Logged By:**	GDH	**Test Pit Number**	
Pit Orientation:	N-S	**Date:**	9/10/2013	**TP-11**	
Pit Dimensions:	2x12x14'	**Equipment:**	Backhoe		
Ground Water Depth:	None Encountered				

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
		N		6.3	98.5			Silty SAND with CLAY: fine- to medium-grained, brown (7.5-54-4/4), slightly moist, medium dense, slightly cemented, about 10% fine to medium gravel-size sub-angular rock fragments, roots to 3 feet
64		*		4.2	106.1			@ 3 feet, more gravel, sub-angular and fine to coarse, still slightly cemented, fine- to coarse-grained, medium dense cementation makes sampling difficult
			5					
50				4.9	113.5			@ 5 feet, less clayey, dense
							SM	
			10					@ 10 feet, still slightly cemented, slightly moist, some dark brown mottling
								@ 11 feet, some 3 to 4-inch diameter moderately rounded cobbles, slightly moist, slightly cemented, more gravelly
								OLD COLLUVIUM
			15					Bottom of pit at 14 feet. NOTE: 1) No caving. 2)Pit backfilled and tamped. *Partial Recovery

Surface Elevation:	1095-1096'	**Logged By:**	GDH	**Test Pit Number**	
Pit Orientation:	N25W	**Date:**	9/10/2013	**TP-12**	
Pit Dimensions:	2x10x10'	**Equipment:**	Backhoe		
Ground Water Depth:	None Encountered				

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
								Silty SAND with CLAY: fine- to medium-grained, brown, slightly moist, medium dense, slightly cemented, slightly porous, roots to 3 feet deep, some fine gravel
								@ 18 inches, 4-inch diameter steel pipe on north side of pit with N10W trend
		N		4.9	106.5			
		N	5	3.4	113.8		SM	@ 4 feet, becomes lighter colored and less clayey and more gravelly
								@ 8 feet, more gravel, still slightly cemented and slightly moist, few cobble-size rocks
								OLD ALLUVIUM
			10					Bottom of pit at10 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.
								"N" Nuclear Gauge Test
			15					

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Date:	November 2013
Project No: 6817-04	**Figure No.** B-26

LOG OF TEST PITS

Surface Elevation:	1059-1061 feet	**Logged By:**	GDH
Pit Orientation:	E-W	**Date:**	9/10/2013
Pit Dimensions:	2x8x6'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-13

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM	Silty SAND with Gravel: fine- to coarse-grained, yellowish-brown, slightly moist, moderately porous, loose to medium densel FILL
		N		3.7	110.6		SP	Gravelly SAND with Silt: fine- to coarse-grained, brown to yellowish-brown, medium dense, slightly moist, 25 to 35% gravel, some cobble-size rocks
		N	5	7.2	116.0			@ 5 feet, on west end of pit 6-inch moist Clayey SAND with Gravel (Old Alluvium) ALLUVIUM / OLD ALLUVIUM
			10					Bottom of pit at 6 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped. "N" Nuclear Gauge Test
			15					

Surface Elevation:	1058-1062 feet	**Logged By:**	GDH
Pit Orientation:	N-S	**Date:**	9/10/2013
Pit Dimensions:	2x6x5'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-14

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM	Silty SAND with CLAY: fine- to coarse-grained, dark grayish-brown dry to slightly moist, loose, numerous roots, 1 to 2-feet thick (2 feet at toe of slope), some rectangular rocks at surface from remnant retaining wall FILL
							BEDROCK	GRANITIC ROCK: orange-brown, very weathered, soft (bedrock terms), no evident structure CRYSTALLINE BASEMENT ROCK
			5					Bottom of pit at 5 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped. "N" Nuclear Gauge Test
			10					
			15					

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Date:	November 2013
Project No: 6817-04	**Figure No.** B-27

LOG OF TEST PITS

Surface Elevation:	1032-1034'	**Logged By:**	GDH
Pit Orientation:	N30W	**Date:**	9/10/2013
Pit Dimensions:	2x15x7'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-15

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
		N	0	2.8	111.3		SM	Silty SAND with Gravel: fine- to coarse-grained, yellowish-brown, dry to slightly moist, loose @ 18 inches, more gravelly, few rocks to 6-inch diameter, contact at 4 feet on NW end and 3 feet on SE end of pit FILL
		N	5	2.9	103.8		SM	Silty SAND with Gravel: fine- to coarse-grained, dark grayish-brown, slightly moist, fine to coarse angular to sub-angular rock, medium dense ALLUVIUM
			10					Bottom of pit at 7 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped. "N" Nuclear Gauge Test
			15					

Surface Elevation:	1024-1028'	**Logged By:**	GDH
Pit Orientation:	N50E	**Date:**	9/10/2013
Pit Dimensions:	2x15x7'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-16

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
			0				SM	Silty SAND with Gravel: fine- to coarse-grained, light yellowish-brown, slightly moist, moderately dense @ 2.2 feet to 3 feet, Sandy GRAVEL with decayed survey hub at the base FILL
							SP	Gravelly SAND with Silt: fine- to coarse-grained, light yellowish-brown, slightly moist, moderately dense FILL
		N	5	2.9	114.4		SM/ SP	Gravelly SAND with Silt: fine- to coarse-grained, dark grayish-brown, slightly moist, some charcoal at top of unit @ 6 feet, lighter colored, some lenses of Gravelly SAND and Sandy GRAVEL, medium dense, few cobble-size rocks, slightly porous ALLUVIUM
			10					Bottom of pit at 7 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped. "N" Nuclear Gauge Test
			15					

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Date:	November 2013
Project No: 6817-04	**Figure No.** B-28

LOG OF TEST PITS

Surface Elevation:	1080-1084 feet	**Logged By:**	GDH
Pit Orientation:	N45W	**Date:**	9/10/2013
Pit Dimensions:	2x6x4'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-19

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM	Silty SAND with Gravel: dark grayish-brown, dry, loose, some roots COLLUVIUM
								GRANITIC ROCK: very light yellowish-brown to orange-brown, very weathered, soft, fractured CRYSTALLINE BASEMENT ROCK
			5 10 15				BEDROCK	Bottom of pit at 4 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.

Surface Elevation:	1038-1041 feet	**Logged By:**	GDH
Pit Orientation:	N-S	**Date:**	9/10/2013
Pit Dimensions:	2x5x3'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-20

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SP	Gravelly SAND with Silt: fine- to coarse-grained, yellowish-brown, slightly moist, loose to medium dense COLLUVIUM
			5 10 15					Bottom of pit at 3 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.

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Date:	November 2013
Project No: 6817-04	**Figure No.** B-30

LOG OF TEST PITS

Surface Elevation:	1057 feet	**Logged By:**	GDH	**Test Pit Number**	
Pit Orientation:	N30E	**Date:**	9/10/2013	**TP-21**	
Pit Dimensions:	2x8x6'	**Equipment:**	Backhoe		
Ground Water Depth:	None Encountered				

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM/ SP	Silty and Gravelly SAND: brown, dry to slightly moist, numerous bricks, 3/8" cable, roots, concrete chunks FILL
			5					GRANITIC ROCK: orange-brown, very weathered, altered, soft CRYSTALLINE BASEMENT ROCK
			10				BEDROCK	Bottom of pit at 6 feet. NOTE: 1) Some caving at 1 to 3 feet. 2) Pit backfilled and tamped.
			15					

Surface Elevation:	1042-1044 feet	**Logged By:**	GDH	**Test Pit Number**	
Pit Orientation:	N45W	**Date:**	11/7/2013	**TP-22**	
Pit Dimensions:	2x12x16'	**Equipment:**	Backhoe		
Ground Water Depth:	None Encountered				

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
		N		2.2	118.5		SM	Silty SAND with Rock Fragments: fine- to coarse-grained, grayish- to yellowish-brown, dry to slightly moist, gravel-size, angular to sub-angular rock fragments FILL
		N	5	1.6	114.5		SP	Gravelly SAND with Silt: fine- to coarse-grained, light yellowish-brown, dry to slightly moist, medium dense, fine cobble-size, soft rock fragments FILL
20		* *						Silty SAND with Rock Fragments: dark yellowish-brown, fine- to coarse-grained, mostly gravel-size fragments, medium dense to dense, tight, few small cobble-size, angular fragments, slightly porous
		N		2.3	115.2		SM	@ 8.5 feet, lighter colored @ 10 feet, non-porous, slightly more moisture, less silty
30			10	3.2	116.5			@ 15 feet, more moisture
			15					Bottom of pit at 16 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped. ** No recovery

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Date:	November 2013
Project No: 6817-04	**Figure No.** B-31

LOG OF TEST PITS

Surface Elevation:	1026-1030 feet	**Logged By:**	GDH
Pit Orientation:	N42E	**Date:**	11/7/2013
Pit Dimensions:	2x10x12'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-23

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
			0					
	I	N		3.5	100.7		SM	Silty SAND with Rock Fragments: fine- to coarse-grained, yellowish-brown, dry to slightly moist, loose @ 1 foot, layer of loose, Gravelly SAND @ 2 feet, becomes grayish-brown and more moisture, mostly gravel-size angular to sub-angular rocks, 20-30% @ 3 feet, some large roots
			5					FILL
20		* *					SM	Silty SAND with Rock Fragments: fine- to coarse-grained, slightly moist, grayish-brown, moderately to very porous, loose @ 6 feet, medium dense, some small cobble-size rocks; root to 6.5 feet
								COLLUVIUM
	I	N		3.5	105.6		SM	Silty SAND with Rock Fragments: fine- to coarse-grained, yellowish-brown, slightly moist, slightly to moderately porous, gravel-size rocks, medium dense to dense
			10					
30				3.7	121.1			@ 10 feet, dense and non-porous
								OLD ALLUVIUM
			15					Bottom of pit at 12 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped. ** No recovery

Surface Elevation:	1019-1023'	**Logged By:**	GDH
Pit Orientation:	N15E	**Date:**	11/7/2013
Pit Dimensions:	2x10x13'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-24

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
			0				SM	Silty SAND with Rock Fragments: fine- to coarse-grained, yellowish-brown, dry to slightly moist, loose, mostly gravel-size rocks, small roots
								FILL
			5				SP	Gravelly SAND with Silt: fine- to coarse-grained, light yellowish-brown, dry, loose, some cobble-size angular to sub-angular cobbles, 25-30% rocks @ 5 feet, numerous cobble-size rock, with few boulder size @ 6 feet, 16-inch long rock fragment, some sub-rounded cobbles @ 6.5 feet, tighter, medium dense to dense @ 7 feet, mostly gravel-size rocks with few isolated, sub-iangular to sub-rounded cobbles, lighter colored, dense
			10					
25				3	113.4			
								OLD ALLUVIUM
			15					Bottom of pit at 13 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.

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Date:	November 2013
Project No: 6817-04	**Figure No.** B-32

LOG OF TEST PITS

Surface Elevation:	1058-1060'	**Logged By:**	GDH
Pit Orientation:	N10W	**Date:**	11/7/2013
Pit Dimensions:	2x10x11'	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-25

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM	Silty SAND with Rock Fragments: fine- to coarse-grained, brown and yellowish-brown, slightly moist, loose @ 2.5 feet, becomes grayish-brown @ 4.5 feet, small cobble-size, sub-angular rocks, some large rocks FILL
25			5 10	2.7	109.4		SP	Gravelly SAND with Silt: fine- to coarse-grained, yellowish-brown, slightly moist, medium dense, some cobble- to boulder-size, sub-angular rock fragments @ 9 feet, dense ALLUVIUM
			15					Bottom of pit at 11 feet. NOTE: 1) No caving, some ravelling at 4.5 to 7 feet. 2) Pit backfilled and tamped.

Surface Elevation:	1016-1017'	**Logged By:**	GDH
Pit Orientation:	N20W	**Date:**	11/7/2013
Pit Dimensions:	2x8x7 feet	**Equipment:**	Backhoe
Ground Water Depth:	None Encountered		

Test Pit Number TP-26

Samples: Blow Count 140# 30" drop	Samples: Bulk	Samples: Tube	Depth (ft.)	Moisture (%)	Dry Density (p.c.f.)	Graphic Symbol	Soil Type (USCS)	DESCRIPTION AND REMARKS
							SM	Silty SAND with Rock Fragments: fine- to coarse-grained, yellowish- and grayish-brown, slightly moist, loose to medium dense @ 3 feet, yellow-brown FILL / COLLUVIUM (?)
	I	N	5	3.1	111.1		SP	Gravelly SAND with Rock Fragments: fine- to coarse-grained, light yellowish-brown, slightly moist, slightly porous at 3 to 5 feet, medium dense to dense, mostly gravel-size, sub-angular rock fragments with few cobble size OLD ALLUVIUM
			10 15					Bottom of pit at 7 feet. NOTE: 1) No caving. 2) Pit backfilled and tamped.

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Date:	November 2013
Project No: 6817-04	**Figure No.** B-33

APPENDIX C

Laboratory Testing Program

The laboratory testing program was directed towards providing quantitative data relating to the relevant engineering properties of the soils. Samples considered representative of site conditions were tested as described below.

a) Moisture Content – Dry Density

Moisture-density information usually provides a gross indication of soil consistency. Local variations at the time of the investigation can be delineated, and a correlation obtained between soils found on this site and nearby sites. The dry unit weights and field moisture contents were determined for selected samples. The results are shown on the Logs of Test Pits and Borings.

b) Maximum Dry Density/Optimum Moisture Content (ASTM D1557)

The test procedure uses 25 blows of a 10-pound hammer falling a height of 18 inches on each of five layers to a 1/30 cubic foot cylinder. The results of the tests are presented below:

Boring / Test Pit	Sample Depth (feet)	Soil Description	Optimum Moisture Content (%)	Maximum Dry Density (lb./cu.ft.)
B-3	12-11'	Silty SAND with Gravel (Qt)	7.0	135.0
B-6	4-6	Silty SAND with Gravel (Qal)	7.0	135.5
B-7	19-21	Remolded Granitics (Cgr)	7.0	137.0
TP-11 (6817-04)	2-3	Silty SAND with Clay	10.0	127.0
TP-14 (6817-04)	2.3-3.5	Weathered Granitics	10.0	125.5
TP-23 6817-04)	9-11	Silty SAND with Gravel	9.0	133.0

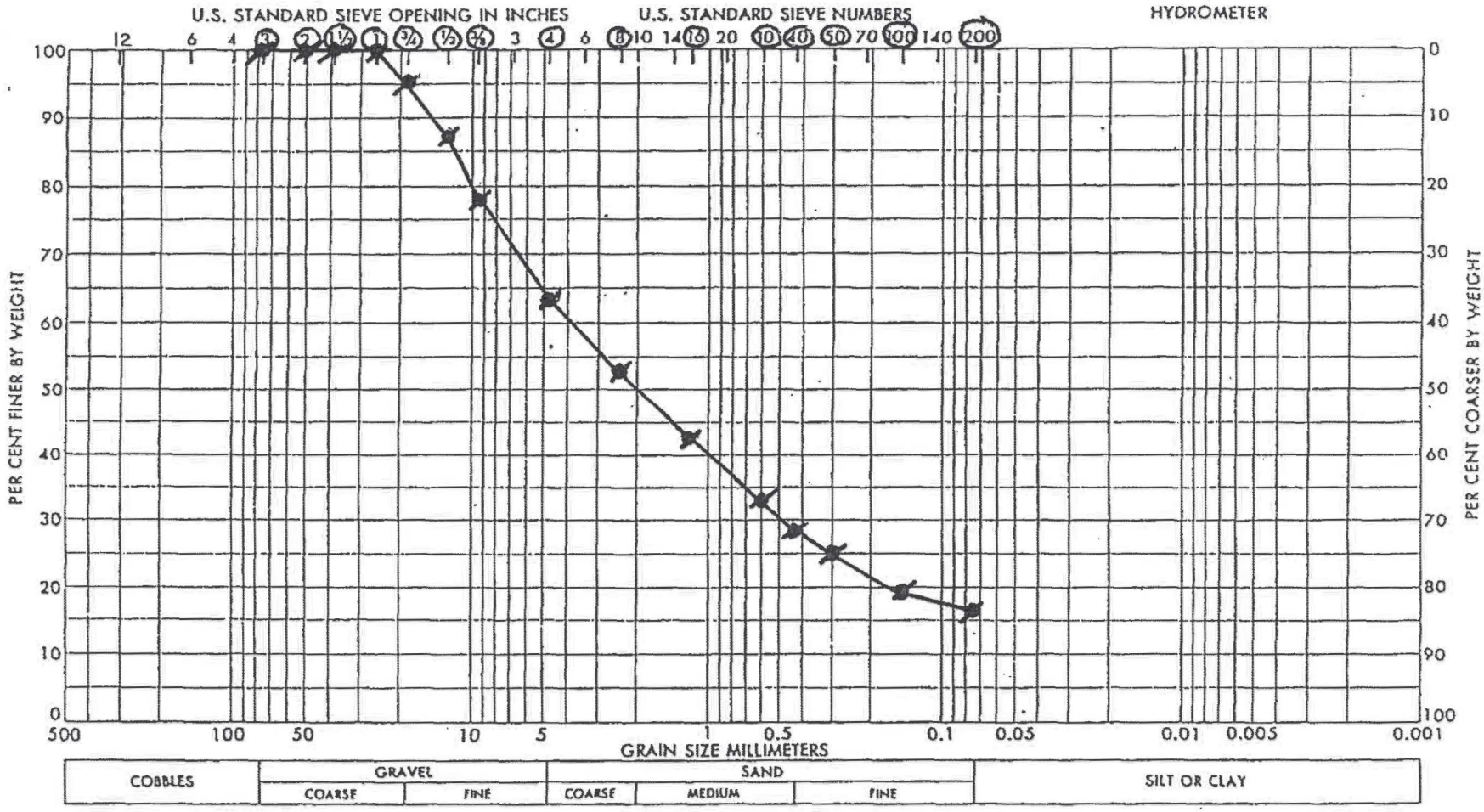
Note: Results from project 6817-04 for TT 72413 are included where applicable.

c) Sieve Analysis

As part of the engineering classification of the on-site coarse-grained soil, samples representative of the major soil types were tested to determine their distribution of particle size. Basically, a sieve analysis is conducted by passing the soil through a number of different sized sieves and measuring the amount of soil retained on each sieve. A grain-size distribution curve is plotted relating percent of soil passing each sieve (calculated from the amount retained) and the grain size as shown on the enclosed *Grain-Size Distribution Charts, Figures C- 1 through C-5. Grain-Size Distribution Charts* from Project 6817-04 have been included where applicable and follow *C-5* .

d) Direct Shear

Direct shear tests were made on relatively undisturbed samples and a remolded sample, using a direct shear machine at a constant rate of strain of 0.022 in. /min. The samples were submerged in water and saturated prior to testing. Normal loads are applied vertically on each respective sample and the soil shear strengths are obtained at these loads. The angle of internal friction and the cohesion are evaluated by plotting the shear strength values against the normal loads as shown on the direct Shear Test Diagrams in terms of the Coulomb shear strength parameters. The *Direct Shear Test Diagrams* for the shear strength values utilized in our slope stability analyses are included as *Figures C-7 through C-16 in this Appendix.*



Symbol	Hole No.	Elev. or Depth	U.S.C.S.
	B-3	15-17'	

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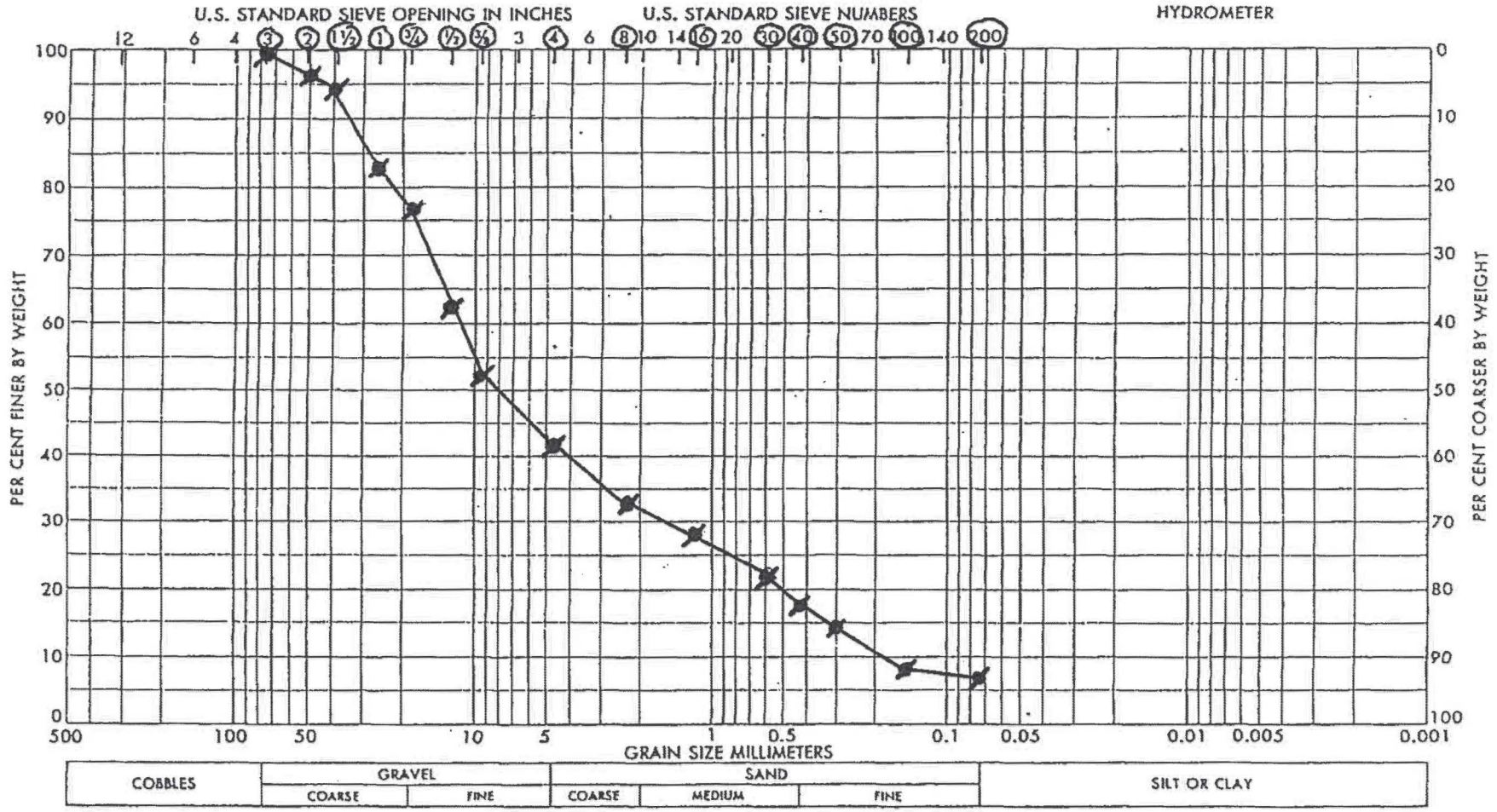
DREAMLAND INVESTMENTS, LLC
Proposed Debris Basins/Dams and Access Roads,
DRP, APN 8684-045-004, Glendora, California

Project No.: 6950-04

Date: Feb 2016

GRAIN-SIZE DISTRIBUTION CHART

Figure No.: C-1



Symbol	Hole No.	Elev. or Depth	U.S.C.S.
	TP-1	2-4'	

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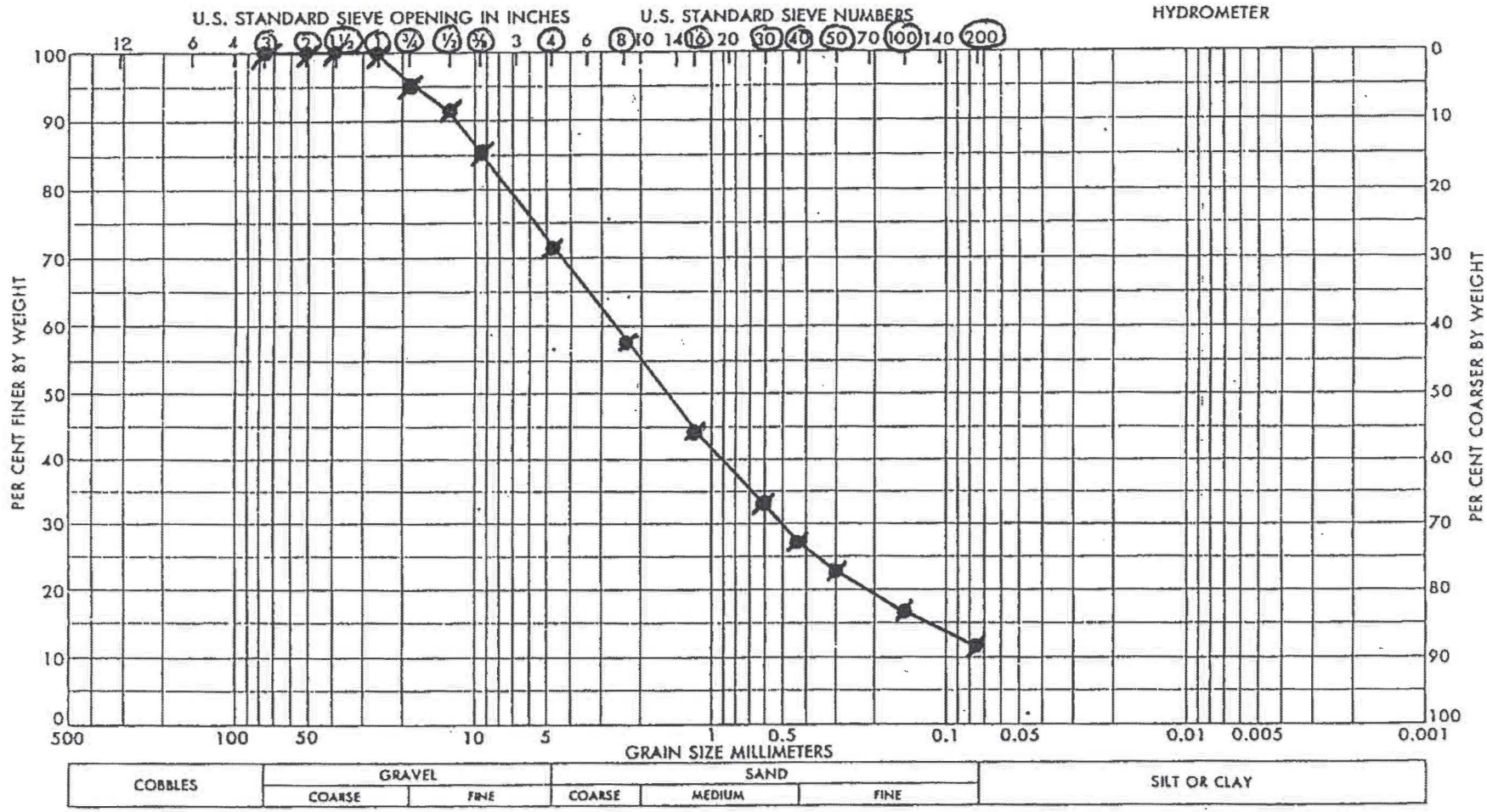
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GRAIN-SIZE DISTRIBUTION CHART

Figure No.: C-2



Symbol	Hole No.	Elev. or Depth	U.S.C.S.
	TP-5	7-8'	

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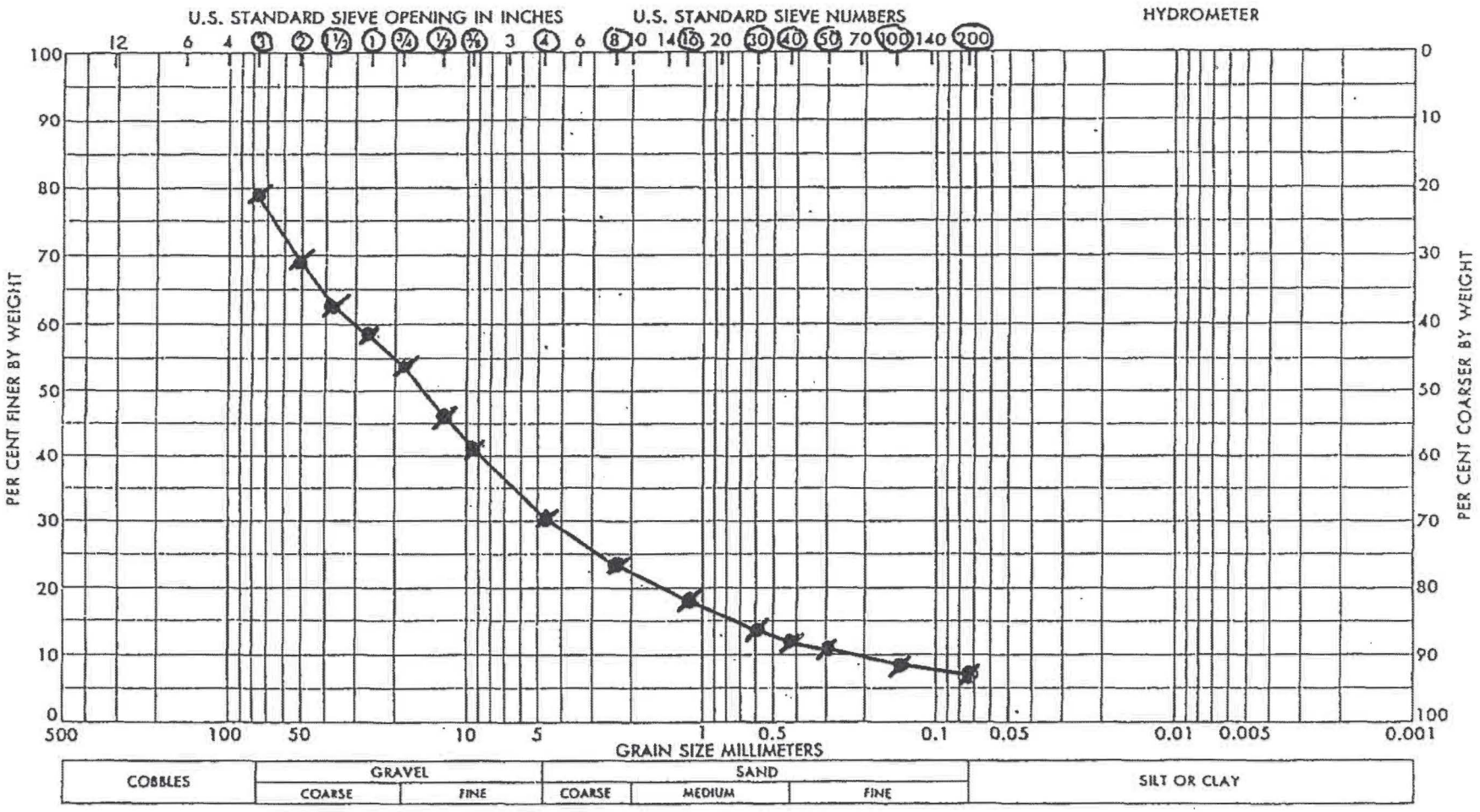
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GRAIN-SIZE DISTRIBUTION CHART

Figure No.: C-3



Symbol	Hole No.	Elev. or Depth	U.S.C.S.
	TP-5	2-4'	

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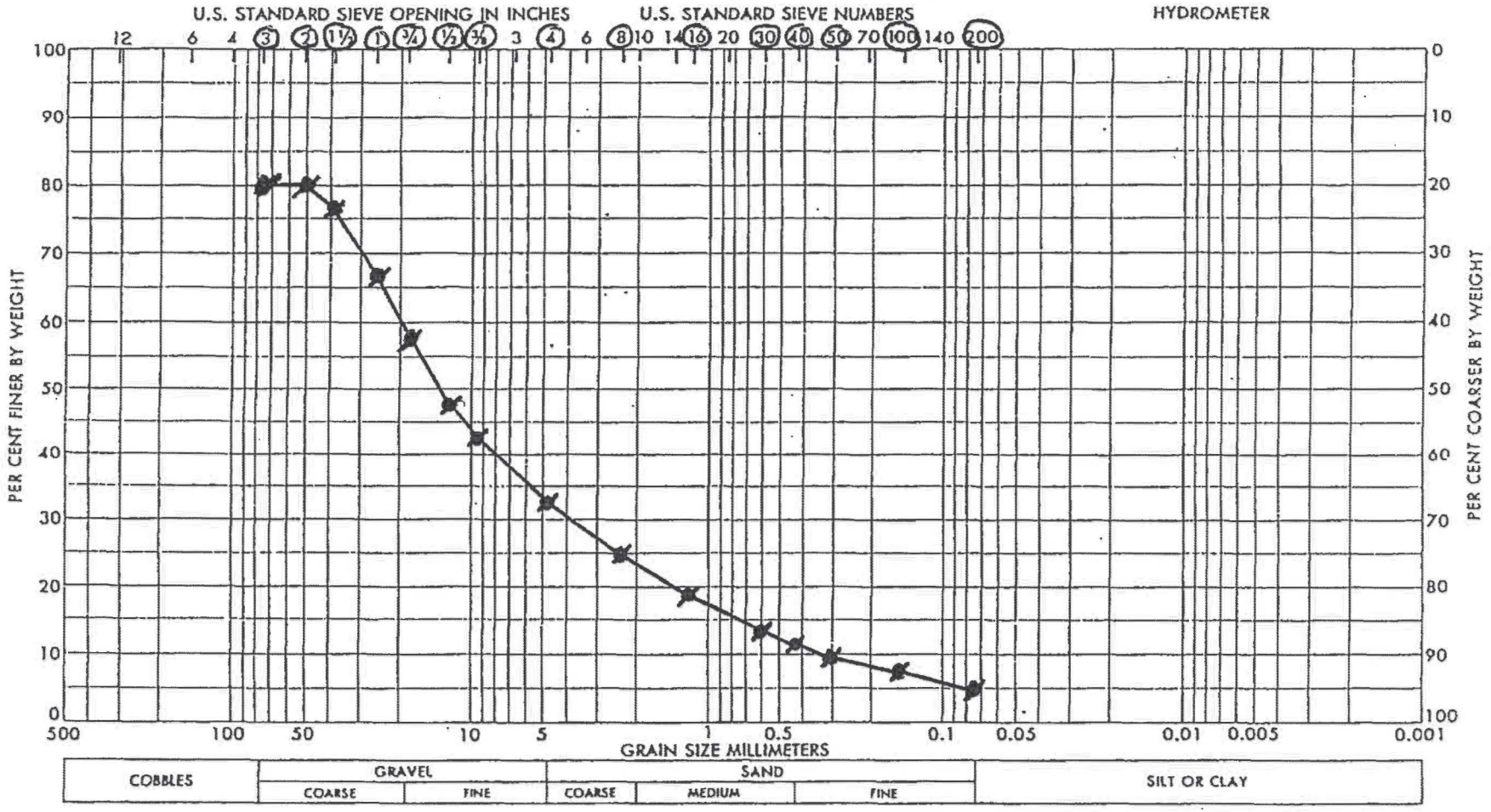
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Date: Feb 2016

GRAIN-SIZE DISTRIBUTION CHART

Figure No.: C-4



Symbol	Hole No.	Elev. or Depth	U.S.C.S.
	TP-7	1-3'	

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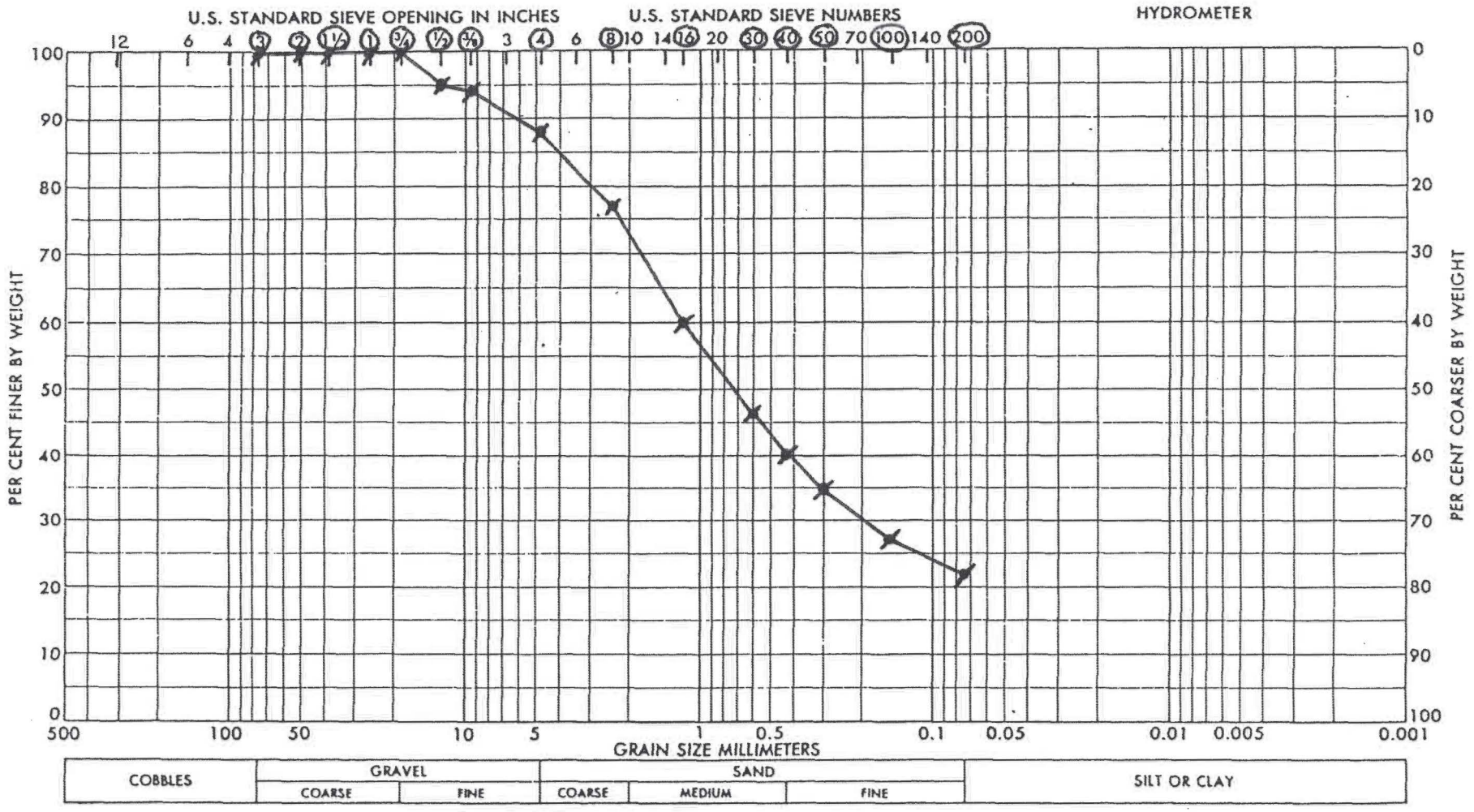
DREAMLAND INVESTMENTS, LLC
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DRP, APN 8684-045-004, Glendora, California

Project No.: 6950-04

Date: Feb 2016

GRAIN-SIZE DISTRIBUTION CHART

Figure No.: C-5



Fine to coarse, Silty SAND with GRAVEL

Symbol	Hole No.	Elev. or Depth	U.S.C.S.
SP	TP-11	2-3'	

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Glendora, California

Prior Project No.: 6817-04

GRAIN-SIZE DISTRIBUTION CHART

Date: November 2013

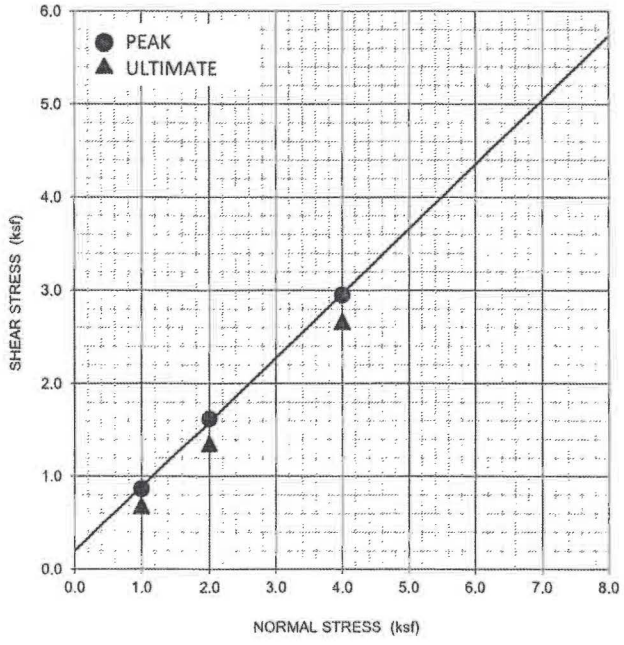
Figure No.: C-6

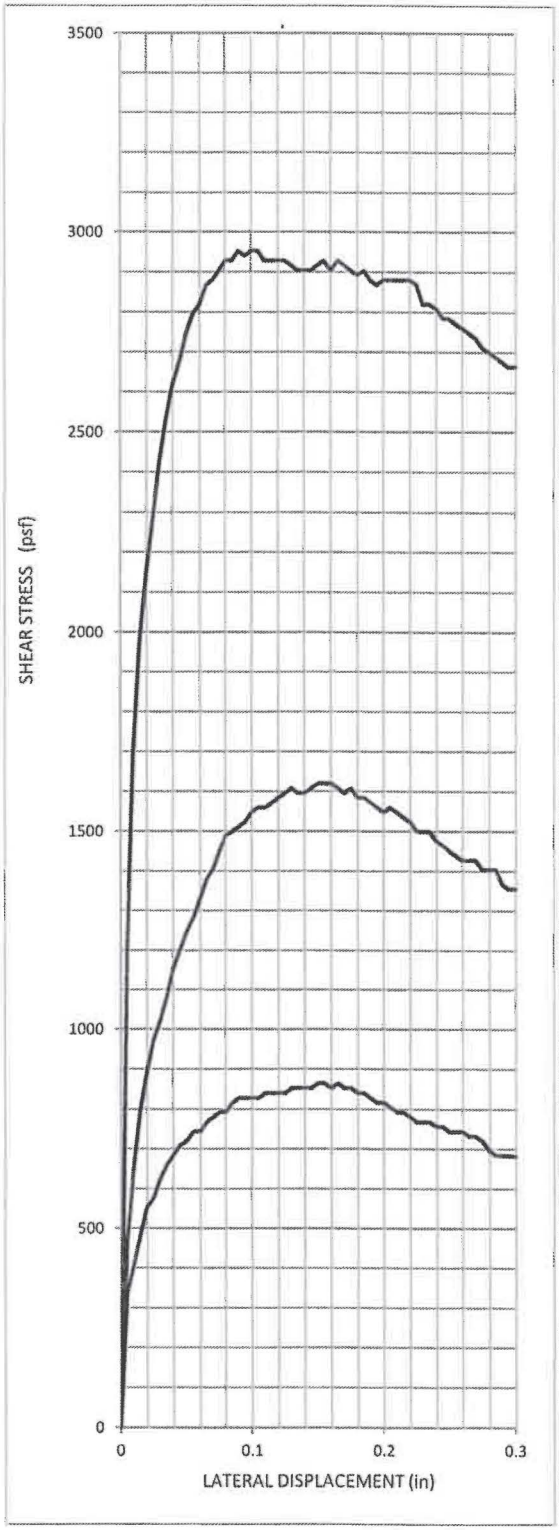
Project Name : CHOU - GLENDORA
Project No. : G.A.NICHOLL#6950-04
Boring / Sample No : B-3
Depth : 10 - 11 ft
Tested By : RMC
Date: 19-Nov-15
Sample Descriptions / Classification : Brown Silty Sand w/ Gravel (SM)
Sampled By :
Date:

Applied Normal Load (ksf)	1.0		2.0		4.0	
Shear Stress,Peak (ksf)	0.864		1.620		2.952	
Shear Stress,Ultimate(ksf)	0.682		1.356		2.664	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	199.6	208.8	202.1	211.1	202.4	211.8
Dry Wt. of Soil + Ring (g)		188.7		191.2		191.5
Weight of Water (g)	10.9	20.1	10.9	19.9	10.9	20.3
Weight of Ring (g)		43.2		45.3		45.9
Weight of Dry Soil (g)		145.5		145.9		145.6
Moisture Content (%)	7.5	13.8	7.5	13.7	7.5	14.0
Wet Density (pcf)	129.8	137.5	130.2	137.7	129.9	137.7
Dry Density (pcf)		120.8		121.1		120.9
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.416					
Degree of Saturation (%)	52.3	96.4	52.8	96.2	52.4	97.5
Void Ratio		0.384		0.381		0.384

Lateral Displacement, d_h (in)		0.3
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		15.00
Specimen	Undisturbed	X
	Remolded	90% R.C @ Opt.
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	200	30
Friction Angle, ϕ (degree)	35	33





Remarks :

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Fig. C-7

Project Name : CHOU - GLENDORA Project No. : G.A.NICHOLL#6950-04

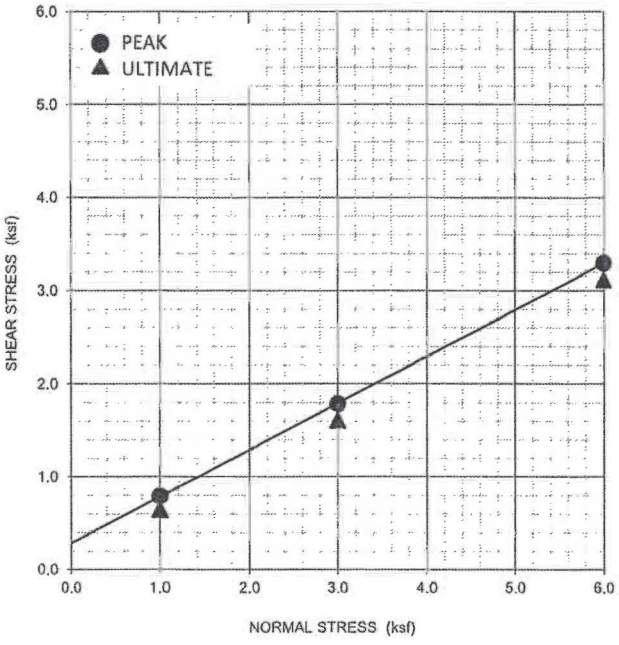
Boring / Sample No : B-3 Depth : 25' ft Tested By : RMC Date: 11-Nov-15

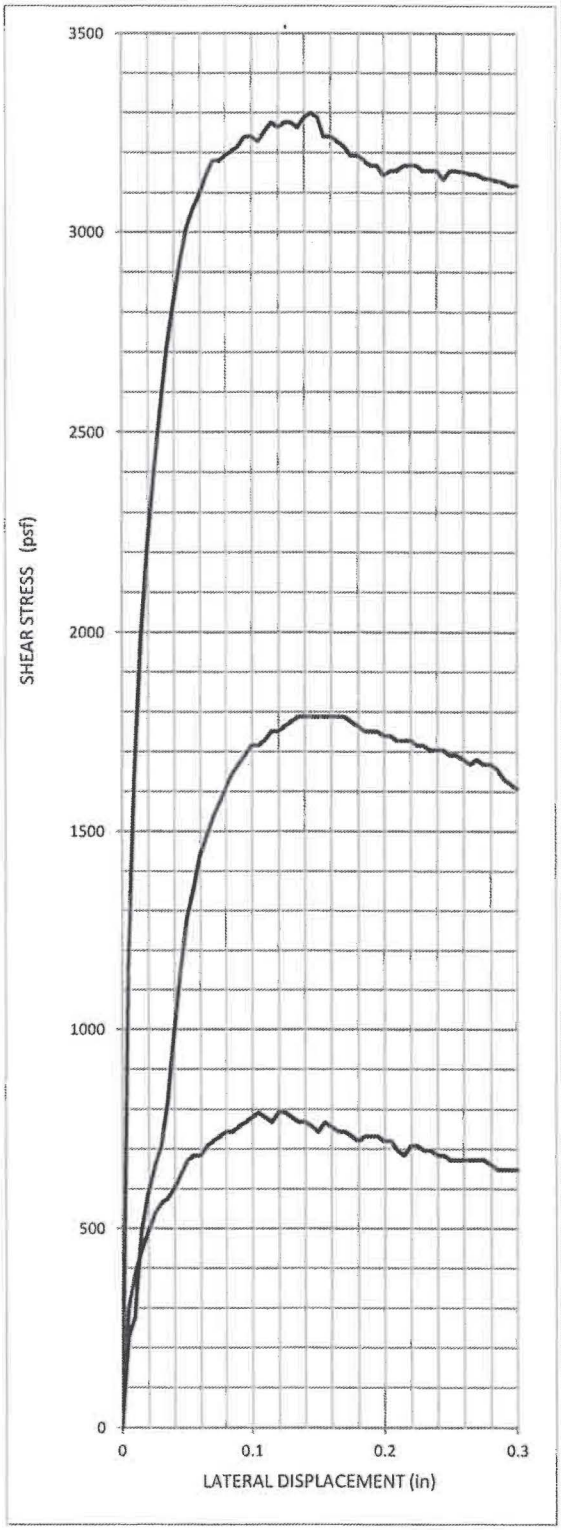
Sample Descriptions / Classification : Br. Clayey Sand/Sandy Clay w/ Gravel(SC/CL) Sampled By : Date:

Applied Normal Load (ksf)	1.0		3.0		6.0	
Shear Stress,Peak (ksf)	0.792		1.788		3.300	
Shear Stress,Ultimate(ksf)	0.648		1.608		3.118	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	197.1	202.9	196.1	202.5	199.5	205.4
Dry Wt. of Soil + Ring (g)		179.5		178.4		181.7
Weight of Water (g)	17.6	23.4	17.7	24.1	17.8	23.7
Weight of Ring (g)		43.8		42.6		44.9
Weight of Dry Soil (g)		135.7		135.8		136.8
Moisture Content (%)	13.0	17.3	13.0	17.7	13.0	17.3
Wet Density (pcf)	127.3	132.1	127.4	132.8	128.4	133.3
Dry Density (pcf)		112.6		112.8		113.6
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.416					
Degree of Saturation (%)	71.9	95.5	72.2	98.3	73.8	98.2
Void Ratio		0.485		0.483		0.472

Lateral Displacement, d_h (in)		0.25
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		12.50
Specimen	Undisturbed	X
	Remolded	-
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	285	140
Friction Angle, ϕ (degree)	27	26





Remarks : _____

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Fig. C-8

Project Name : CHOU - GLENDORA Project No. : G.A.NICHOLL#6950-04

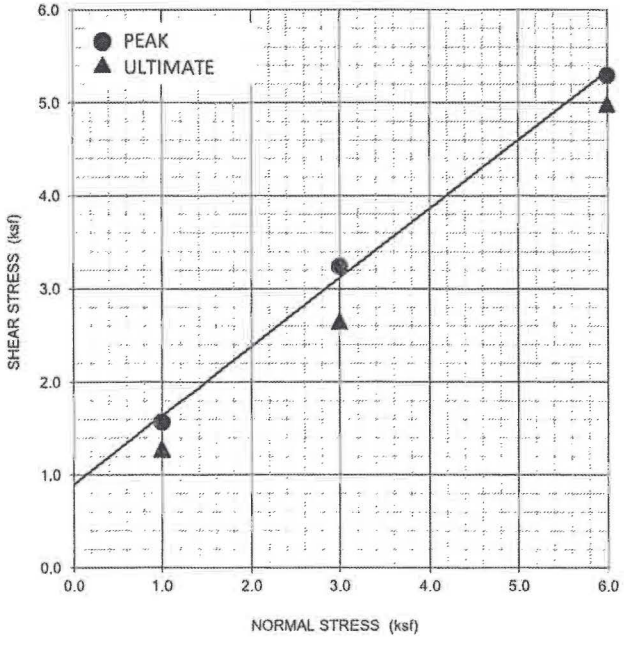
Boring / Sample No : B-3 Depth : 31 ft Tested By : RMC Date: 12-Nov-15

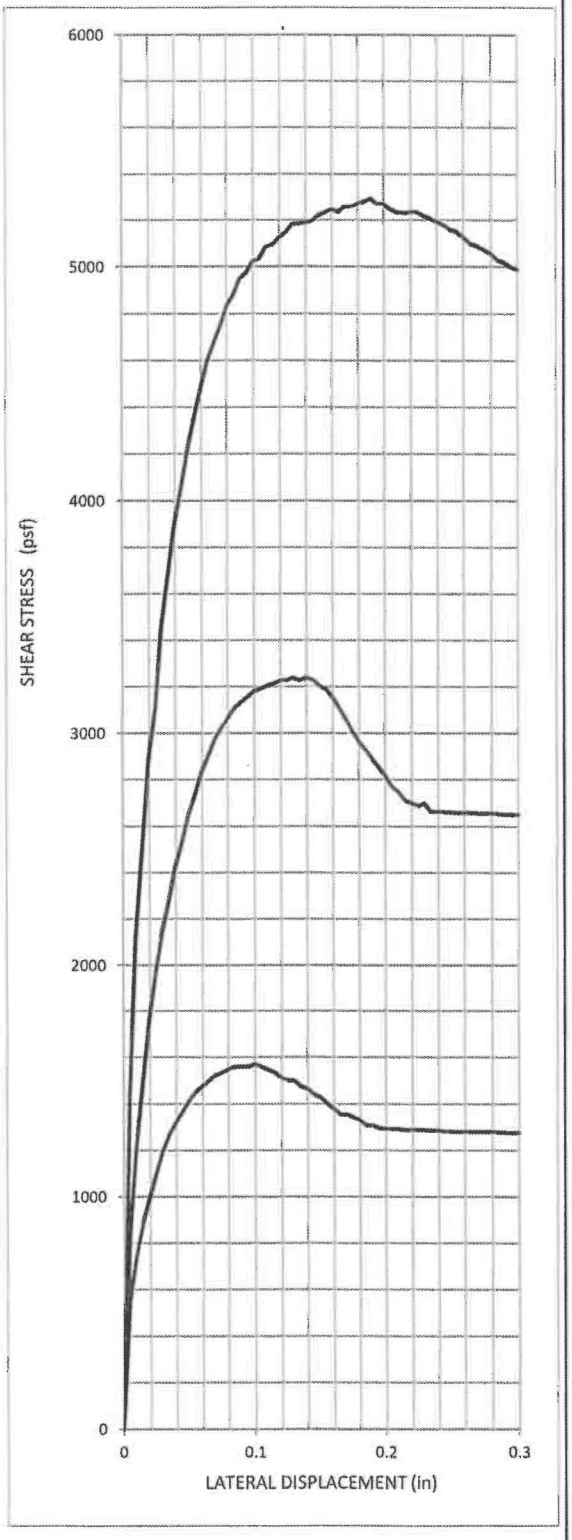
Sample Descriptions / Classification : Br. Silty/Clayey Sand w/ Gravel (SM/SC) Sampled By : Date:

Applied Normal Load (ksf)	1.0		3.0		6.0	
Shear Stress,Peak (ksf)	1.572		3.240		5.297	
Shear Stress,Ultimate(ksf)	1.276		2.650		4.989	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	225.5	231.6	226.6	233.4	229.4	234.7
Dry Wt. of Soil + Ring (g)		217.4		218.6		221.3
Weight of Water (g)	8.1	14.2	8.0	14.8	8.1	13.4
Weight of Ring (g)		62.4		64.6		65.2
Weight of Dry Soil (g)		155.0		154.0		156.1
Moisture Content (%)	5.2	9.1	5.2	9.6	5.2	8.6
Wet Density (pcf)	140.1	145.4	139.2	145.0	141.1	145.6
Dry Density (pcf)		133.2		132.3		134.1
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.375					
Degree of Saturation (%)	54.5	95.8	52.8	97.6	56.4	93.2
Void Ratio		0.255		0.264		0.247

Lateral Displacement, d_h (in)		0.3
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		15.00
Specimen	Undisturbed	X
	Remolded	-
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	900	485
Friction Angle, ϕ (degree)	37	37





Remarks : _____

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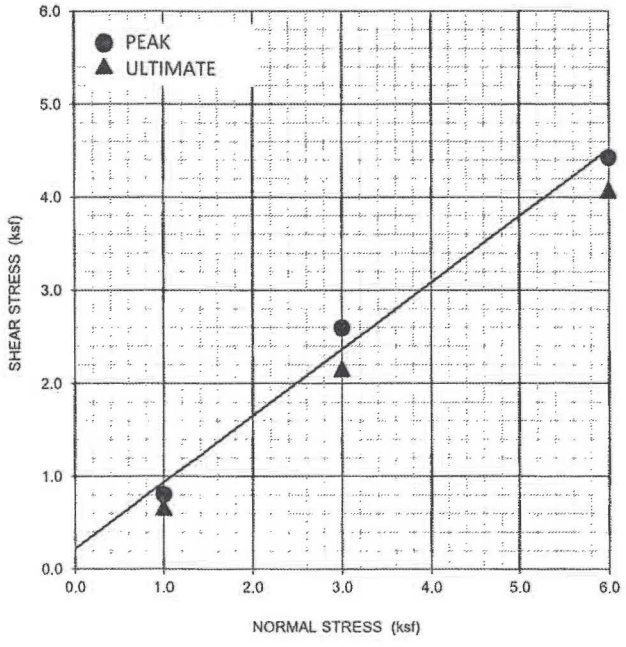
Fig. C-9

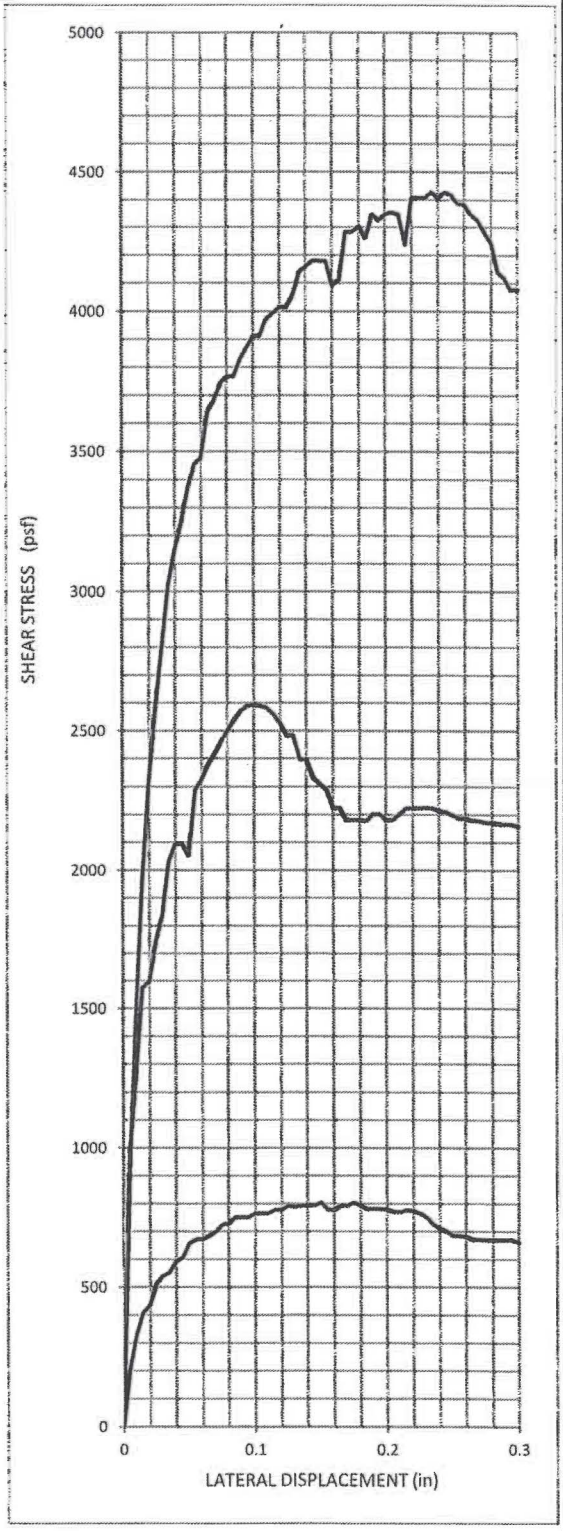
Project Name : CHOU - GLENDORA
Project No. : G.A.NICHOLL#6950-04
Boring / Sample No : B-5
Depth : 25 ft
Tested By : RMC
Date: 12-Nov-15
Sample Descriptions / Classification : Dk. Br. Silty/Clayey Sand w/ Gravel (SM/SC)
Sampled By :
Date:

Applied Normal Load (ksf)	1.0		3.0		6.0	
Shear Stress,Peak (ksf)	0.805		2.594		4.429	
Shear Stress,Ultimate(ksf)	0.663		2.160		4.077	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	224.9	230.7	225.6	231.5	227.1	232.9
Dry Wt. of Soil + Ring (g)		216.6		217.2		218.7
Weight of Water (g)	8.3	14.1	8.4	14.3	8.4	14.2
Weight of Ring (g)		62.2		62.5		63.3
Weight of Dry Soil (g)		154.4		154.7		155.4
Moisture Content (%)	5.4	9.2	5.4	9.2	5.4	9.1
Wet Density (pcf)	139.8	144.8	140.1	145.2	140.7	145.7
Dry Density (pcf)		132.6		132.9		133.5
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.375					
Degree of Saturation (%)	55.5	94.0	56.1	95.7	57.3	96.9
Void Ratio		0.261		0.258		0.253

Lateral Displacement, d_h (in)		0.3
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		15.00
Specimen	Undisturbed	X
	Remolded	-
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	225	35
Friction Angle, ϕ (degree)	36	34





Remarks :

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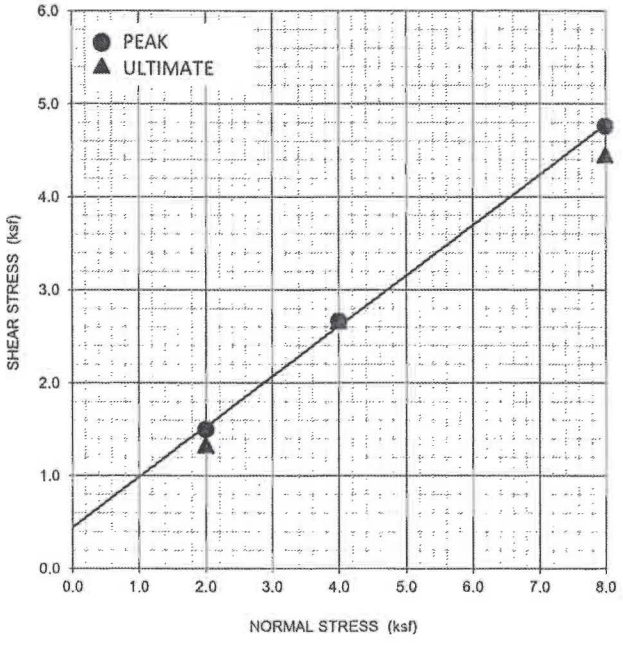
Fig. C-10

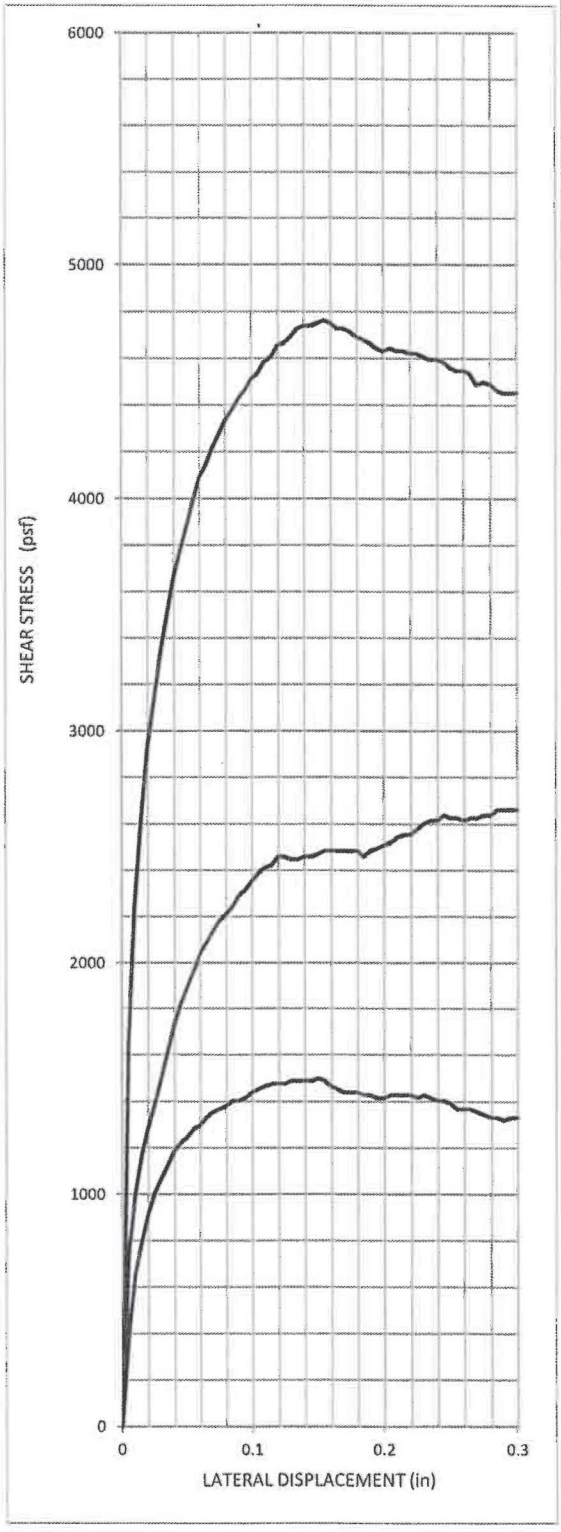
Project Name : CHOU - GLENDORA
Project No. : G.A.NICHOLL#6950-04
Boring / Sample No : B-5 Depth : 35' ft
Tested By : RMC Date: 11-Nov-15
Sample Descriptions / Classification : Dk. Brown Sandy Clay w/ Gravel (CL)
Sampled By : Date:

Applied Normal Load (ksf)	2.0		4.0		8.0	
Shear Stress,Peak (ksf)	1.500		2.664		4.764	
Shear Stress,Ultimate(ksf)	1.332		2.664		4.452	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	211.7	212.3	210.3	211.6	209.3	210.6
Dry Wt. of Soil + Ring (g)		194.4		193.1		192.1
Weight of Water (g)	17.3	17.9	17.2	18.5	17.2	18.5
Weight of Ring (g)		42.2		42.5		41.3
Weight of Dry Soil (g)		152.2		150.6		150.8
Moisture Content (%)	11.4	11.8	11.4	12.3	11.4	12.3
Wet Density (pcf)	140.7	141.2	139.3	140.4	139.5	140.6
Dry Density (pcf)		126.3		125.1		125.2
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.416					
Degree of Saturation (%)	94.3	97.6	90.6	97.5	91.0	97.9
Void Ratio		0.324		0.337		0.336

Lateral Displacement, d_h (in)		0.25
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		12.50
Specimen	Undisturbed	X
	Remolded	-
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	450	440
Friction Angle, ϕ (degree)	28	27





Remarks : _____

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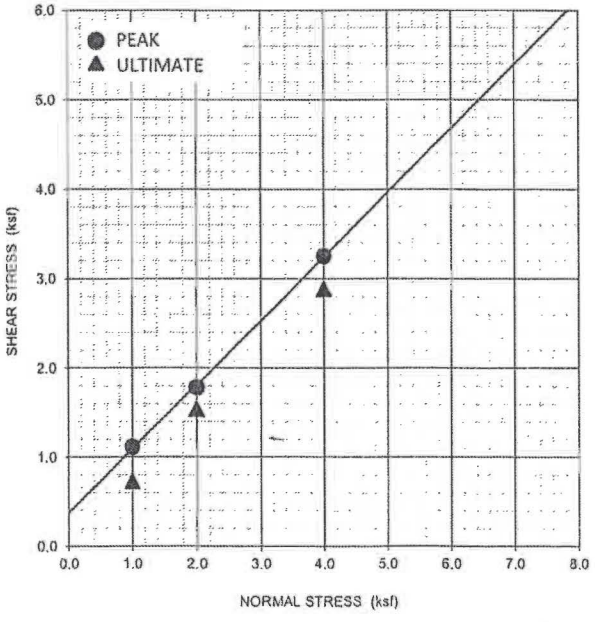
Fig. C-11

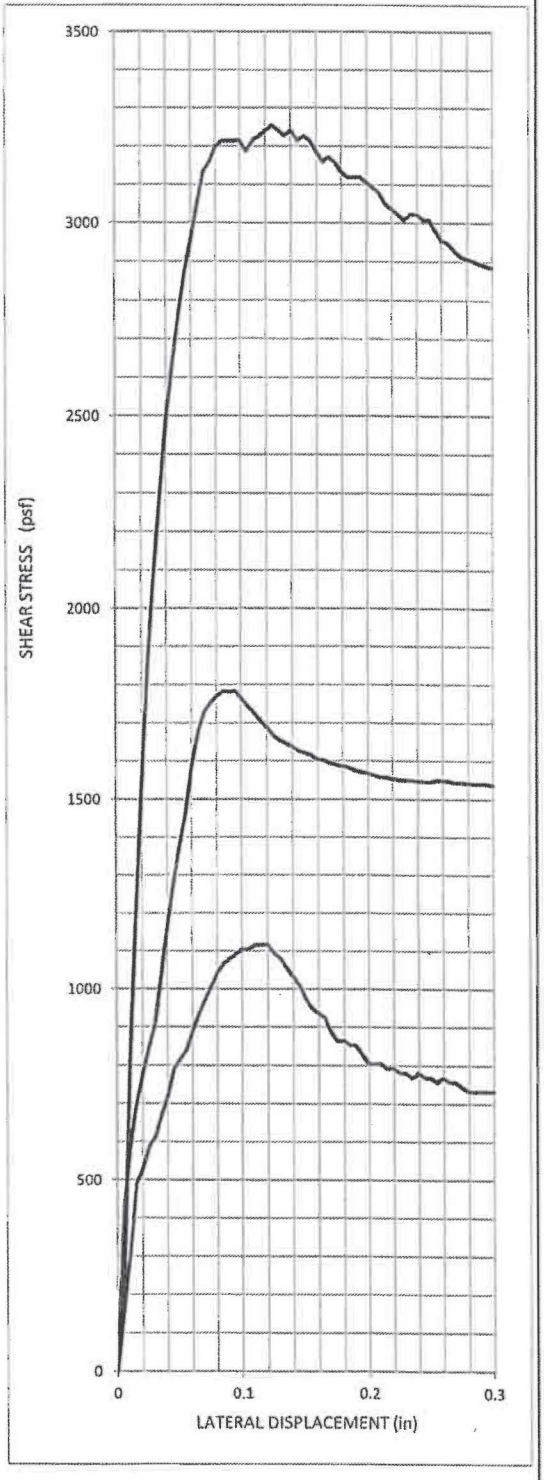
Project Name : CHOU - GLENDORA
Project No. : G.A.NICHOLL#6950-04
Boring / Sample No : B-6
Depth : 4 - 6 ft
Tested By : RMC
Date: 19-Nov-15
Sample Descriptions / Classification : Brown Silty Sand w/ Gravel (SM)
Sampled By :
Date:

Applied Normal Load (ksf)	1.0		2.0		4.0	
Shear Stress,Peak (ksf)	1.116		1.784		3.255	
Shear Stress,Ultimate(ksf)	0.732		1.539		2.885	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	201.8	211.5	201.7	211.7	201.9	211.7
Dry Wt. of Soil + Ring (g)		191.5		191.4		191.7
Weight of Water (g)	10.3	20.0	10.3	20.3	10.2	20.0
Weight of Ring (g)		44.7		45.0		45.3
Weight of Dry Soil (g)		146.8		146.4		146.4
Moisture Content (%)	7.0	13.6	7.0	13.8	7.0	13.7
Wet Density (pcf)	130.4	138.5	130.1	138.4	130.0	138.2
Dry Density (pcf)		121.9		121.6		121.5
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.416					
Degree of Saturation (%)	50.4	98.1	50.0	98.7	49.9	97.5
Void Ratio		0.372		0.375		0.376

Lateral Displacement, d_h (in)		0.3
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		15.00
Specimen	Undisturbed	X
	Remolded	90% R.C @ Opt.
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	380	60
Friction Angle, ϕ (degree)	36	35





Remarks :

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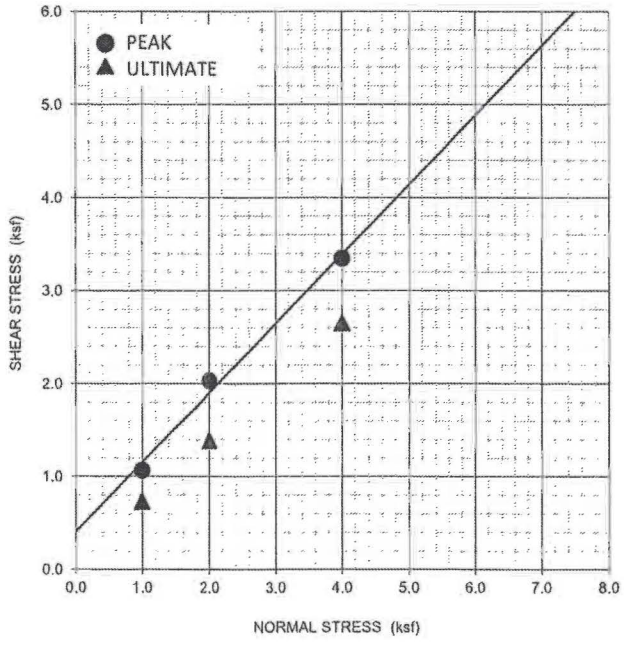
Fig. C-12

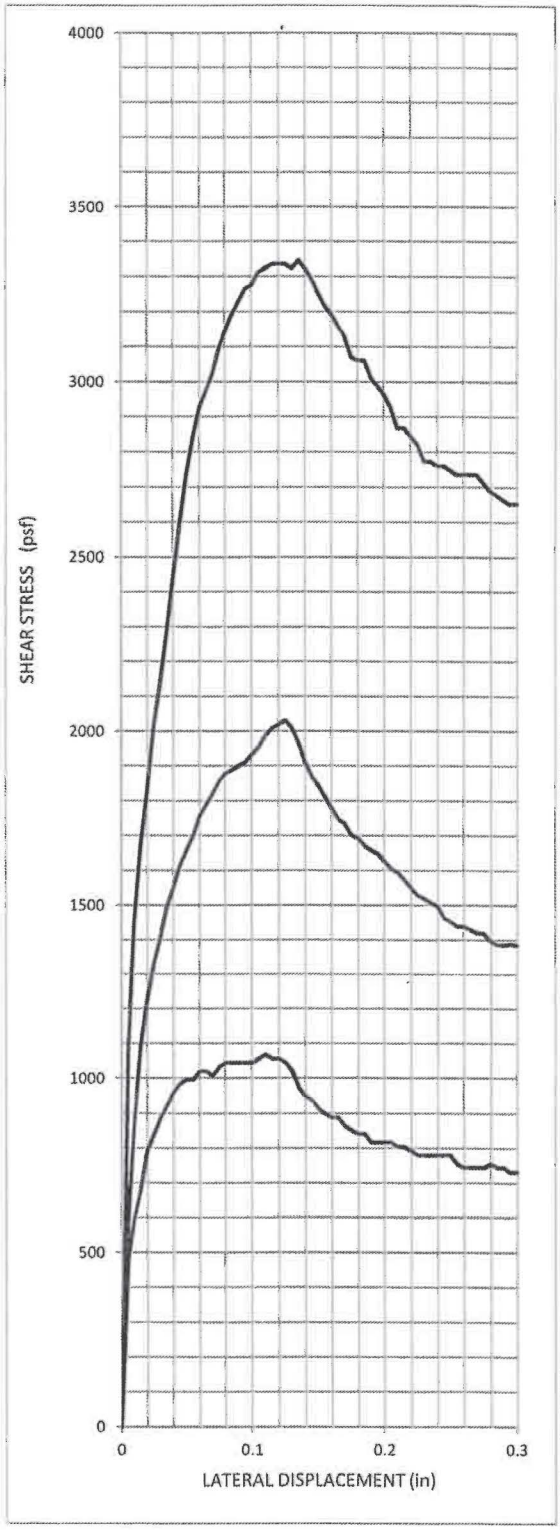
Project Name : CHOU - GLENDORA
Project No. : G.A.NICHOLL#6950-04
Boring / Sample No : B-7 Depth : 19 - 21 ft
Tested By : RMC Date: 18-Nov-15
Sample Descriptions / Classification : Brown Silty Sand w/ Gravel (SM)
Sampled By : Date:

Applied Normal Load (ksf)	1.0		2.0		4.0	
Shear Stress,Peak (ksf)	1.068		2.031		3.348	
Shear Stress,Ultimate(ksf)	0.732		1.385		2.652	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	200.4	209.4	203.1	212.1	202.9	211.6
Dry Wt. of Soil + Ring (g)		190.0		192.7		192.5
Weight of Water (g)	10.4	19.4	10.4	19.4	10.4	19.1
Weight of Ring (g)		41.6		44.1		43.5
Weight of Dry Soil (g)		148.4		148.6		149.0
Moisture Content (%)	7.0	13.1	7.0	13.1	7.0	12.8
Wet Density (pcf)	131.8	139.3	132.0	139.5	132.3	139.6
Dry Density (pcf)		123.2		123.4		123.7
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.416					
Degree of Saturation (%)	52.5	98.0	52.8	98.4	53.3	97.7
Void Ratio		0.357		0.356		0.352

Lateral Displacement, d_h (in)		0.3
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_a (min)		15.00
Specimen	Undisturbed	X
	Remolded	90% R.C @ Opt.
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	410	100
Friction Angle, ϕ (degree)	37	33





Remarks :

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Fig. C-13

Project Name : CHOU - GLENDORA Project No. : G.A.NICHOLL#6950-04

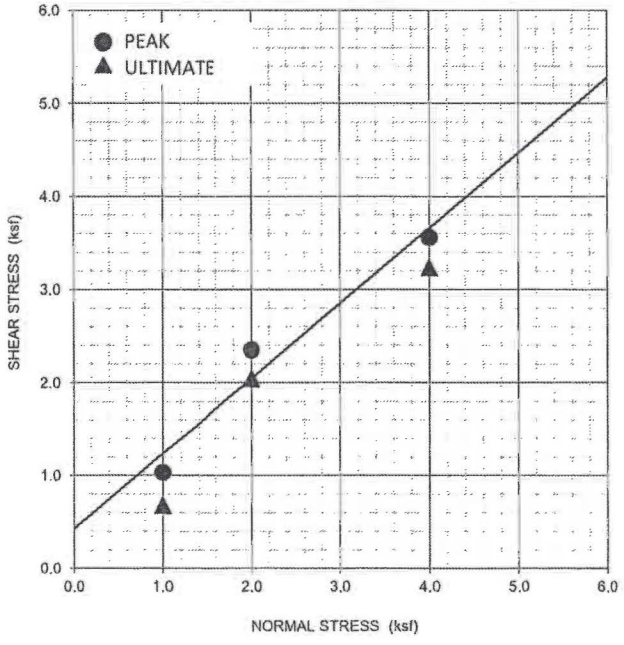
Boring / Sample No : B-7 Depth : 20 ft Tested By : RMC Date: 13-Nov-15

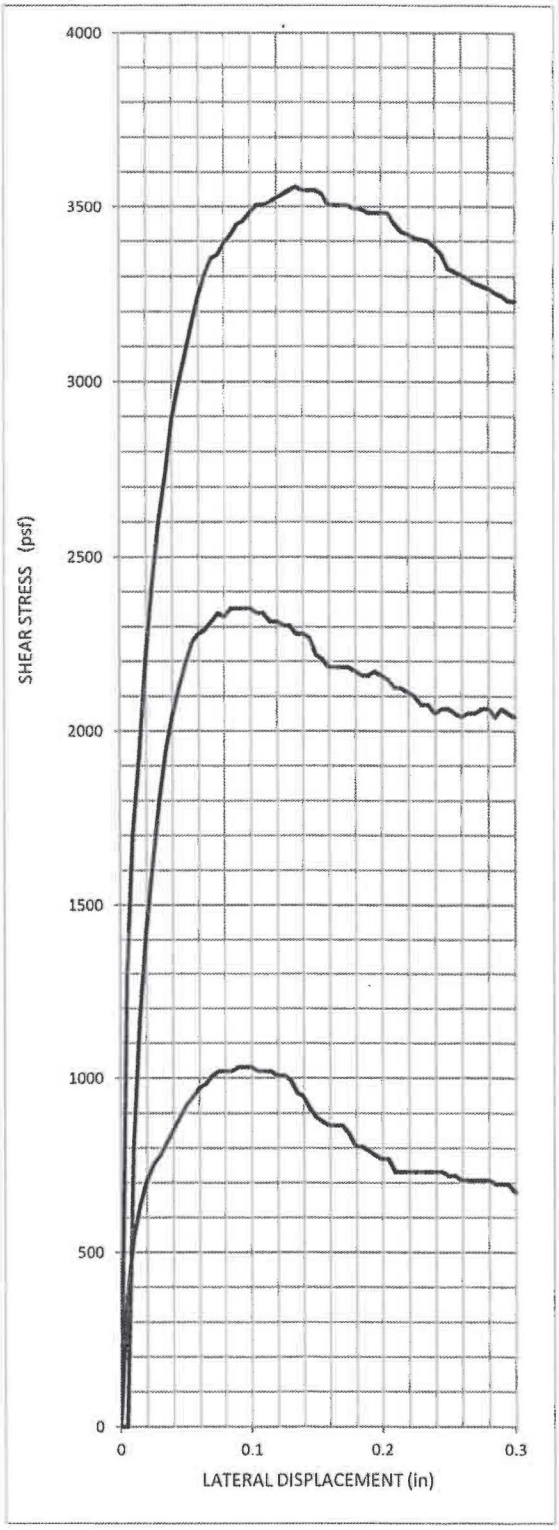
Sample Descriptions / Classification : Br. Silty Sand w/ Gravel & trace of Clay (SM) Sampled By : Date:

Applied Normal Load (ksf)	1.0		2.0		4.0	
Shear Stress,Peak (ksf)	1.032		2.352		3.559	
Shear Stress,Ultimate(ksf)	0.672		2.040		3.230	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	222.4	232.4	223.3	231.9	221.2	231.2
Dry Wt. of Soil + Ring (g)		216.7		217.4		215.5
Weight of Water (g)	5.7	15.7	5.9	14.5	5.7	15.7
Weight of Ring (g)		65.5		62.4		64.2
Weight of Dry Soil (g)		151.2		155.0		151.3
Moisture Content (%)	3.8	10.4	3.8	9.3	3.8	10.4
Wet Density (pcf)	134.8	143.4	138.2	145.6	134.9	143.4
Dry Density (pcf)		129.9		133.2		129.9
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.375					
Degree of Saturation (%)	35.4	97.0	39.8	98.0	35.5	96.9
Void Ratio		0.288		0.256		0.287

Lateral Displacement, d_h (in)		0.3
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		15.00
Specimen	Undisturbed	X
	Remolded	-
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	430	75
Friction Angle, ϕ (degree)	39	39





Remarks : _____

DIRECT SHEAR TEST

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Fig. C-14

Project Name : CHOU - GLENDORA Project No. : G.A.NICHOLL#6950-04

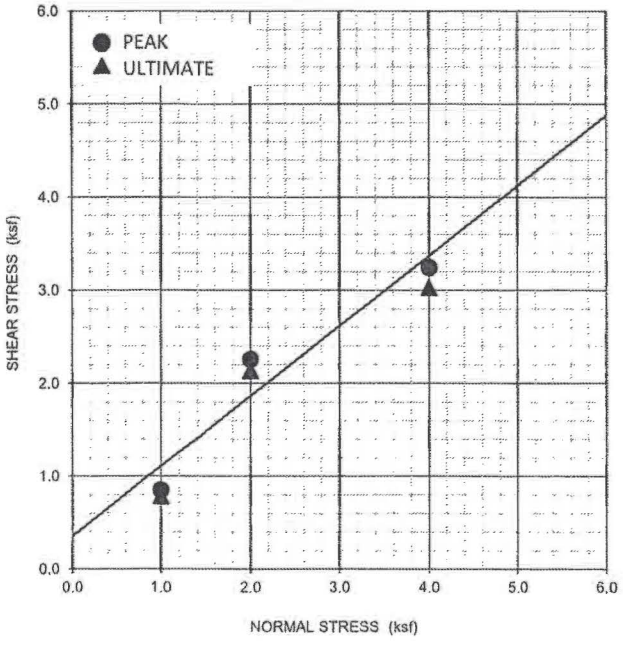
Boring / Sample No : B-8 Depth : 12 ft Tested By : RMC Date: 13-Nov-15

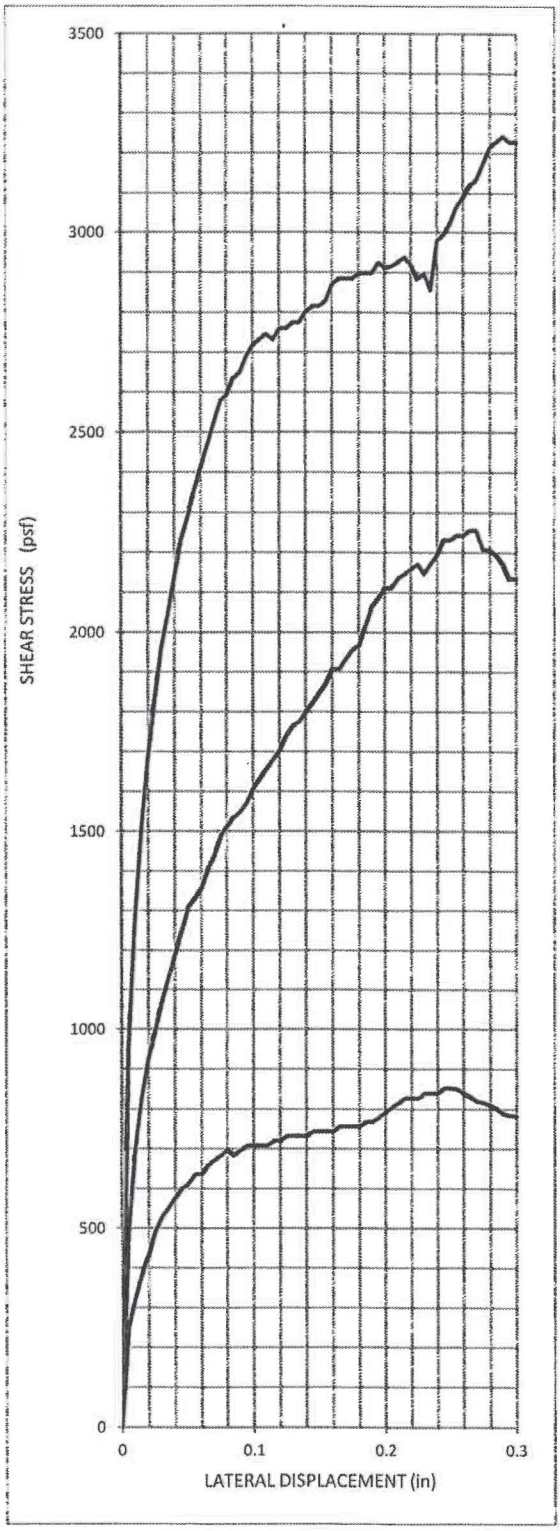
Sample Descriptions / Classification : Br. Silty Sand w/ Gravel & trace of Clay (SM) Sampled By : Date:

Applied Normal Load (ksf)	1.0		2.0		4.0	
Shear Stress,Peak (ksf)	0.852		2.256		3.243	
Shear Stress,Ultimate(ksf)	0.783		2.136		3.029	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	214.7	225.4	215.7	227.1	216.6	227.2
Dry Wt. of Soil + Ring (g)		207.2		208.3		209.1
Weight of Water (g)	7.5	18.2	7.4	18.8	7.5	18.1
Weight of Ring (g)		63.5		65.5		64.1
Weight of Dry Soil (g)		143.7		142.8		145.0
Moisture Content (%)	5.2	12.6	5.2	13.2	5.2	12.5
Wet Density (pcf)	129.9	139.1	129.0	138.8	131.0	140.1
Dry Density (pcf)		123.5		122.7		124.5
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.375					
Degree of Saturation (%)	39.3	95.6	38.4	97.3	40.7	97.8
Void Ratio		0.354		0.363		0.343

Lateral Displacement, d_h (in)		0.3
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		15.00
Specimen	Undisturbed	X
	Remolded	-
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	360	335
Friction Angle, ϕ (degree)	37	35





Remarks : 3- ring sample

DIRECT SHEAR TEST

(ASTM D3080)

G. A. Nicoll & Associates, Inc.
EARTH SCIENCE CONSULTANTS

Fig. C-15

Project Name : CHOU - GLENDORA Project No. : G.A.NICHOLL#6950-04

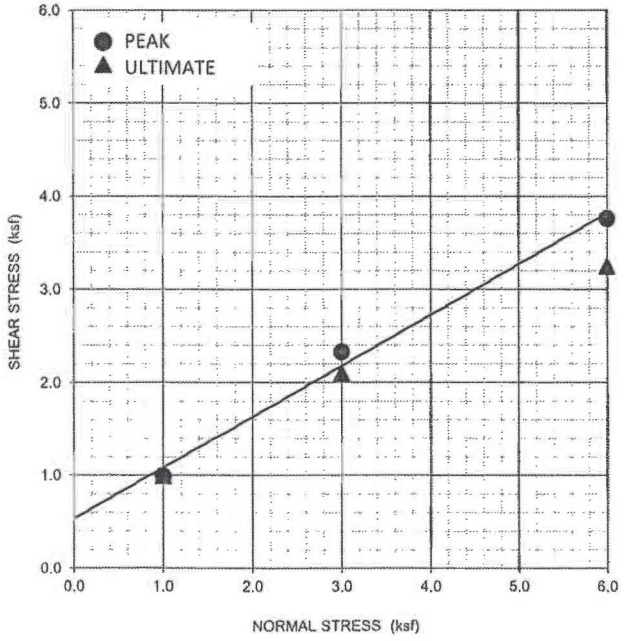
Boring / Sample No : B-8 Depth : 22 ft Tested By : RMC Date: 13-Nov-15

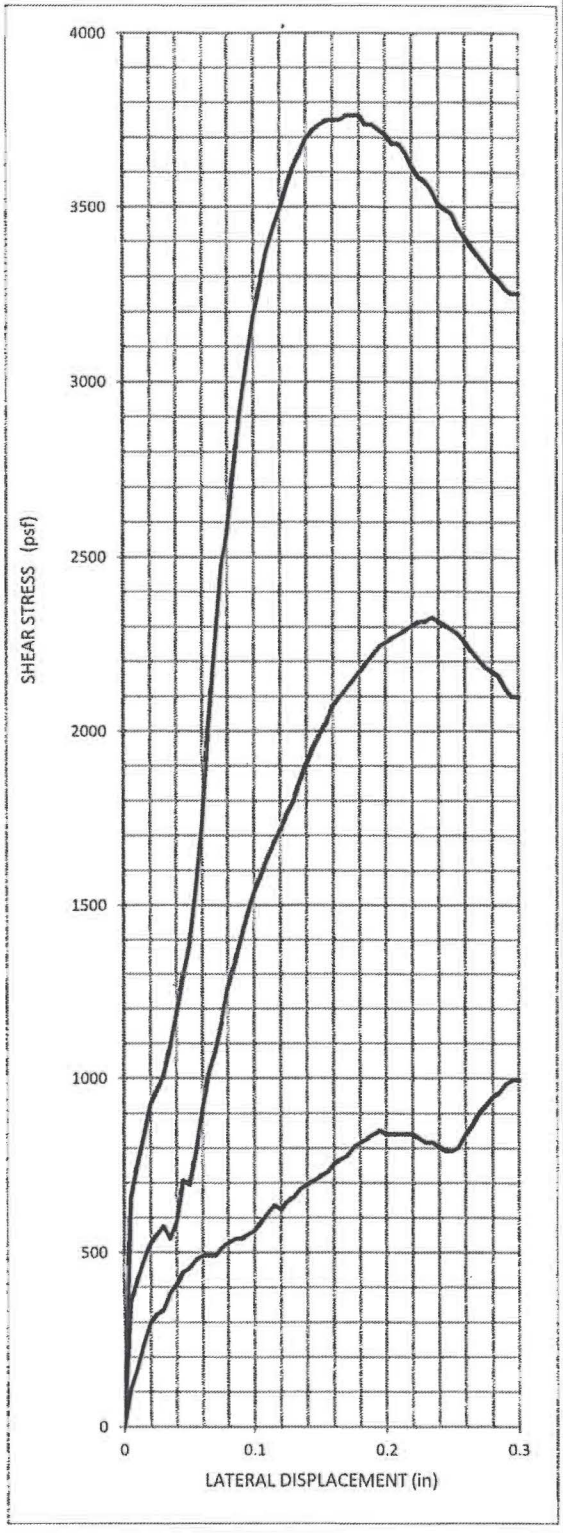
Sample Descriptions / Classification : Brown Clayey Sand w/ Gravel (SC) Sampled By : Date:

Applied Normal Load (ksf)	1.0		3.0		6.0	
Shear Stress,Peak (ksf)	0.996		2.328		3.763	
Shear Stress,Ultimate(ksf)	0.996		2.100		3.252	
Density and Saturation	Initial	Final	Initial	Final	Initial	Final
Wet Wt. of Soil + Ring (g)	218.8	220.5	222.5	223.7	223.1	225.5
Dry Wt. of Soil + Ring (g)		199.4		202.8		203.7
Weight of Water (g)	19.4	21.1	19.7	20.9	19.4	21.8
Weight of Ring (g)		63.6		65.1		68.1
Weight of Dry Soil (g)		135.8		137.7		135.6
Moisture Content (%)	14.3	15.6	14.3	15.2	14.3	16.1
Wet Density (pcf)	133.3	134.8	135.2	136.3	133.2	135.2
Dry Density (pcf)		116.7		118.3		116.5
Specific Gravity (Assumed)	2.68					
Specimen Thickness (in)	1.00					
Specimen Diameter (in)	2.375					
Degree of Saturation (%)	88.4	96.1	92.7	98.3	88.0	98.9
Void Ratio		0.434		0.413		0.435

Lateral Displacement, d_h (in)		0.3
Displacement Rate, d_r (in/min)		0.02
Elapsed Time of Test, t_e (min)		15.00
Specimen	Undisturbed	X
	Remolded	-
	Reconstituted	-

SHEAR STRESS	PEAK	ULTIMATE
Cohesion, c (psf)	535	630
Friction Angle, ϕ (degree)	29	24





Remarks : _____

DIRECT SHEAR TEST

(ASTM D3080)

G. A. Nicoll & Associates, Inc.
EARTH SCIENCE CONSULTANTS

Fig. C-16

APPENDIX D

Slope Stability Analyses

Shear Strength Parameters

Shear strength parameters for bedrock, landslide mass, terrace deposits, and fill soils (generated from different materials) were determined by direct shear tests and are provided in Appendix C.

Shear strength parameters of bedrock and landslide mass (which has the same properties of bedrock) are plotted on Figure D-1. Shear strength parameters of bedrock that were used in slope stability analyses (C=400 psf, Phi = 38 degrees) are also plotted on Figure D-1.

Shear strength parameters of terrace deposits are plotted on Figure D-2. Shear strength parameters of terrace deposits that were used in slope stability analyses (C = 400 psf, Phi = 28 degrees) are also plotted on Figure D-2.

Shear strength parameters of remolded samples generated from bedrock, terrace deposits, and alluvium are plotted on Figure D-3. Shear strength parameters of compacted fills that were used in slope stability analyses (C= 200 psf, Phi = 35 degrees) are also plotted on Figure D-3.

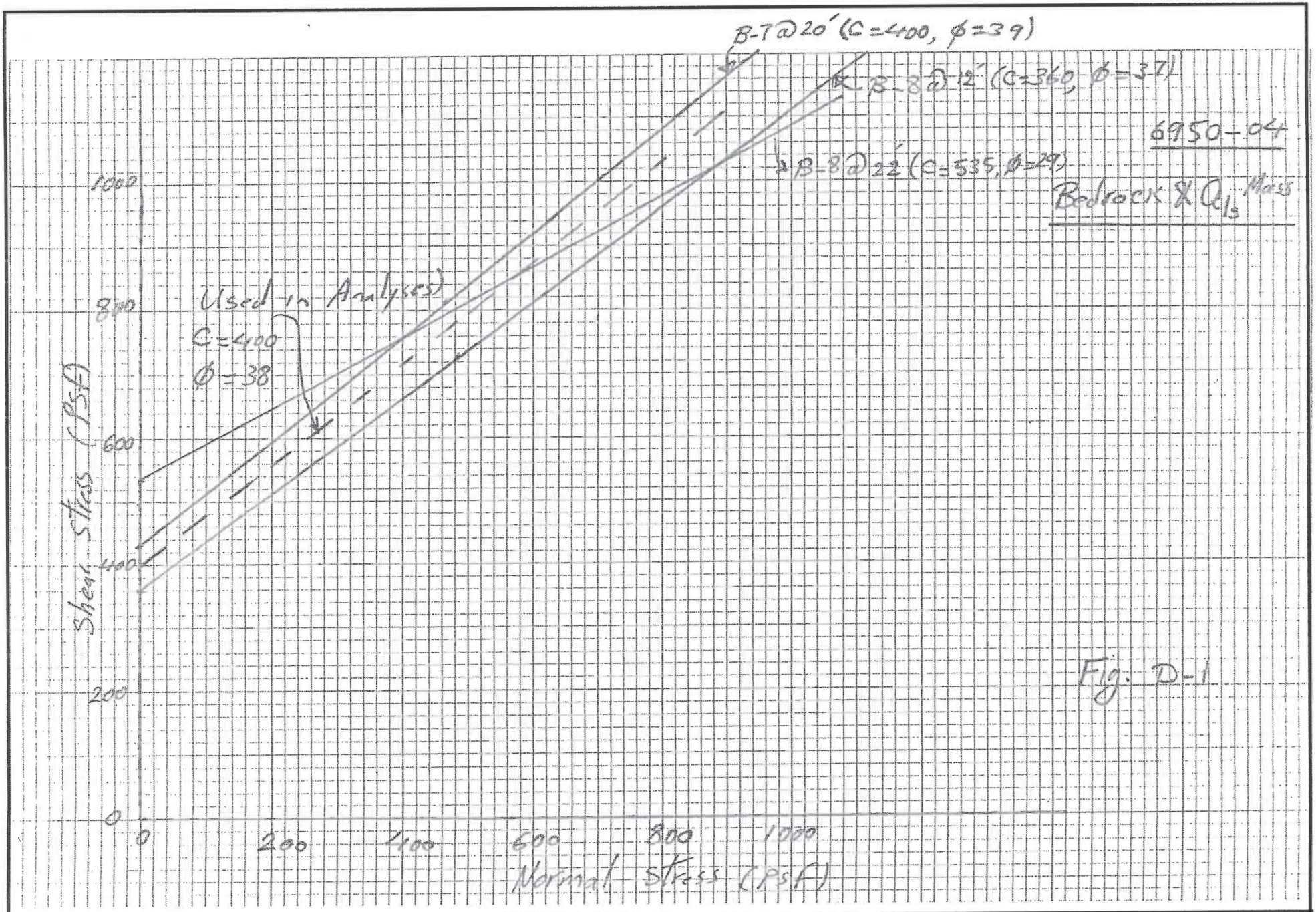
A conservative value of (C = 100 psf and Phi = 32 degrees) were used for alluvial soils. As may be noted on slope analyses results, the shear strength parameters of alluvial soils do not generally affect the stability analyses.

For pseudostatic analyses of the slopes (where a horizontal acceleration of 0.15g was assumed), static shear strength parameters were increased by 20 percent.

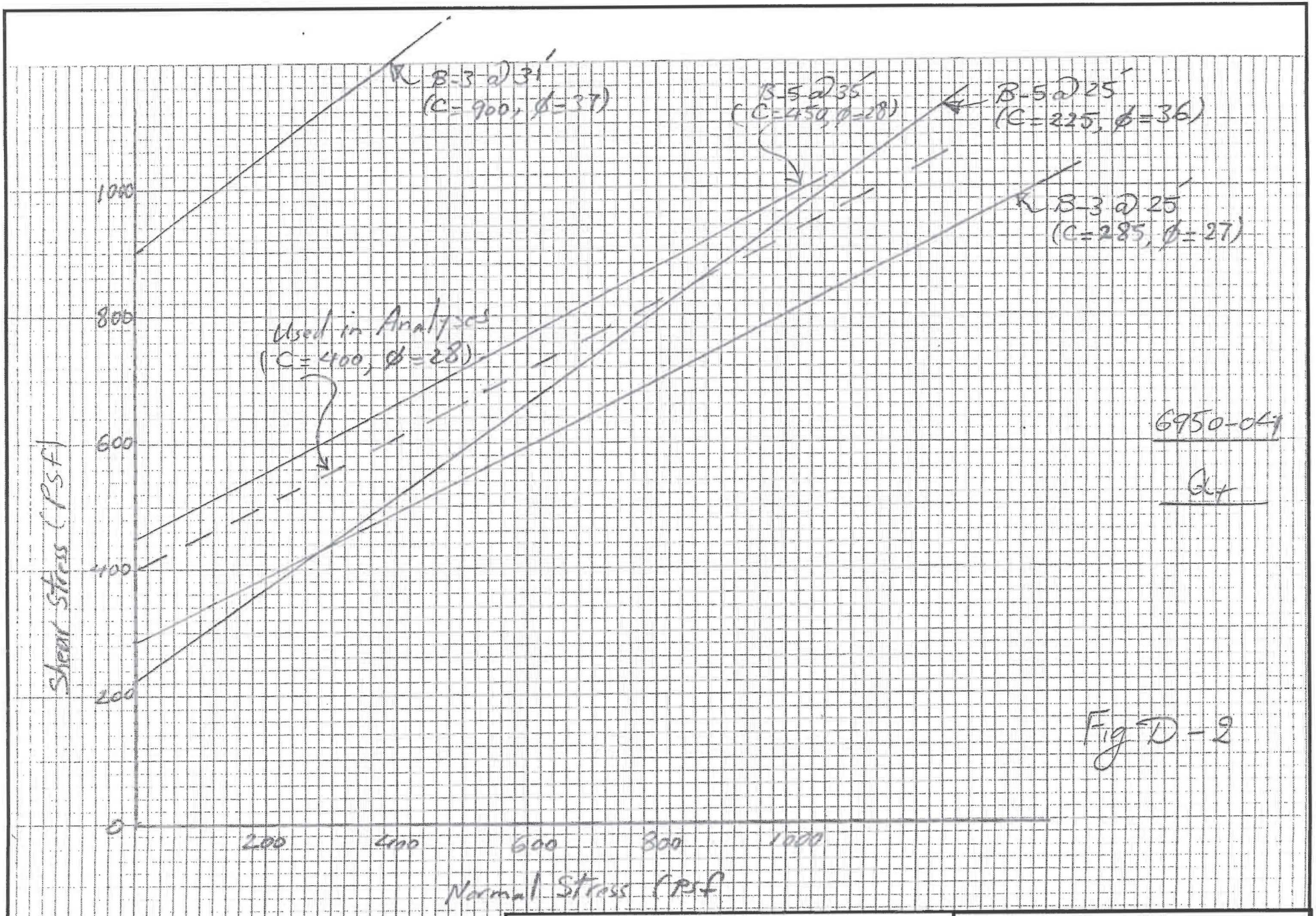
Slope Stability Analyses

Slope Stability analyses were performed utilizing GSTABLE7/STEDwin, Vol. 2 (2008) program repaired by Gregory Geotechnical Software.

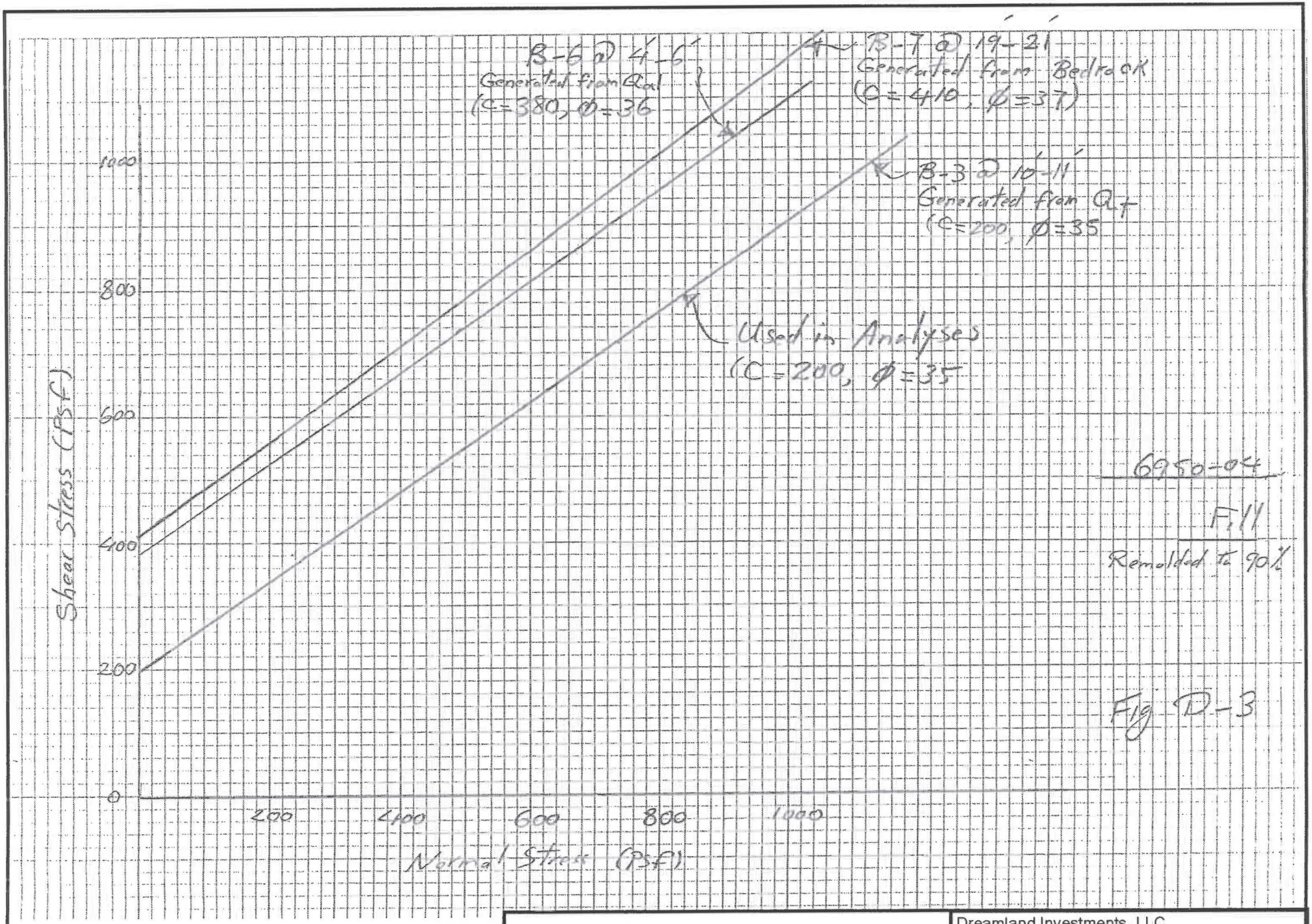
The results of stability analyses are attached and are summarized in Table D-1.



G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	Dreamland Investments, LLC Proposed Debris Basins/Dams and Access Roads, DRP, APN 8684-045-004, Glendora, CA		
	6950-04	February 2016	Fig. D-1



G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	Dreamland Investments, LLC Proposed Debris Basins/Dams and Access Roads, DRP, APN 8684-045-004, Glendora, CA		
	6950-04	February 2016	Fig. D-2



6950-04

F.11

Remolded to 90%

Fig. D-3

G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	Dreamland Investments, LLC Proposed Debris Basins/Dams and Access Roads, DRP, APN 8684-045-004, Glendora, CA		
	6950-04	February 2016	Fig. D-3

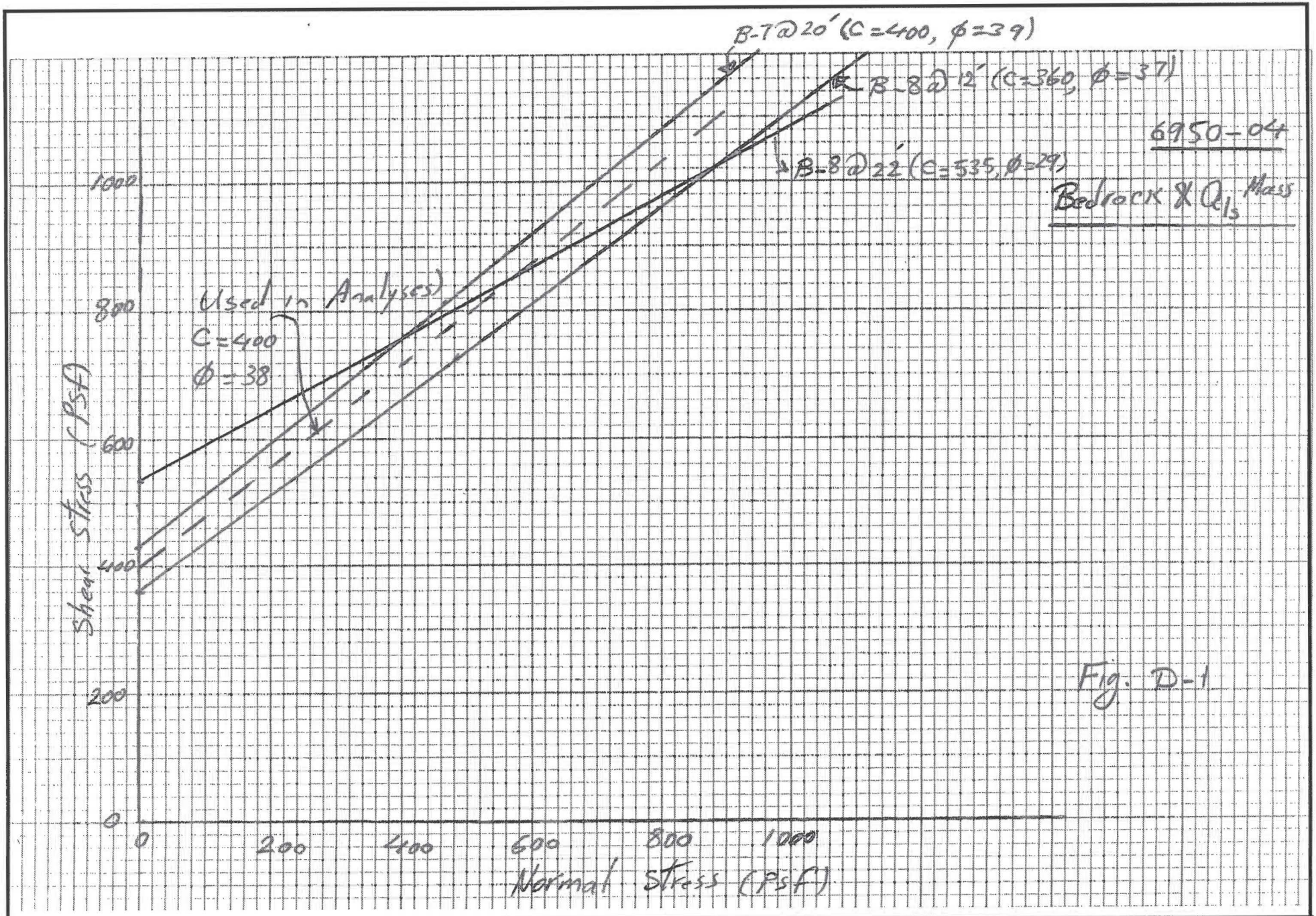


Fig. D-1

G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	Dreamland Investments, LLC Proposed Debris Basins/Dams and Access Roads, DRP, APN 8684-045-004, Glendora, CA		
	6950-04	February 2016	Fig. D-1

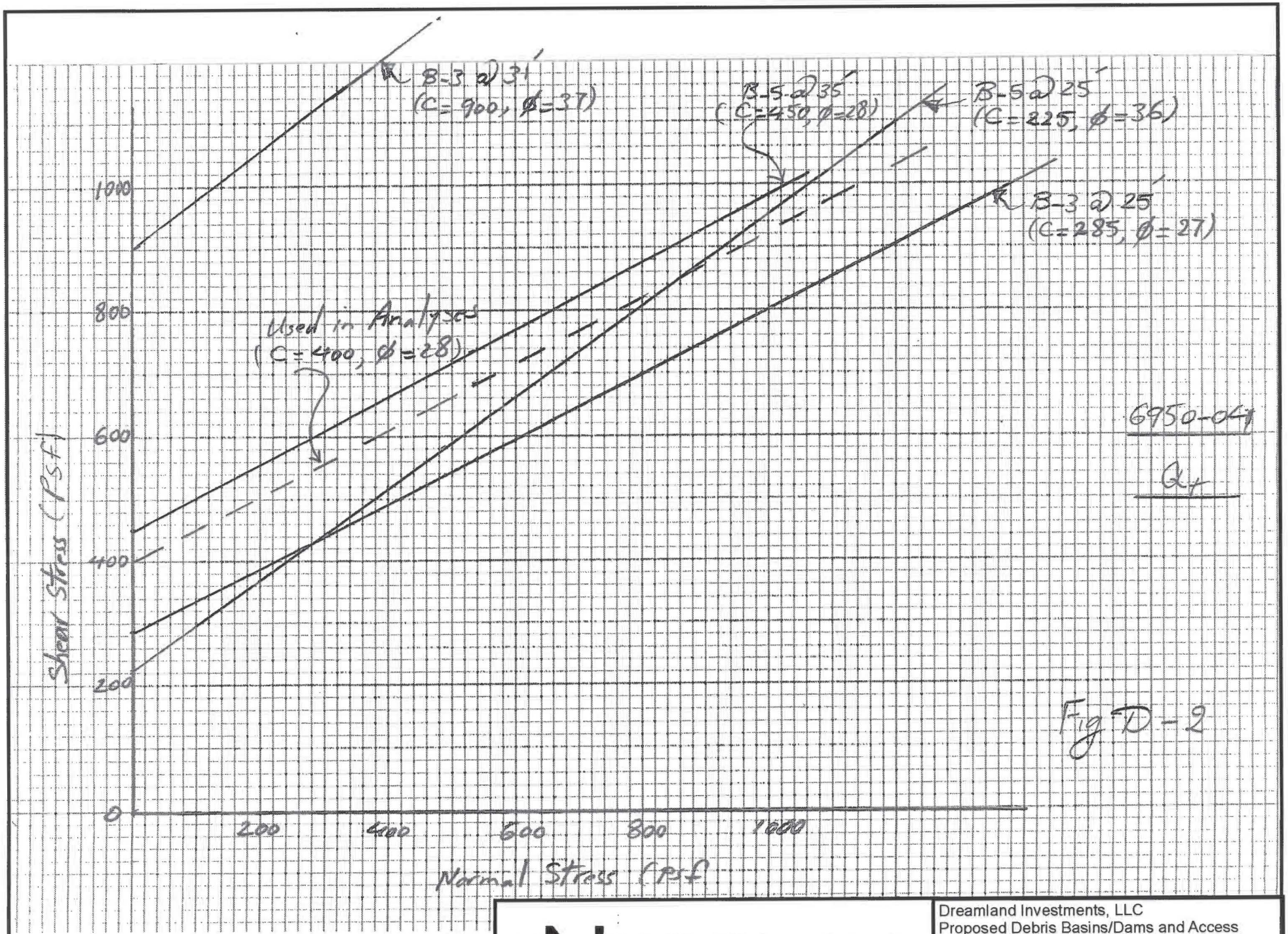
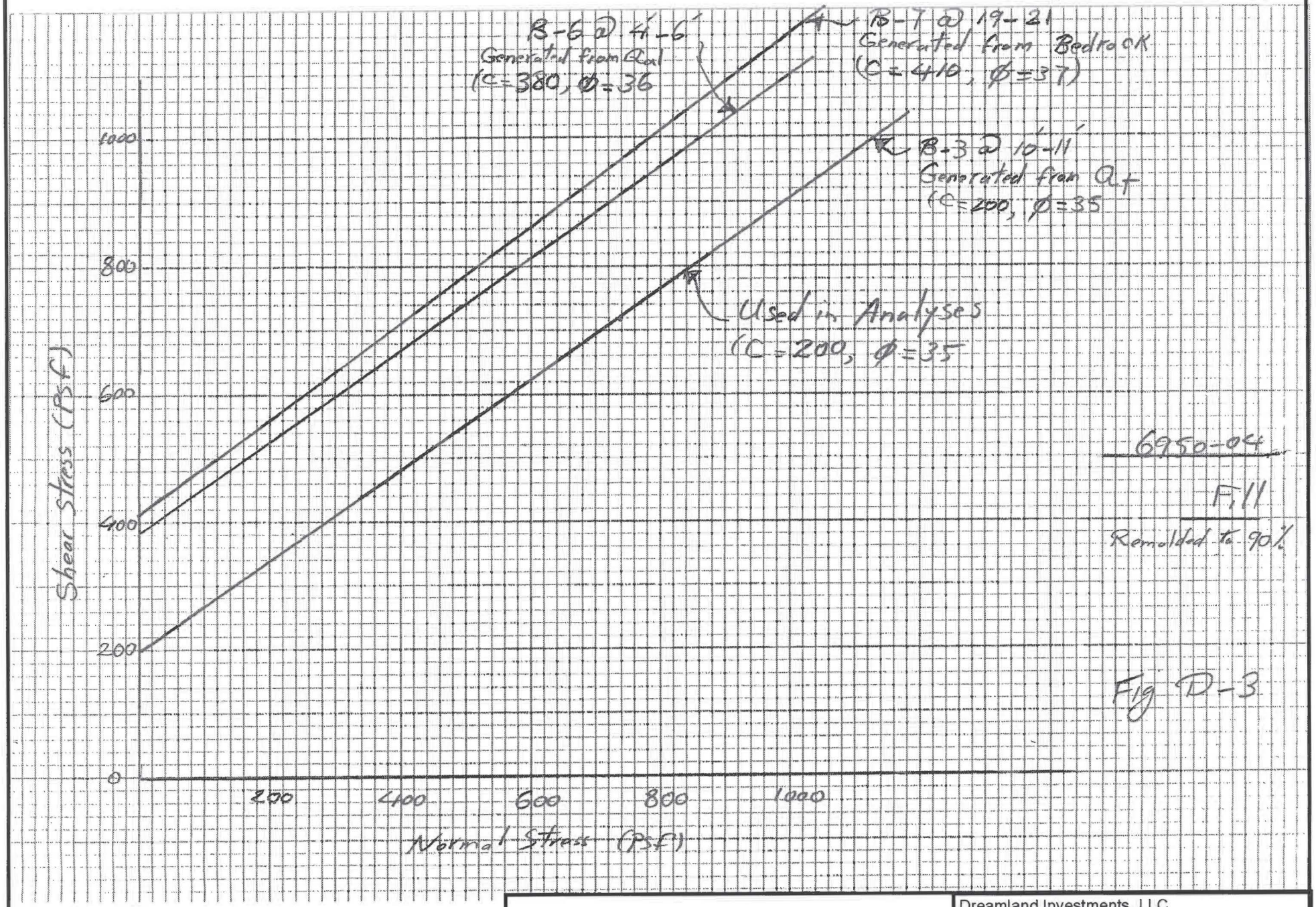


Fig D-2

G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	Dreamland Investments, LLC Proposed Debris Basins/Dams and Access Roads, DRP, APN 8684-045-004, Glendora, CA		
	6950-04	February 2016	Fig. D-2



G. A. Nicoll & Associates, Inc. EARTH SCIENCE CONSULTANTS	Dreamland Investments, LLC Proposed Debris Basins/Dams and Access Roads, DRP, APN 8684-045-004, Glendora, CA		
	6950-04	February 2016	Fig. D-3

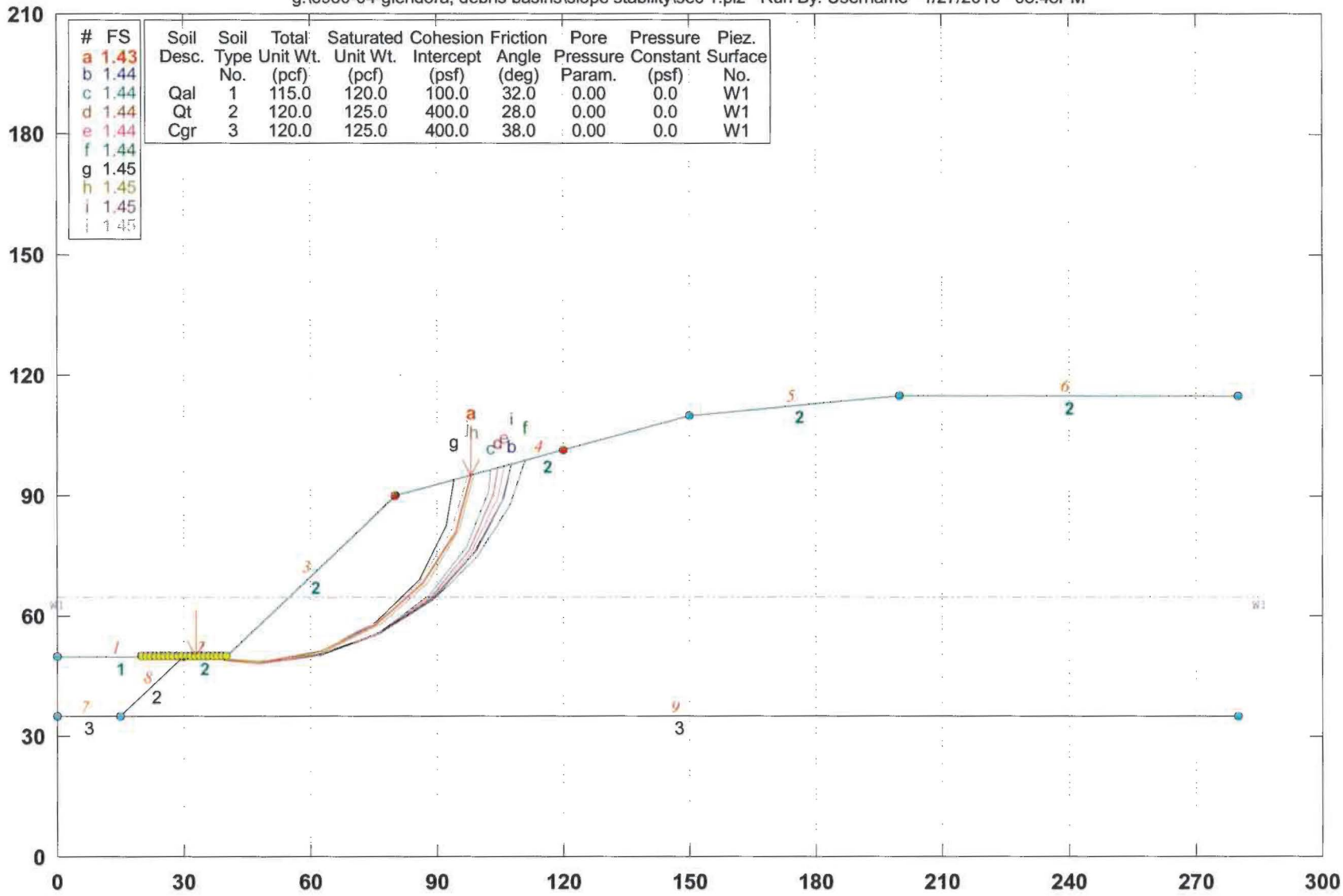
Table D-1

SUMMARY OF SLOPE STABILITY ANALYSES

CROSS SECTION	SAFETY FACTOR FOR STATIC CORRELATION	SAFETY FACTOR FOR PSEUDO STATIC CORRELATION
1-1' (1:1 Design Slope)	1.43	1.37
1-1' (1.5:1 modified slope)	1.50	1.39
4-4'	1.33	1.32
6-6'	1.94	1.82
7-7'	1.86	1.76
8-8'	1.48	1.49
13-13' (overall slope/toe of slope)	1.76	1.69
13-13' (front shaft/toe at road cut	1.82	1.75
14-14' (Stability Fill & Access Road	1.66	1.60
15a-15a'	1.55	1.53
15b-15b'	1.67	1.55
16-16'	1.72	1.76
17-17'	1.51	1.41
18a-18a' (Eastern Basin Dam Downstream)	1.50	1.30
18b-18b' (Eastern Basin, Full Reservoir)	3.51	2.55
18b-18b' (Rapid Drawdown)	1.85	1.67
20-20'	1.39	1.30

6950-04, Sec 1, 1:1 Slope

g:\6950-04-glendora, debris basins\slope stability\sec 1.pl2 Run By: Username 1/27/2016 03:43PM

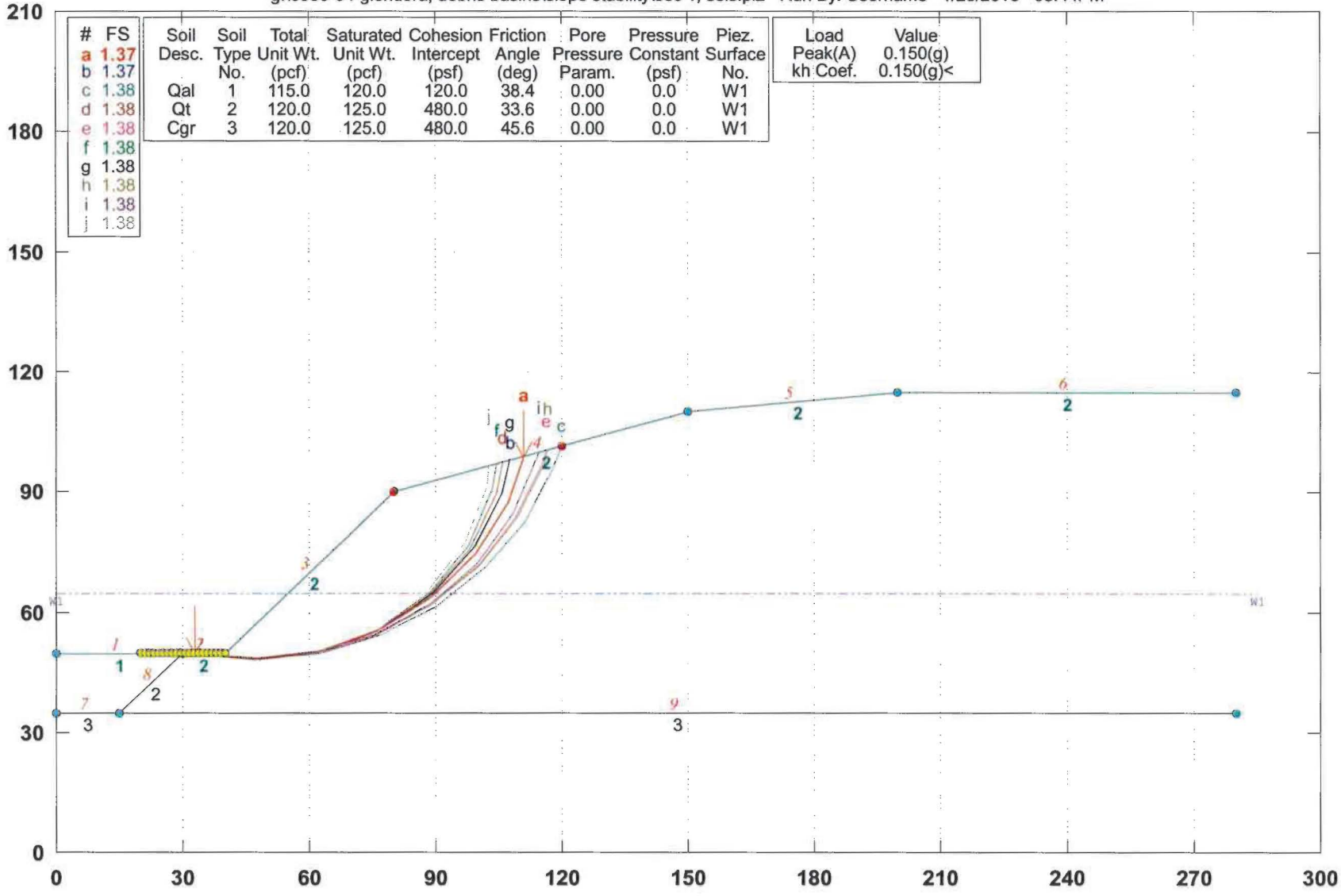


GSTABL7 v.2 FSmin=1.43

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 1, 1:1 Slope, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 1, seis.pl2 Run By: Username 1/28/2016 03:44PM



#	FS
a	1.37
b	1.37
c	1.38
d	1.38
e	1.38
f	1.38
g	1.38
h	1.38
i	1.38
j	1.38

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Qal	1	115.0	120.0	120.0	38.4	0.00	0.0	W1
Qt	2	120.0	125.0	480.0	33.6	0.00	0.0	W1
Cgr	3	120.0	125.0	480.0	45.6	0.00	0.0	W1

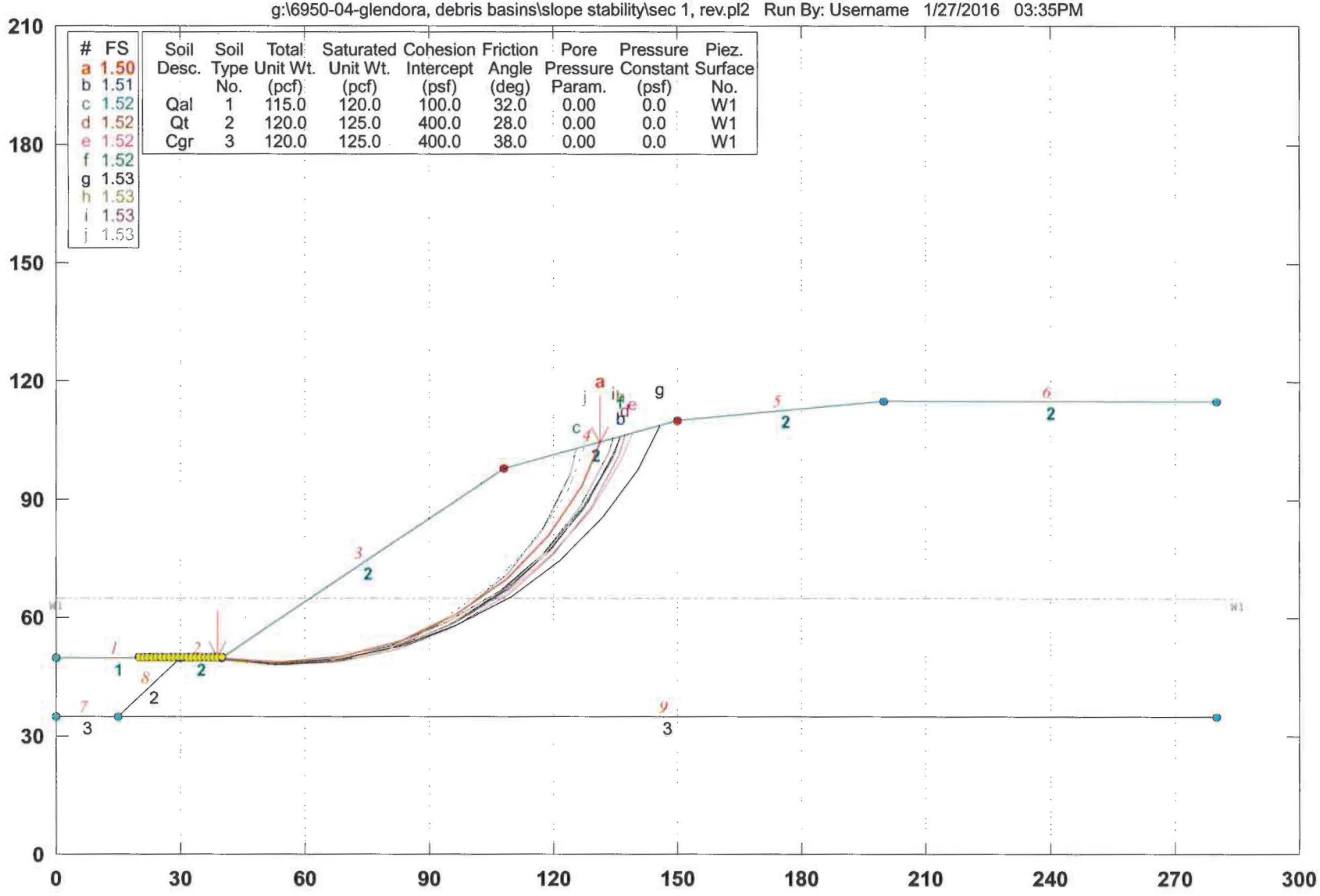
Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

GSTABL7 v.2 FSmin=1.37

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 1, 1.5:1

g:\6950-04-glendora, debris basins\slope stability\sec 1, rev.pl2 Run By: Username 1/27/2016 03:35PM

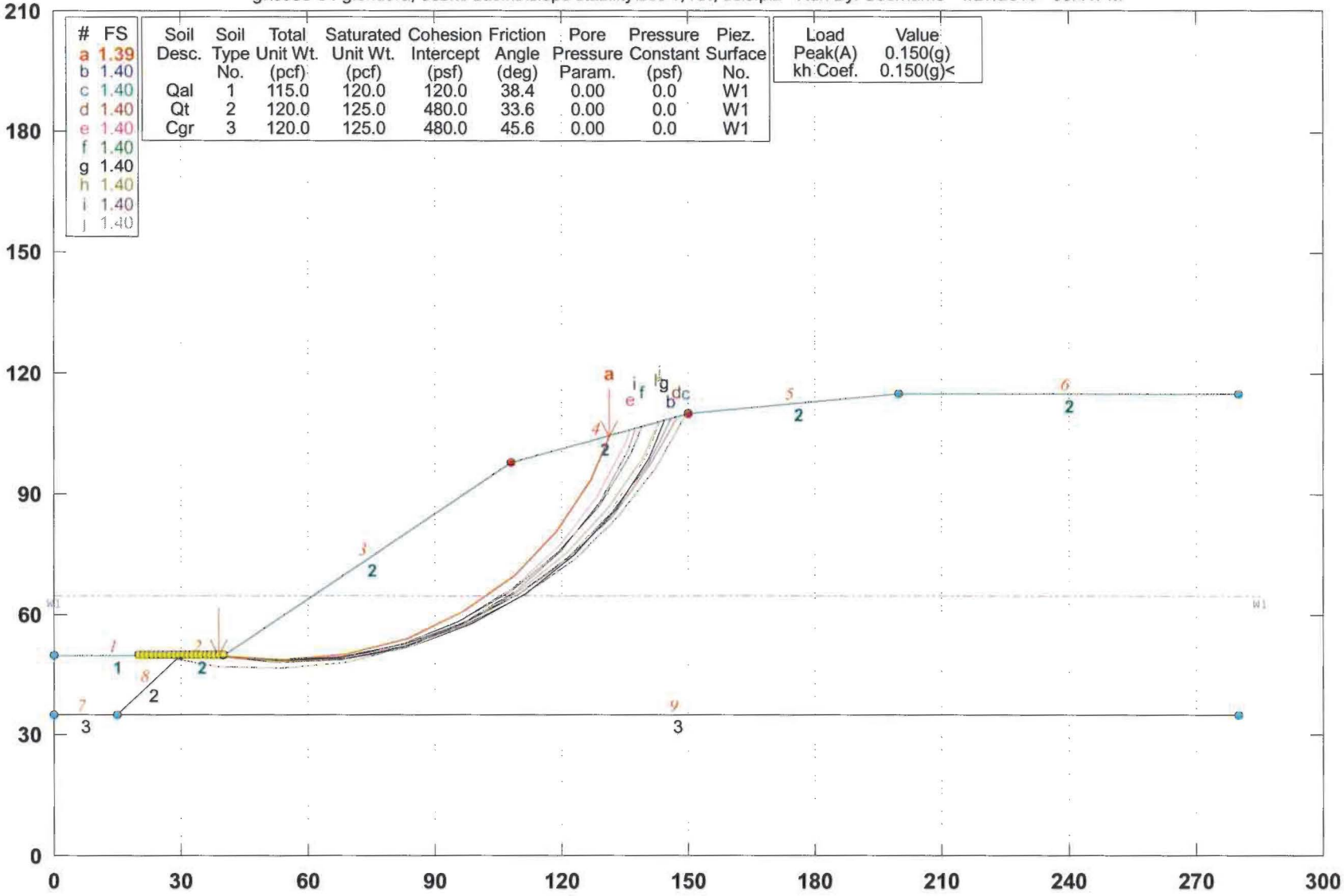


GSTABL7 v.2 FSmin=1.50

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 1, 1.5:1, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 1, rev, seis.pl2 Run By: Username 1/27/2016 03:41PM



#	FS
a	1.39
b	1.40
c	1.40
d	1.40
e	1.40
f	1.40
g	1.40
h	1.40
i	1.40
j	1.40

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Qal	1	115.0	120.0	120.0	38.4	0.00	0.0	W1
Qt	2	120.0	125.0	480.0	33.6	0.00	0.0	W1
Cgr	3	120.0	125.0	480.0	45.6	0.00	0.0	W1

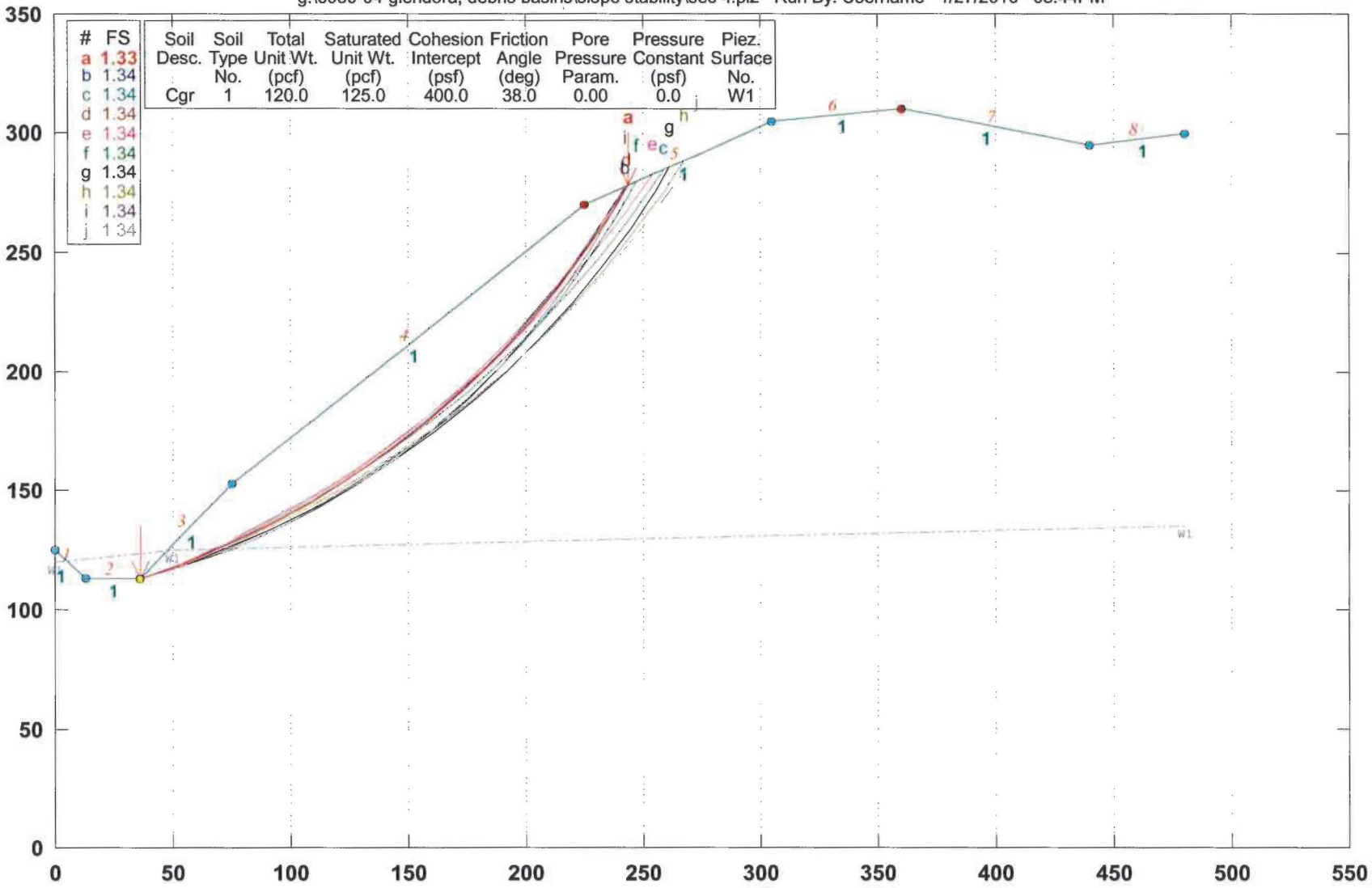
Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

GSTABL7 v.2 FSmin=1.39

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 4

g:\6950-04-glendora, debris basins\slope stability\sec 4.pl2 Run By: Username 1/27/2016 03:44PM

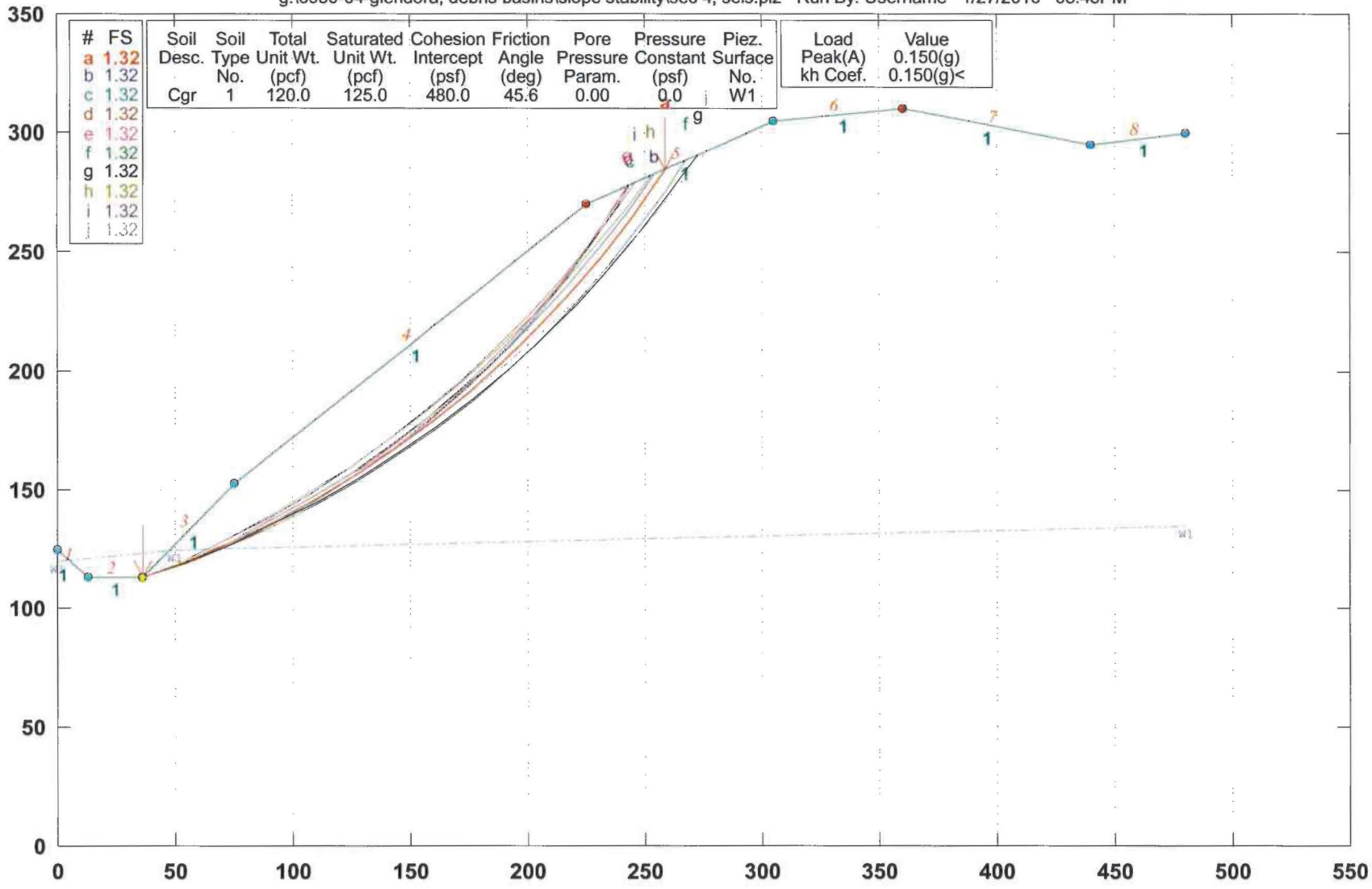


GSTABL7 v.2 FSmin=1.33

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 4, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 4, seis.pl2 Run By: Username 1/27/2016 03:48PM

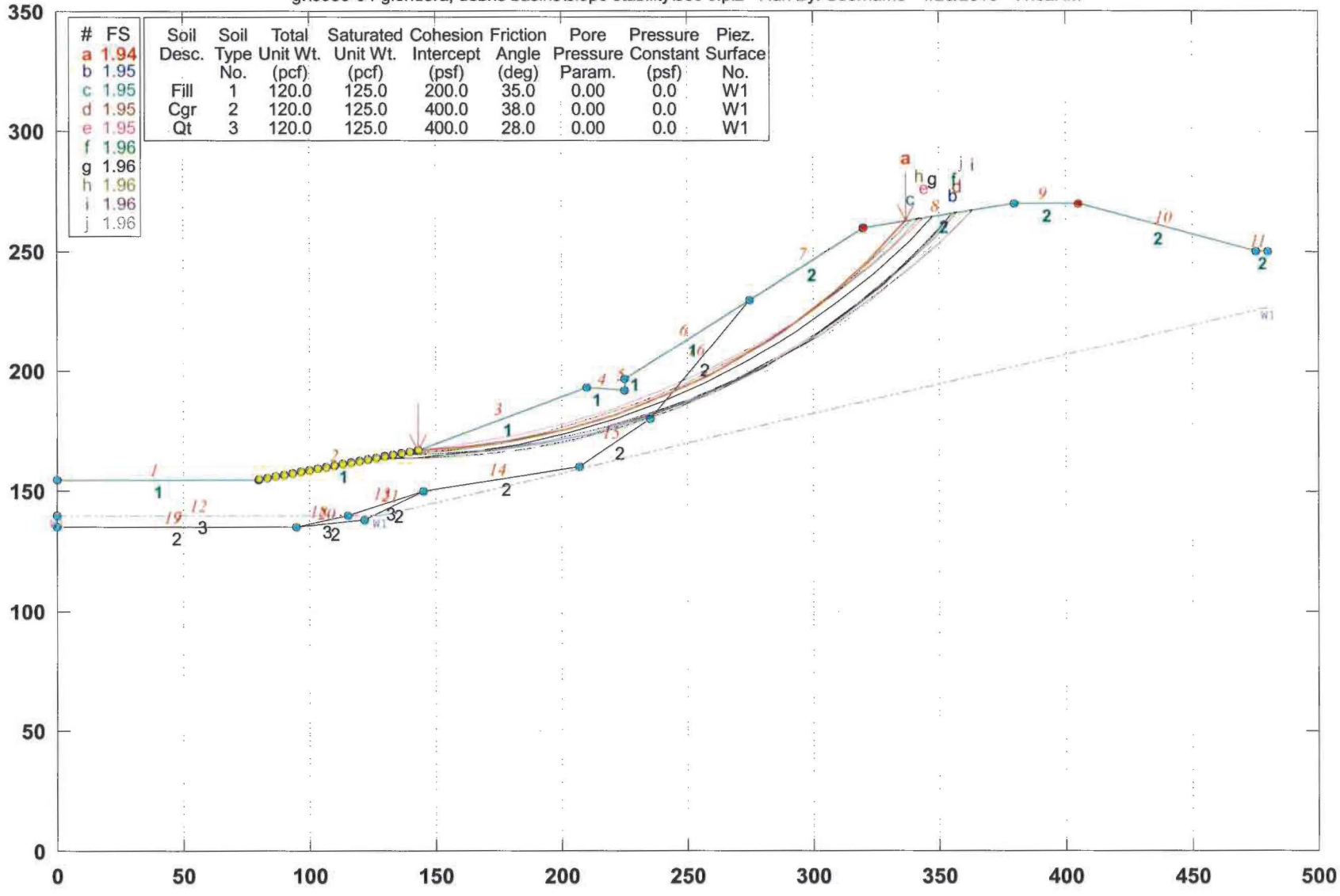


GSTABL7 v.2 FSmin=1.32

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 6

g:\6950-04-glendora, debris basins\slope stability\sec 6.pl2 Run By: Username 1/28/2016 11:02AM

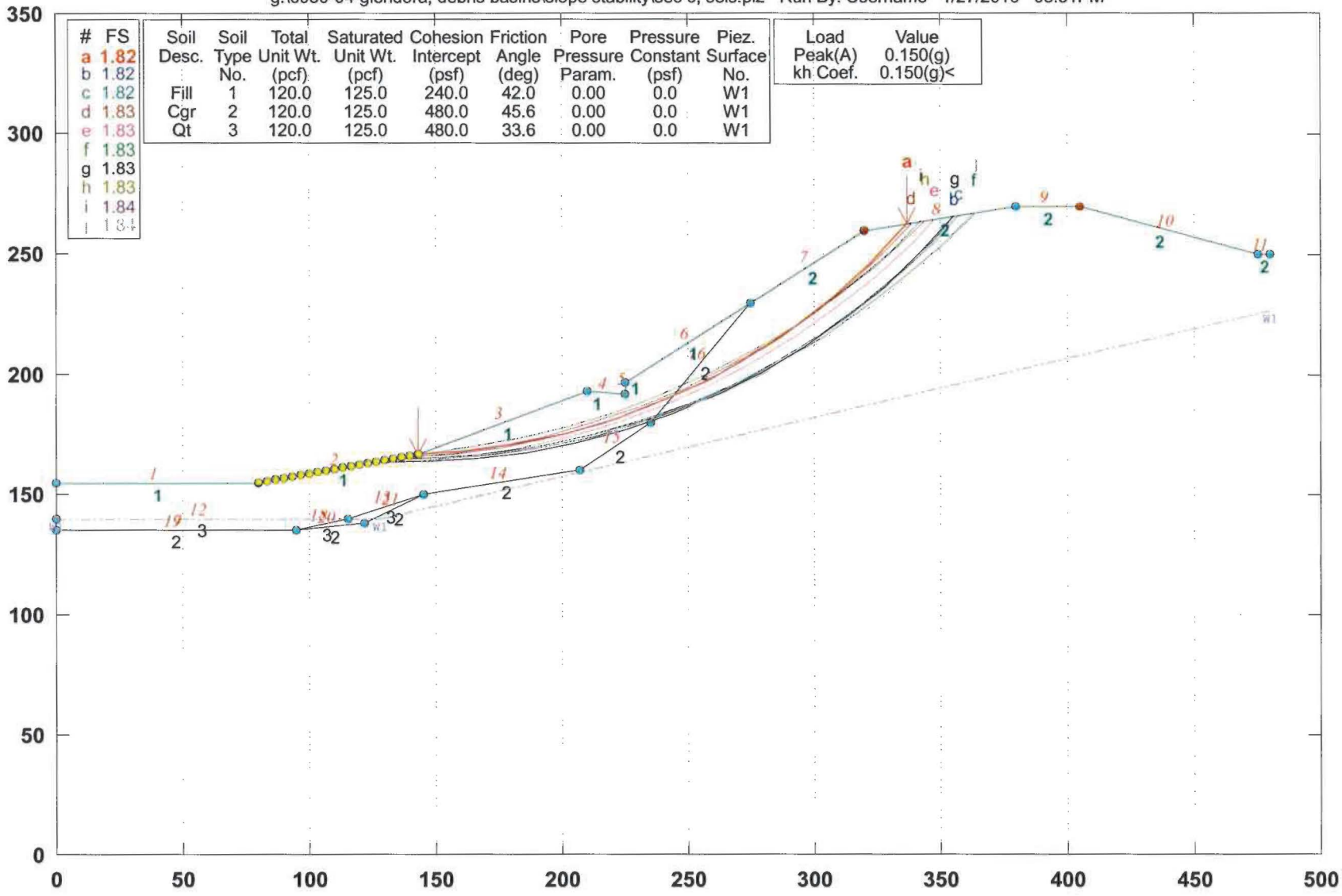


GSTABL7 v.2 FSmin=1.94

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 6, Seis

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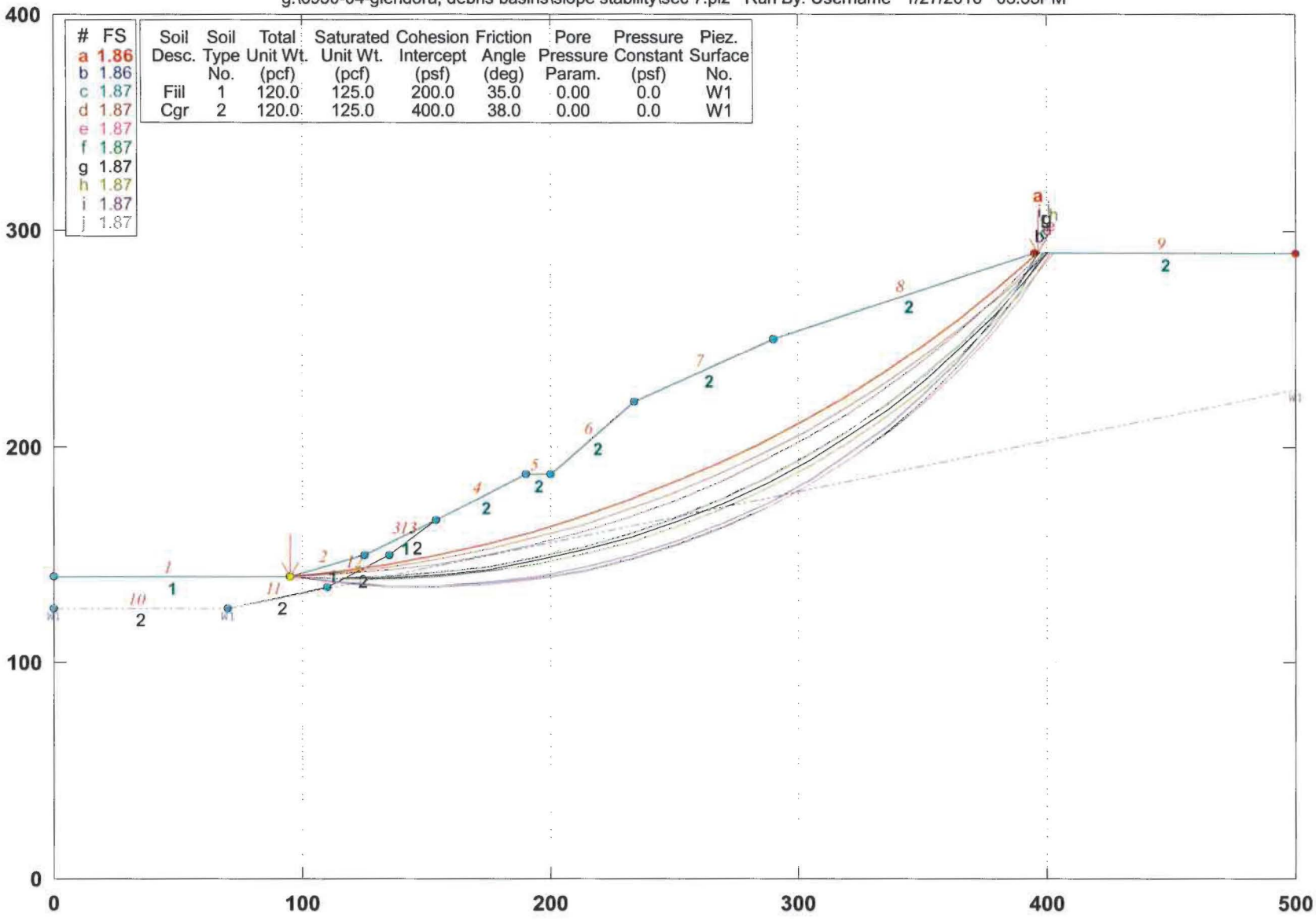


GSTABL7 v.2 FSmin=1.82

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 7

g:\6950-04-glendora, debris basins\slope stability\sec 7.pl2 Run By: Username 1/27/2016 03:53PM



#	FS
a	1.86
b	1.86
c	1.87
d	1.87
e	1.87
f	1.87
g	1.87
h	1.87
i	1.87
j	1.87

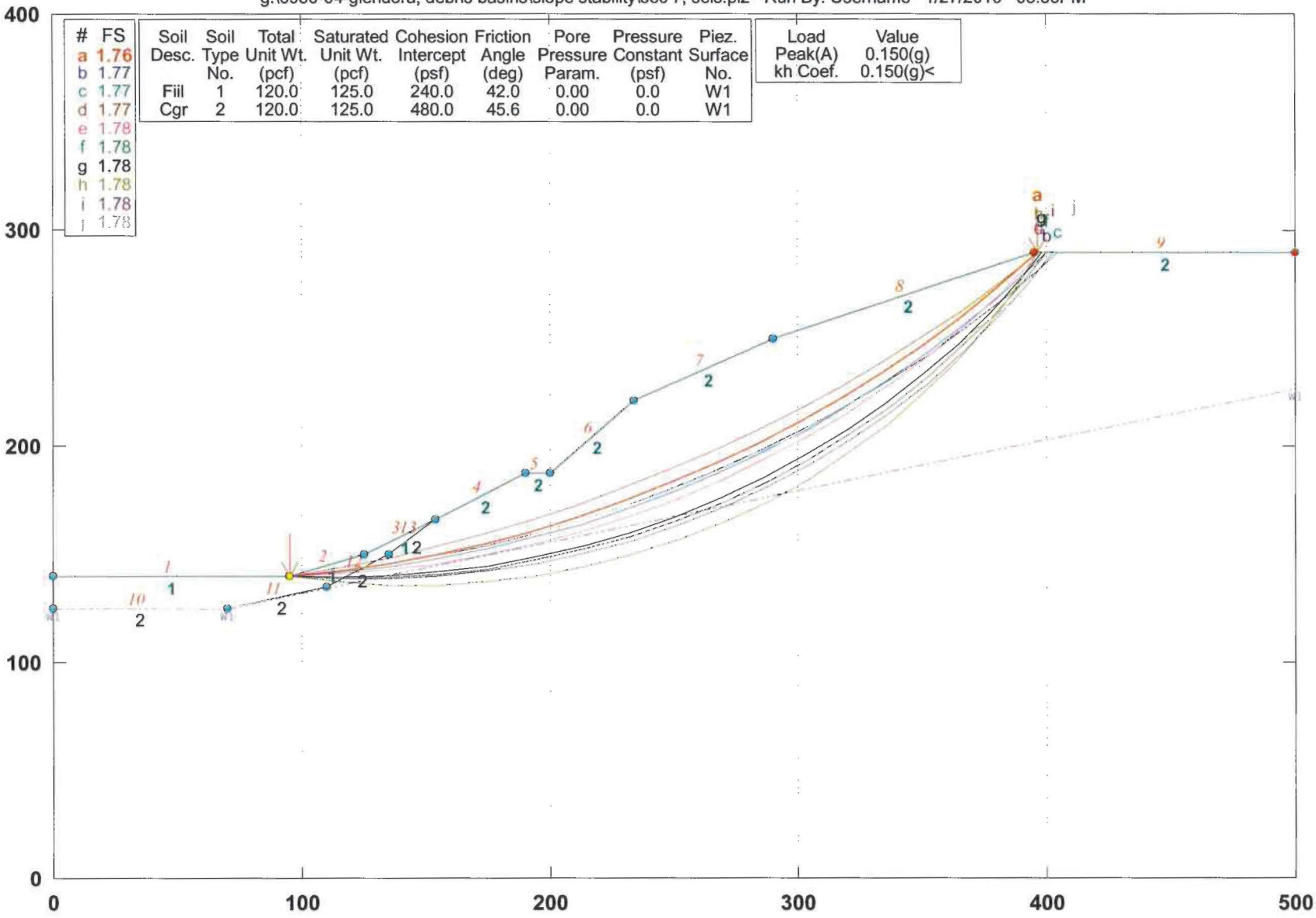
Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fiil	1	120.0	125.0	200.0	35.0	0.00	0.0	W1
Cgr	2	120.0	125.0	400.0	38.0	0.00	0.0	W1

GSTABL7 v.2 FSmin=1.86

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 7, seis

g:\6950-04-glendora, debris basins\slope stability\sec 7, seis.pl2 Run By: Username 1/27/2016 03:56PM



#	FS
a	1.76
b	1.77
c	1.77
d	1.77
e	1.78
f	1.78
g	1.78
h	1.78
i	1.78
j	1.78

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fiil	1	120.0	125.0	240.0	42.0	0.00	0.0	W1
Cgr	2	120.0	125.0	480.0	45.6	0.00	0.0	W1

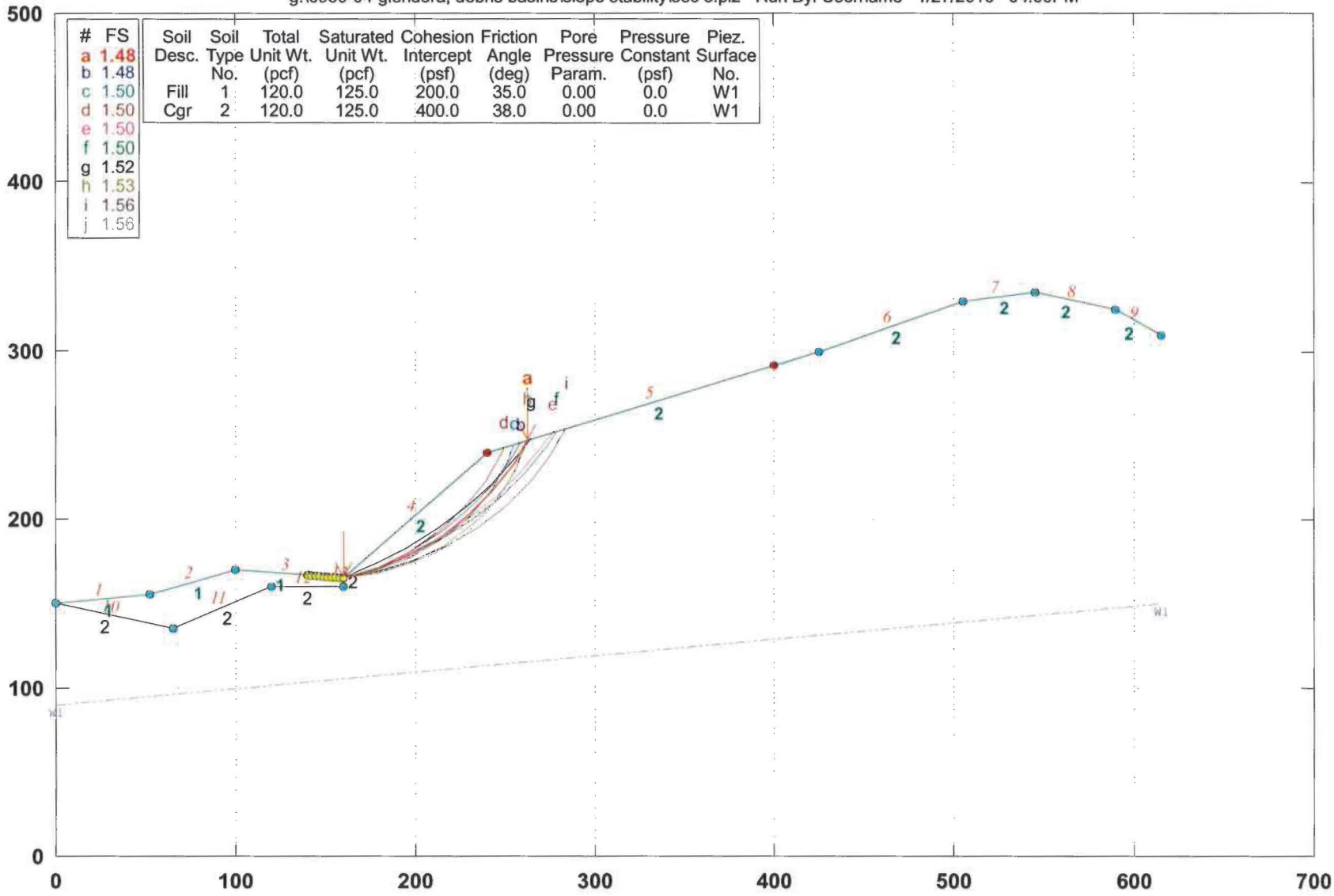
Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

GSTABL7 v.2 FSmin=1.76

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 8

g:\6950-04-glendora, debris basins\slope stability\sec 8.pl2 Run By: Username 1/27/2016 04:00PM

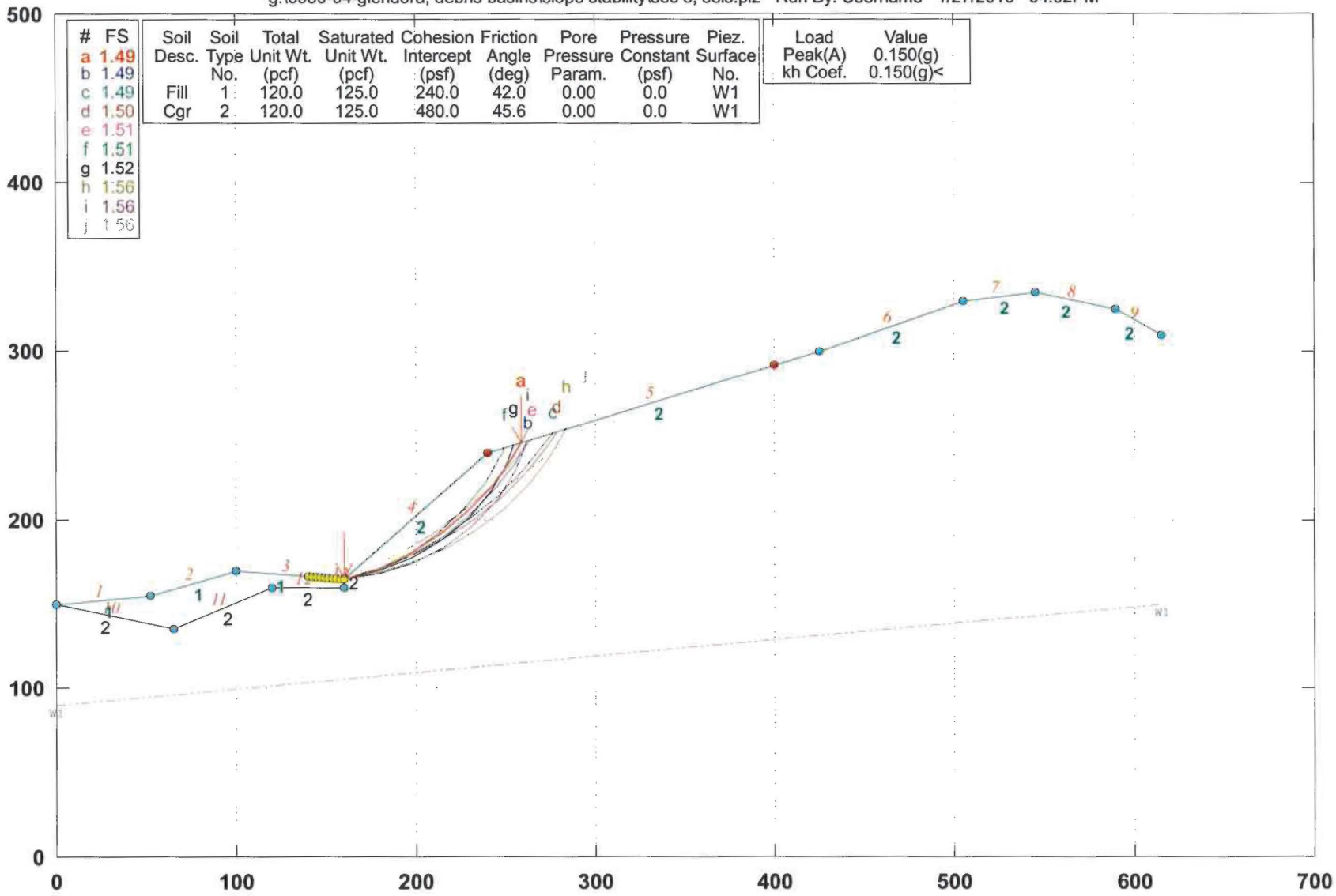


GSTABL7 v.2 FSmin=1.48

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 8, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 8, seis.pl2 Run By: Username 1/27/2016 04:02PM

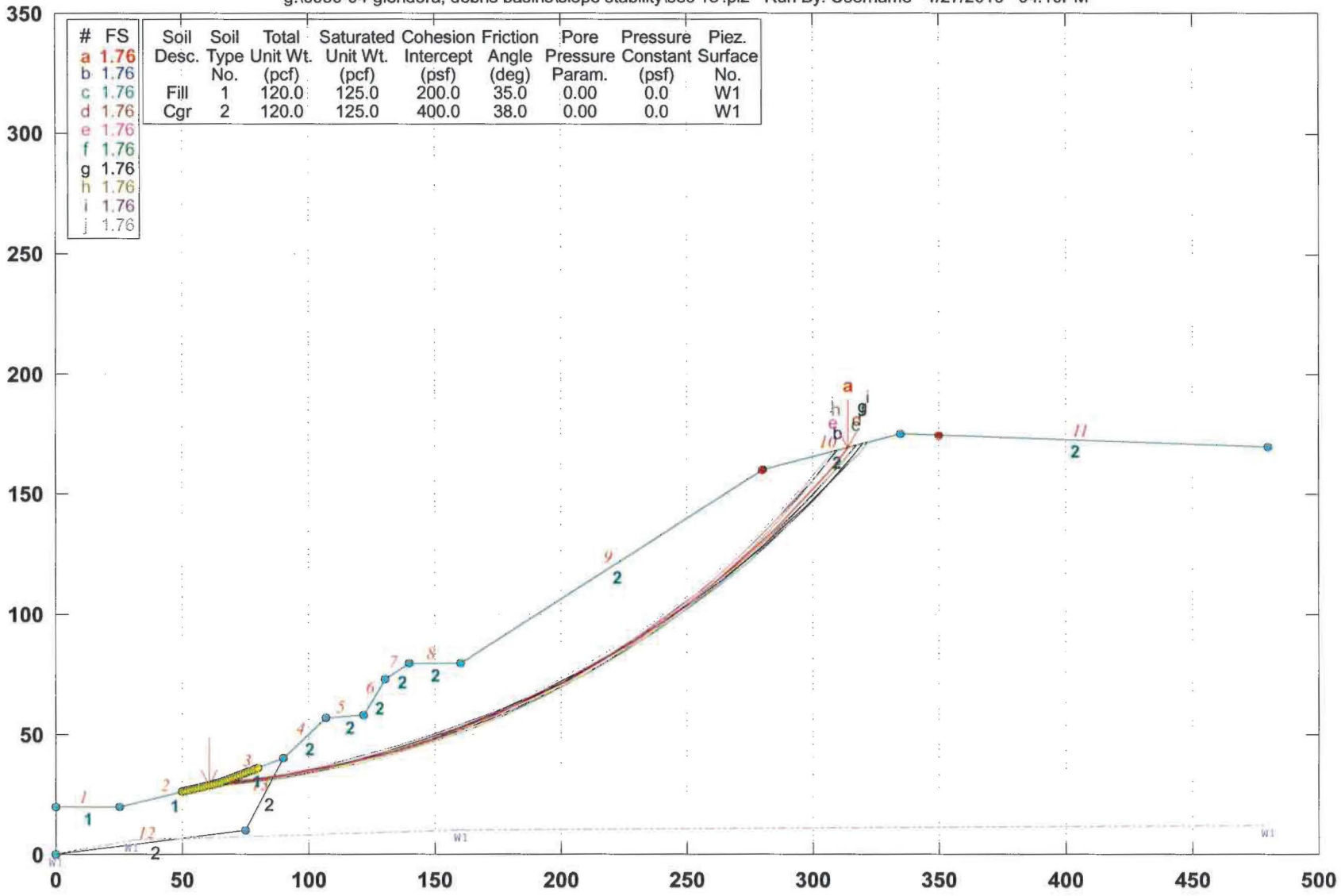


GSTABL7 v.2 FSmin=1.49

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 13, Overall Slope/ Toe of Slope

g:\6950-04-glendora, debris basins\slope stability\sec 13'.pl2 Run By: Username 1/27/2016 04:10PM



#	FS
a	1.76
b	1.76
c	1.76
d	1.76
e	1.76
f	1.76
g	1.76
h	1.76
i	1.76
j	1.76

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fill	1	120.0	125.0	200.0	35.0	0.00	0.0	W1
Cgr	2	120.0	125.0	400.0	38.0	0.00	0.0	W1

GSTABL7 v.2 FSmin=1.76

Safety Factors Are Calculated By The Modified Bishop Method

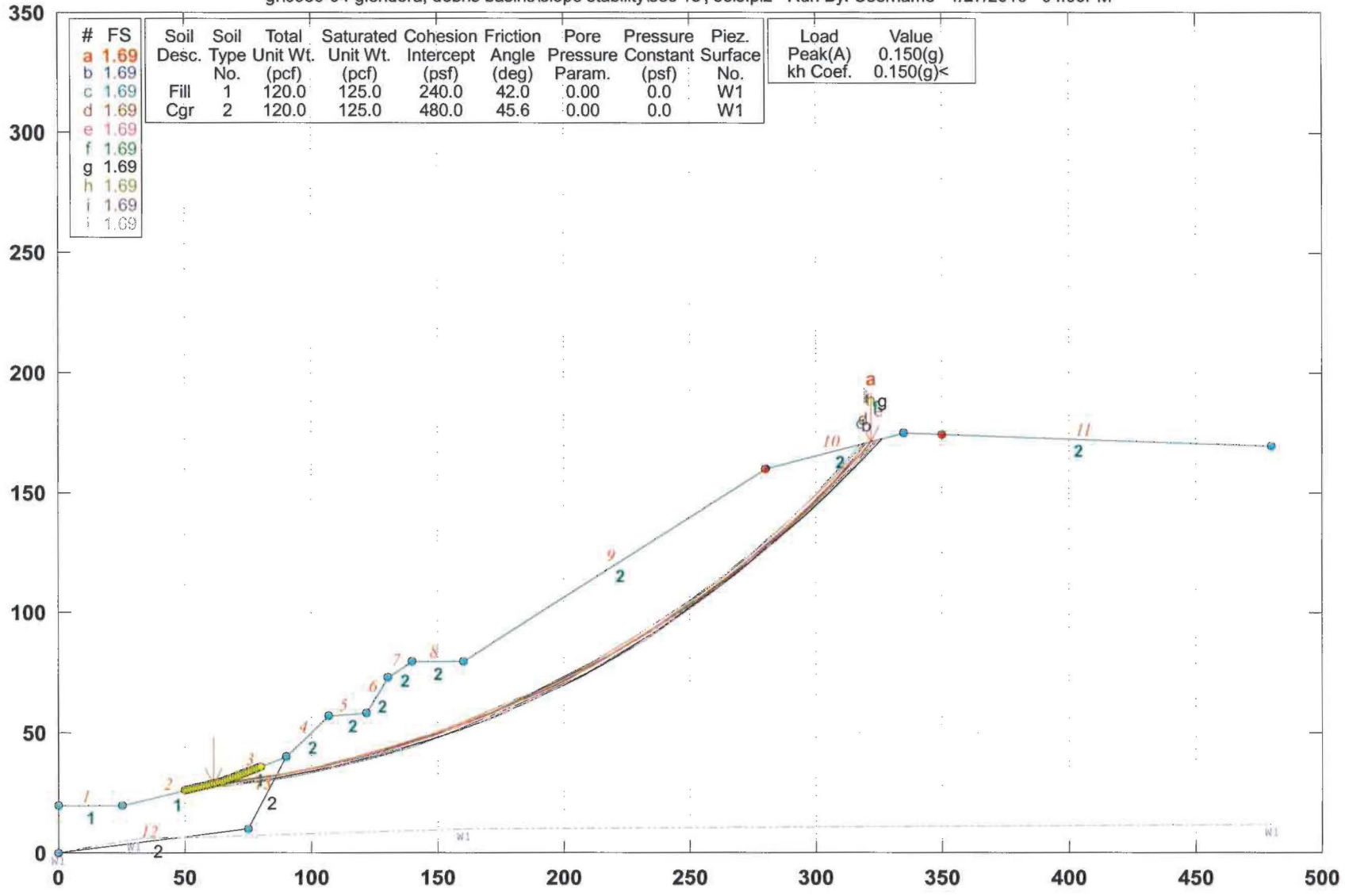
6950-04, Sec 13, Overall Slope/ Toe of Slope, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 13', seis.pl2 Run By: Username 1/27/2016 04:06PM

#	FS
a	1.69
b	1.69
c	1.69
d	1.69
e	1.69
f	1.69
g	1.69
h	1.69
i	1.69
j	1.69

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fill	1	120.0	125.0	240.0	42.0	0.00	0.0	W1
Cgr	2	120.0	125.0	480.0	45.6	0.00	0.0	W1

Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

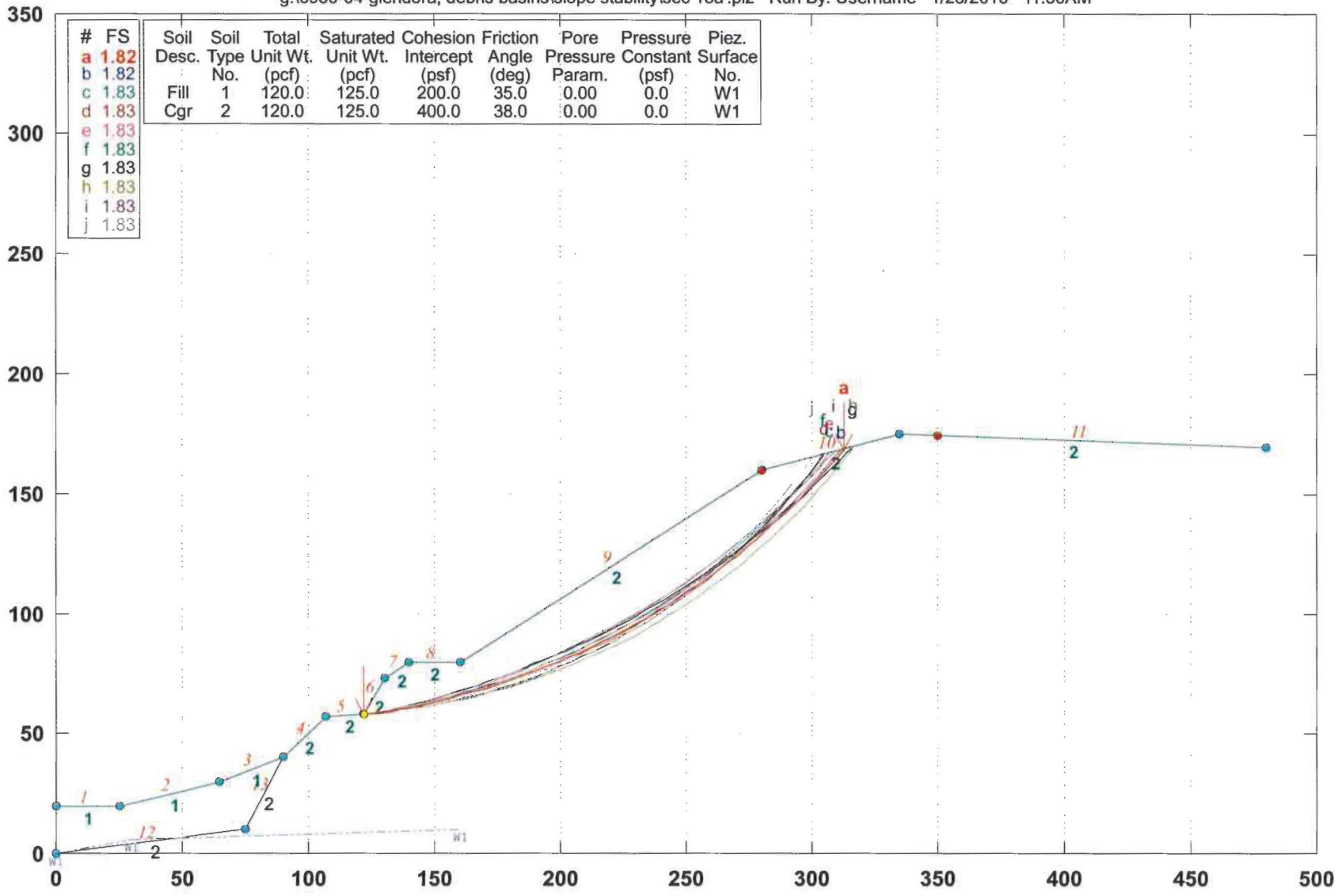


GSTABL7 v.2 FSmin=1.69

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 13, Front of Shaft/Toe at Road Cut

g:\6950-04-glendora, debris basins\slope stability\sec 13a'.pl2 Run By: Username 1/28/2016 11:50AM

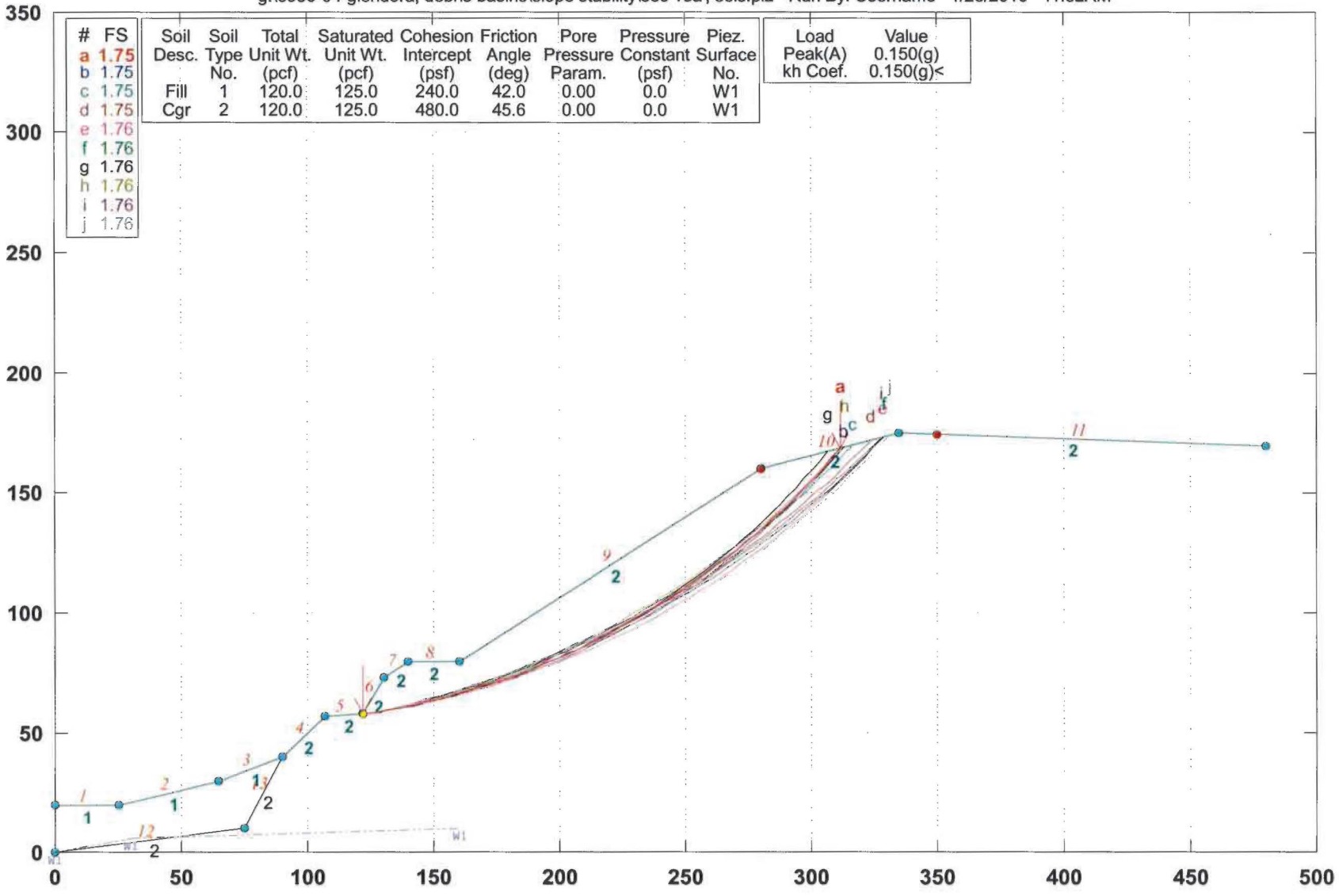


GSTABL7 v.2 FSmin=1.82

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 13, Front of Shaft/Toe at Road Cut, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 13a', seis.pl2 Run By: Username 1/28/2016 11:52AM

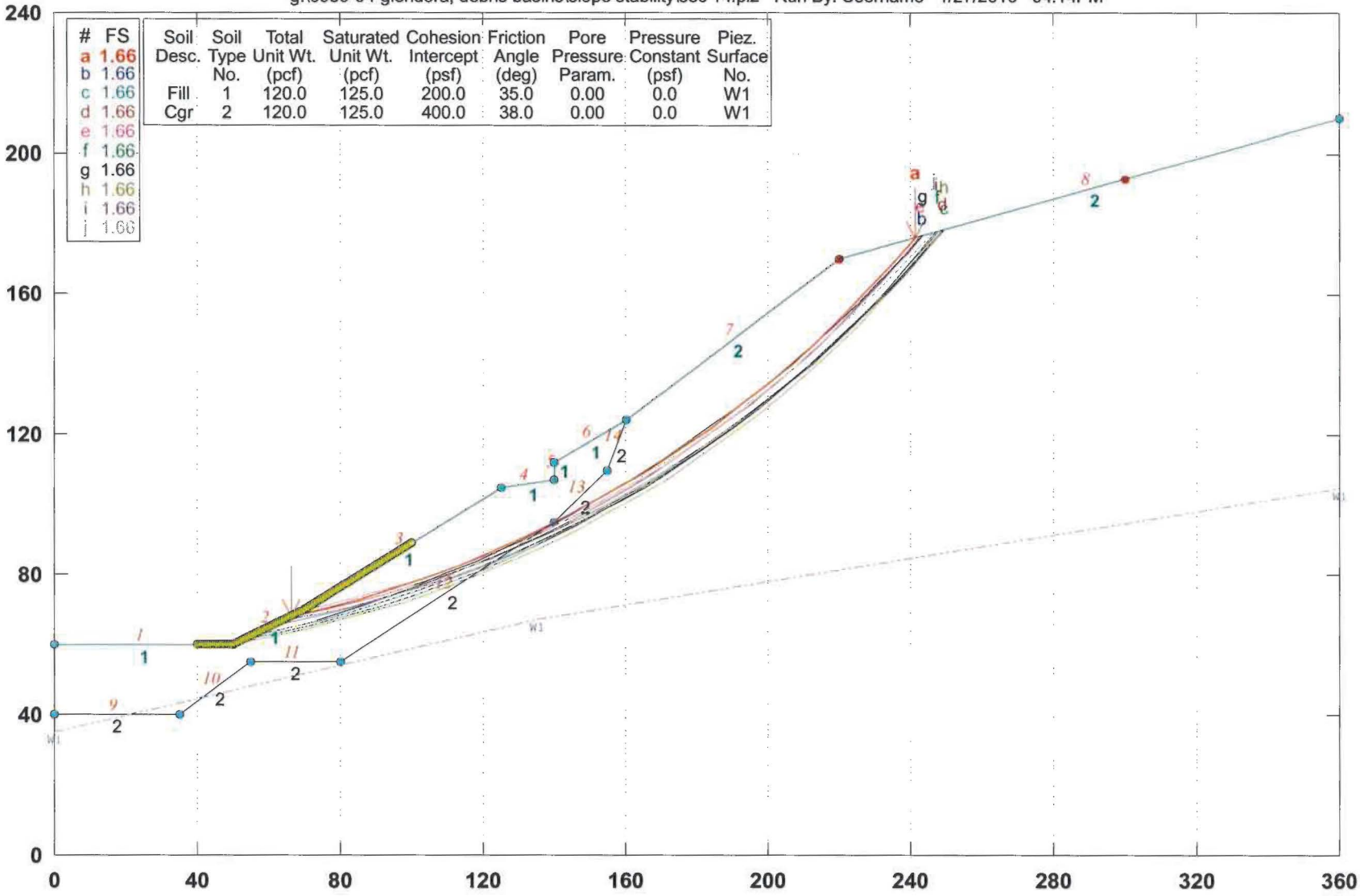


GSTABL7 v.2 FSmin=1.75

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 14, Stabilty Fill & Access Road

g:\6950-04-glendora, debris basins\slope stability\sec 14.pl2 Run By: Username 1/27/2016 04:14PM

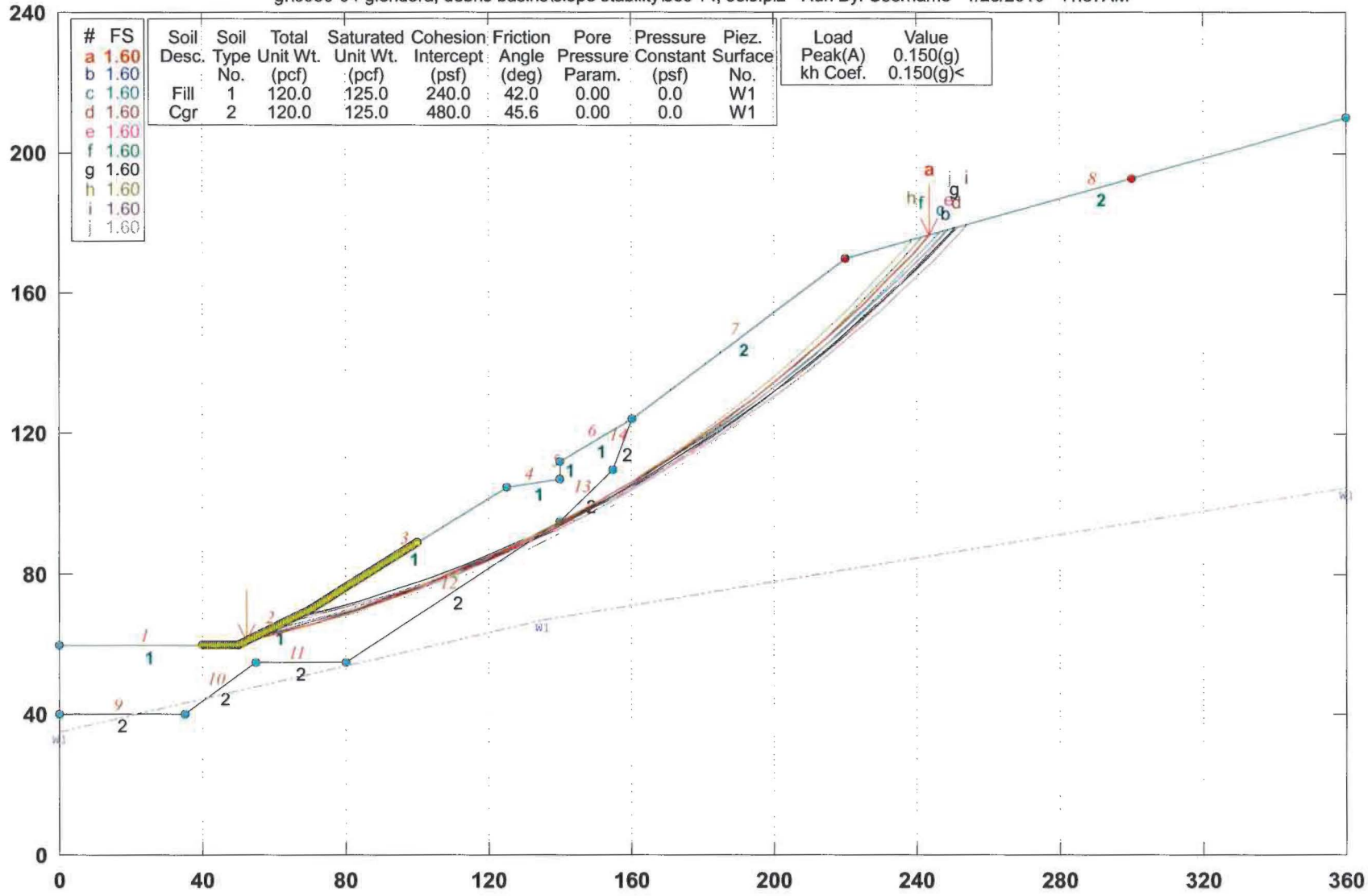


GSTABL7 v.2 FSmin=1.66

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 14, Stability Fill & AccessRoad, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 14, seis.pl2 Run By: Username 1/28/2016 11:57AM



#	FS
a	1.60
b	1.60
c	1.60
d	1.60
e	1.60
f	1.60
g	1.60
h	1.60
i	1.60
j	1.60

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fill	1	120.0	125.0	240.0	42.0	0.00	0.0	W1
Cgr	2	120.0	125.0	480.0	45.6	0.00	0.0	W1

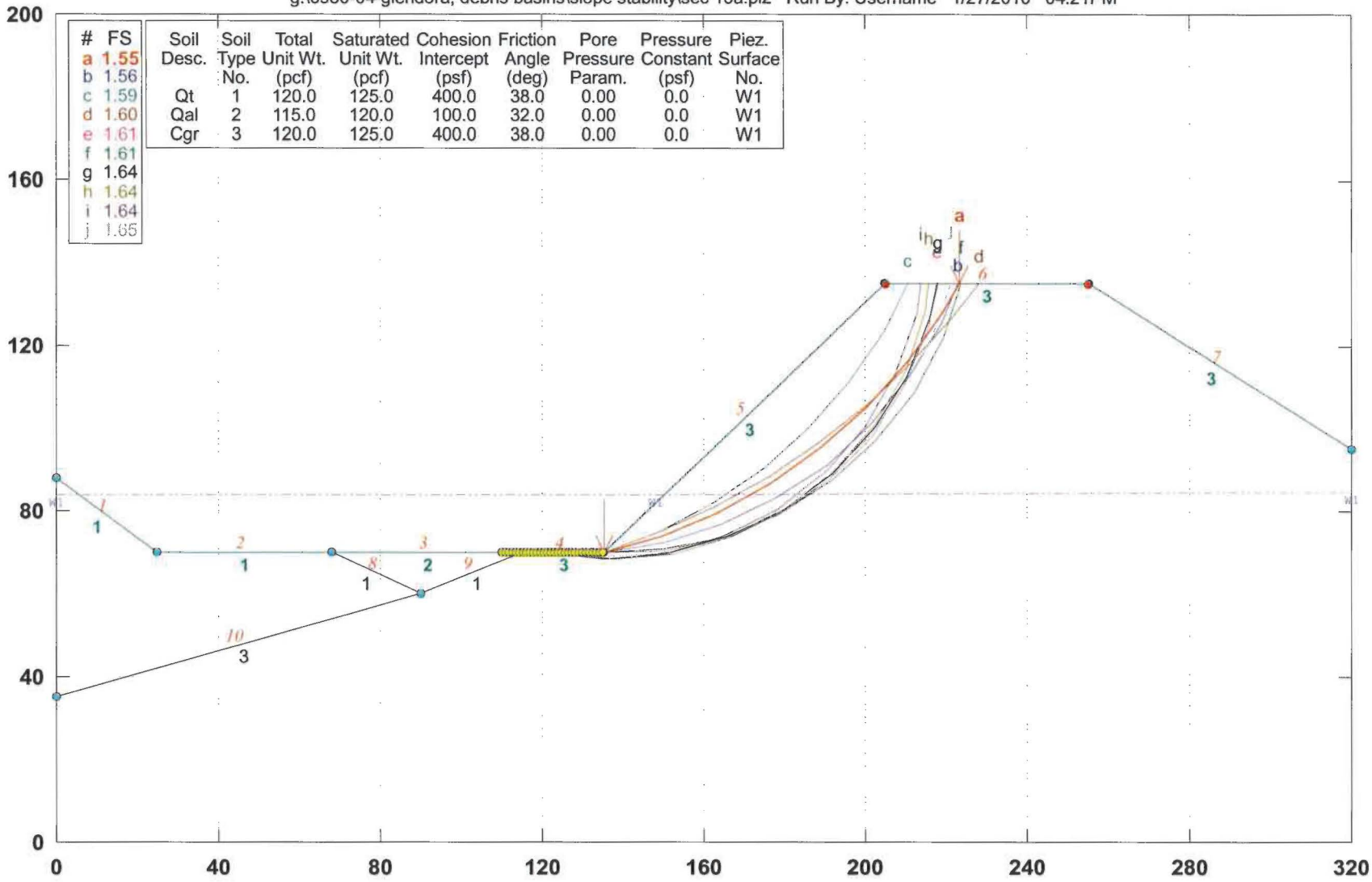
Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

GSTABL7 v.2 FSmin=1.60

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 15a

g:\6950-04-glendora, debris basins\slope stability\sec 15a.pl2 Run By: Username 1/27/2016 04:21PM

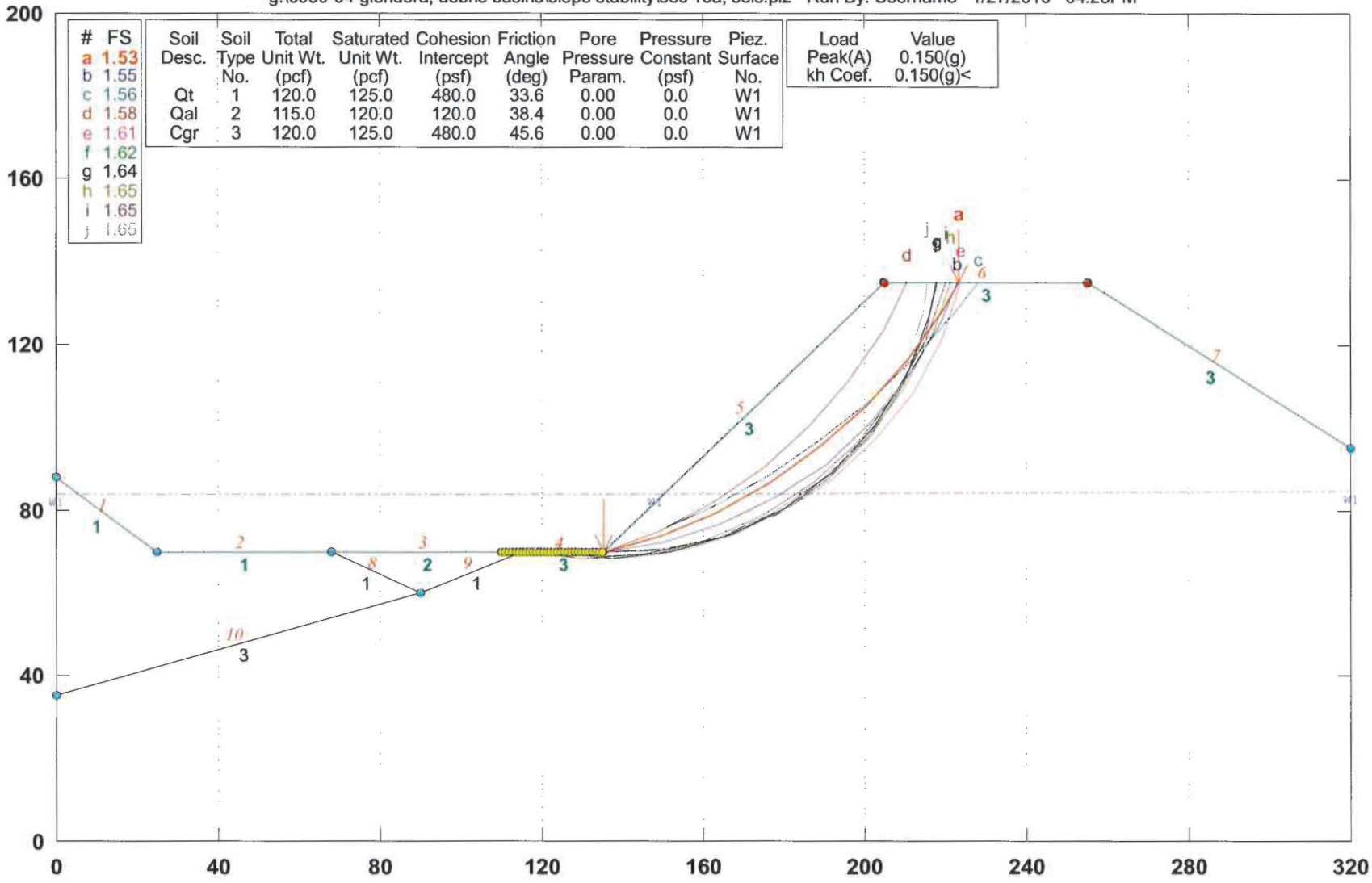


GSTABL7 v.2 FSmin=1.55

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 15a, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 15a, seis.pl2 Run By: Username 1/27/2016 04:23PM

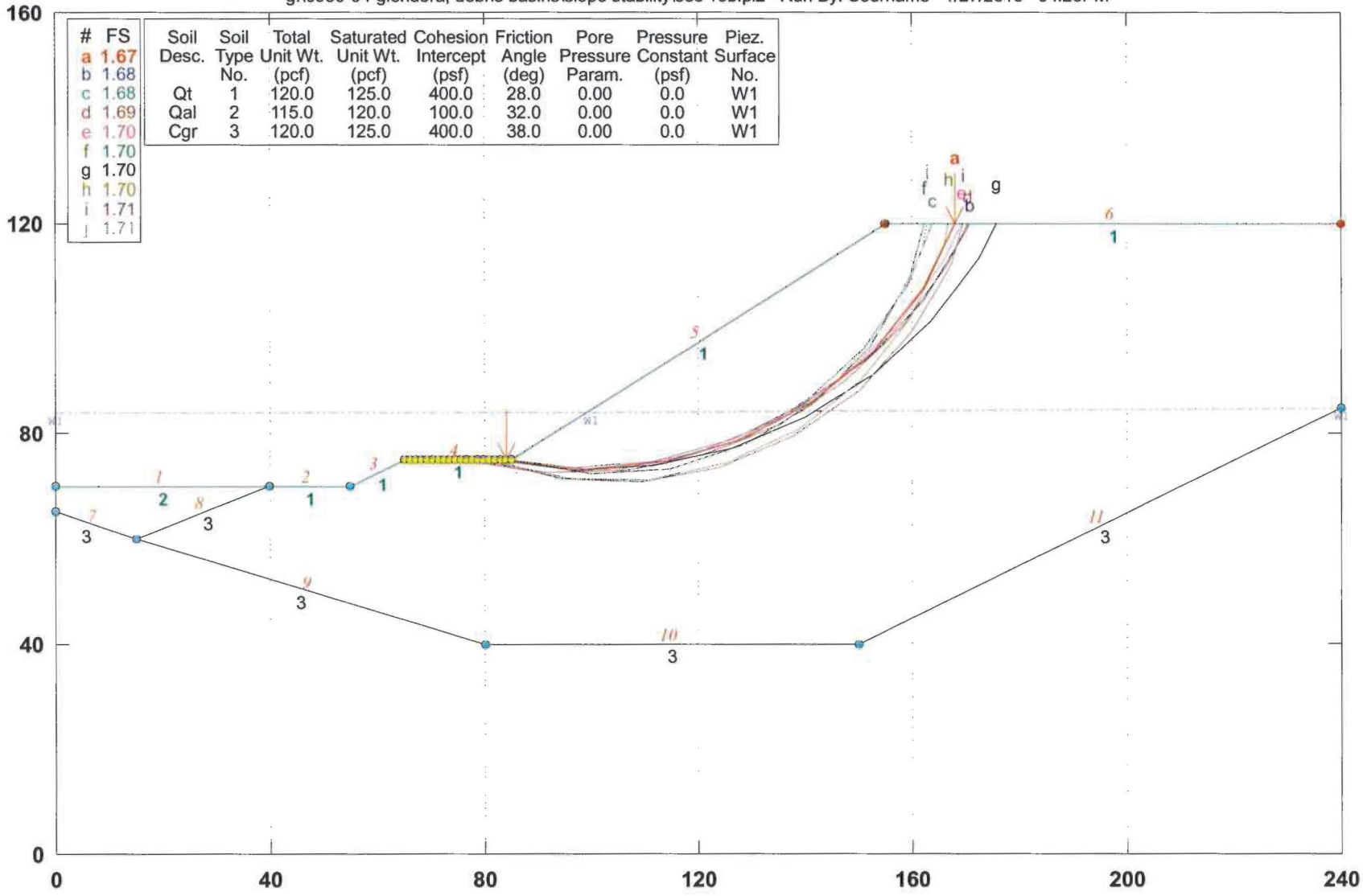


GSTABL7 v.2 FSmin=1.53

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 15b

g:\6950-04-glendora, debris basins\slope stability\sec 15b.pl2 Run By: Username 1/27/2016 04:26PM



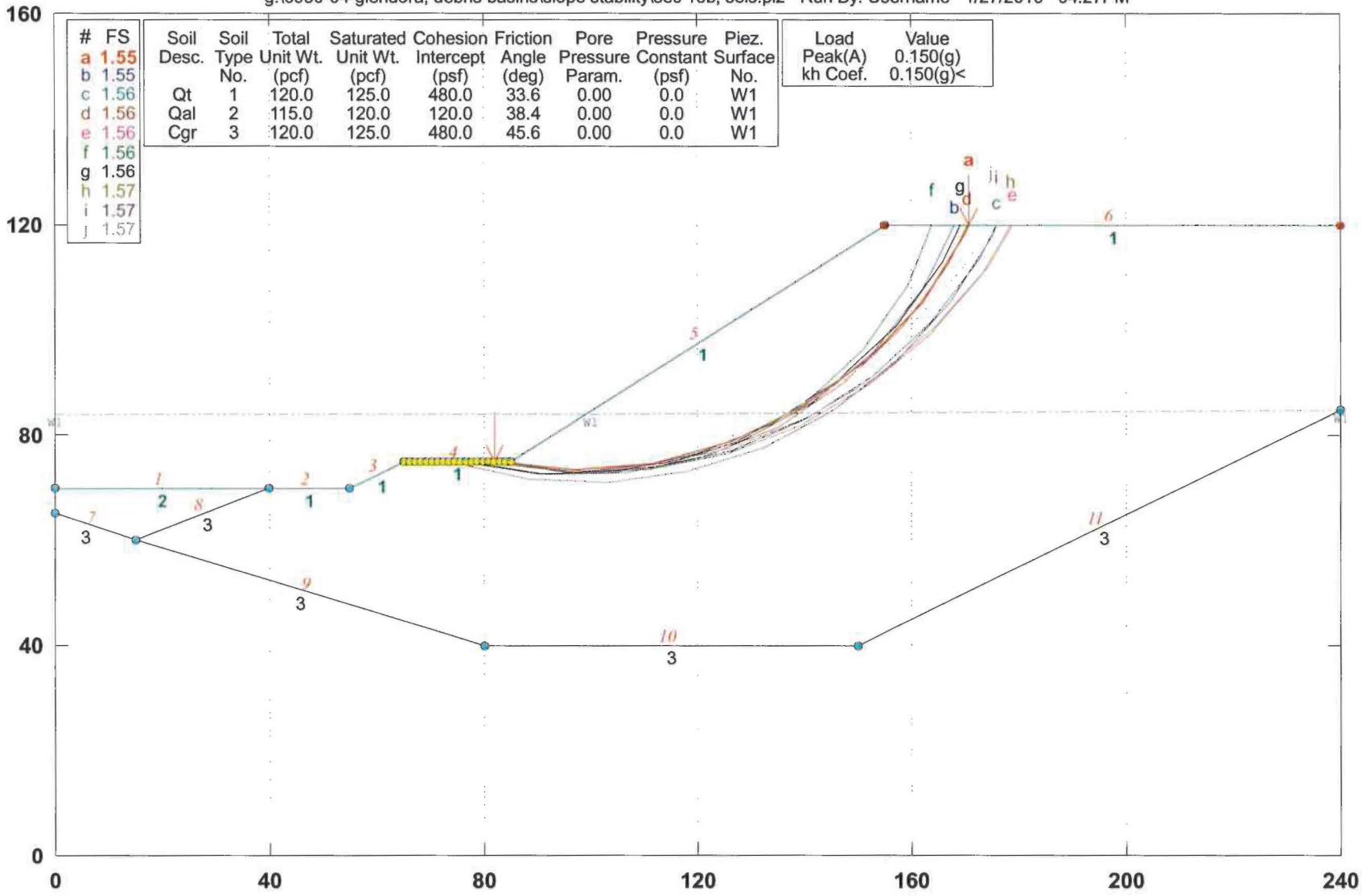
Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Qt	1	120.0	125.0	400.0	28.0	0.00	0.0	W1
Qal	2	115.0	120.0	100.0	32.0	0.00	0.0	W1
Cgr	3	120.0	125.0	400.0	38.0	0.00	0.0	W1

GSTABL7 v.2 FSmin=1.67

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 15b, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 15b, seis.pl2 Run By: Username 1/27/2016 04:27PM

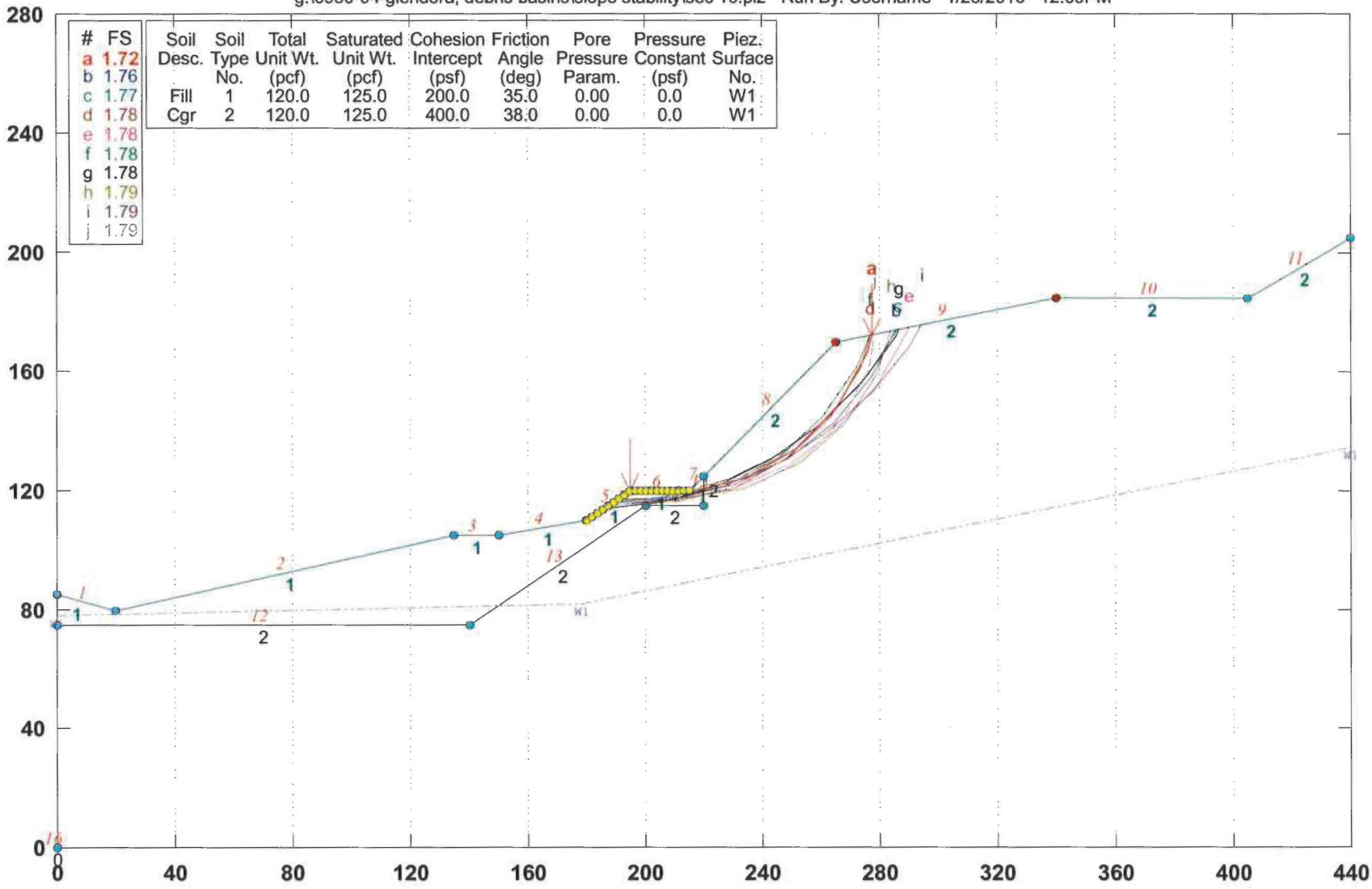


GSTABL7 v.2 FSmin=1.55

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 16

g:\6950-04-glendora, debris basins\slope stability\sec 16.pl2 Run By: Username 1/28/2016 12:09PM



#	FS
a	1.72
b	1.76
c	1.77
d	1.78
e	1.78
f	1.78
g	1.78
h	1.79
i	1.79
j	1.79

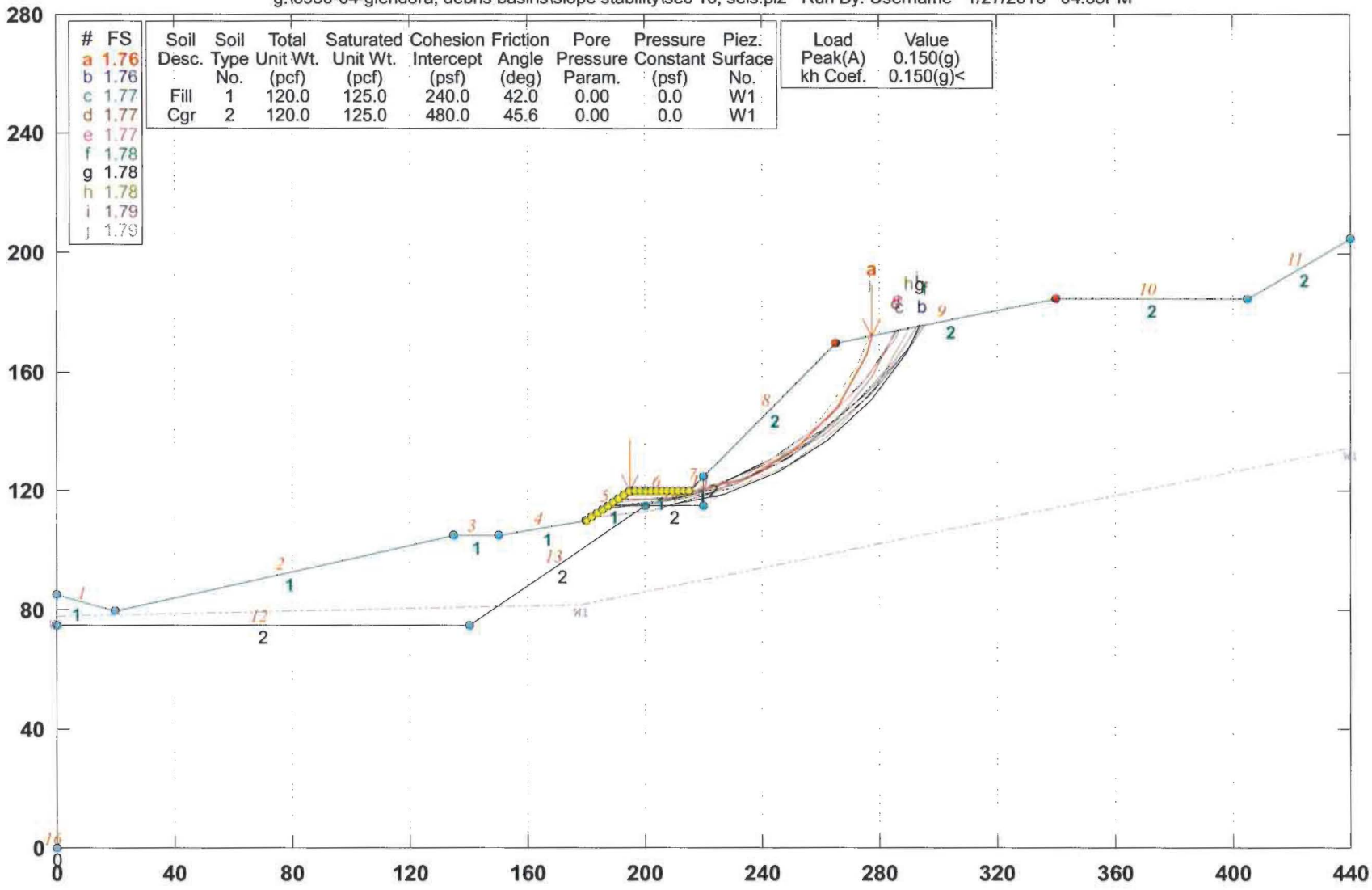
Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fill	1	120.0	125.0	200.0	35.0	0.00	0.0	W1
Cgr	2	120.0	125.0	400.0	38.0	0.00	0.0	W1

GSTABL7 v.2 FSmin=1.72

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 16, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 16, seis.pl2 Run By: Username 1/27/2016 04:35PM



#	FS
a	1.76
b	1.76
c	1.77
d	1.77
e	1.77
f	1.78
g	1.78
h	1.78
i	1.79
j	1.79

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fill	1	120.0	125.0	240.0	42.0	0.00	0.0	W1
Cgr	2	120.0	125.0	480.0	45.6	0.00	0.0	W1

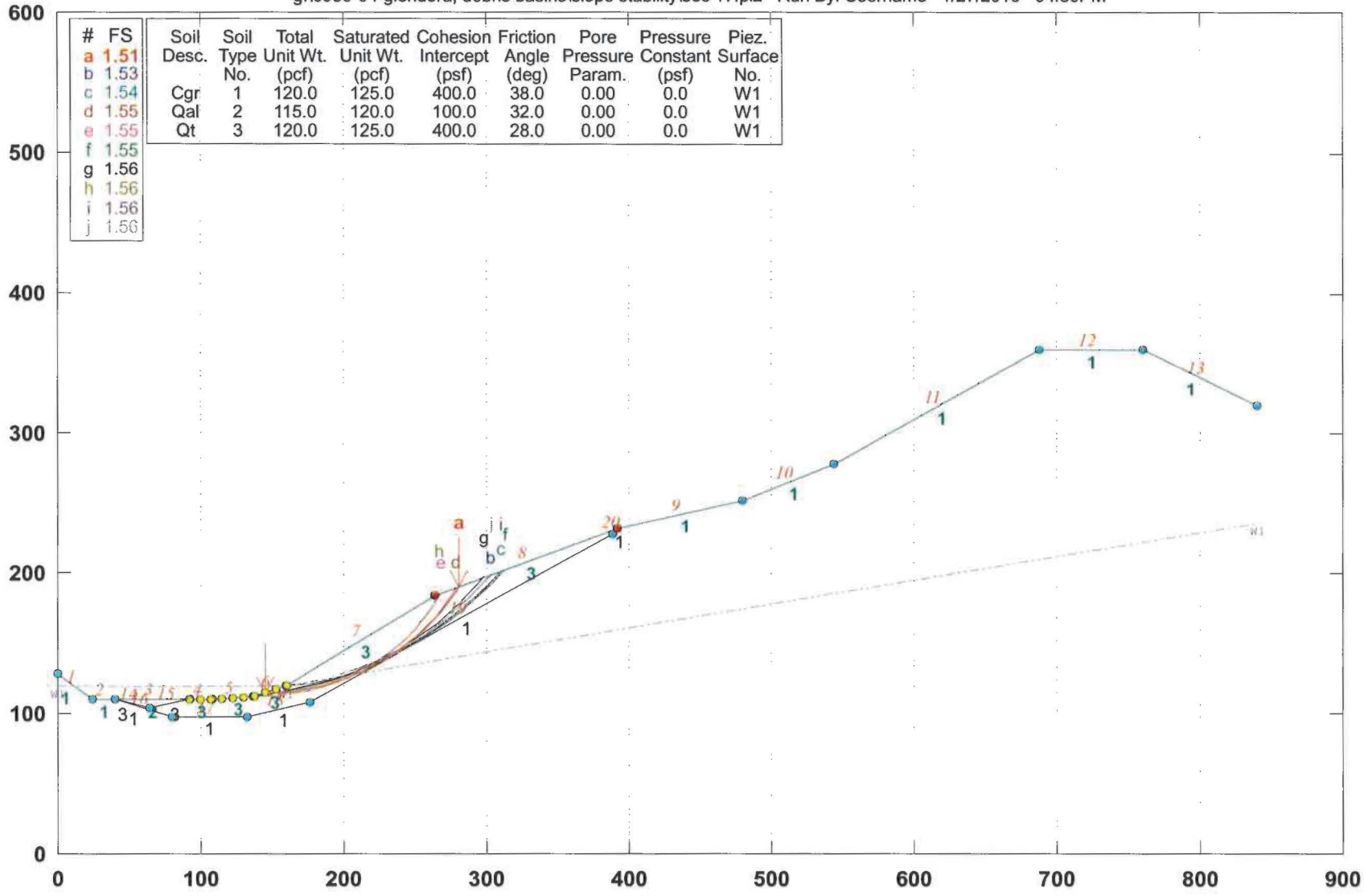
Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

GSTABL7 v.2 FSmin=1.76

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 17

g:\6950-04-glendora, debris basins\slope stability\sec 17.pl2 Run By: Username 1/27/2016 04:30PM



#	FS
a	1.51
b	1.53
c	1.54
d	1.55
e	1.55
f	1.55
g	1.56
h	1.56
i	1.56
j	1.56

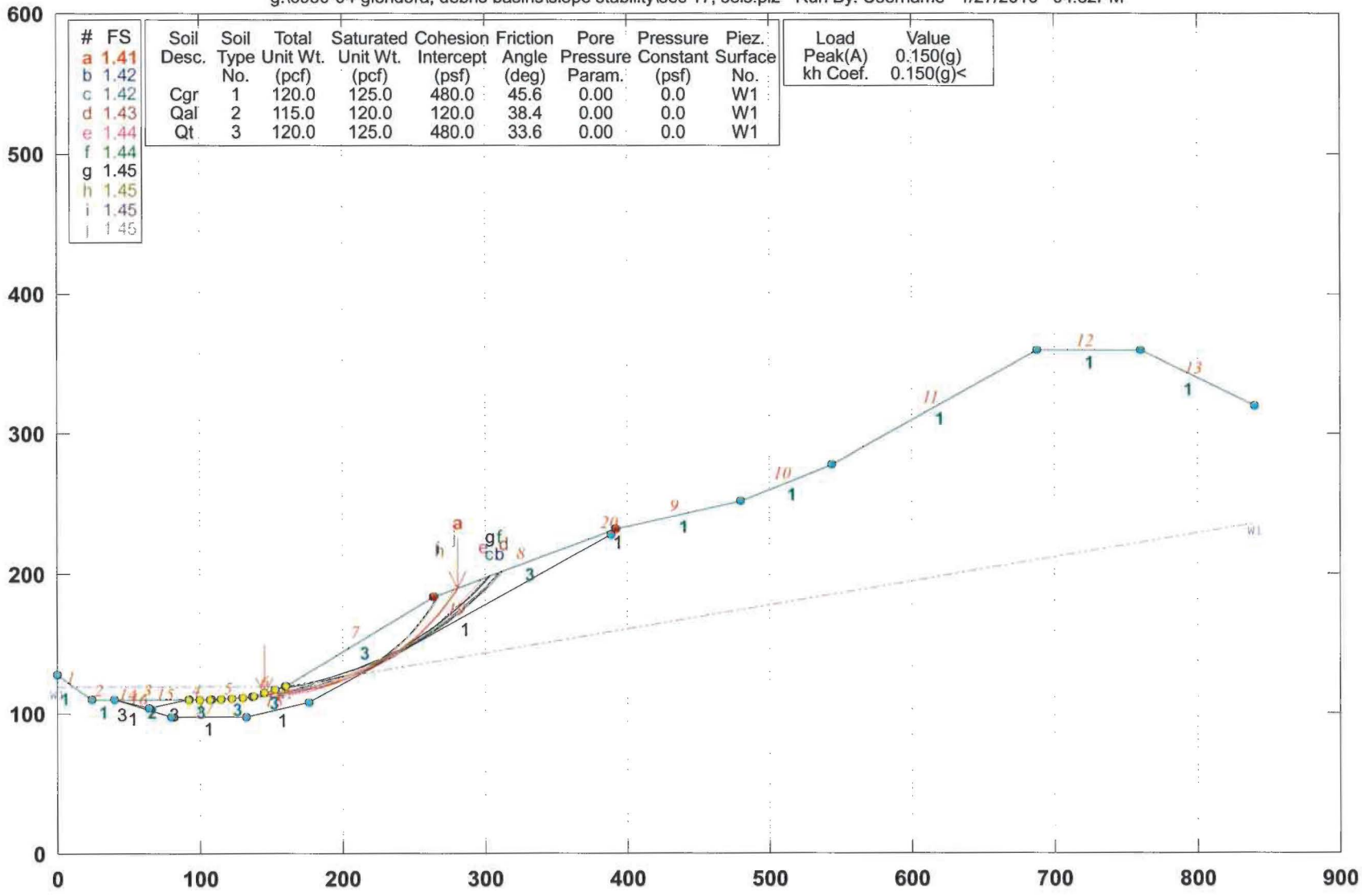
Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Cgr	1	120.0	125.0	400.0	38.0	0.00	0.0	W1
Qal	2	115.0	120.0	100.0	32.0	0.00	0.0	W1
Qt	3	120.0	125.0	400.0	28.0	0.00	0.0	W1

GSTABL7 v.2 FSmin=1.51

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 17, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 17, seis.pl2 Run By: Username 1/27/2016 04:32PM

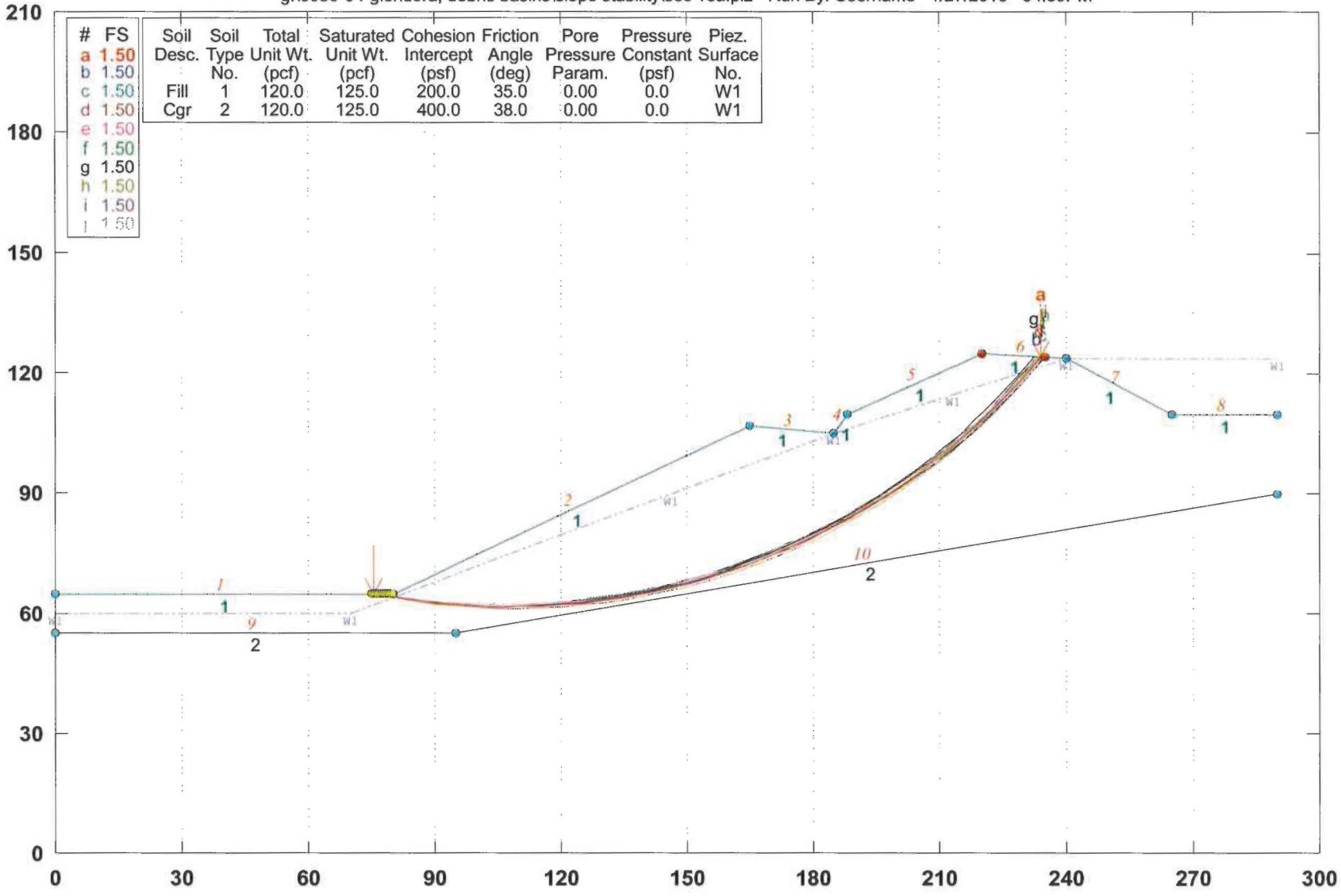


GSTABL7 v.2 FSmin=1.41

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 18a, Eastern Basin Dam, Downstream

g:\6950-04-glendora, debris basins\slope stability\sec 18a.pl2 Run By: Username 1/27/2016 04:39PM

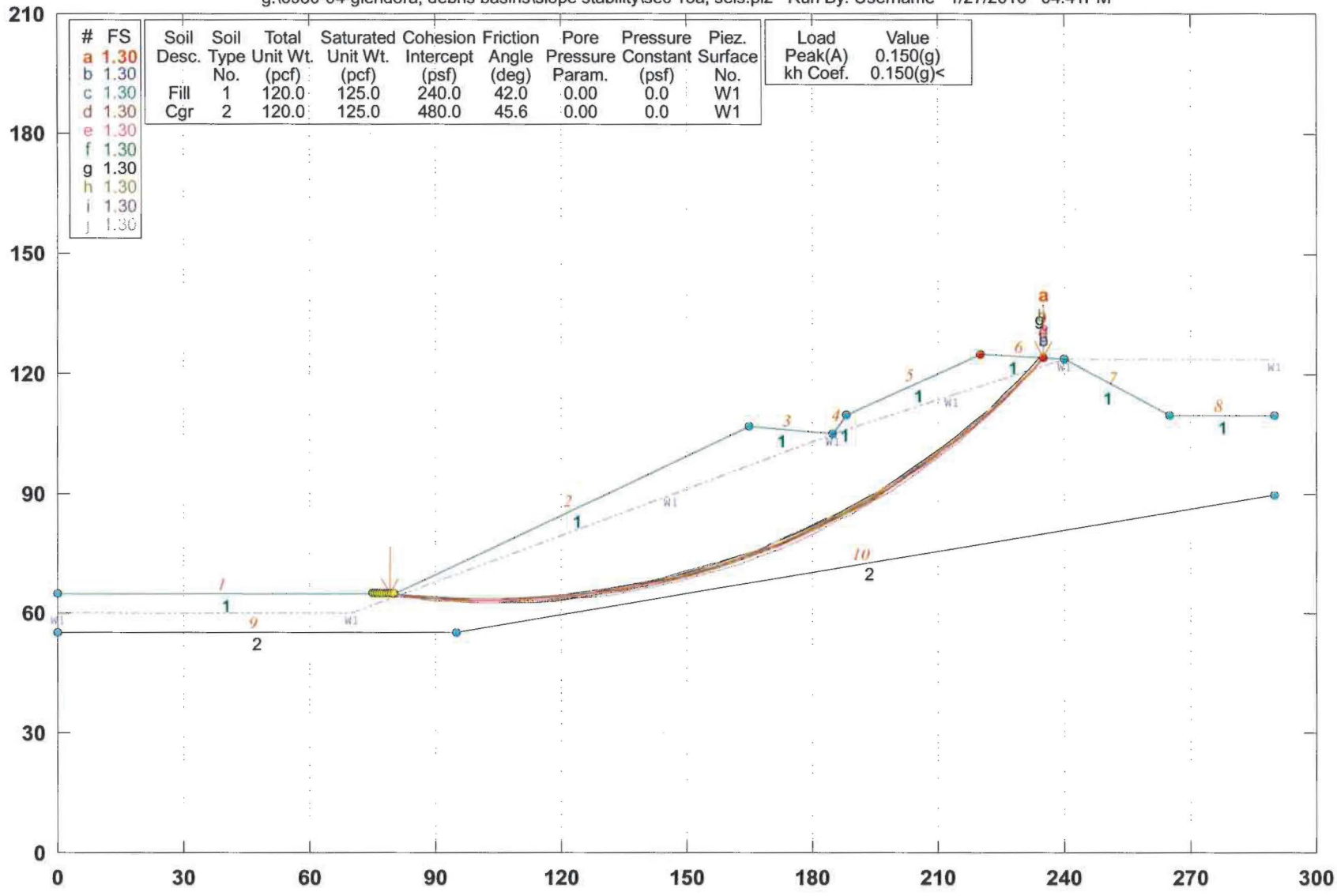


GSTABL7 v.2 FSmin=1.50

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 18a, Eastern Basin Dam, Downstream, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 18a, seis.pl2 Run By: Username 1/27/2016 04:41PM



#	FS
a	1.30
b	1.30
c	1.30
d	1.30
e	1.30
f	1.30
g	1.30
h	1.30
i	1.30
j	1.30

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fill	1	120.0	125.0	240.0	42.0	0.00	0.0	W1
Cgr	2	120.0	125.0	480.0	45.6	0.00	0.0	W1

Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

GSTABL7 v.2 FSmin=1.30

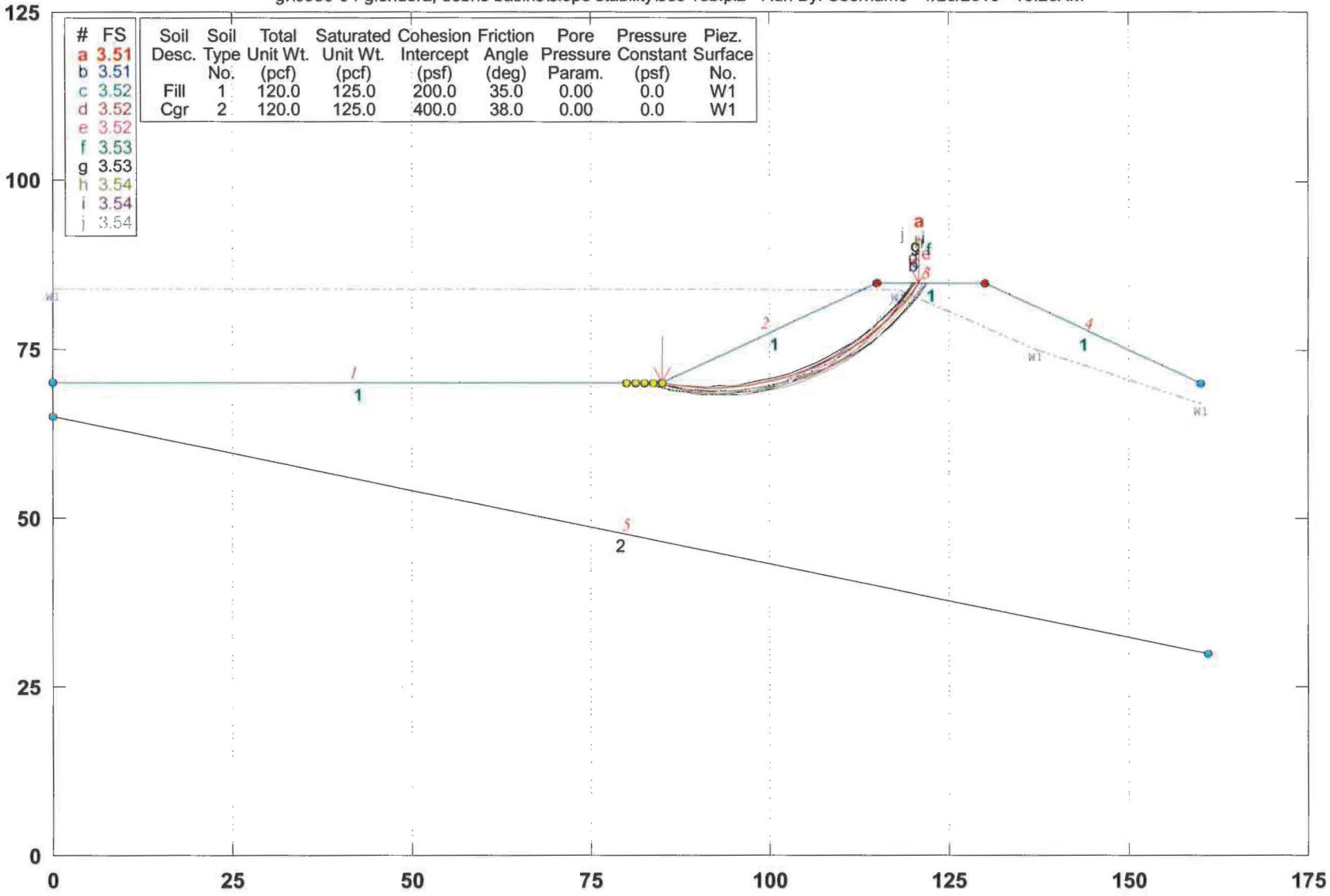
Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 18b, East Basin, Full Reservoir

g:\6950-04-glendora, debris basins\slope stability\sec 18b.pl2 Run By: Username 1/28/2016 10:26AM

#	FS
a	3.51
b	3.51
c	3.52
d	3.52
e	3.52
f	3.53
g	3.53
h	3.54
i	3.54
j	3.54

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fill	1	120.0	125.0	200.0	35.0	0.00	0.0	W1
Cgr	2	120.0	125.0	400.0	38.0	0.00	0.0	W1



GSTABL7 v.2 FSmin=3.51

Safety Factors Are Calculated By The Modified Bishop Method

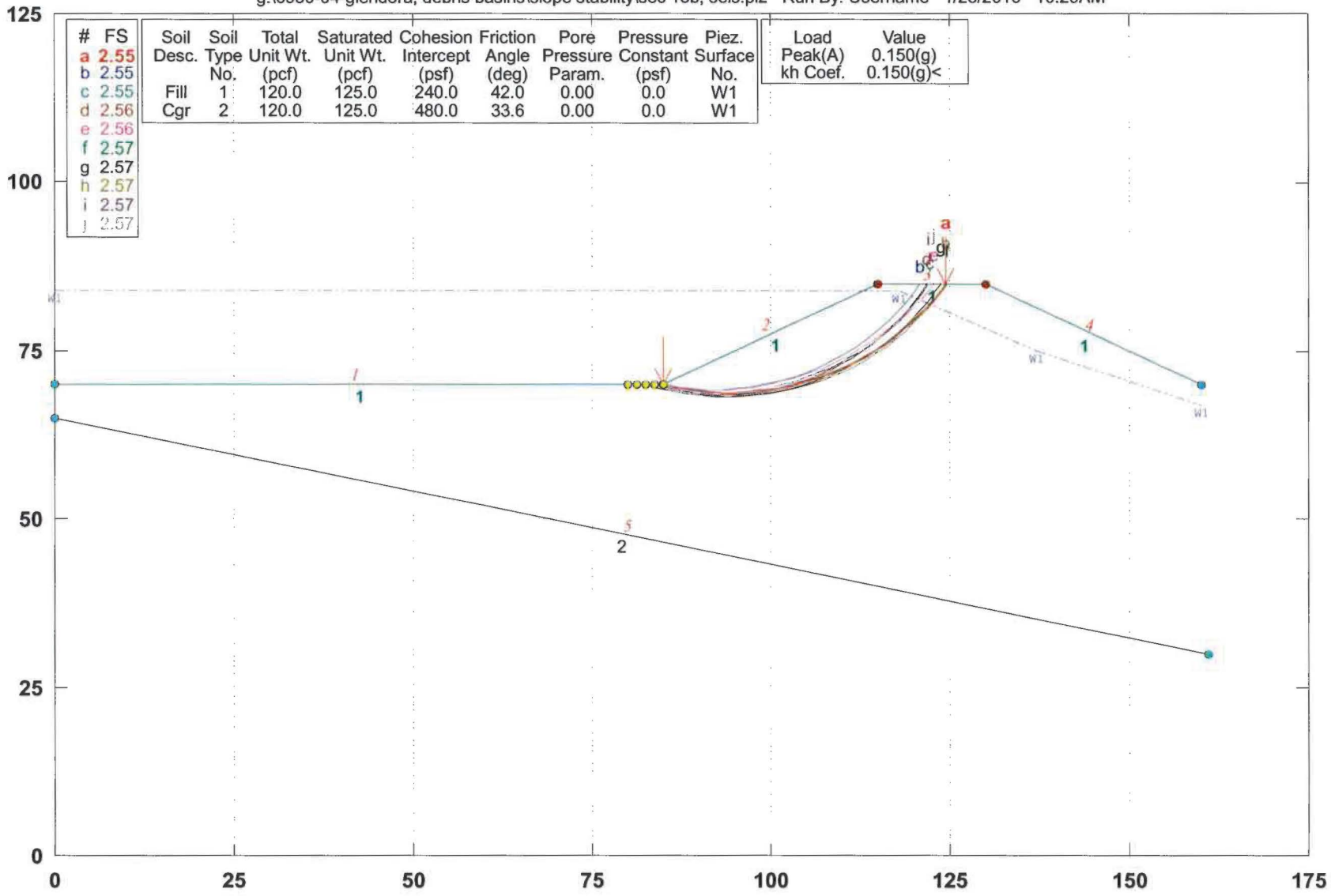
6950-04, Sec 18b, East Basin, Full Reservoir, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 18b, seis.pl2 Run By: Username 1/28/2016 10:29AM

#	FS
a	2.55
b	2.55
c	2.55
d	2.56
e	2.56
f	2.57
g	2.57
h	2.57
i	2.57
j	2.57

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Fill	1	120.0	125.0	240.0	42.0	0.00	0.0	W1
Cgr	2	120.0	125.0	480.0	33.6	0.00	0.0	W1

Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

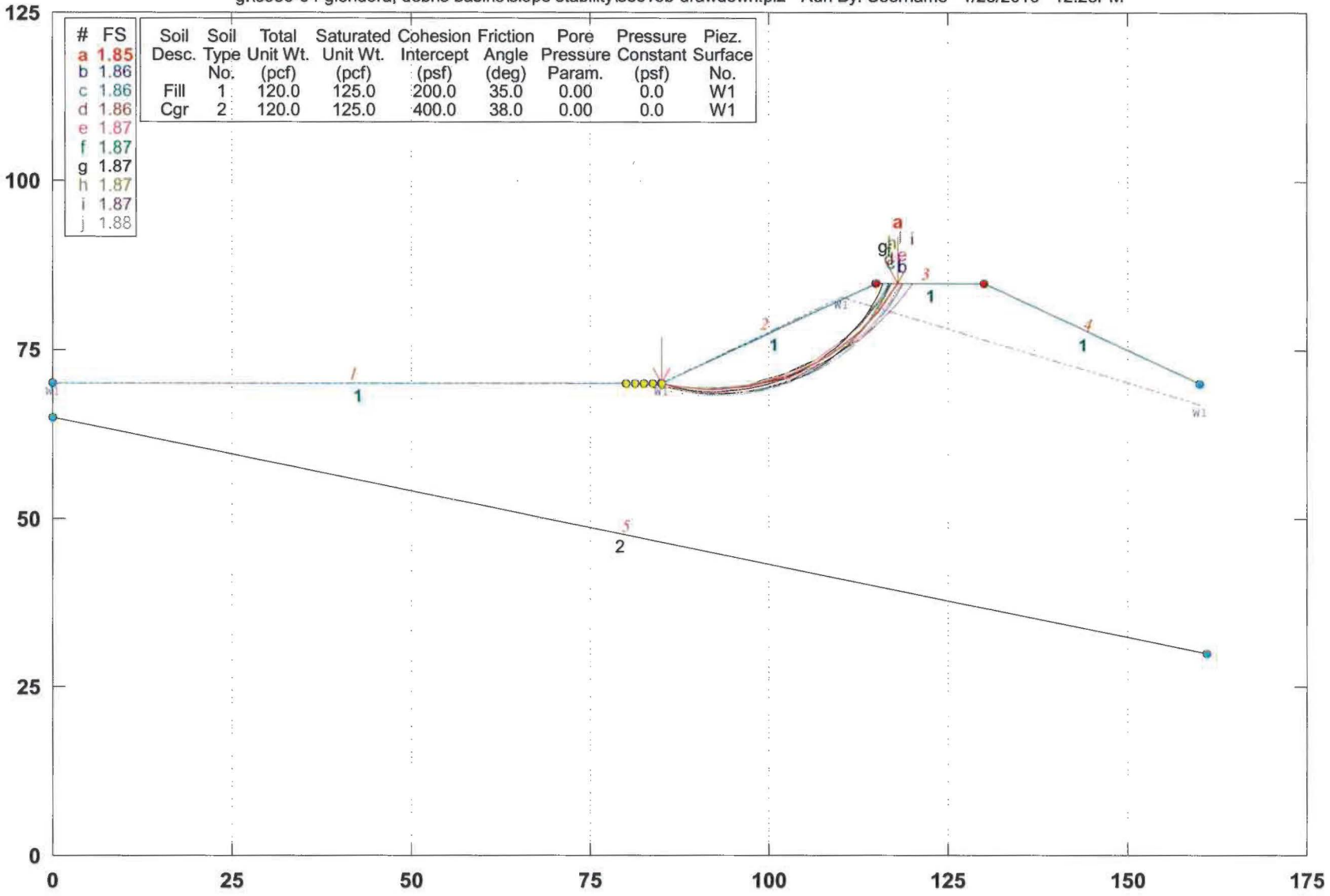


GSTABL7 v.2 FSmin=2.55

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 18b, Rapid Drawdown

g:\6950-04-glendora, debris basins\slope stability\sec18b-drawdown.pl2 Run By: Username 1/28/2016 12:23PM

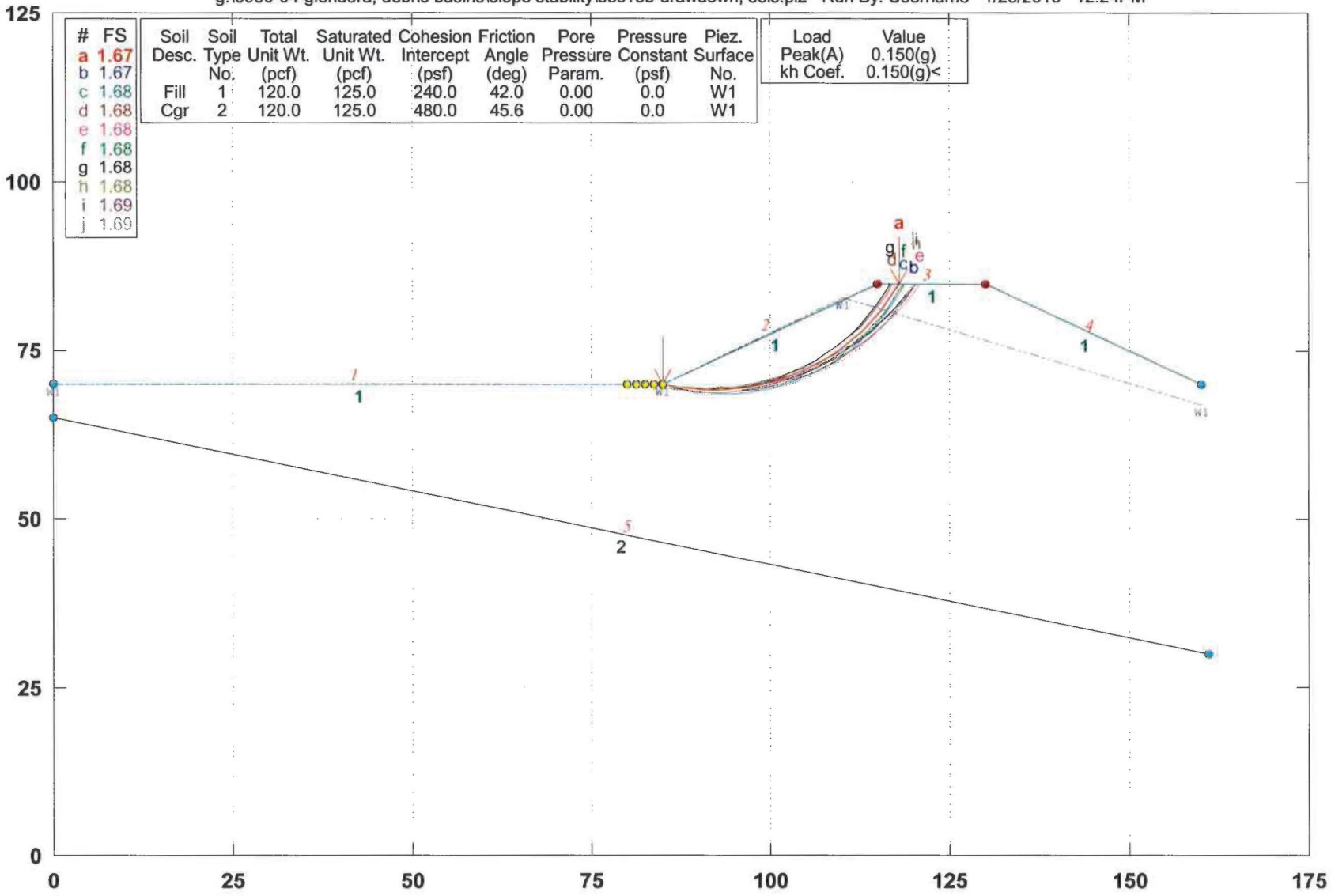


GSTABL7 v.2 FSmin=1.85

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec 18b, Rapid Drawdown, Seis

g:\6950-04-glendora, debris basins\slope stability\sec18b-drawdown, seis.pl2 Run By: Username 1/28/2016 12:24PM

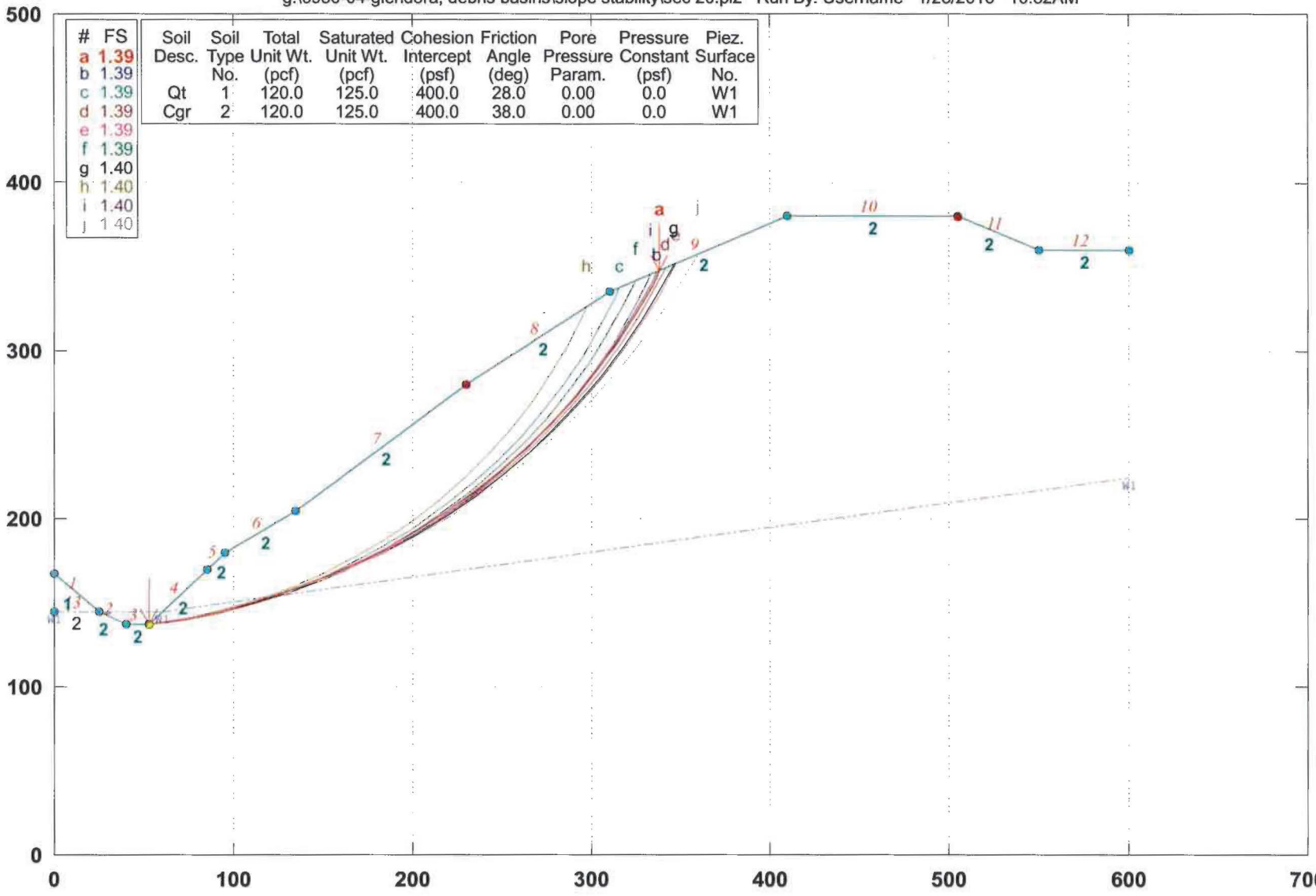


GSTABL7 v.2 FSmin=1.67

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec. 20

g:\6950-04-glendora, debris basins\slope stability\sec 20.pl2 Run By: Username 1/28/2016 10:32AM



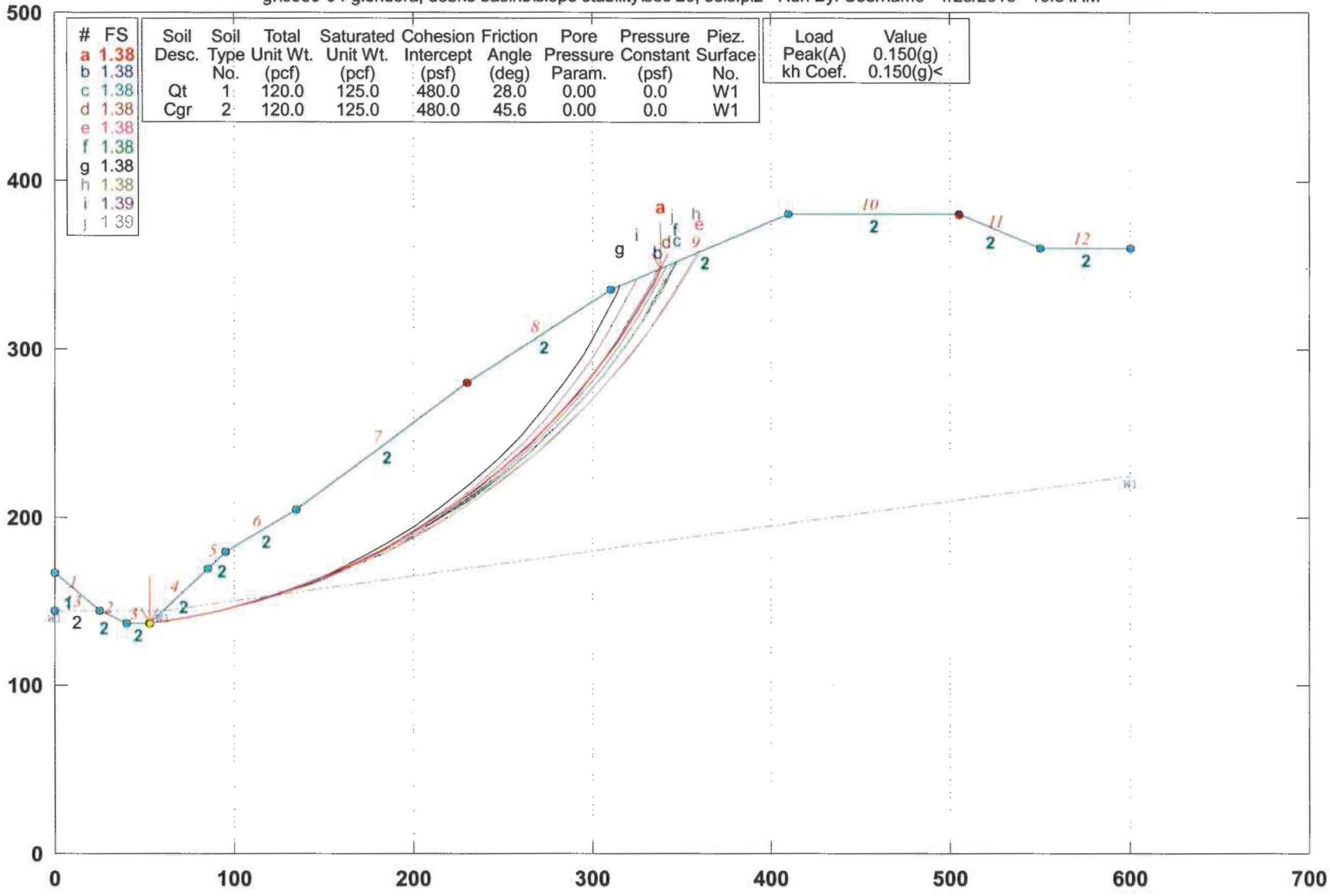
Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Qt	1	120.0	125.0	400.0	28.0	0.00	0.0	W1
Cgr	2	120.0	125.0	400.0	38.0	0.00	0.0	W1

GSTABL7 v.2 FSmin=1.39

Safety Factors Are Calculated By The Modified Bishop Method

6950-04, Sec. 20, Seis

g:\6950-04-glendora, debris basins\slope stability\sec 20, seis.pl2 Run By: Username 1/28/2016 10:34AM



#	FS
a	1.38
b	1.38
c	1.38
d	1.38
e	1.38
f	1.38
g	1.38
h	1.38
i	1.39
j	1.39

Soil Desc.	Soil Type No.	Total Unit Wt. (pcf)	Saturated Unit Wt. (pcf)	Cohesion Intercept (psf)	Friction Angle (deg)	Pore Pressure Param.	Pressure Constant (psf)	Piez. Surface No.
Qt	1	120.0	125.0	480.0	28.0	0.00	0.0	W1
Cgr	2	120.0	125.0	480.0	45.6	0.00	0.0	W1

Load	Value
Peak(A)	0.150(g)
kh Coef.	0.150(g)<

GSTABL7 v.2 FSmin=1.38

Safety Factors Are Calculated By The Modified Bishop Method

GEOLOGIC MAP

GEOLOGIC KEY

UNITS

FILL	Fill, undocumented
Qal	Alluvium
Qcol	Colluvium
	Slump, arrows show direction of movement
	Soil Slip
Qal_o	Old Alluvium
Qt	Terrace Deposits
Qls	Landslide
Qls?	Questionable Landslide
Cgr	Cretaceous-age Granitic Rocks (Granodiorite)

SYMBOLS

B-9 26'	Boring, showing total depth
TP-9 5'	Test Pit, showing total depth
28' B-9	Boring, PN 6817-04, showing total depth
7' TP-26	Test Pit, PN 6817-04, showing total depth
?	Geologic Contact, queried where approximate, dotted where buried
22 22'	Geologic Cross Section
	Temporary Drill Pad Cuts
75	Strike and Dip of Fracture - surface exposure
77	Strike and Dip of Shear - surface exposure
41' 135	Strike and Dip of Shear, showing depth in boring
24' 60	Strike and Dip of Fracture, showing depth in boring or test pit
24'	Seepage, showing depth in boring
22'	Water level in boring

PROPOSED WEST DEBRIS BASIN AND DAM

PROPOSED MIDDLE DEBRIS BASIN AND DAM

PROPOSED EAST DEBRIS BASIN AND DAM

EXISTING MWD EASEMENT FOR MONROVIA NO. 1 TUNNEL

EXISTING EROSION STRUCTURE

TUNNEL AIR VENT

EXISTING MWD EASEMENT FOR 10-FT. DIA. WATER PIPE

ABANDONED METAL SPA SHELL

ABANDONED SUBTERRANEAN WATER TANK SHELL

ABANDONED WATER TANK SHELL

EXISTING WALLS

EXIST DAM

TOP OF EXIST. DAM

DRP TT-72413

D R P

Scale in Feet: 40 0 40 80 120

GEOLOGIC MAP
Dreamland Investments, LLC
Three Debris Basins/Dams and Access Roads
Development Remaining Parcel, APN 8684-045-004
Glendora, California

G. A. Nicoll & Associates, Inc.
Geologic & Soils Engineers
Tustin, California

Project No.: 6950-04 Date: Feb 2016 Plate No: 1

Appendix E

Hydrology Study

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION
HYDROLOGY UNIT

TO:	Dreamland Investments	Date: 2/27/2019
	21491 Ferrero Parkway	
	City of Industry, CA 91789	
ATTN:	Alan Chou	

REVIEW OF HYDROLOGY STUDY

CITY OF	**GLENDORA**	**DATE OF REPORT**	**August 2018**
TR NO.	**72413**	**PLAN CHECK NO.**	**4**

We have reviewed your Hydrology Study.

[X] The Hydrology Study is recommended for approval by the City of Glendora.

[X] Refer to comments below:

COMMENTS:

1. Water quality requirements have not been reviewed as part of this recommended approval. The City shall be responsible for review and approval of all water quality requirements. Any discrepancies between the water quality analysis and the Hydrology Study may require a revised Hydrology Study.

2. Please have the City of Glendora approve and sign the plan and report and return a scanned copy to the Land Development Division of Los Angeles County Department of Public Works as soon as possible.

3. Work within soft bottom drainage areas (which may include but is not limited to soft bottom basins, channels, watercourses, grade to drain) will require maintenance permits from Fish and Game, Army Corps of Engineers, and RWQCB prior to approval of the storm drain, and the permits must be still active prior to acceptance.

REVIEWED BY _____
Nargiss Majrooh (626) 458-4921

REGISTERED PROFESSIONAL ENGINEER
NARGISS MAJROOH
No. 88200
CIVIL
STATE OF CALIFORNIA

RECOMMENDED BY: Gracely C. Lasso

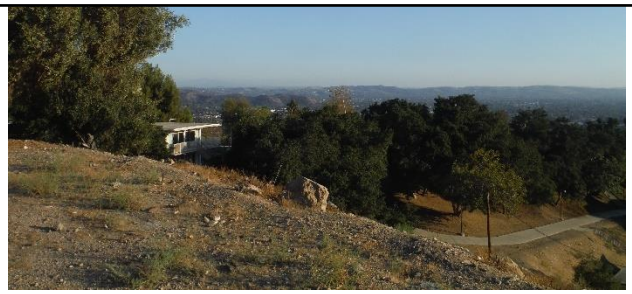
HYDROLOGY STUDY
APPROVED BY CITY OF GLENDORA
APPROVED BY: Alison Sweet RCE NO. 51197 DATE 4/4/2019

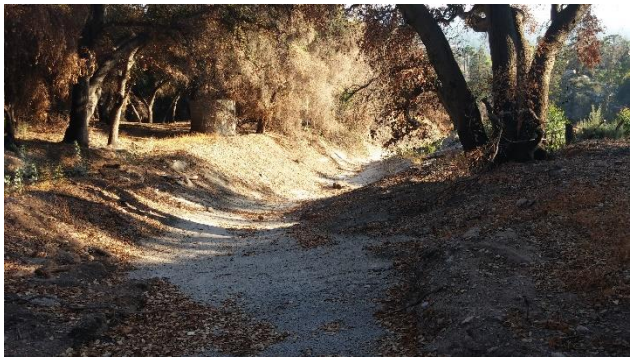
HYDROLOGY STUDY
CITY OF GLENDORA
RECOMMENDED FOR CITY APPROVAL
CHECKED BY: RCE NO. 88200 DATE 2/27/2019
APPROVED BY: Gracely C. Fasso DATE 2/27/2019
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

HYDROLOGY STUDY

FOR THE

TENTANTIVE TRACT 72413
SILENT RANCH DEVELOPMENT
ESTU2016000096







North Grand Avenue and
West Palm Drive
Glendora, CA
APN 8684-045-004

Prepared For:

DREAMLAND INVESTMENTS, LLC.
Alan Chou

654 South Glendora Avenue
Glendora, California 91740
(626) 236-7388
ALAN@DREAMLANDINVESTIMENTSLLC.COM

Prepared By:

WEST CONSULTANTS, INC.

8950 S. 52nd Street, Suite 210
Tempe, AZ 85284
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Executive Summary

This hydrology study analyzes the pre- and post-developed conditions for proposed Silent Ranch Development (Tentative Tract 72413) in Glendora, California. The project consists of 12 new single-family homes. The site is bounded by offsite mountainous terrain to the north which contributes to the overall watershed area and is bounded to the south by an existing urban residential development to the south which includes an active storm drain system. The City of Glendora has required that the proposed development adhere to their Best Management Practices (BMP) and Low Impact Development (LID) requirements.

Offsite debris flows to the proposed development are a concern, particularly because the undeveloped area is considered a burned watershed. Accordingly, the offsite debris concerns will be addressed by constructing three debris containment structures.

All hydrology and debris calculations were performed with and all proposed design elements adhere to the Los Angeles County Department of Public Works (LACDPW) Hydrology Manual (2006) and the LACDPW Sedimentation Manual (2006). Runoff from the subdivision will not exceed existing conditions for the specified design events nor will flow to the existing storm drain exceed the project specific LACDPW specified allowable rate.

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1. Introduction

This report presents the details of a hydrology study on the proposed Silent Ranch Development (Tentative Tract 72413) located in the City of Glendora, CA (Figure 1). This project has spent several years in development due to the highly complex nature of the offsite flows and debris basin requirements. It is the intent of the developer of the project – Dreamland Investments, LLC (Dreamland) – to protect the community from offsite debris flows by constructing major infrastructure including elevated inlets, access roads, and a high capacity storm drain system. Due to the high cost of the project, the project team of Dreamland, Giron Engineers, Inc. (Giron) and WEST Consultants, Inc. (WEST) all hope to meet or exceed all LACDPW requirements for this hydrology report, thereby facilitating approval and construction of this important project.

2. Project Description

The proposed subdivision is located north of Palm Avenue in the City of Glendora, California (Figure 1) and consists of 26.9 acres of largely undisturbed area as well as mountainous terrain to the north, resulting in a current total drainage area of 51.5 acres. Following construction, a total area of 53.1 acres is expected to drain through the site (See 8.Appendix F). The site is bordered to the west and south by residential development. Access to the site is from Palm Drive.



Figure 1. Project vicinity map (not to scale)

The project area itself consists of 14 lots composed of one existing lot (Lot 1 – will not be modified), one lot that encompasses the subdivision private drive (Lot 4), and 12 lots consisting of new single-family home units (Lots 2 3, and 5 – 14). All street access and infrastructure will be built in compliance with Los Angeles County and City of Glendora zone codes and ordinances.

The existing project watershed (tributary area) is mostly natural and undeveloped. Steep (> 20%) slopes characterize the upper areas of the watershed. Three debris control and channel stabilization structures were installed by the United States Forestry Service (USFS) in 1970. They have since been completely filled and are at capacity. (Figure 2 shows one of these existing dams.) Hence, under current conditions no debris or water retention occurs and runoff from the upper watershed spills freely over the structures.



Figure 2. Existing debris wall north of proposed development

After overtopping the existing structures, storm runoff and debris currently flows southeasterly through the existing watershed to a confluence at Grand Avenue near Palm Drive. Existing flows then splits, with some amount draining into the existing 39-inch diameter reinforced concrete pipe (RCP) storm drain pipe along Grand Avenue (MTD 0849) but the majority of the flow spilling into the streets. Calculations by LACDPW indicate that the existing storm drain has some capacity for flows from the site. It will be shown that this capacity in conjunction with proposed street conveyance capacity should be sufficient to convey flows from the design events.

The proposed project will address the offsite debris issues and will attenuate peak inflows by constructing three large debris containment facilities within the subdivision property and north of the developed area. The containment slopes will be protected according to the site geotechnical report performed by G.A. Nicoll and Associates, (G. A. Nicoll and Assocociates Inc., 2016).

3. Requirements

3.1. Hydrology

The analysis described herein adheres strictly to the LACDPW Hydrology Manual (2006) and specific instructions issued by with LACDPW personnel during the project. Times of concentration for both proposed and existing conditions were determined using the LACDPW software Hydrocalc, version 1.0.2 (LACDPW, ND). Hydrocalc is an application of the modified rational method. Hydrocalc is limited to subareas smaller than 40 acres; accordingly, the subarea designations applied here for both existing and proposed conditions have been kept less than 40 acres.

The times of concentration as determined by Hydrocalc were then used in conjunction with the other site-specific data to route the subareas via the LACDPW accepted LAR04 software (CivilDesign, 2017). The LAR04 accompanying software program "Retard" was used to analyze the reduced peak flows the result from routing the hydrographs through the debris containment facilities, which reduced predicted peak outflows by means of detention. Because Retard is part of the LAR04 software package it is approved for use by the LACDPW.

All hydrology software output (Hydrocalc, LAR04, and the Retard program) is included here in Appendix C.

3.2. Burned flows and Debris

The proposed development is within mountainous terrain and therefore LACDPW requires the calculation of sediment (debris) flow, as per the LACDPW Sedimentation Manual (2006). Debris production is computed by a 'rate of sedimentation' in units of cubic yards/square mile/ design event. The potential for debris production of site is characterized by an area's the Debris Potential Area (DPA) zone. The Design Debris Event (DDE) is defined as sediment produced by saturated watershed significantly recovered (approx. 4 years) from a burn due to a 50 year, 24-hour rainfall event. Debris production curves characterize the debris produced for each DPA zone by the DDE as a function of area. The curves account for the specific geologic, topographic, vegetation and rainfall characteristics of the site. The total debris production for a watershed is thus the product of the production rate/ square mile and the area of the watershed.

Bulked flows, or the increase in flow rate due to inclusion of sediment in the flow, are computed as well. Bulked flows are a function of an area's 'burned' flow. Burned flow is a function of the fire factor which characterizes the study area (discussed in section 4.2.).

In the same way as debris production curves characterize sedimentation rate for each DPA zone, bulking factor curves show the proportion of the bulked rate to burned rate (a bulking factor) for a given subarea. These curves are figures 3.4 and 3.1 of the Sedimentation Manual (LACDPW, 2006).

3.3. Flooding

3.3.1. Flood Protection

Several levels of flood protection are required for this development. Specifically, the total **routed clear water** peak outflow from the developed site must not exceed the existing peak clear water flow for two events:

1. **The Urban Flood**. The Urban Flood corresponds to the 25-year frequency design storm incident to a saturated watershed.
2. **The Capital Flood**. The Capital Flood corresponds to the 50-year frequency design storm incident to a saturated watershed.

Additionally, capital flood protection also requires the effects of fires and erosion to be accounted for, so that the burned and bulked flow condition for the 50-year frequency is calculated as well.

3.3.2. Outflow to the Existing Public Storm Drain

The peak outflow to the existing public storm drain system cannot exceed the allowable flowrate as determined by the LACDPW. Specifically, the LAPDPW requires that the post development burned flow entering the storm drain system be limited to 1.74 cfs / acre based on the existing (pre-development) drainage area (Appendix A). The proposed site has a total existing drainage area of 51.5 acres, and hence the total allowable flow from the site to the existing storm is $Q_{allowable}$ = (1.74)(51.5) = 89.6 cfs. This requirement was implemented by designing an onsite storm drain system that will direct 89.6 cfs of the debulked offsite flow to the public storm drain. The remaining debulked offsite flow and all of the onsite flow will outlet to the street system along the historical flow path.

3.3.3. Mitigation for hungry water

Sites with hungry water are typically required to enact mitigation measures. Here, all inflows into the proposed lot developments are expected to be both burned and bulked and hence are sediment laden rather than sediment starved. Hence, mitigation for hungry water is not expected to be a concern.

4. Existing Condition

4.1. Proximity to existing floodplains and/or floodways

The proposed site is outside of any mapped floodplain or floodway. As shown in Figure 3, the applicable Federal Emergency Management Agency (FEMA) Floodplain Map (Panel 1440, Number 06037C1440F, effective date 09/25/2008) shows the site to be in Zone D, corresponding to an area where no analysis of flood hazards has been conducted.

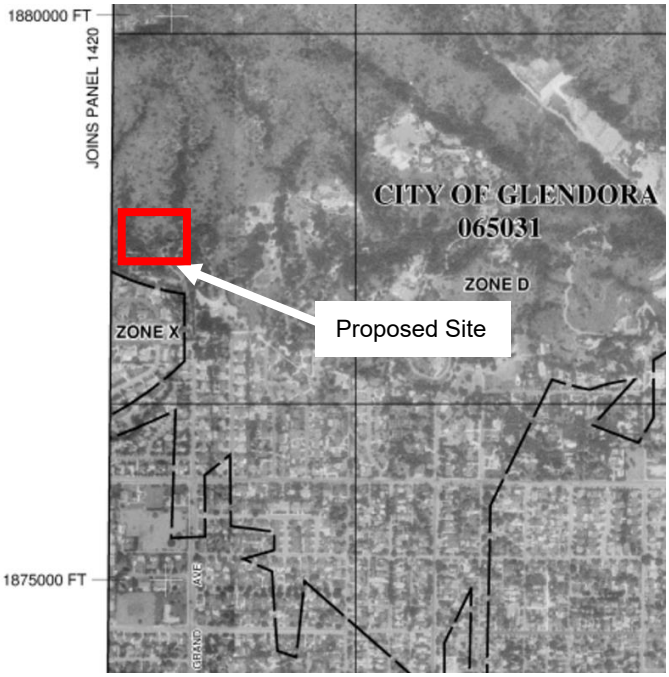


Figure 3. Site location on FEMA Floodplain Map 06037C1440F

4.2. Fire factor

The project site is in the San Gabriel River Watershed. Accordingly, the fire factor at this location is 0.71 per Table 6.3.3 in the LACPDW Hydrology Manual (2006). The fire factor is applied to the peak flow rate (clear) to determine the burned peak flow rate.

4.3. 50-year 24-hour Isohyets

Hydrologic maps provided in the LACDPW Hydrology manual (2006) depict the 50-year, 24-hour isohyet, DPAs, and soil types (Figure 4). For the present site, the 50-year, 24-hour Isohyet is seen to be between 8.1 and 8.3 inches. Here, the higher value (8.3 inches) was assumed throughout the site for both proposed and existing conditions.

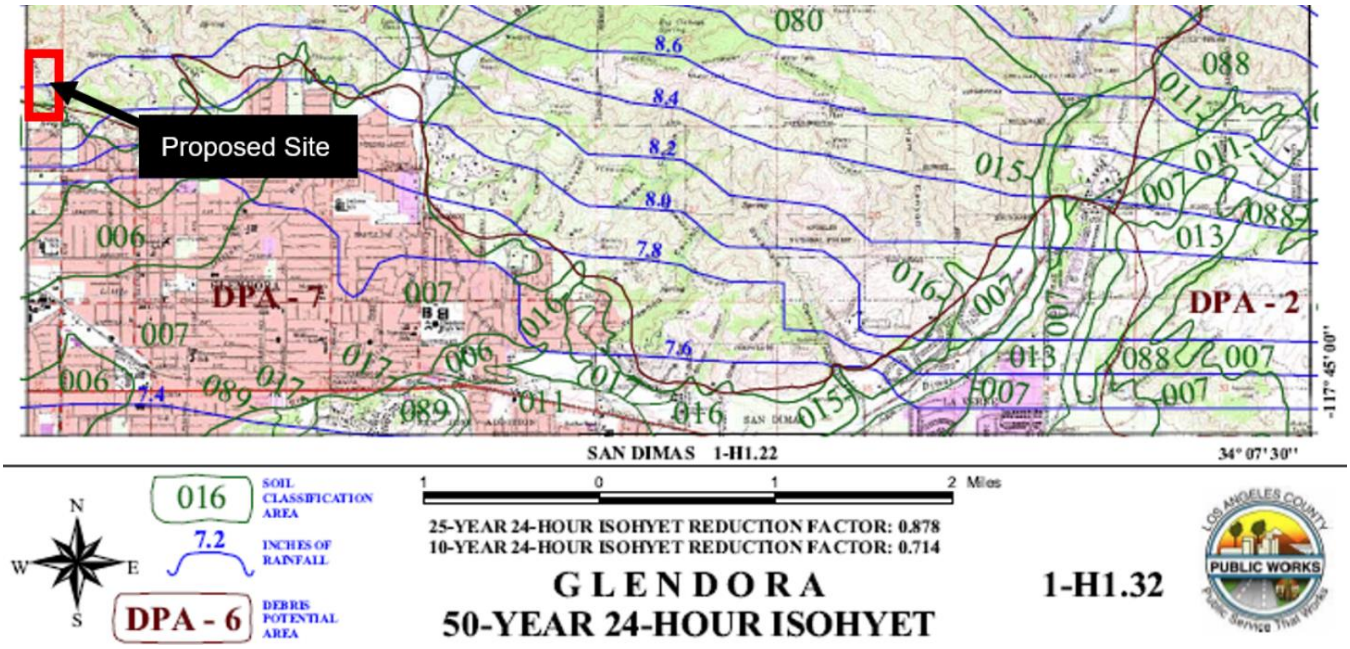


Figure 4. 50-year, 24-hour isohyet, DPA, and soil types

4.4. Subarea Characteristics

4.4.1. Drainage subareas

The existing site was subdivided into thirteen undeveloped subareas, denoted by **A1** through **A10-2**. One subarea is mixed use, denoted as subarea **A8-1** , and one is a developed subarea (**Lot1b**). All of these subareas have been delineated to meet the LADPW requirement that longest flow path lengths be no more than 1,000 feet. The subarea delineation is shown in Map 1 in Appendix F, and details of the subareas have been summarized in Table 7 below.

4.4.2. Debris production rate and bulking factor

The existing watershed is characterized by DPA zones 1 and 7 as identified in Figure 4. These zones were used in conjunction with the LACDPW Sedimentation Design Manual Figures B1 and B4, reproduced here as Figure 5 and Figure 6, respectively, to determine the debris production rate (DPR) and bulking factor for the existing designated subareas. About 90% of the project area is in DPA zone 1; 10% is in DPA zone 7. The areas of all designated subareas as far less than the minimum of 0.1 square miles shown in the curves. Therefore, the minimum allowable values of bulking factor and DPR for the two DPA zones were used. These are listed in Table 1.

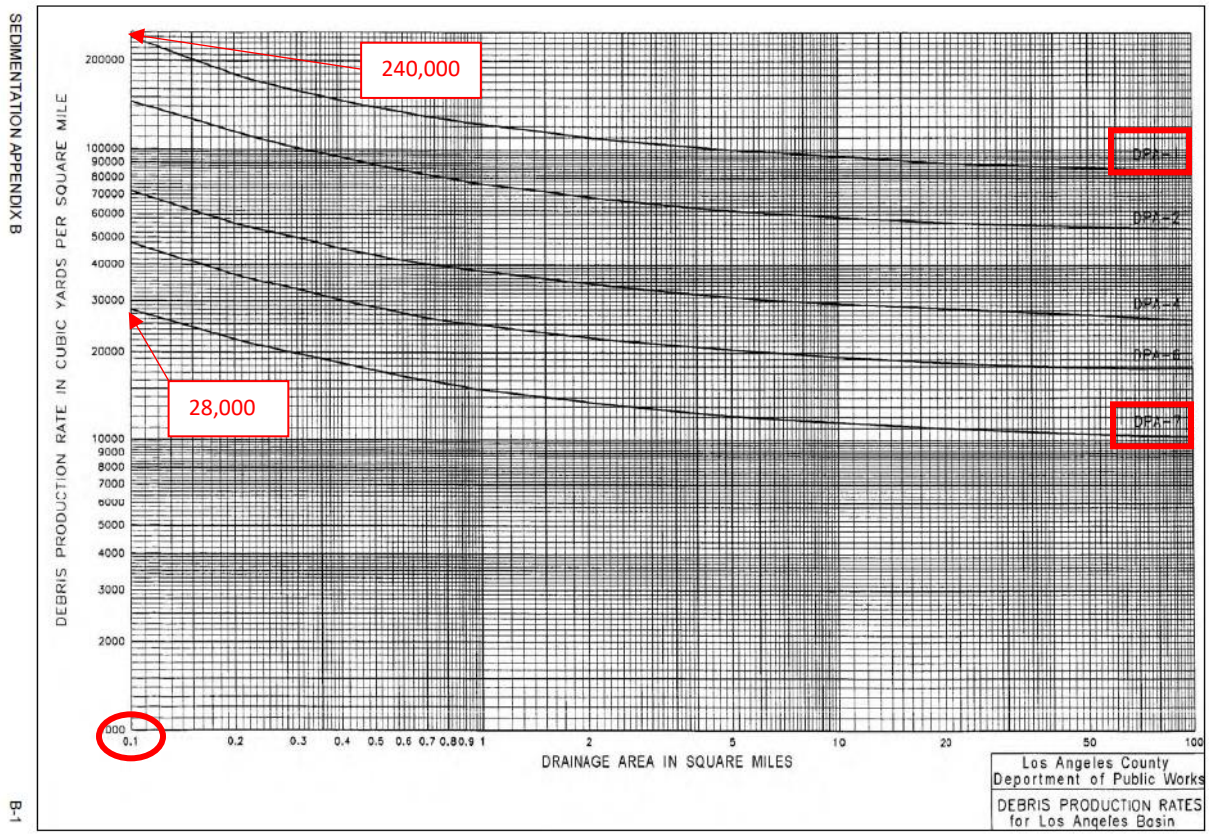


Figure 5. Los Angeles Basin Debris Production Rates – from the LACDPW Sedimentation Manual (2006)

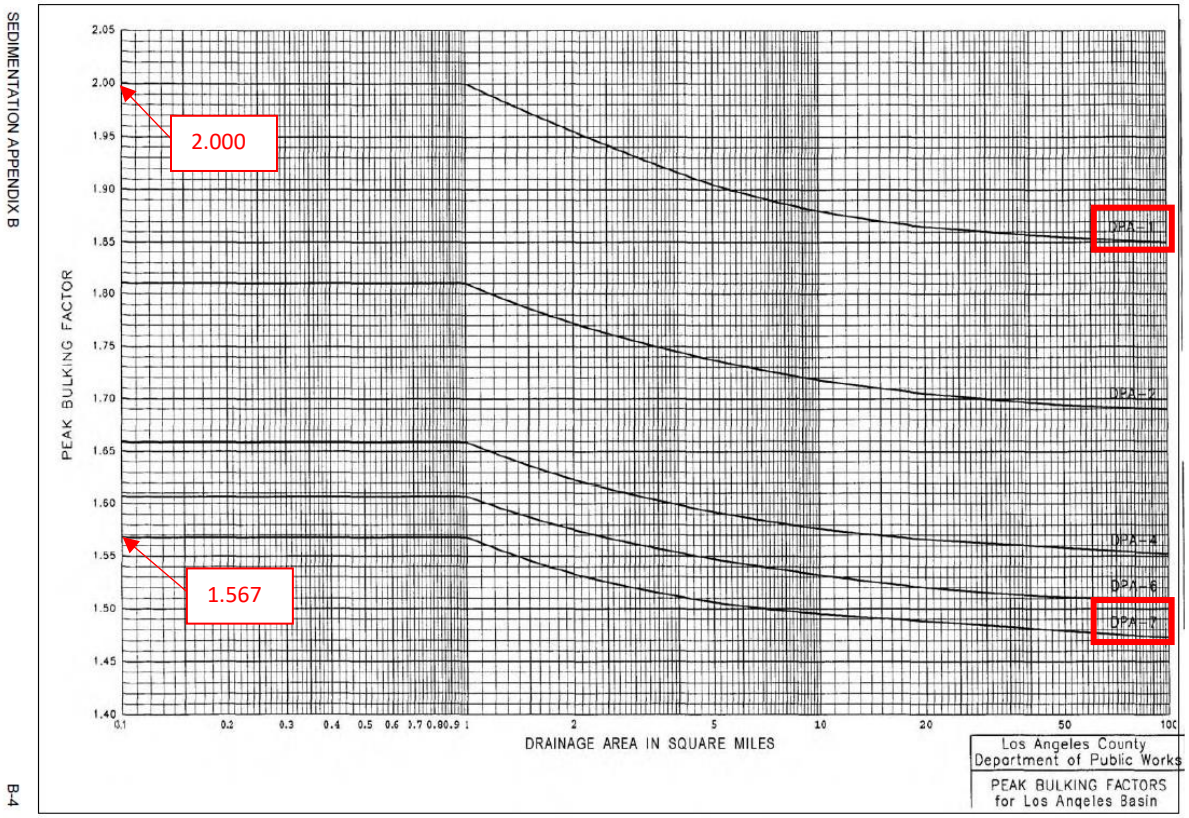


Figure 6. Los Angeles Basin Peak Bulking Factors – from the LACDPW Sedimentation Manual (2006)

Table 1. Debris production rates and bulking factor

Design Parameter	DPA Zone 1	DPA Zone 7
Bulking Factor	2.000	1.567
DPR (yd^3 /mi^2)	240,000	28,000

Subareas **A1** through **A7** and subarea **A9** are characterized by DPA zone 1 only and hence each have a DPR of 240,000 yd /mi . Subareas **A8-1** **A8-2** **A10-1** **A10-2** require weighted bulking factors and debris production because they span both DPA Zones 1 and 7. These computations are shown in Table 2 and Table 4, below. Subarea **Lot1b** is developed and non-debris producing and hence neither the bulking factor nor the debris production rates are applicable to it.

Table 2. Weighted bulking factors and debris production for Subarea A8-1

Area Types	Area (ac)	Bulking Factor	Weighted Factor	Debris Production Rate (yd /mi^2)	Weighted Debris Production Rate (yd^3/mi^2)
Zone 1	3.2	2.000	1.633	240000	196000
Zone 7	0.7	1.567	0.287	28000	5000
Totals:	***3.9***		***1.921***		***201000***

Table 3. Weighted bulking factors and debris production for Subarea A8-2

Area Types	Area (ac)	Bulking Factor	Weighted Factor	Debris Production Rate (yd /mi^2)	Weighted Debris Production Rate (yd^3/mi^2)
Zone 1	4.6	2.000	1.832	240000	220000
Zone 7	0.4	1.567	0.131	28000	2000
Totals:	***5.1***		***1.963***		***222000***

Table 4. Weighted bulking factors and debris production for Subarea A10-1

Area Types	Area (ac)	Bulking Factor	Weighted Factor	Debris Production Rate (yd /mi^2)	Weighted Debris Production (yd^3/mi^2)
Zone 1	0.2	2.000	0.172	240000	21000
Zone 7	1.5	1.567	1.433	28000	26000
Totals:	***1.7***		***1.604***		***46000***

Table 5. Weighted bulking factors and debris production for Subarea A10-2

Area Types	Area (ac)	Bulking Factor	Weighted Factor	Debris Production Rate (yd /mi^2)	Weighted Debris Production (yd^3/mi^2)
Zone 1	0.2	2.000	0.351	240000	42000
Zone 7	1.2	1.567	1.29	28000	23000
Totals:	***1.4***		***1.643***		***65000***

All existing subarea bulking factors and debris production is summarized in Table 7 below.

4.4.3. Soil types

Like the DPA zones, the existing watershed soils are characterized by two types, 007 (Hanford gravelly sandy loam) and 081 (Upper San Gabriel river USGR-G-1) (see Figure 4 above). The LACDPW authorized software used

for this project allows one soil type to be entered for the runoff calculation of each subarea, so the soil type which makes up the majority of the area was selected for each watershed (Table 7).

4.4.4. Geometric characteristics

The geometric characteristics were determined for each subarea is as follows:

1. **Area.** The total drainage area in acres was estimated.
2. **Longest flow path length.** In order to determine time of concentration, the drainage path with the longest travel time was estimated for each subarea.
3. **Longest flow path slope.** The longest flow path slope was determined by dividing the total elevation change divided by the total flow length. This was used in the time of concentration calculation.
4. **Routing flow path length.** In order to correctly route flow from the subareas, the routing flow path was determined. The routing flow path is the path taken from inflow to the subarea to its outlet point. Note that this is different than the longest flow path and there will be multiple flow paths within a subarea if more than one upgradient subarea drains to it. The routing flow lengths are shown in Map 1 in Appendix F.
5. **Routing flow path slope.** In order to correctly estimate routing times for inflow from upgradient subareas, the routing flow path slope was determined. The routing flow path slope was determined by dividing the total elevation change along the path divided by the total flow length. Note that this is different than the longest flow path slope.

All subarea geometric estimates are summarized in Table 7 below.

4.4.5. Percent impervious

The percent impervious is a function of the land use category of the site. Land use categories and their associated percent impervious are tabulated in Appendix D of the LAPDW Hydrology Manual (2006). The existing watersheds are characterized by two land use types: *Vacant Undifferentiated* and *Low Density Single Family Residential*. The corresponding percent impervious is 1% for the former (*Code 1271.12 Base Vacant Undifferentiated*) and 21% for the latter (*Code 1112 Low Density Single Family Residential*). subareas **A1** through **A7**, **A8-2** ,**A9**, **A10-1** and **A10-2** are characterized by *Vacant Undifferentiated* only. Subarea **A8-1** is mixed use and so a weighted percent impervious was determined based on land use type (Table 6). Subarea **Lot1b** is developed and hence assumed to have a 21% imperviousness.

Table 6. Weighted imperviousness for Subarea A8-1

Area Types	Area (ac)	Imperviousness	Weighted Factor
Base Vacant	3.6	1%	1%
Single Family	0.3	21%	3%
Totals:	***3.9***		***3%***

The impervious estimates for all subareas are summarized in Table 7.

4.4.6. Summary of subarea characteristics

All of the computed existing subarea characteristics are shown in Table 7 below.

Table 7. Existing condition subarea design data

Subarea	Total Area (ac)	Percent Impervious	Longest Flow Path Length (ft)	Longest Flow Path Slope (%)	Routing Flow Path Length (ft)	Routing Flow Path Slope (%)	Soil Type	Bulking factor	DPR (yd /mi)	DPV (yd^3)
A1	5.6	1.0%	971	44%	971	44%	081	2.0	240000	2100
A2	4.8	1.0%	812	47%	812	47%	081	2.0	240000	1800
A3	3.6	1.0%	926	38%	611	26%	081	2.0	240000	1350
A4	7.0	1.0%	749	58%	521	48%	081	2.0	240000	2630
A5	4.7	1.0%	835	32%	757	24%	081	2.0	240000	1760
A6	6.1	1.0%	886	50%	886	50%	081	2.0	240000	2290
A7	5.6	1.0%	983	44%	595	24%	081	2.0	240000	2100
A8-1	3.9	3.0%	1166	23%	806	12%	081	1.921	201000	1220
A8-2	5.1	1.0%	766	38%	659	16%	081	1.964	222000	1770
A9	1.5	1.0%	655	28%	395	20%	081	2.0	240000	560
A10-1	1.7	1.0%	882	13%	617	09%	007	1.604	46000	120
A10-2	1.4	1.0%	768	15%	711	14%	007	1.643	65000	140
Lot1b	0.5	21%	451	24%	184	09%	007	N/A	N/A	N/A
TOTAL:	***51.5***								***TOTAL:***	***17840***

4.5. Time of concentration calculation

With the subarea parameters identified, Hydrocalc (LACDPW, ND) was used to calculate the times of concentration for each subarea. Both the 25-year (Urban Flood) and the 50-year (Capital Flood) year storms were computed. The detailed output may be found in Appendix C. Hydrocalc computed all times of concentration to be 5 minutes (the minimum allowed) for all existing subareas and both storm events except for subareas **A8-1** and **A10-2**, which were both computed to have 6-minute times of concentration during the 25-year storm (they both had 5-minute times of concentration during the 50-year storm).

4.6. Routing analysis

The existing condition subareas are routed, with drainage flowing from north to south and exiting the site near the intersection of Palm Drive and Grand Avenue. Although there is a storm drain inlet at the outlet, flows and debris during large storm events will typically overwhelm and / or clog the inlet, spill into the street, and flow down the west curb of Grand Avenue.

In addition to the two clear water design storms (the 25-year clear water, 50-year clear water), the capital flood protection requires the 50-year burned flow as well as bulked conditions to be considered. Specifically, the results of the burned flow analyses were used in conjunction with the computed bulking factors to estimate the burned and bulked flows for the 50-year return event (denoted here as Q50 BB). These flows were calculated by multiplying the ***cumulative bulking factor*** by the 50-year routed burned flow rates (Q50 Burn). The cumulative bulking factor was required because at several subareas and concentration points, the contributors to the flow had different bulking factors. For example, at **A8-1**, all three of the upstream subareas (**A1**, **A3** and **A5**) have bulking factors = 2, whereas at **A8-1** the bulking factor is 1.909 (already a weighted value due to different land use and soil types within the subarea). As shown in Table 8, the cumulative bulking factor at **A8-1** is therefore 1.981. Likewise, a summary of the cumulative bulking factor calculations at **A8-2** , **CP1**, **A10-1**, **A10-2** and **CP2** are summarized in Table 8 through 13, respectively.

Table 8. Cumulative bulking factor at subarea A8-1

Subarea(s)	Area (ac)	Subarea(s) Bulking factor	Cumulative Bulking Factor
A8-1	3.9	1.921	0.415
A1,A3,A5	14	2	1.570
Totals:	***17.8***		***1.983***

Table 9. Cumulative bulking factor at subarea A8-2

Subarea(s)	Area (ac)	Subarea(s) Bulking factor	Cumulative Bulking Factor
A8-2	5.1	1.963	0.893
A6	6.1	2	1.090
Totals:	***11.2***		***1.983***

Table 10. Cumulative bulking factor at CP-1

Subarea(s)	Area (ac)	Subarea(s) Bulking factor	Cumulative Bulking Factor
A8-1	3.9	1.921	0.251
A8-2	5.1	1.963	0.337
A1,A3,A5,A6	20	2	1.36
Lot1b	0.5	0	0
Totals:	***29.4***		***1.949***

Table 11. Cumulative bulking factor at subarea A10-1

Subarea(s)	Area (ac)	Subarea(s) Bulking factor	Cumulative Bulking Factor
A10-1	1.7	1.604	0.087
A8-1	3.9	1.921	0.237
A8-2	5.1	1.963	0.318
A1,A3,A5,A6	20	2	1.286
Lot1b	0.5	0	0
Totals:	***31.1***		***1.931***

Table 12. Cumulative bulking factor at subarea A10-2

Subarea(s)	Area (ac)	Subarea(s) Bulking factor	Cumulative Bulking Factor
A10-2	1.4	1.643	0.115
A2,A4,A7,A9	19	2	1.860
Totals:	***20.4***		***1.975***

Table 13. Cumulative bulking factor at subarea CP2

Subarea(s)	Area (ac)	Subarea(s) Bulking factor	Cumulative Bulking Factor
A8-2	5.1	1.963	0.193
A8-1	3.9	1.921	0.143
A1,A3,A5,A6	20	2	0.777
Lot1b	0.5	0	0.000
A10-1	1.7	1.604	0.052
A10-2	3.1	1.643	0.045
A2,A4,A7,A9	18.9	2	0.734
Totals:	***51.5***		***1.944***

With all of the necessary parameters established, the software program LAR04 (CivilDesign, 2017) was used for the actual routing analysis of the existing conditions. The schematic shown below in Figure 7 describes how the flow through the delineated subareas will progress as well as figure showing a schematic translation between the report existing subarea designations to those used in LAR04. The Existing Condition map in Appendix F also shows the individual routed flows. The LAR04 files are included in Appendix C and the results of the routing analysis are summarized in Table 15. (Note that in addition to the flows, the table also presents the total contributing drainage areas at each location in the model and the cumulative debris volume production (DVP) in yd^3.) A table relating existing cumulative areas as designated in the report and the concentration point definitions in LAR04 is also shown below.

The analysis predicts that the overall existing condition routed clear water flow is 142 cfs for the 25-year storm and 160 cfs for the 50-year storm. These values are important because LACDPW requires that the corresponding clear water outflow under the proposed condition be less than those under the existing condition. How the proposed conditions meet this requirement is described in the next section.

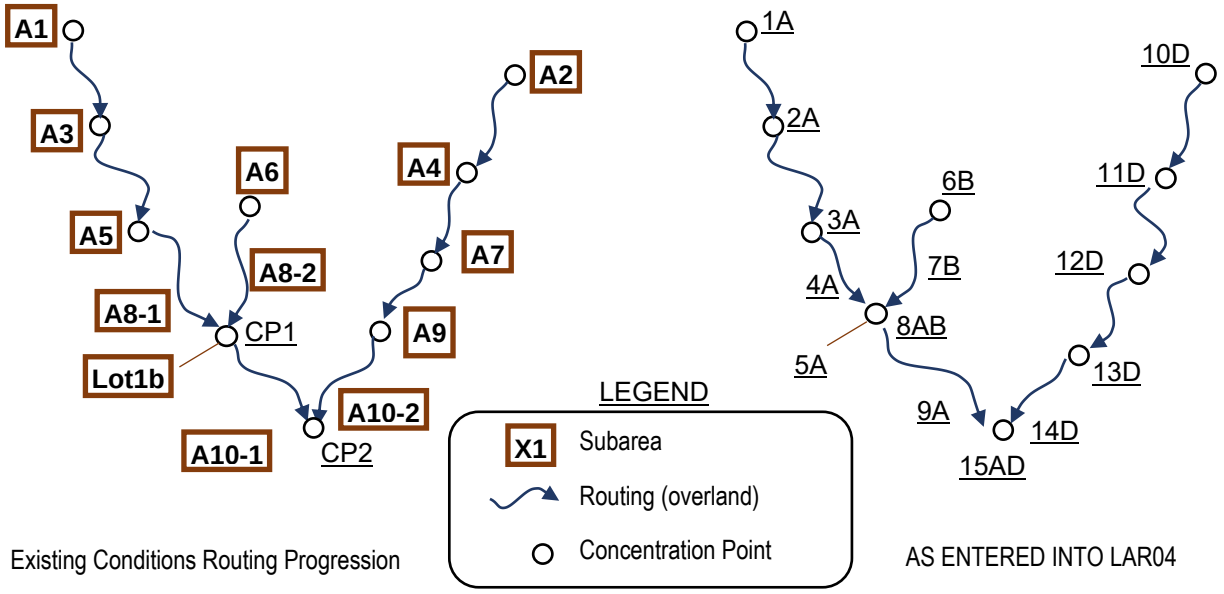


Figure 7. Existing condition routing schematic in LAR04.

Table 14. Existing condition cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	A1
2A	A3, A1
3A	A5, A3, A1
4A	A8-1,A5,A3,A1
5A	Lot1b, A8-1,A5,A3,A1
6B	A8-2, A6
7B	A8-2, A6, A8-1,A5,A3,A1
8AB	Lot1b, A8-2, A6, A8-1,A5,A3,A1
9A	A10-1, Lot1b, A8-2, A6, A8-1,A5,A3,A1
10D	A2
12D	A4, A2
12D	A7, A4, A2
13D	A9, A7, A4, A2
14D	A10-2, A9, A7, A4, A2
15AD	A10-1, Lot1b, A8-2, A6, A8-1, A5, A3, A1, A10-2, A9, A7, A4, A2

Table 15. Summary of routed flows under the existing condition

LAR04	Sub-area / CP	Area (ac)	Σ Area (ac)	Q25 (cfs)	ΣQ25 (cfs)	Q50 (cfs)	ΣQ50 (cfs)	Q50Burn (cfs)	ΣQ50Burn (cfs)	Cum. Bulk Fact.	Q50 BB (cfs)	ΣQ50 BB (cfs)	DPV (yd^3)	ΣDVP (yd^3)
1A	A1	5.6	5.6	21.7	21.7	25.1	25.1	26	26	2	52	52	2100	2100
2A	A3	3.6	9.2	14	31.3	16.1	36.6	16.7	38.1	2	33.4	76.2	1350	3450
3A	A5	4.7	13.9	18.2	42.1	21	49.5	21.8	51.8	2	43.6	104	1760	5210
4A	A8-1	3.9	17.7	13.2	46.9	15.7	55.7	16.3	58.8	1.983	32.3	117	1220	6440
5A	Lot1b	0.5	0.5	1.8	47.5	2.1	56.8	2.2	2.2	2	4.4	4.4	N/A	N/A
6B	A6	6.1	6.1	23.6	23.6	27.4	27.4	28.3	28.3	2	56.6	56.6	2290	2290
7B	A8-2	5.1	11.2	19.8	36.3	22.9	42.7	23.7	44.5	1.983	47.0	88.2	1770	4060
8AB	CP1		29.5		80.8		96.0		101	1.949		197		
9A	A10-1	1.7	31.1	5.1	81.4	6	96.6	6.5	102	1.931	12.6	197	120	10610
10D	A2	4.8	4.8	18.6	18.6	21.5	21.5	22.3	22.3	2	44.6	44.6	1800	1800
11D	A4	7	11.8	27.1	42.8	31.4	49.8	32.5	51.7	2	65	103	2630	4430
12D	A7	5.6	17.4	21.7	58.1	25.1	68	26.0	70.8	2	52	142	2100	6530
13D	A9	1.5	18.9	5.8	61.3	6.7	71.6	7.0	74.8	2	14.0	150	560	7090
14D	A10-2	1.4	20.3	4.8	60.4	5.6	70.7	6.1	74.4	1.975	12.1	147	140	7230
15AD	CP2	51.5	51.5		142		167		176	1.944		342	N/A	17840

For LAR04 outputs associated with this table, see the Existing Condition Routing section of Appendix C.

5. Proposed Condition

5.1. Overall approach

The proposed (post-developed) conditions exhibit is shown in Map 2 (Appendix F). Note that subareas B through N are offsite drainage areas that are conveyed into the proposed storm drain system, whereas subareas Q and R denote onsite drainage the flows through the proposed private streets. Flow in the storm drain will be split with a portion conveyed into the public storm drain system. Specifically, the design will divert the $Q_{allowable}$ = 89.6 cfs burned, debulked flow to the public storm drain during the 50-year storm (Capital Flood). The other offsite flows will be conveyed along the historic drainage path by means of a flow return structure. All of the onsite flows will be conveyed by the proposed surface streets along the historical path. Note that, with this design, it is only just outside of the project extents that the onsite and offsite flows will combine.

Drainage under the proposed conditions is affected by the following design elements:

1. **Storm drain.** A new storm drain will convey **only offsite** flow through the site.
2. **Two elevated inlets**. The west and middle debris facilities – (denoted ***B*** and ***C*** with respective primary drainage areas corresponding to subareas B and C) – will be constructed according to the LACDPW regulations for elevated inlets. Note that LACDPW has given an allowance to Dreamland to build the west basin ***B*** as an elevated inlet even though the debris production is slightly above the typically imposed maximum capacity of 4,999 cubic yards. See Appendix E for documentation on this variance. An inclined tower will be required at ***B***. Note that the flows to elevated inlet ***C*** will include not only the outflow from C, but also outflows from two other smaller, graded areas F and H (not debris producing).
3. **One debris basin.** The debris basin ***D*** is located directly northeast of the proposed development with corresponding subarea D.
4. **Onsite Best Management Practices (BMP) measures.** In all developed areas, BMP measures will be implemented to treat runoff. The City of Glendora has requested control over the implementation of these measures. Accordingly, they will be designed to City of Glendora standards and submitted to them under separate review.
5. **Inlets.** These structures collect drainage from the graded offsite areas K, L, M and N. Since these subareas are within the developed footprint, the subareas are not debris producing and hence their outflows are considered burned only.
6. **Parkway Drain.** As noted earlier, outflow under the existing condition is ultimately conveyed south along Grand Avenue. Under proposed conditions, the overall outflow from the site is reduced, and a large portion (near but less than the $Q_{allowable}$ = 89.6 cfs) will be conveyed into the storm drainage system. The remaining flow will need to be returned to its historic path along Grand Avenue. To reduce risk to pedestrians and vehicles, a parkway drain will be constructed. This structure will reduce the concentrated storm drain flow to low depth sheet flow. The exact design of the parkway drain will be done as part of the hydraulic calculations during full design following approval of this Hydrology Report. Flow to and from the parkway drain will be under positive drainage (i.e. a bubbler system will not be required).
7. **Flow split.** The split of the storm drain flow into the main storm drain system flow and flow to the return flow structure will be accomplished utilizing standard flow splitting measures implemented within a manhole. It is expected that this can be achieved by installing different size pipes. An orifice on one of the pipes may be required to insure the allowable drainage to the storm drain is not exceeded. A sketch of this configuration is shown in Figure 8 below. Note that the design is simplified by the expected elevation changes downstream of the split, which are of sufficient magnitude that the flows will most likely be supercritical and hence backwater effects should not be an issue. Detailed hydraulic calculations of the flow split will accompany the hydraulic design to be developed following Hydrology Report approval.

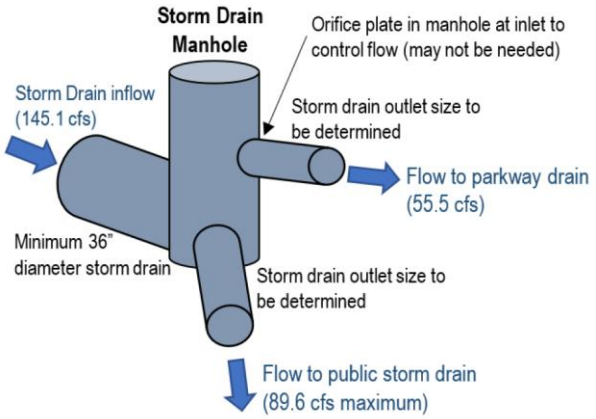


Figure 8. Flow split schematic

5.2. Proposed Subareas

5.2.1. Hydrologic parameters

The offsite subareas can be divided into undeveloped and therefore debris producing subareas (B, C, and D), versus subareas that are graded and / or developed and so are not debris producing (subareas F, H, K, L, M, N, Q, and R). These subareas are further divided as needed (e.g. B becomes B1, B2, B3) to ensure that no subarea has a flow path greater than 1,000 feet (an LACDPW regulation). Note that there are no subareas designated E, G, I, J, O, or P – these subareas were designated in earlier design iterations but are no longer used in this final analysis.

The following three hydrologic parameters are common to all of the proposed condition subareas:

- Fire factor: 0.71
- 50-year, 24-hour isohyet: 8.3 inches
- DPA zone: 1 (specific to only the debris producing subareas)

The following are relevant details regarding the proposed subareas:

- Subareas B, C, and D are assumed to have 1% imperviousness as specified by the LACDPW standard *Code 1271.12 (Base Vacant Undifferentiated).*
- Subareas B3, C, and D3 are debris producing but contains some non-debris producing, regraded areas to be made erosion resistant by compacted, seeded soil or other appropriate hydromodification. Hence, in these subareas, only that portion which is debris producing was used to determine debris production. This information is included in Table 16, below.
- As noted previously, the proposed graded subareas K, L, M, N, F, H are not debris producing. Therefore, the percent impervious for these six subareas is taken to be 2% (Code 1272 Vacant Areas), and bulking factors or debris production rates were not computed for these subareas.
- The onsite portion of the development is divided into an upper subarea Q and lower subarea R. Subarea Q contains mostly soil type 081 (upper Gabriel River USGR-G-1), whereas subarea R contains mostly soil type 007 (Handford gravelly sandy loam). As areas of developed, single family home parcels, Q and R were given a maximum percent impervious of 21% (*Code 1112 Low Density Single Family Residential*). As part of the onsite development, they are not debris producing and hence bulking factors or debris production rates were not computed for these subareas.
- As noted earlier, Lot 1 is already developed as a single-family home parcel and will be left unaltered by the proposed improvements. A portion of lot one drains into the proposed development. This area was denoted as Lot1b for the existing condition analysis. Here it was simply included as a portion of subarea Q.

Table 16 summarizes all of the hydrologic parameters for the proposed condition subareas.

Table 16. Proposed condition hydrologic design data and debris production of offsite subareas

Subarea	Total area (ac)	Debris producing area (ac)	Impervious (%)	Longest flow path length (ft)	Longest flow path slope (%)	Routing flow path length (ft)	Routing flow path slope (%)	Soil Type	Bulking factor	Debris production volume (yd^3)
B1	5.6	5.6	1.0%	971	44%	971	44%	081	2.0	2100
B2	3.6	3.6	1.0%	926	38%	605	26%	081	2.0	1350
B3	4.8	4.3	1.0%	660	38%	539	31%	081	2.0	1610
C	6.6	6.0	1.0%	908	48%	908	51%	081	2.0	2250
D1	4.8	4.8	1.0%	812	47%	812	47%	081	2.0	1800
D2	7.0	7.0	1.0%	749	58%	521	48%	081	2.0	2630
D3	6.2	4.9	1.0%	822	53%	431	32%	081	2.0	1850
F	0.9	0	1.0%	540	32%	451	39%	081	N/A	N/A
H	1.5	0	1.0%	758	26%	473	42%	081	N/A	N/A
K	0.7	0	2.0%	237	21%	194	25%	081	N/A	N/A
L	0.7	0	2.0%	224	20%	135	33%	081	N/A	N/A
M	0.7	0	2.0%	310	14%	157	27%	081	N/A	N/A
N	0.5	0	2.0%	170	31%	135	40%	081	N/A	N/A
Q	5.5	0	21%	898	18%	898	18%	081	N/A	N/A
R	4.0	0	21%	750	08%	679	09%	007	N/A	N/A
TOTAL:	***53.1***								***TOTAL:***	***13,590***

5.2.2. Time of concentration calculation

Hydrocalc (ND) was used to calculate the 25-year and 50-year return storm times of concentration. Consistent with the time of concentration analysis of the existing condition, almost all of the proposed subarea times of concentration defaulted to 5 minutes. This is likely a result of the small drainage areas and steep slopes. The one exception is for R, which has a 6-minute time of concentration during the 25-year storm. The detailed Hydrocalc output may be found in Appendix C.

5.2.3. Routing analysis

The delineated proposed subareas were analyzed for the 25-year (Urban Flood) and 50-year (Capital Flood). As can be seen in the proposed condition routing schematic (Figure 9, below), this modeling effort was divided into four separate analyses with LAR04 and three separate detention analyses with Retard, as follows:

1. Subareas B1, B2, and B3 were routed in LAR04 as shown in Figure 9 to obtain an input hydrograph to ***Elevated Inlet B***. Details of this analysis can be found in Appendix C here: SUBAREA B ROUTING ANALYSIS.
2. Subareas C, F, and H were combined in LAR04 as shown in Figure 9 to obtain an input hydrograph to ***Elevated Inlet C***. Details of this analysis can be found in Appendix C here: SUBAREAS C F AND H ROUTING ANALYSIS.
3. Subareas D1, D2, and D3 were routed in LAR04 as shown in Figure 9 to obtain an input hydrograph to ***Debris Basin D***. Details of this analysis can be found in Appendix C here: SUBAREA D ROUTING ANALYSIS.
4. Three separate detention analyses were conducted for ***Elevated Inlet B***, ***Elevated Inlet C***, and ***Debris Basin D*** using the program Retard and the hydrographs developed from steps 1 through 3. Note that outflow from these facilities into the storm drain will result from a combination of flow into the perforated intake and flow over the debris barrier should water levels rise high enough to do so. The perforated intake structure was modeled as a sharp-crested, free falling weir with coefficient of 3.0 and a total width of 3 feet (in keeping with the required 18 4-inch perforations, and constricted 50% to account for end losses), with an invert elevation assumed to be at the base elevation of the detention. Overflow from the debris barriers was also modeled as part of the analysis, each assumed to be a 10-

foot long, sharp-crested weir with a coefficient of 3.0 (note that the overall length of the debris barriers will be more than this at the different installation, but only a 10 feet width of them will be set at the given design elevation – the remainder will be set at the high water elevation). Stage storage curves were developed using the incremental volume method and assuming the debris containment facility was at capacity prior to flow initiation. (See section 6. "Debris protection measures" for development of the debris elevations and stage storage curves.) The output from the detention analyses can be found in Appendix C here: DETENTION ANALYSIS. The clear water routing results are summarized in Table 17 (Urban Flood) and Table 18 (Capital Flood) below. Note that, in keeping with LACDPW regulations, a minimum 2 feet of freeboard is maintained in all three basins for both storm events.

5. A final LAR04 routing of the proposed condition outflow was conducted as a single analysis as follows:
    a. The outflow hydrographs from the detention analyses were used as inputs for the storm drain analysis. Also, as noted in Figure 9, offsite subareas K, L, M, and N contribute inflow hydrographs to the storm drain system. These hydrographs were routed together and their combined flows analyzed through the storm drain system all the way to the flow split.
    b. Onsite subareas Q and R were routed through the proposed streets to the intersection of Grand Avenue and W. Palm Drive as shown in Figure 9. Appendix D contains the hydraulic calculations that verify the proposed onsite street cross-sections have sufficient carrying capacity for this flow, and Appendix B includes a copy of a letter issued by the City of Glendora approving this approach to onsite flow conveyance.
    c. The overall output hydrograph from Step 5a was combined with the output hydrograph from Step 5b to obtain an overall peak flow at the property line. Note that the water from these two sources doesn't actually combine at the property line (they combine slightly downgradient of the property line), but this step was necessary within the program to obtain an overall estimate of peak flow from the site as needed to verify that the proposed outflow does not exceed existing flow.

Table 17. Detention analysis results: 25-year storm (Urban Flood)

Debris structure	Debris elev. at the debris barriers	Crest elev.	Debris barrier elev.	Peak inflow (cfs)	Peak outflow (cfs)	High water surface elev.	Freeboard (feet)
B	1122.0	1128.0	1126.0	44.6	34.1	1124.4	3.6
C	1092.0	1096.0	1093.5	34.9	26.9	1093.7	2.3
D	1121.0	1125.5	1122.5	62.2	53.2	1123.3	2.2

Table 18. Detention analysis results: 50-year storm (Capital Flood)

Debris structure	Debris elev. at the debris barriers	Crest elev.	Debris barrier elev.	Peak inflow (cfs)	Peak outflow (cfs)	High water surface elev.	Freeboard (feet)
B	1122.0	1128.0	1126.0	52.4	39.6	1124.7	3.3
C	1092.0	1096.0	1093.5	40.4	31.4	1093.8	2.2
D	1121.0	1125.5	1122.5	72.4	62.8	1123.5	2.0

Table 19. Detention analysis results: 50-year storm (Capital Flood Burned Flows)

Debris structure	Debris elev. at the debris barriers	Crest elev.	Debris barrier elev.	Peak inflow (cfs)	Peak outflow (cfs)	High water surface elev.	Freeboard (feet)
B	1122.0	1128.0	1126.0	54.7	41.5	1124.8	3.2
C	1092.0	1096.0	1093.5	41.8	32.8	1093.9	2.1
D	1121.0	1125.5	1122.5	75.3	65.4	1123.5	2.0

A schematic of the proposed condition outflow routing in shown below.

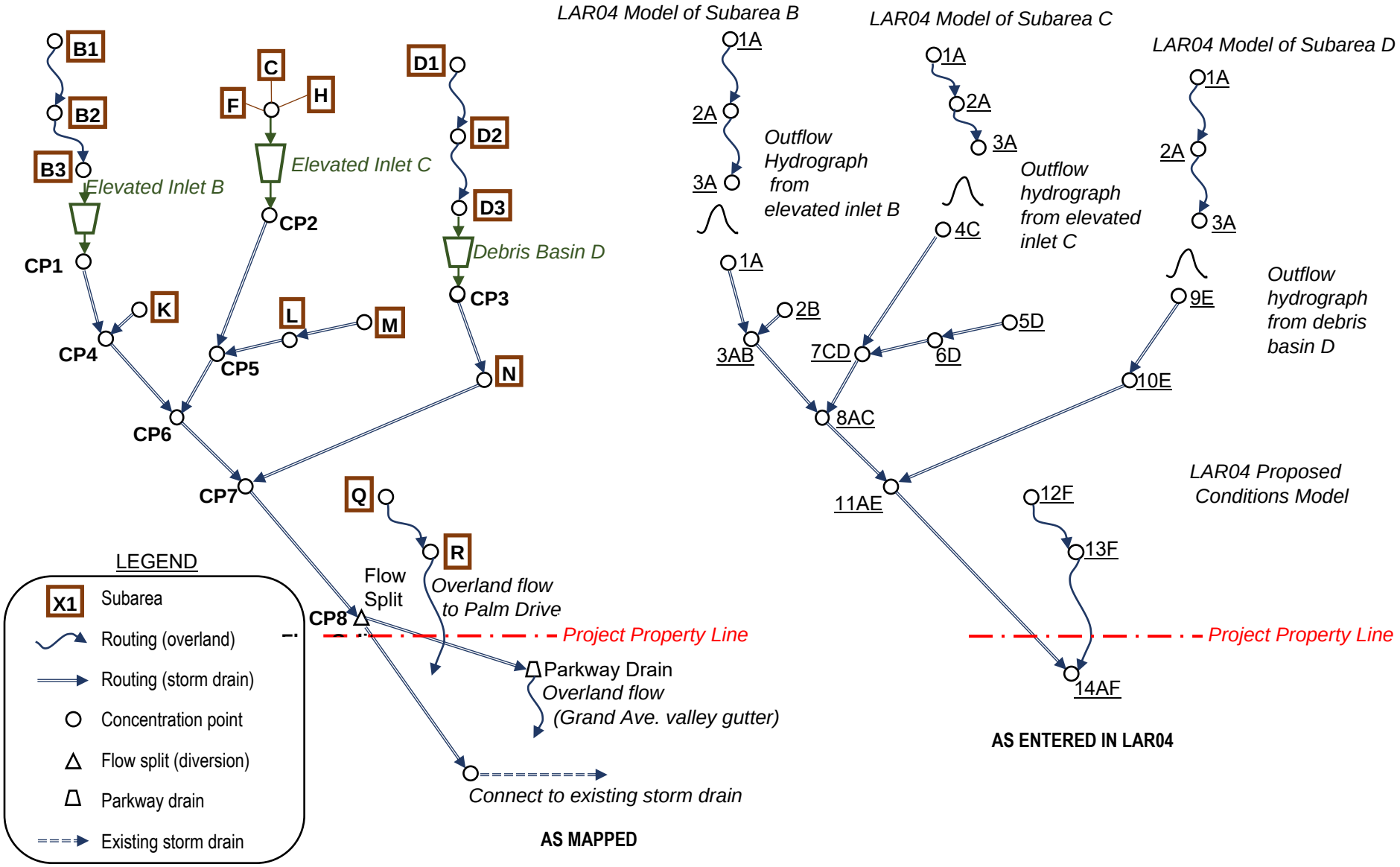


Figure 9. Proposed condition outflow routing schematic for LAR04.

The following tables list the contributing subareas to each LAR04 concentration point for the various models. The results of the routing analysis are summarized in Table 24. Details of the LAR04 analysis can be found in Appendix C here: **PROPOSED CONDITIONS OUTFLOW ROUTING ANALYSIS.**

Table 20. LAR04 Model B, Proposed condition subareas B1 – B3 cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	B1
2A	B2, B1
3A	B3, B2, B1

Table 21. LAR04 Model C, Proposed condition subareas C, F, and H cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	C
2A	F, C
3A	H, F, C

Table 22. LAR04 Model D, Proposed conditions subareas D1 – D3 cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	D1
2A	D2, D1
3A	D3, D2, D1

Table 23. Proposed condition cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	B1, B2, B3
2B	K
3AB	K, B1, B2, B3
4C	C, F, H
5D	M
6D	L, M
7CD	C, F, H, L, M
8AC	K, B1, B2, B3, C, F, H, L, M
9E	D1, D2, D3
10E	N, D1, D2, D3
11AE	K, B1, B2, B3, C, F, H, L, M, N, D1, D2, D3
12F	Q
13F	R, Q
14AF	K, B1, B2, B3, C, F, H, L, M, N, D1, D2, D3, R, Q

Table 24. Proposed conditions routing analysis summary

LAR04 Model, Node	Sub-area / CP	Area (ac)	ΣArea (ac)	Q25 (cfs)	ΣQ25 (cfs)	Q50 (cfs)	ΣQ50 (cfs)	Q50 Burn (cfs)	ΣQ50 Burn (cfs)	Cum Bulk Fact	Q50 BB (cfs)	ΣQ50 BB (cfs)	DPV (yd^3)	ΣDVP (yd^3)
B, 1A	B1	5.6	5.6	21.6	22.6	25.1	25.1	26	26	2.0	52	52	2100	2100
B, 2A	B2	3.6	9.2	14	31.3	16.1	36.6	16.7	38.1	2.0	33.4	76.2	1350	3450
B, 3A	B3	4.8	14	18.6	44.6	21.5	52.4	22.9	54.7	2.0	45.8	110	1760	5060
C, 1A	C	6.6	6.6	25.6	25.6	29.6	29.6	30.7	30.7	2.0	61.4		2250	2250
C, 2A	F	0.9	7.5	3.5	29.1	4.0	33.7	4.2	34.8	N/A	N/A	N/A	N/A	N/A
C, 3A	H	1.5	9.0	5.8	34.9	6.7	40.4	7.0	41.8	N/A	N/A	N/A	N/A	N/A
D, 1A	D1	4.8	4.8	18.6	18.6	21.5	21.5	22.3	22.3	2.0	44.6	44.6	1800	1800
D, 2A	D2	7.0	11.8	27.2	42.8	31.4	49.8	32.5	51.7	2.0	65	103	2630	4430
D, 3A	D3	6.2	18	24	62.2	27.8	72.4	28.8	75.3	2.0	57.6	151	1850	6280
1A	CP1		14		34.1		39.6		42					
4B	K	0.7	14.7	2.7	2.7	3.1	3.1	3.3	3.3	N/A	N/A	N/A	N/A	N/A
3AB	CP4	0.7	14.7		35.4		41.1		43.5					
4C	CP2		9.0		26.9		31.4		32.8					
5D	M	0.7	0.7	2.7	2.7	3.1	3.1	3.3	3.3	N/A	N/A	N/A	N/A	N/A
6D	L	0.7	1.4	2.7	5.1	5.8	5.9	3.2	6.2	N/A	N/A	N/A	N/A	N/A
7CD	CP5		10.4		31.8		37.1		38.7					
8AC	CP6		25.1		64.7		75.4		79.0					
9E	CP3		18		53.3		62.8		65.8					
10E	N	0.5	18.5	1.9	54.4	2.2	64.3	2.3	67.3	N/A	N/A	N/A	N/A	N/A
11AE	CP7		43.6		118		138		145					
12F	Q	5.5	5.5	21.4	19.2	22.2	22.2	22.9	22.9	N/A	N/A	N/A	N/A	N/A
13F	R	4.0	9.5	31.2	29.4	34.5	34.5	15.6	36.1	N/A	N/A	N/A	N/A	N/A
14AF			53.1		142		167		175	N/A	N/A			N/A

The corresponding LAR04 hyperlinks for this table are as follows:

- Proposed Condition Subarea B Routing in LAR04
- Proposed Condition Subareas C, F, and H Routing in LAR04
- Proposed Condition Subarea D Routing in LAR04
- Proposed Condition Outflow Routing in LAR04

5.3. Comparison of existing condition versus proposed condition peak flows

Table 25 shows all of the flows for the existing and proposed condition at the property line for the clear and burned 25-year (Urban Flood) and 50-year (Capital Flood) storm events. For all storms, the total post-development outflow is seen to be less than or equivalent to that under the existing condition.

Table 25. Comparison of outflows

Storm Event	Proposed Condition Onsite Street Flow (cfs)	Proposed Condition Onsite Storm Drain Flow* (cfs)	**Proposed Condition Total Combined Flow (cfs)**	**Existing Condition Routed Clear Water Flow (cfs)**
25-year Clear (Urban Flood)	29.4	118	**142**	**142**
50-year Clear (Capital Flood)	34.5	138	**167**	**167**
50-year Burned (Capital Flood)	36.4	145	**175**	**176**

** The onsite storm drain flow at the property is split into flow into the existing storm drain and the flow to the return flow structure.*

As noted previously in this report, the total burned outflow to the existing storm drain is limited to 89.6 cfs. During the 50-year, burned conditions storm, this will require the proposed flow split to convey the 89.6 cfs to the storm drain system and return the remaining flow (145 cfs – 89.6 cfs = 54.9 cfs) to the street near its historic outflow location.

Although the installed flow split system will be designed for burned flow conditions, it will also reduce the clear water flow to the storm drain for all other storm events as well. The hydraulics of the flow diversion is beyond the scope of this Hydrology Report and will be analyzed at the design stage, but here a reasonable assumption is that the split for other storm types and return periods will maintain the same ratio as developed for the burned flow split. That is, the ratio of the allowable flow (89.6 cfs) to the total 50-year burned flow at the split (145 cfs) will remain constant at a value of 89.6 cfs / 145 cfs = 0.62. With this assumption, the relevant storm drain and street outflow calculations can be made (Table 26).

Table 26. Estimates of design outflows to the public storm drain

Storm Event	Total Storm Drain Flow at Split (cfs)	Portion of Storm Drain Outflow Draining to Public Storm Drain (cfs)	Portion of Storm Drain Outflow Draining to Parkway Drain (cfs)
25-year Clear (Urban Flood)	118	73.2	44.9
50-year Clear (Capital Flood)	138	85.5	52.4
50-year Burn (Capital Flood)	145	89.6	54.9
Ultimate condition	Q50 burned offsite + Q25 clearwater onsite = 145 + 29 = 174 cfs		

6. Debris protection measures

6.1. Debris containment design

As noted earlier, debris containment will be provided by elevated inlets ***B*** and ***C*** and the debris basin ***D***. All design and construction will be consistent with the LACDPW Sedimentation Manual (LACDPW, 2006). A schematic of each debris containment facility showing the incremental volume calculations for the debris storage as well as the stage storage relationship used for the ***B***, ***C***, and ***D*** storm water detention analysis is provided in figures 10, 11, and 12, respectively. The schematics indicate that volume (whether for debris containment estimates or hydraulic stage storage) is determined by the product of the contour elevation differences and the average contour areas immediately below and above any point of interest. Note that the summation of the debris basin incremental volumes matches the overall capacity estimates shown in Table 27 and the detention routing calculations shown in Appendix C.

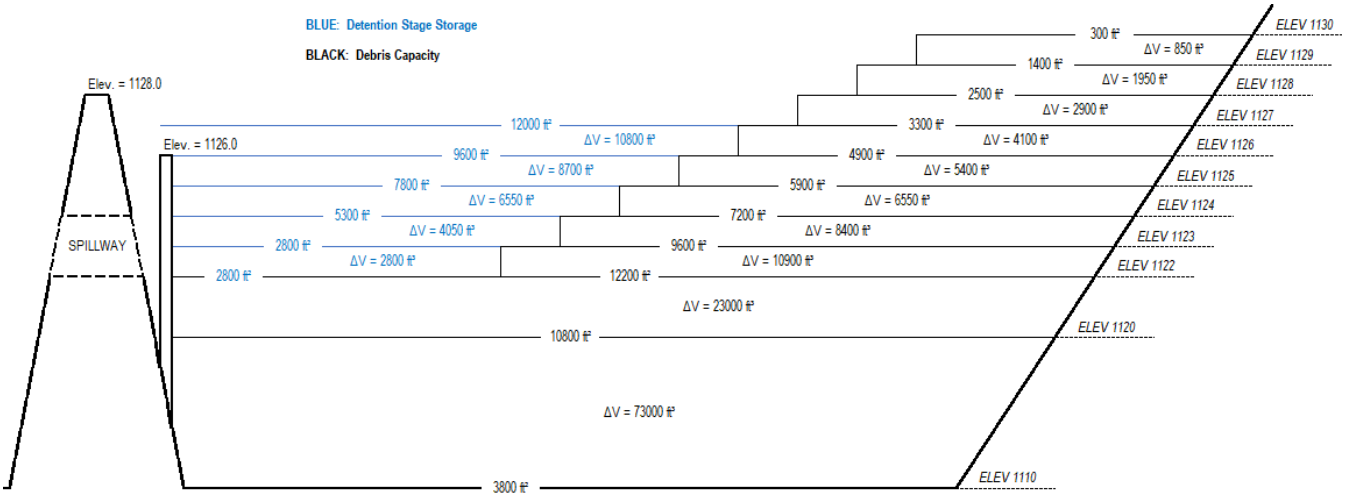


Figure 10. Elevated Inlet B Profile Schematic (not to scale)

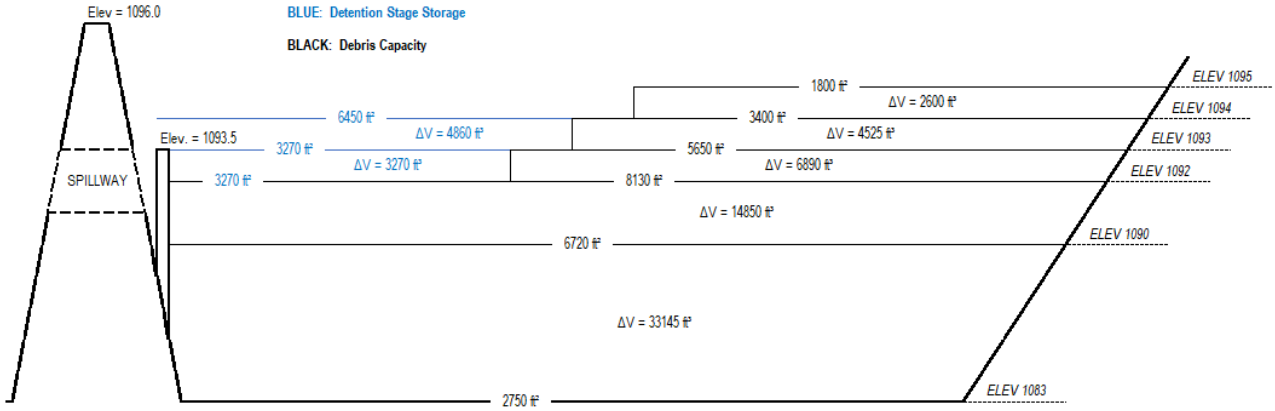


Figure 11. Elevated Inlet C Profile Schematic (not to scale)

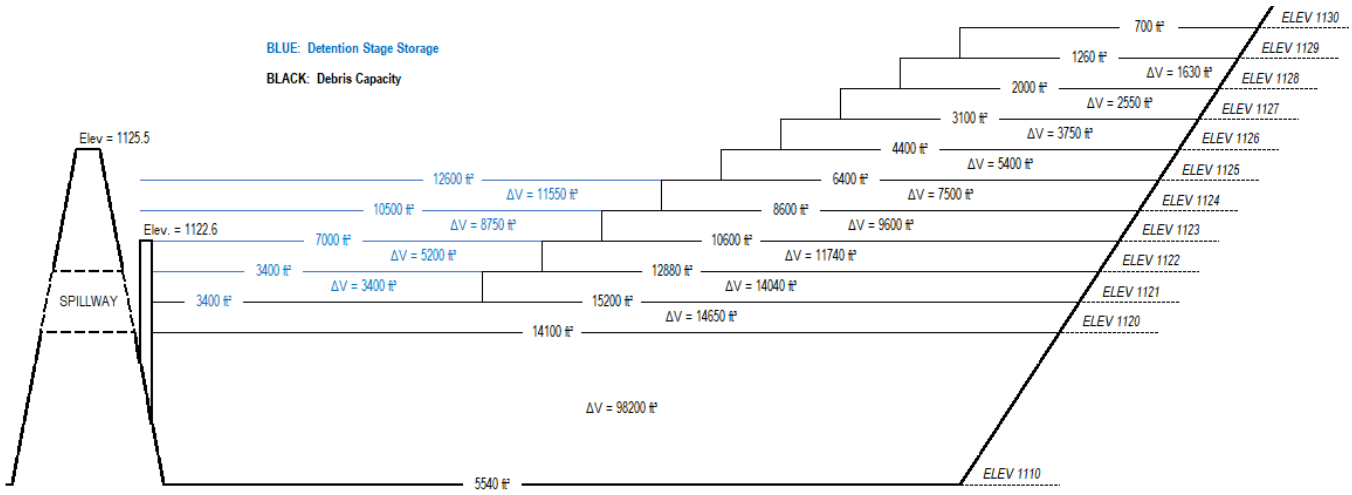


Figure 12. Debris Basin D Profile Schematic (not to scale)

Table 27. Debris containment details

Debris Protection Installation	Contributing Subareas	Debris Protection Type	Debris Production (cubic yards)	Debris Capacity (cubic yards)
B	B1, B2, B3	Elevated inlet	5060	5080
C	C	Elevated inlet	2250	2300
D	D1, D2, D3	Debris basin	6280	6300

As shown by the computations presented in the schematics, all debris containment facility capacities exceed requirements.

Finally, two other aspects of the debris containment facilities must be noted:

1. The steep slopes of the debris containment installations will be protected according to the site geotechnical report by G.A. Nicoll and Associates (G. A. Nicoll and Assocociates Inc., 2016)
2. All proposed debris protection measures will be transferred to Los Angeles County for maintenance and future evaluation.

7. Conclusion

The narrative, calculations, figures, tables, and maps in this study provide a comprehensive plan to protect the proposed subdivision from flooding and debris both from onsite and offsite sources. As a further benefit, homes downslope of the proposed development which are currently at risk will be protected from debris inundation for the first time in years, possibly decades.

Despite the steep terrain, the proposed debris mitigation measures will be easy to access by County personnel, with a dedicated low sloping access road that includes fully realized storm water controls and large turnaround areas.

Given the importance of this project with regards to protecting existing and future homeowners, and in recognition of the complicated nature of many of the required design elements and hydrologic analysis, all known LACDPW standards, including the hydrology plan checklist items, have been proactively addressed herein. This effort was made to honor the critical role that the LACDPW has historically played in the project as well as in anticipation that the Dreamland design team and LACDPW will continue to work together to efficiently develop the Silent Ranch subdivision to the benefit of both new homeowners and the existing community.

8. References

CivilDesign. (2017). LAR04: Modified Rational Method, F0601, Los Angeles Co., Version 11. San Bernardino, CA: CivilDesign. Retrieved 4 14, 2016, from CivilDesign: https://civildesign.com/products/lar04-modified-rational-method-f0601-los-angeles-co

G. A. Nicoll and Assocociates Inc. (2016). *Preliminary Report of Geotechnical Investigation , Proposed Debris Basins , Dams and Access Roads.* Glendora, CA.

LACDPW. (2006). *Hydrology Manual.* Alhambra: LCDPW Water Resources Division.

LACDPW. (2006). *Sedimentation Manual.* Alhambra: LACDPW Water Resources Division.

LACDPW. (2014). *Low Impact Development Standards Manual.* Alhambra: LACDPW.

LACDPW. (ND). HydroCalc Version 1.0.2. Los Angeles, CA: LACDPW. Retrieved 4 14, 2016, from https://dpw.lacounty.gov/wmd/dsp_LowImpactDevelopment.cfm

Appendix A. Allowable Outflow

Office Use Only
☐ Sent Initials: _____
☐ Fax ☒ Email ☐ Other: _____
Date: _____ Time: _____

LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS
DESIGN DIVISION – HYDRAULIC ANALYSIS UNIT

INFORMATION REQUEST SUMMARY

INFORMATION REQUESTED BY

*Requester's Name: Alissa Miller
Company: WEST Consultants. Inc.
*Phone Number: (480) 345 2155 Fax Number: (480) 345 2156
*Email: amiller@westconsultants.com

Method of Contact: ☐ Walk-in ☐ Phone ☐ Fax ☒ Email ☐ Prelim. Mtg. Date: 6-21-16

Intended Use: Design of connection to existing SD main.

Proposed Project Type: 14 Lot custom home subdivision Acreage Involved: 8.7

*Will information be used in any litigation? ☐ YES ☒ NO
Case Info. Name: _____ No: _____

COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS DESIGN DIVISION Hydraulic Analysis Unit OFFICIAL RECORD DOCUMENT Issued By: Date: 06/22/2016 Public Service That Works

INFORMATION REQUESTED (Attach Assessor Map)

LACFCD Facility: Name: _____
Unit: _____ Line: _____ Station: _____
City: _____
*Street/Cross-street: Palm Dr. and N. Grand Ave.
*Thomas Guide: Page: 569 Grid: D3 ☒ Site Map/Plans Submitted
Info. Requested: Q Allowable for connection to existing 39" dia. main on W Palm Dr.

***Required Information. See Page 2 of 2 for Instructions.**

BELOW SECTION TO BE COMPLETED BY THE HYDRAULIC ANALYSIS UNIT

INFORMATION PROVIDED: Allowable q per acre.

REFERENCES SEARCHED: BI 1219 Hydrology.

COMMENTS, ETC: Allowable q per acre = 1.74 cfs

INFORMATION PROVIDED BY: Ambrose C. Ajaelo PE Date: 06/22/2016

INFORMATION REVIEWED BY: Date:

Print Save a Copy

Page 1 of 2

Appendix B. City of Glendora Onsite Flow Approval

CITY OF GLENDORA CITY HALL (626) 914-8200
116 East Foothill Blvd., Glendora, California 91741
www.ci.glendora.ca.us

Nargiss Majrooh, P.E.
Principal Civil Engineering Assistant
Los Angeles County Public Works
900 South Fremont Avenue, 3rd Floor
Alhambra, CA 91802-1460

July 11, 2018

Ms. Majrooh,

The purpose of this letter is to provide conceptual approval for the general approach taken by Dreamland Investments with regard to onsite drainage within their proposed Silent Ranch development (Tentative Tract 72413). As presented in the Hydrology Study prepared by West Consultants, Inc. (dated 3-14-2018), and as described by Ms. Amy Bledsoe, P.E., of Giron Engineers, Inc. on June 27, 2018, this development of 14 lots (12 new homes), located north of Palm Drive and west of Grand Avenue in Glendora, California, will improve storm water protection in this area by building three new debris basins. These basins will debulk the offsite debris inflow and convey flows into a new storm drain system that will terminate near the historic flow outlet point at the southern tract boundary. At this point, the flow will be split between direct flow into the existing storm drain system (to the maximum allowed by Los Angeles County), and the remaining flows safely released above ground via a parkway drain or equivalent.

The onsite flows of the proposed development (lots 2 through 14 and a portion of lot 1) will be routed via the proposed private streets to Palm Drive, near the historic flow outlet point. The project engineers have assured the City that the drainage capacity of the proposed private streets will be sufficient to convey the entire design storm without overtopping the curb.

Accordingly, as it appears that these proposed improvements will significantly improve protection to residents within the region by eliminating debris flow and drastically reducing overall outflow (currently estimated in excess of 300 cfs for the Los Angeles County design storm), the City does not object to the general approach as presented and summarized above.

Sincerely,

Alison Sweet

Alison Sweet, P.E.
Assistant Public Works Director/City Engineer

PRIDE OF THE FOOTHILLS

Appendix C. Hydrologic Calculations

The Hydrocalc output shown in this Appendix corresponds exactly to the labels provided in this report. Unfortunately, the LAR04 software does not allow the user to change the default labeling. Hence, a translation from the labels provided in the report to what was used in LAR04 has been provided for clarity. To that end, each LAR04 output on the following pages has a title sheet showing a table relating the subarea designations with the points of concentration analyzed by LAR04, as well as a figure showing the schematic in the report and its translation into LAR04.

Hydrocalc: 25-Year Storm (Urban Flood)

Note that the Hydrocalc output on the following pages was used to calculate **time of concentration ONLY**. The flows shown were not used because routing via LAR04 was used instead (output shown later in this appendix).

Peak Flow Hydrologic Analysis

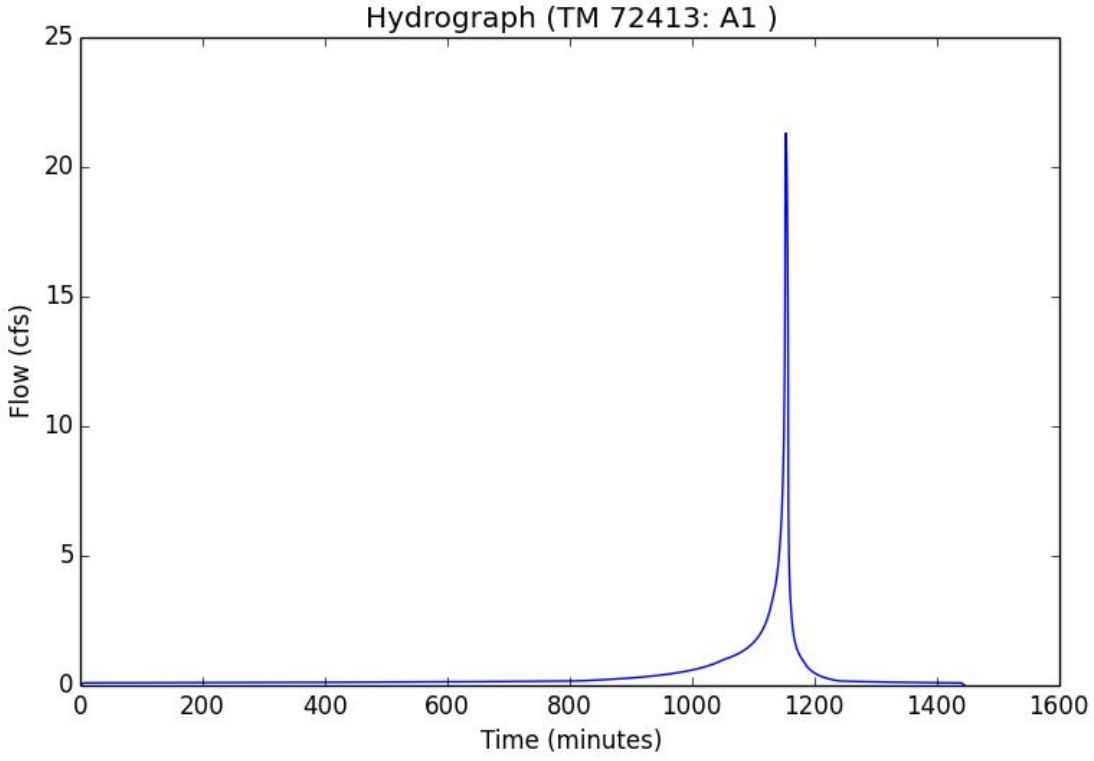
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A1
Area (ac)	5.6
Flow Path Length (ft)	971.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	21.3035
Burned Peak Flow Rate (cfs)	22.2055
24-Hr Clear Runoff Volume (ac-ft)	0.8929
24-Hr Clear Runoff Volume (cu-ft)	38896.3538



Peak Flow Hydrologic Analysis

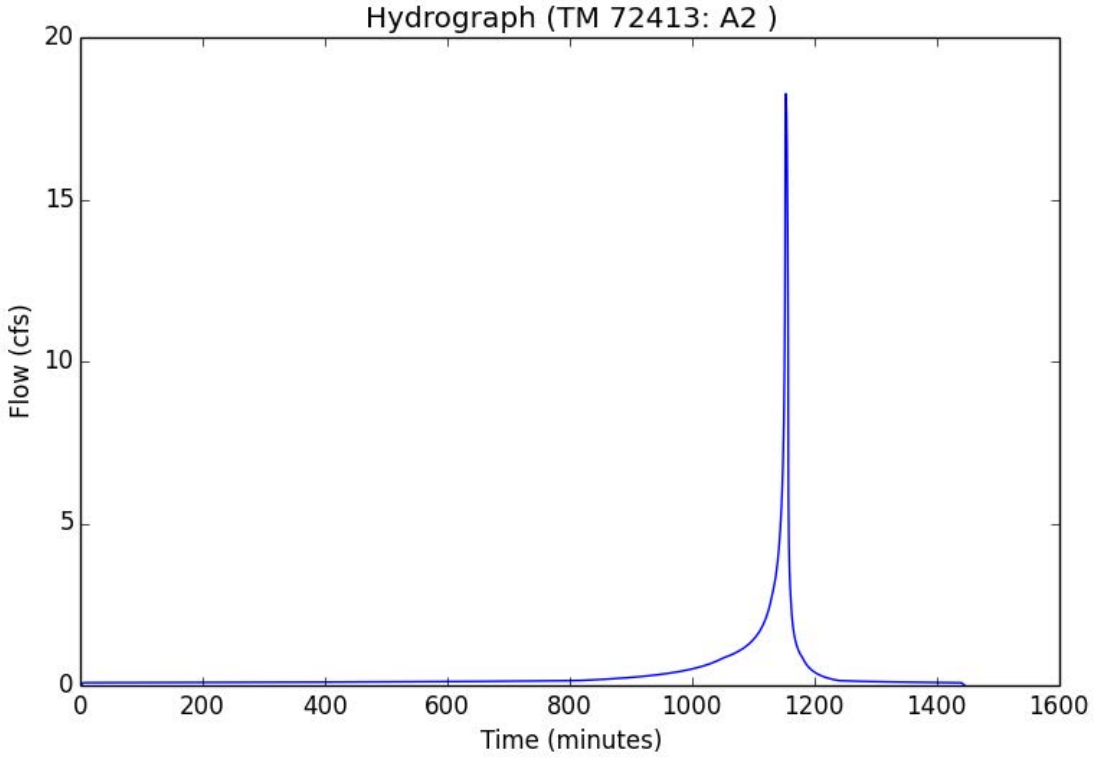
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Input Parameters

Project Name	TM 72413
Subarea ID	A2
Area (ac)	4.8
Flow Path Length (ft)	812.0
Flow Path Slope (vft/hft)	0.47
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	18.2602
Burned Peak Flow Rate (cfs)	19.0332
24-Hr Clear Runoff Volume (ac-ft)	0.7654
24-Hr Clear Runoff Volume (cu-ft)	33339.7318



Peak Flow Hydrologic Analysis

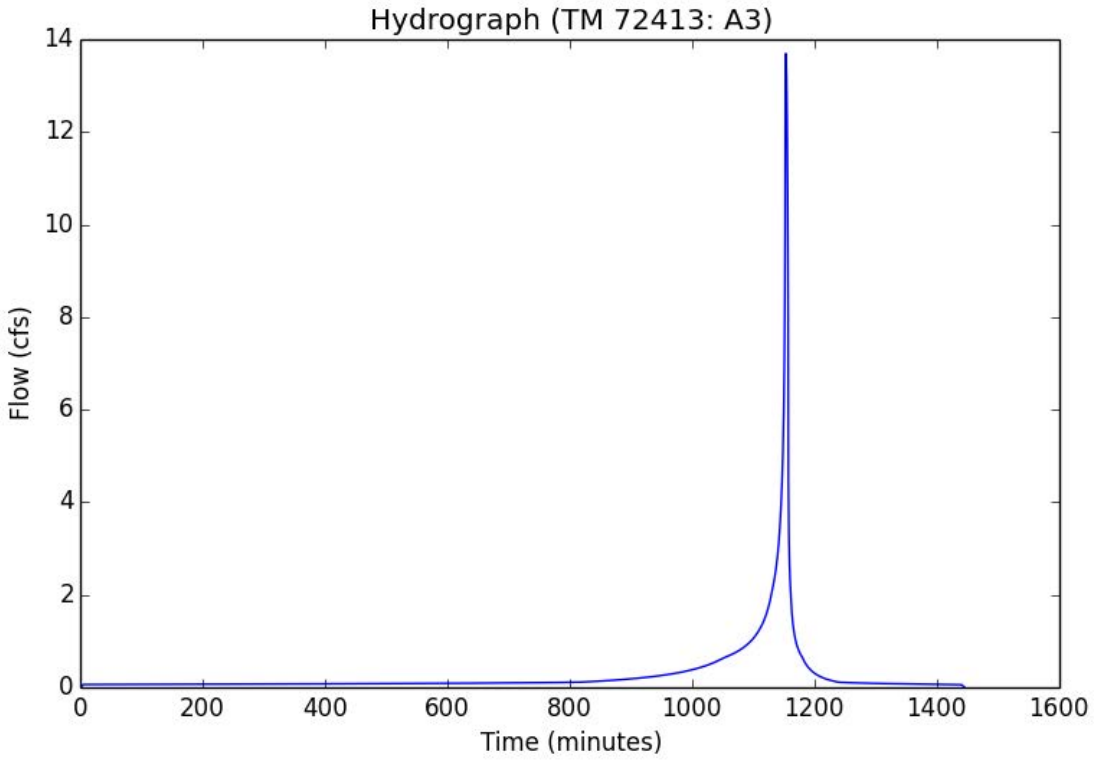
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Input Parameters

Project Name	TM 72413
Subarea ID	A3
Area (ac)	3.6
Flow Path Length (ft)	926.0
Flow Path Slope (vft/hft)	0.38
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	13.6951
Burned Peak Flow Rate (cfs)	14.2749
24-Hr Clear Runoff Volume (ac-ft)	0.574
24-Hr Clear Runoff Volume (cu-ft)	25004.7989



Peak Flow Hydrologic Analysis

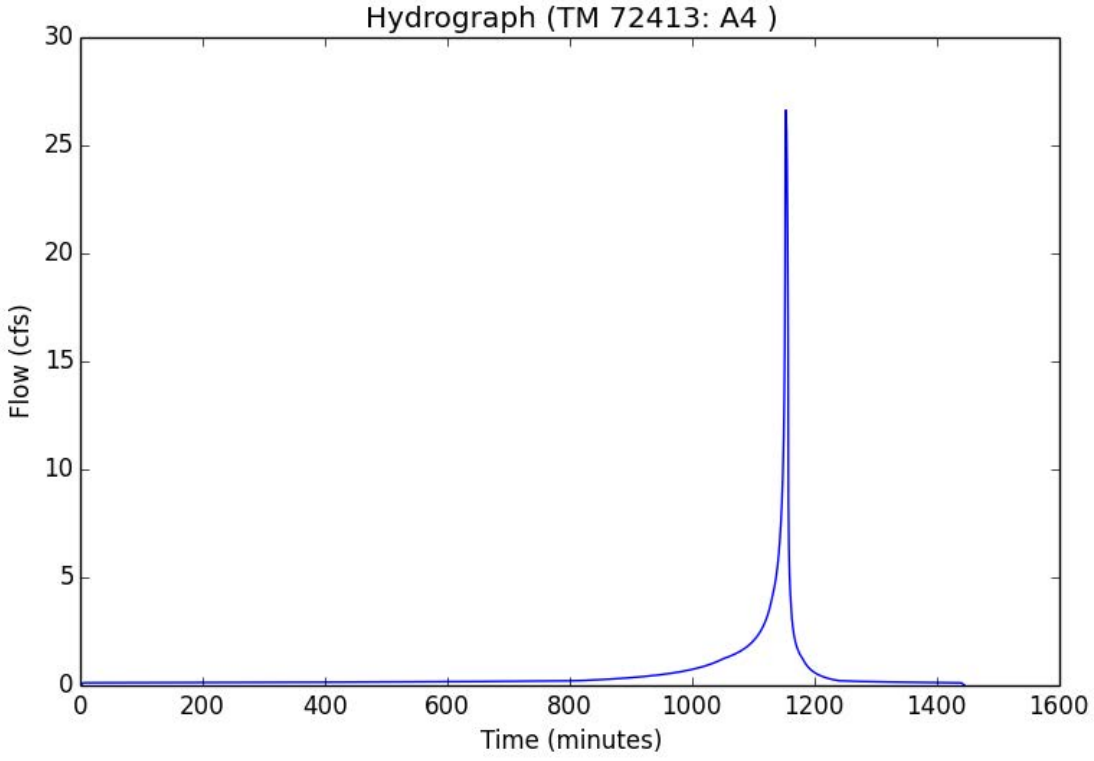
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Input Parameters

Project Name	TM 72413
Subarea ID	A4
Area (ac)	7.0
Flow Path Length (ft)	749.0
Flow Path Slope (vft/hft)	0.58
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	26.6294
Burned Peak Flow Rate (cfs)	27.7568
24-Hr Clear Runoff Volume (ac-ft)	1.1162
24-Hr Clear Runoff Volume (cu-ft)	48620.4423



Peak Flow Hydrologic Analysis

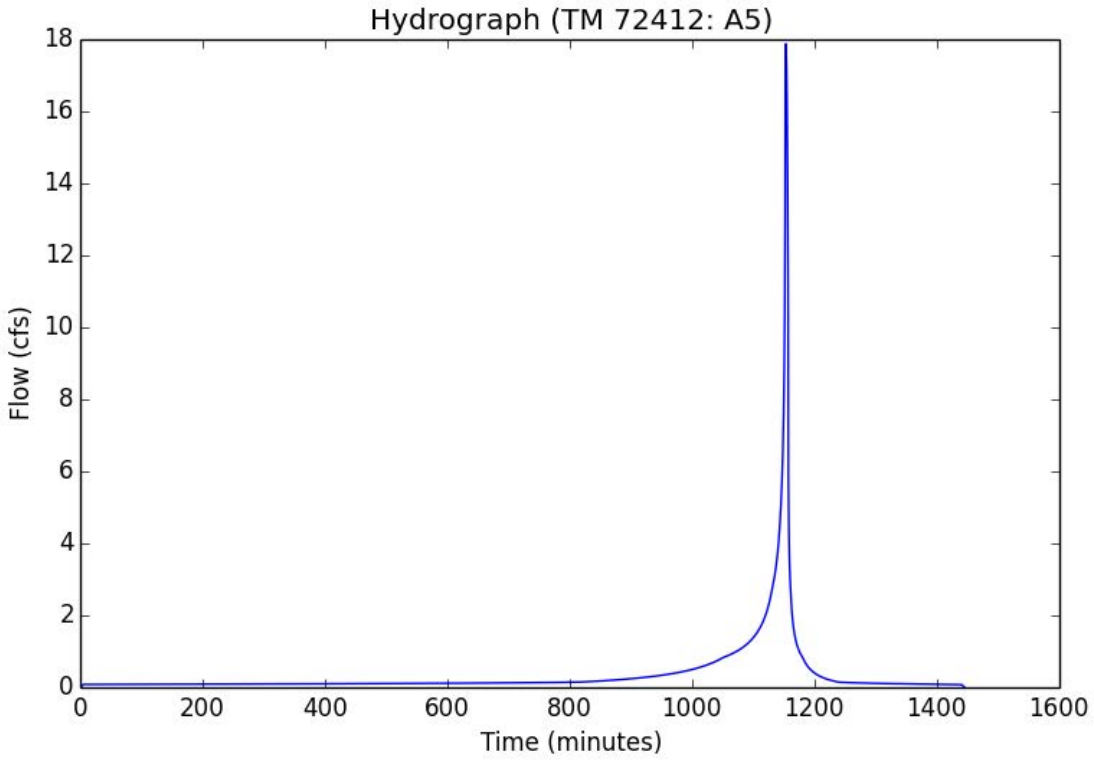
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Input Parameters

Project Name	TM 72412
Subarea ID	A5
Area (ac)	4.7
Flow Path Length (ft)	835.0
Flow Path Slope (vft/hft)	0.32
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	17.8798
Burned Peak Flow Rate (cfs)	18.6367
24-Hr Clear Runoff Volume (ac-ft)	0.7494
24-Hr Clear Runoff Volume (cu-ft)	32645.1541



Peak Flow Hydrologic Analysis

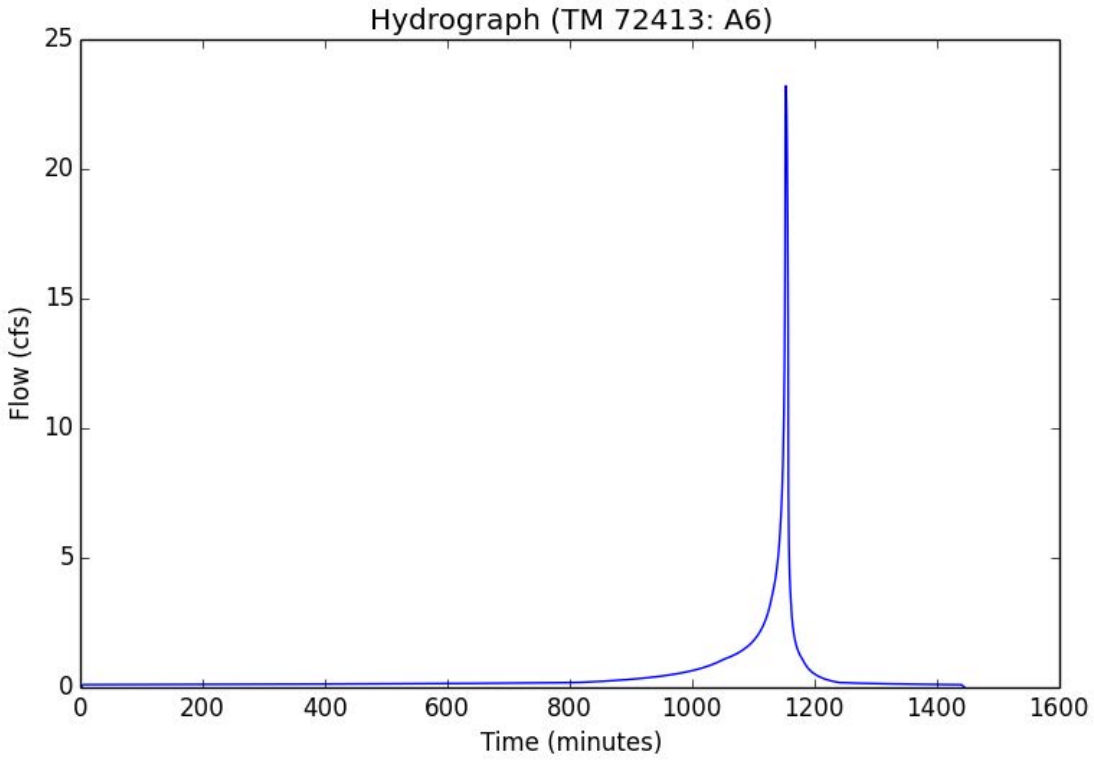
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A6
Area (ac)	6.1
Flow Path Length (ft)	886.0
Flow Path Slope (vft/hft)	0.5
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	23.2056
Burned Peak Flow Rate (cfs)	24.1881
24-Hr Clear Runoff Volume (ac-ft)	0.9727
24-Hr Clear Runoff Volume (cu-ft)	42369.2425



Peak Flow Hydrologic Analysis

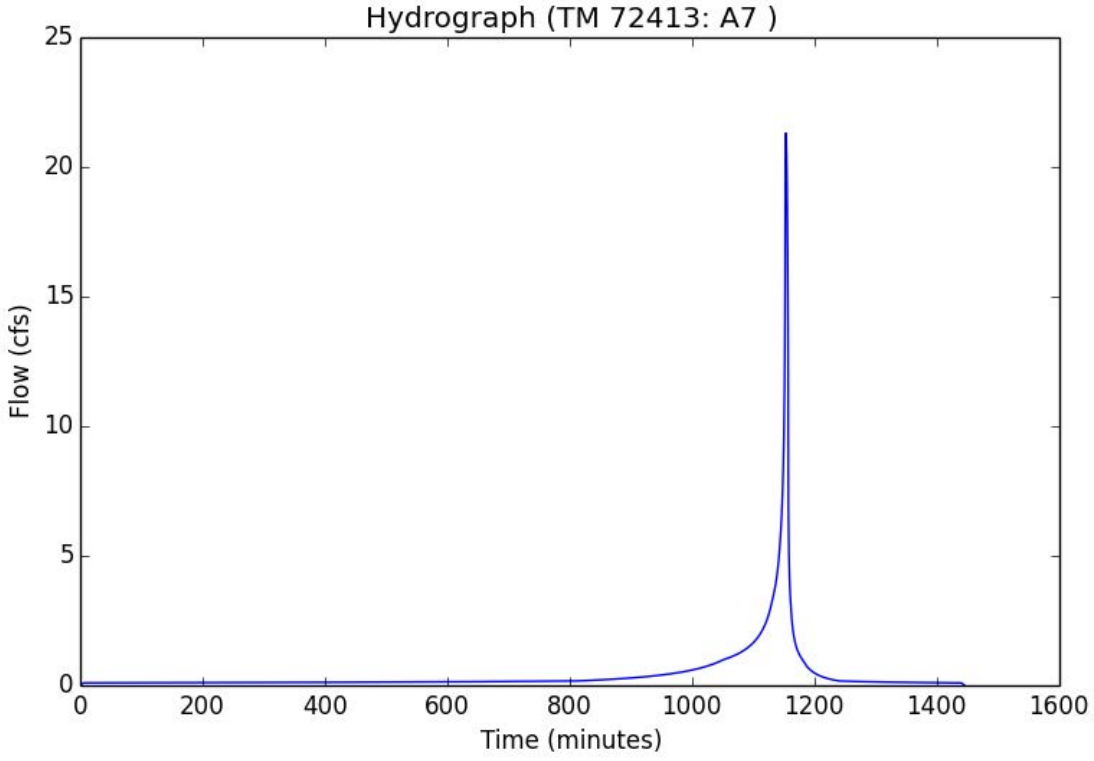
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Input Parameters

Project Name	TM 72413
Subarea ID	A7
Area (ac)	5.6
Flow Path Length (ft)	983.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	21.3035
Burned Peak Flow Rate (cfs)	22.2055
24-Hr Clear Runoff Volume (ac-ft)	0.8929
24-Hr Clear Runoff Volume (cu-ft)	38896.3538



Peak Flow Hydrologic Analysis

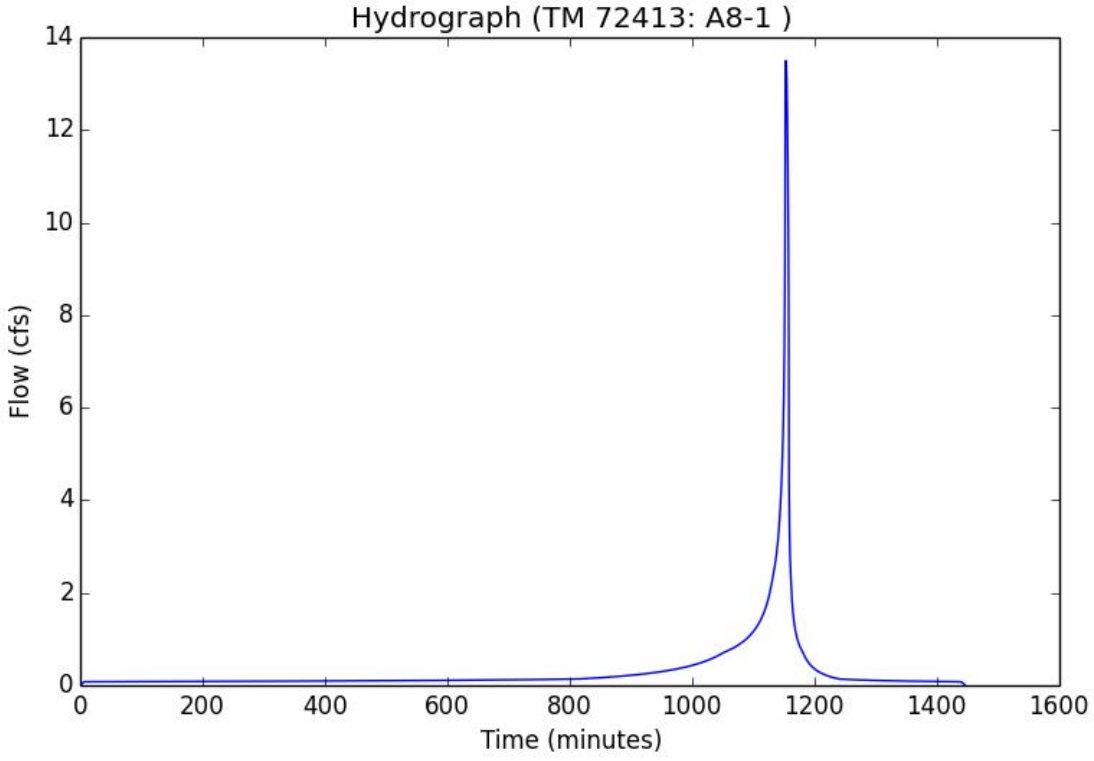
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Input Parameters

Project Name	TM 72413
Subarea ID	A8-1
Area (ac)	3.9
Flow Path Length (ft)	1166.0
Flow Path Slope (vft/hft)	0.23
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.03
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	3.9908
Undeveloped Runoff Coefficient (Cu)	0.8664
Developed Runoff Coefficient (Cd)	0.8674
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	13.5
Burned Peak Flow Rate (cfs)	14.104
24-Hr Clear Runoff Volume (ac-ft)	0.6518
24-Hr Clear Runoff Volume (cu-ft)	28393.9124



Peak Flow Hydrologic Analysis

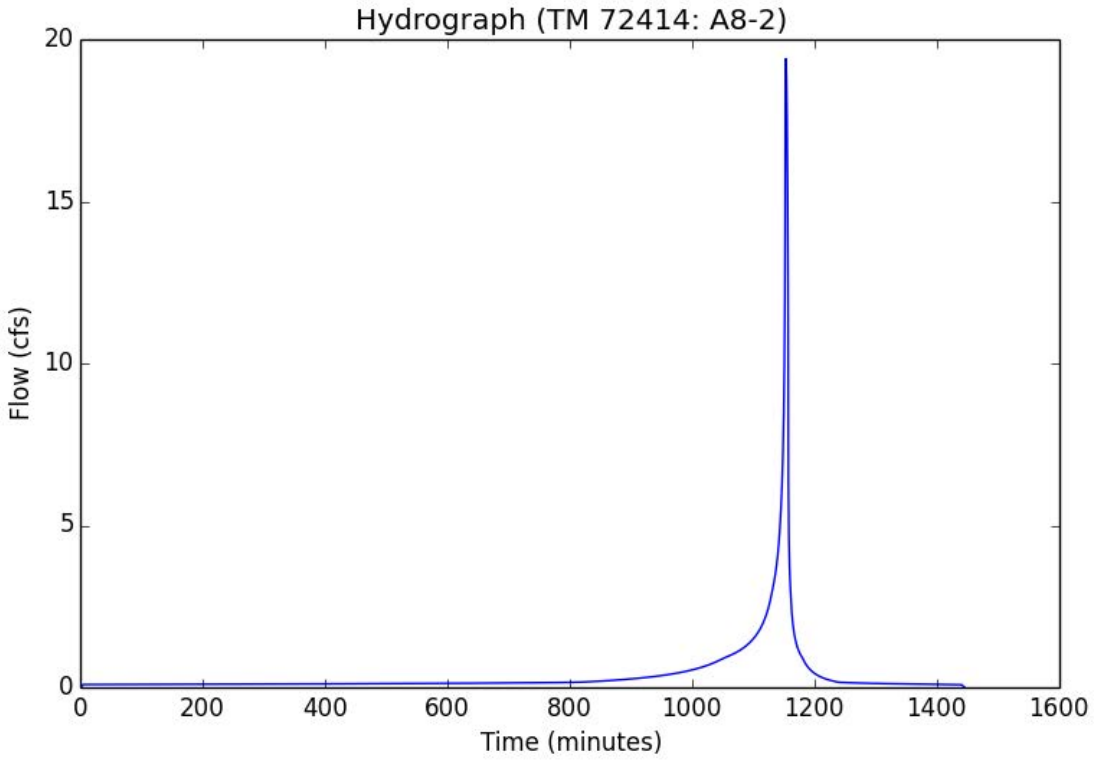
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Input Parameters

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Subarea ID	A8-2
Area (ac)	5.1
Flow Path Length (ft)	766.0
Flow Path Slope (vft/hft)	0.38
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	19.4014
Burned Peak Flow Rate (cfs)	20.2228
24-Hr Clear Runoff Volume (ac-ft)	0.8132
24-Hr Clear Runoff Volume (cu-ft)	35423.4651



Peak Flow Hydrologic Analysis

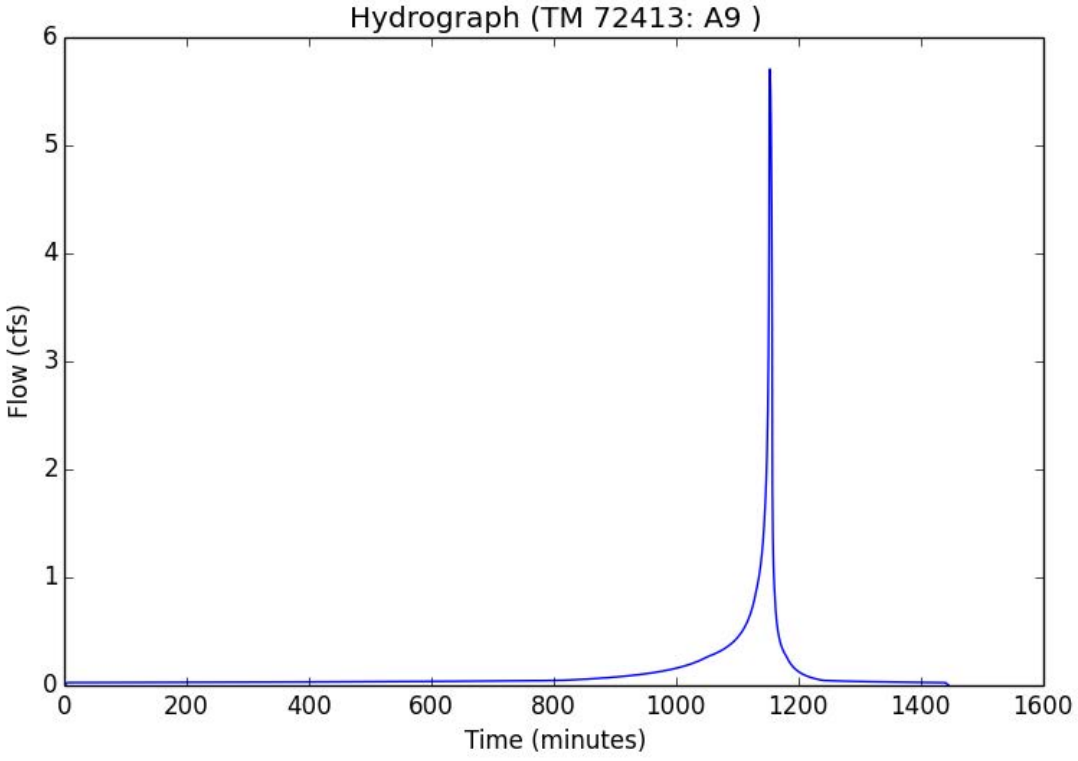
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A9
Area (ac)	1.5
Flow Path Length (ft)	655.0
Flow Path Slope (vft/hft)	0.28
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	5.7063
Burned Peak Flow Rate (cfs)	5.9479
24-Hr Clear Runoff Volume (ac-ft)	0.2392
24-Hr Clear Runoff Volume (cu-ft)	10418.6662



Peak Flow Hydrologic Analysis

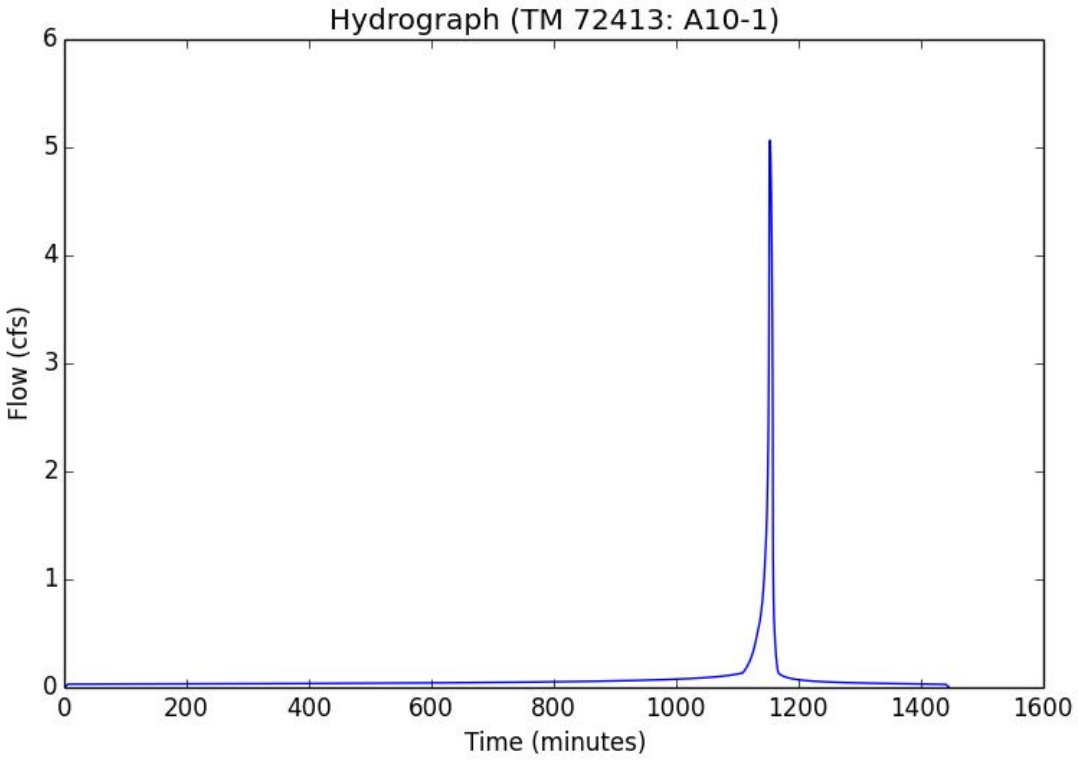
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A10-1
Area (ac)	1.7
Flow Path Length (ft)	882.0
Flow Path Slope (vft/hft)	0.13
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	3.9908
Undeveloped Runoff Coefficient (Cu)	0.7451
Developed Runoff Coefficient (Cd)	0.7467
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	5.0656
Burned Peak Flow Rate (cfs)	5.5685
24-Hr Clear Runoff Volume (ac-ft)	0.1711
24-Hr Clear Runoff Volume (cu-ft)	7455.0408



Peak Flow Hydrologic Analysis

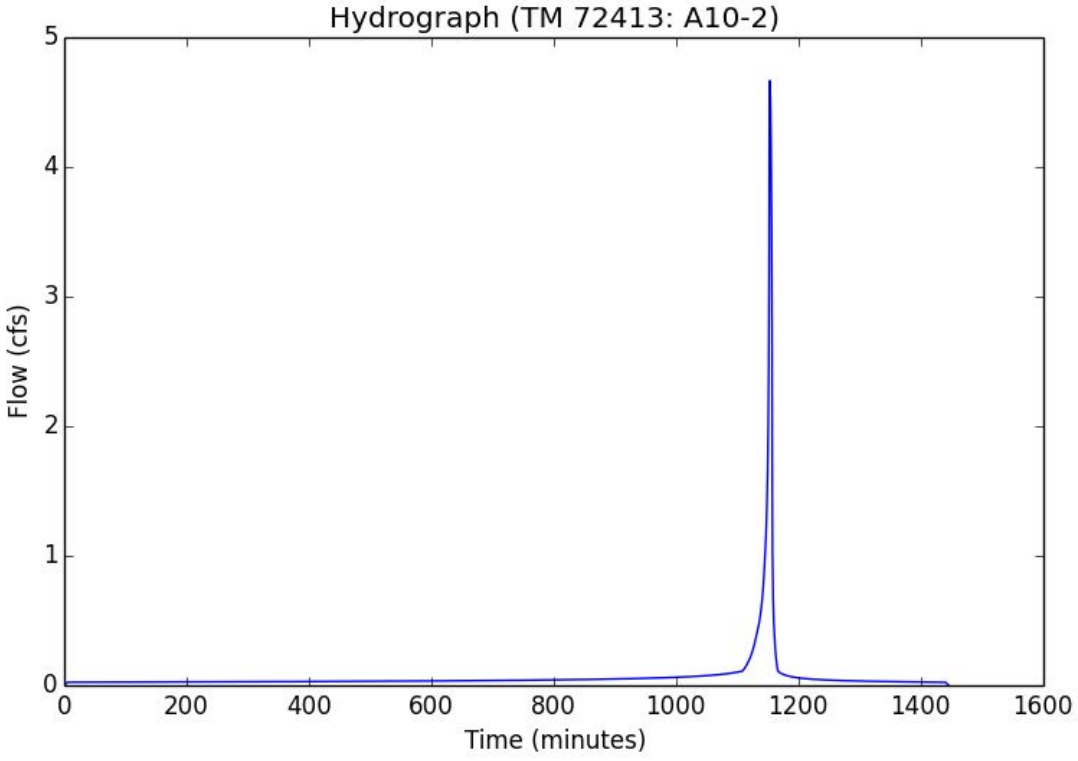
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A10-2
Area (ac)	1.4
Flow Path Length (ft)	768.0
Flow Path Slope (vft/hft)	0.15
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.7653
Developed Runoff Coefficient (Cd)	0.7667
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	4.6666
Burned Peak Flow Rate (cfs)	5.0874
24-Hr Clear Runoff Volume (ac-ft)	0.1412
24-Hr Clear Runoff Volume (cu-ft)	6151.6862



Peak Flow Hydrologic Analysis

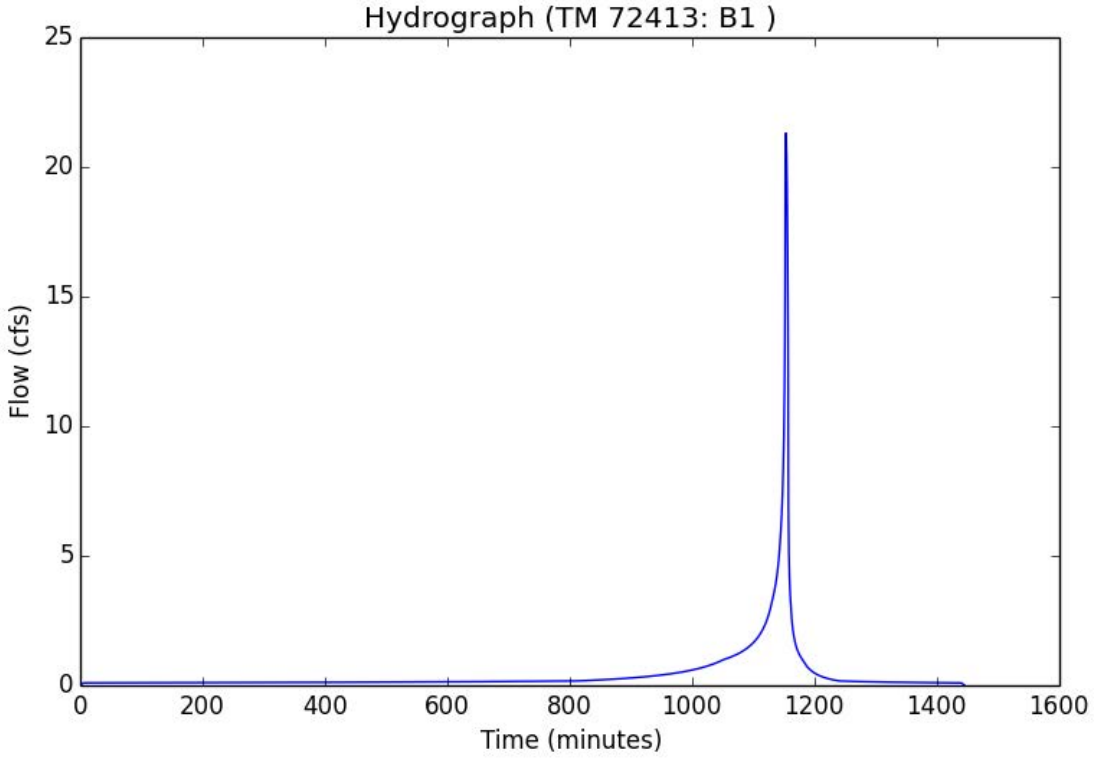
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	B1
Area (ac)	5.6
Flow Path Length (ft)	971.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	21.3035
Burned Peak Flow Rate (cfs)	22.2055
24-Hr Clear Runoff Volume (ac-ft)	0.8929
24-Hr Clear Runoff Volume (cu-ft)	38896.3538



Peak Flow Hydrologic Analysis

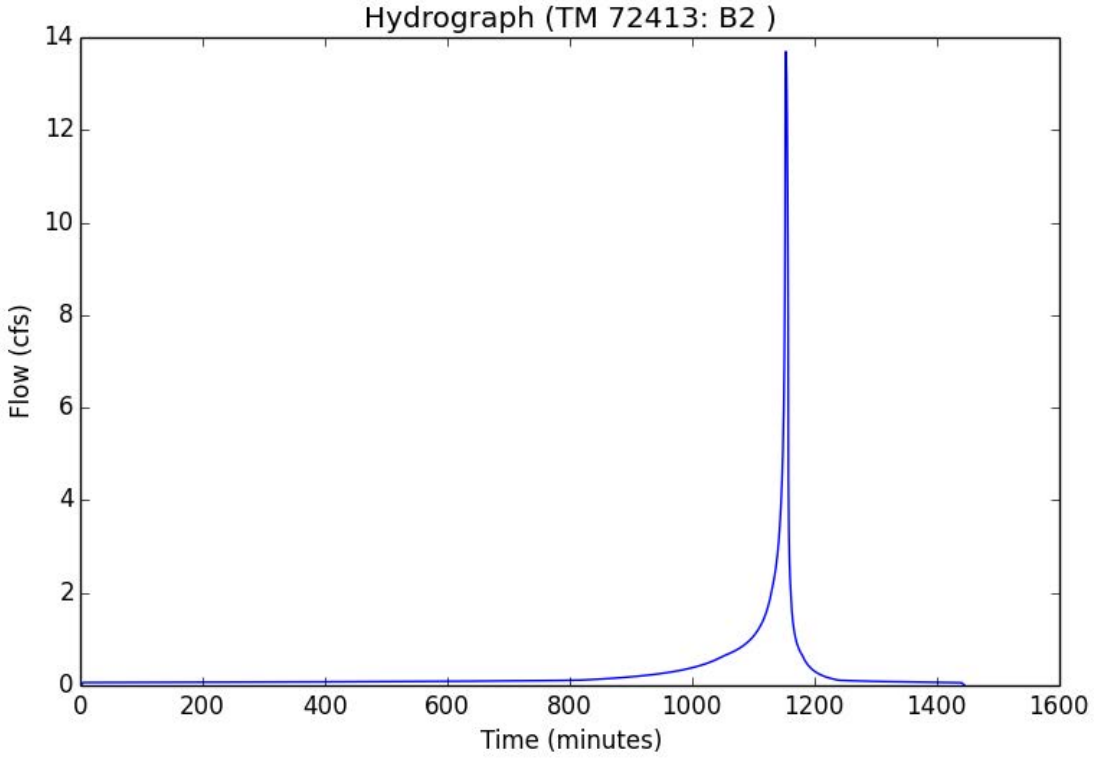
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	B2
Area (ac)	3.6
Flow Path Length (ft)	926.0
Flow Path Slope (vft/hft)	0.38
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	13.6951
Burned Peak Flow Rate (cfs)	14.2749
24-Hr Clear Runoff Volume (ac-ft)	0.574
24-Hr Clear Runoff Volume (cu-ft)	25004.7989



Peak Flow Hydrologic Analysis

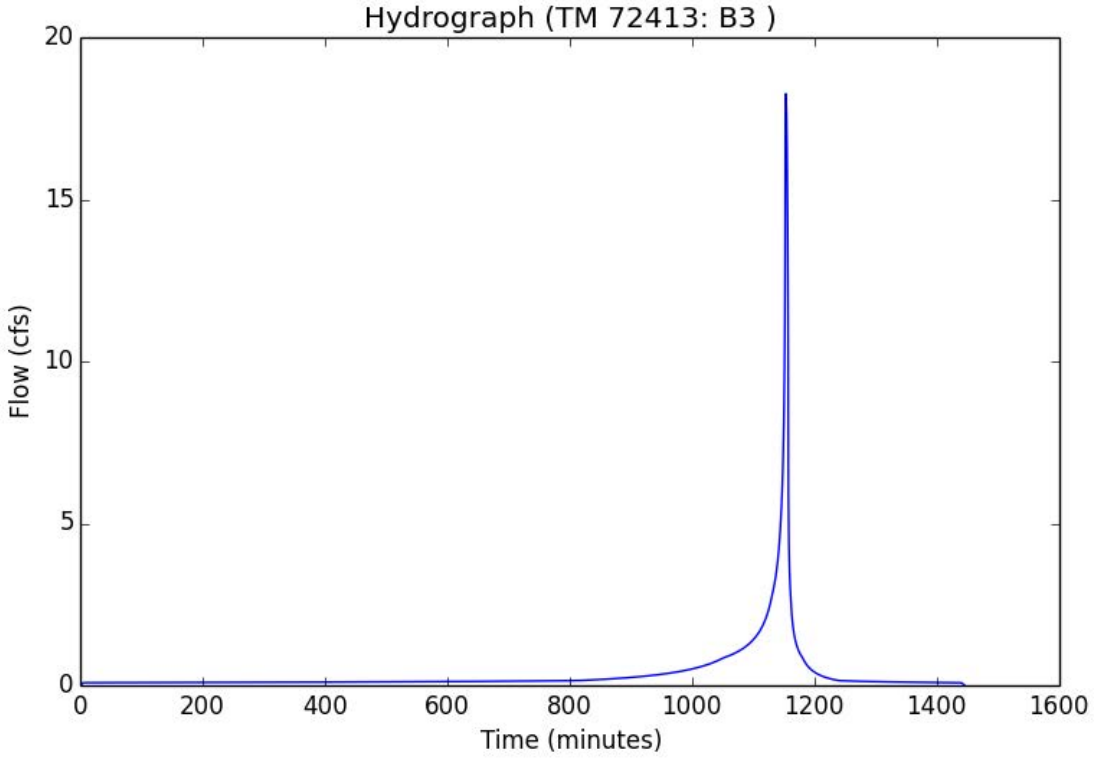
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	B3
Area (ac)	4.8
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.38
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	18.2602
Burned Peak Flow Rate (cfs)	19.0332
24-Hr Clear Runoff Volume (ac-ft)	0.7654
24-Hr Clear Runoff Volume (cu-ft)	33339.7318



Peak Flow Hydrologic Analysis

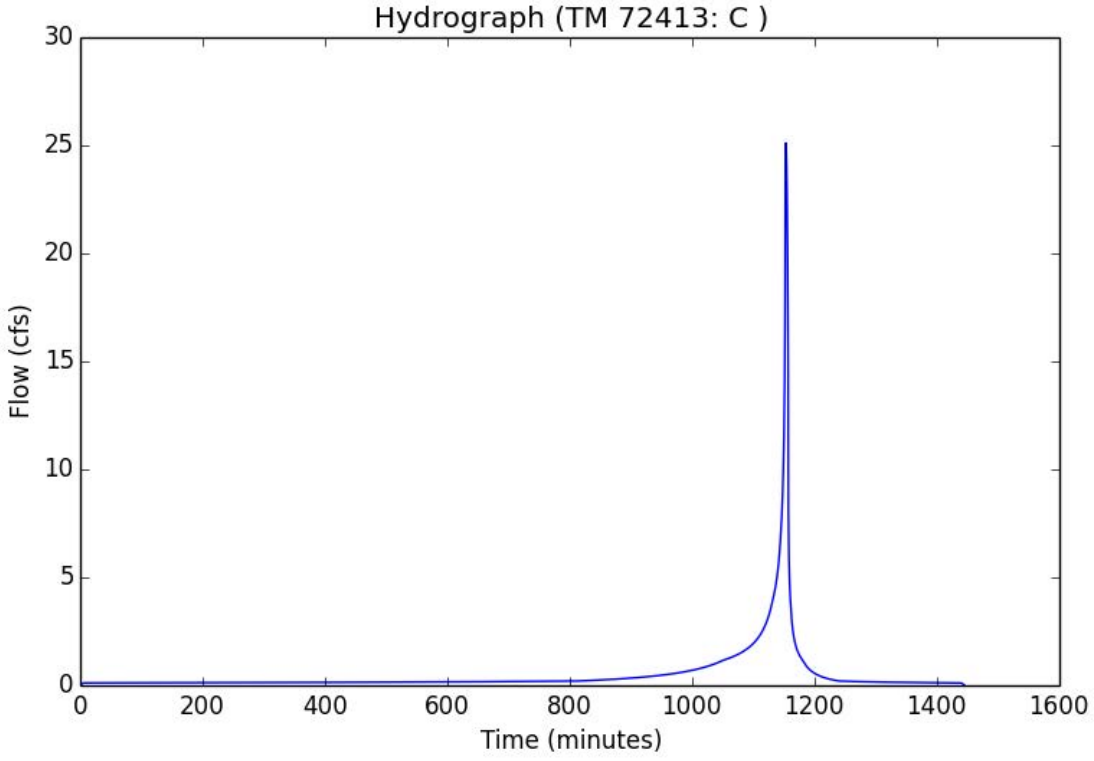
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	C
Area (ac)	6.6
Flow Path Length (ft)	908.0
Flow Path Slope (vft/hft)	0.48
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	25.1077
Burned Peak Flow Rate (cfs)	26.1707
24-Hr Clear Runoff Volume (ac-ft)	1.0524
24-Hr Clear Runoff Volume (cu-ft)	45842.1313



Peak Flow Hydrologic Analysis

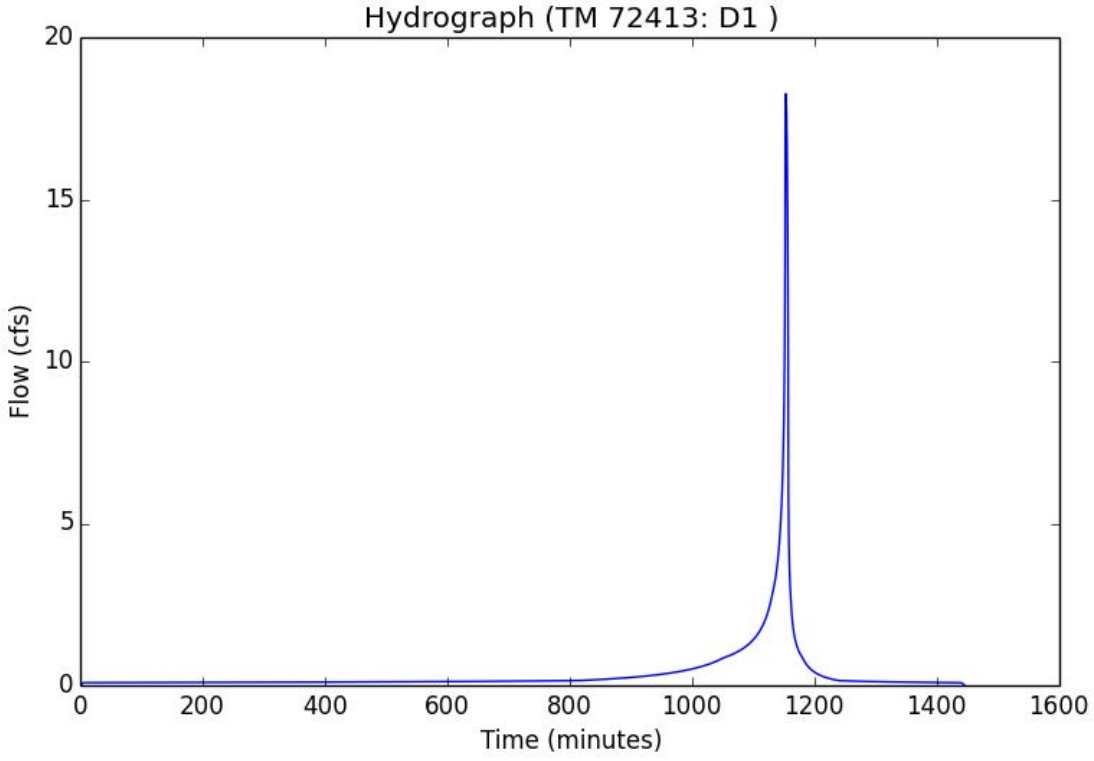
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	D1
Area (ac)	4.8
Flow Path Length (ft)	812.0
Flow Path Slope (vft/hft)	0.47
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	18.2602
Burned Peak Flow Rate (cfs)	19.0332
24-Hr Clear Runoff Volume (ac-ft)	0.7654
24-Hr Clear Runoff Volume (cu-ft)	33339.7318



Peak Flow Hydrologic Analysis

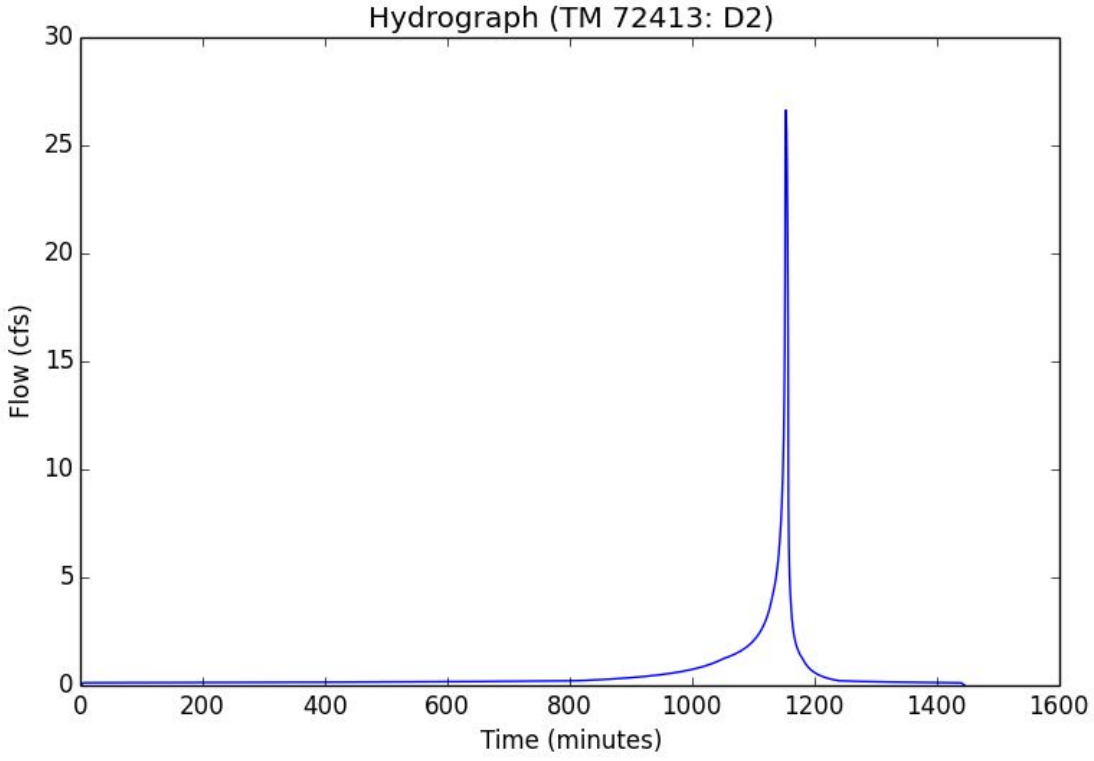
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	D2
Area (ac)	7.0
Flow Path Length (ft)	749.0
Flow Path Slope (vft/hft)	0.58
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	26.6294
Burned Peak Flow Rate (cfs)	27.7568
24-Hr Clear Runoff Volume (ac-ft)	1.1162
24-Hr Clear Runoff Volume (cu-ft)	48620.4423



Peak Flow Hydrologic Analysis

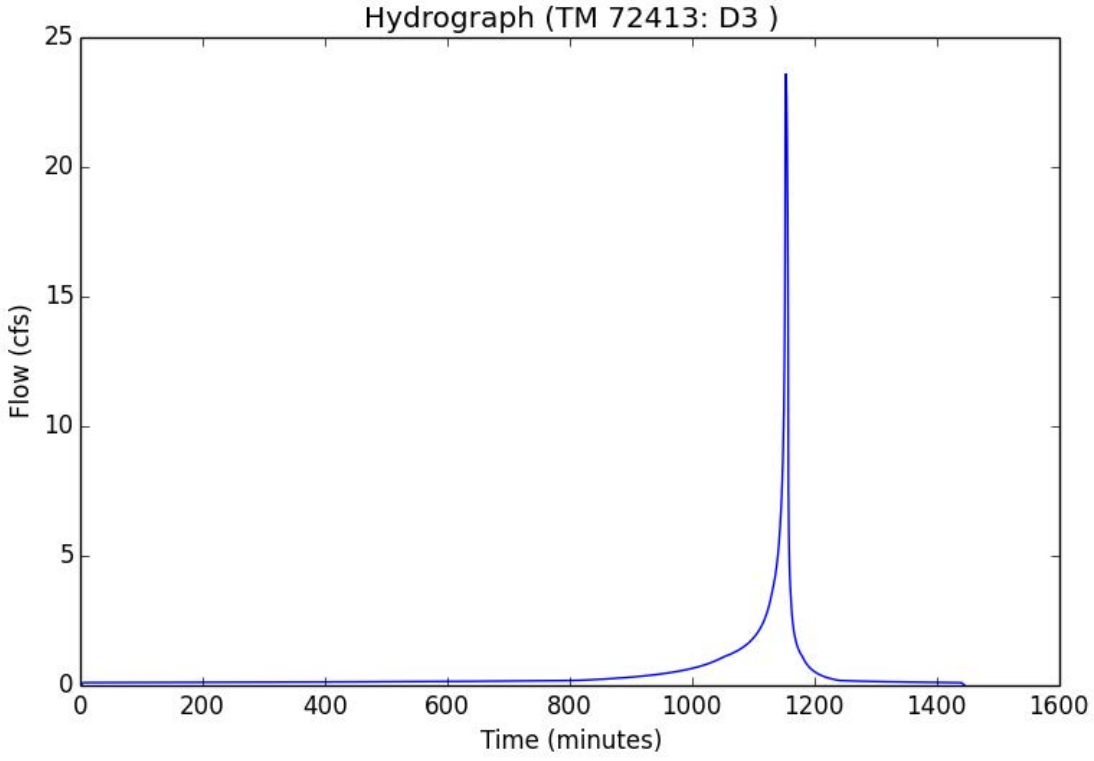
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	D3
Area (ac)	6.2
Flow Path Length (ft)	822.0
Flow Path Slope (vft/hft)	0.53
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.875
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	23.5861
Burned Peak Flow Rate (cfs)	24.5846
24-Hr Clear Runoff Volume (ac-ft)	0.9886
24-Hr Clear Runoff Volume (cu-ft)	43063.8203



Peak Flow Hydrologic Analysis

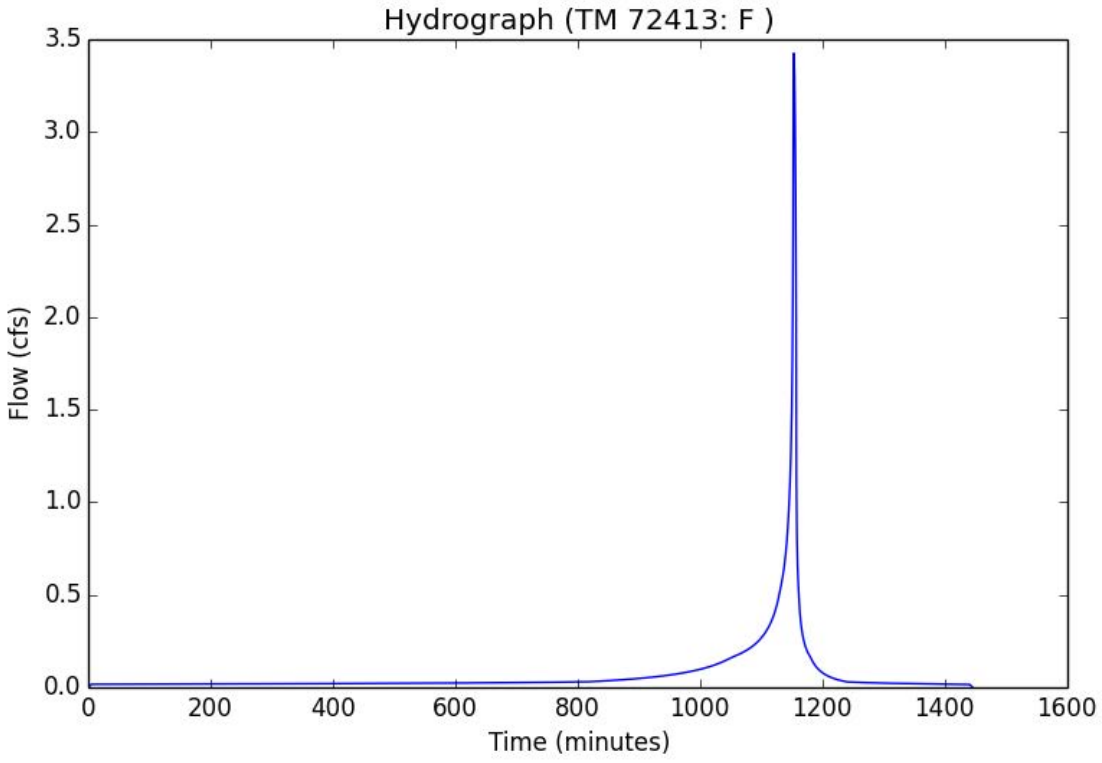
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	F
Area (ac)	0.9
Flow Path Length (ft)	540.0
Flow Path Slope (vft/hft)	0.32
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.8752
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.4248
Burned Peak Flow Rate (cfs)	3.5694
24-Hr Clear Runoff Volume (ac-ft)	0.147
24-Hr Clear Runoff Volume (cu-ft)	6402.7034



Peak Flow Hydrologic Analysis

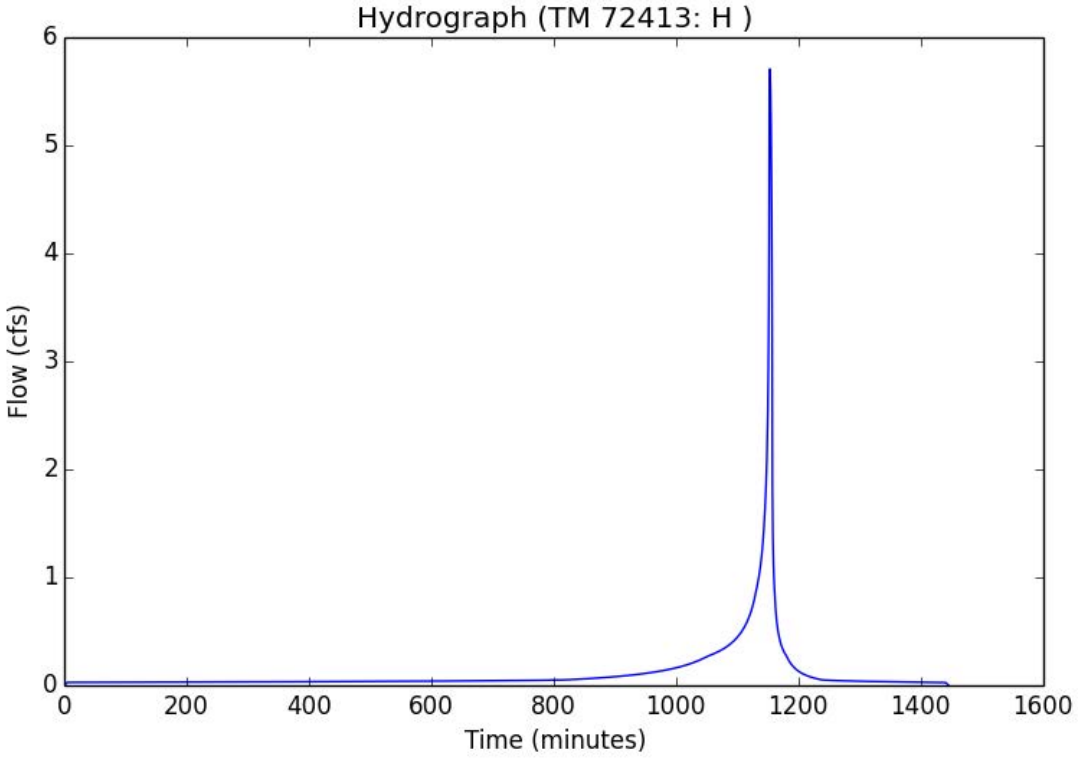
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	H
Area (ac)	1.5
Flow Path Length (ft)	758.0
Flow Path Slope (vft/hft)	0.26
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.8752
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	5.708
Burned Peak Flow Rate (cfs)	5.9491
24-Hr Clear Runoff Volume (ac-ft)	0.245
24-Hr Clear Runoff Volume (cu-ft)	10671.1723



Peak Flow Hydrologic Analysis

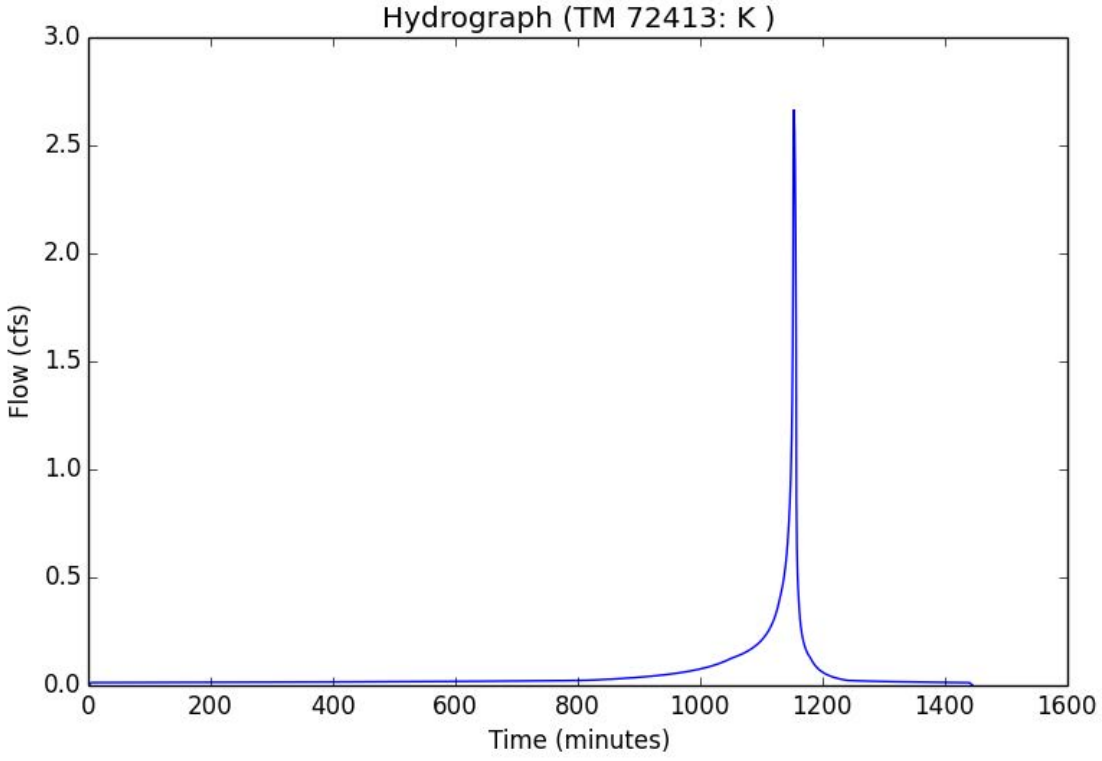
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	K
Area (ac)	0.7
Flow Path Length (ft)	237.0
Flow Path Slope (vft/hft)	0.21
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.8752
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.6637
Burned Peak Flow Rate (cfs)	2.7762
24-Hr Clear Runoff Volume (ac-ft)	0.1143
24-Hr Clear Runoff Volume (cu-ft)	4979.8804



Peak Flow Hydrologic Analysis

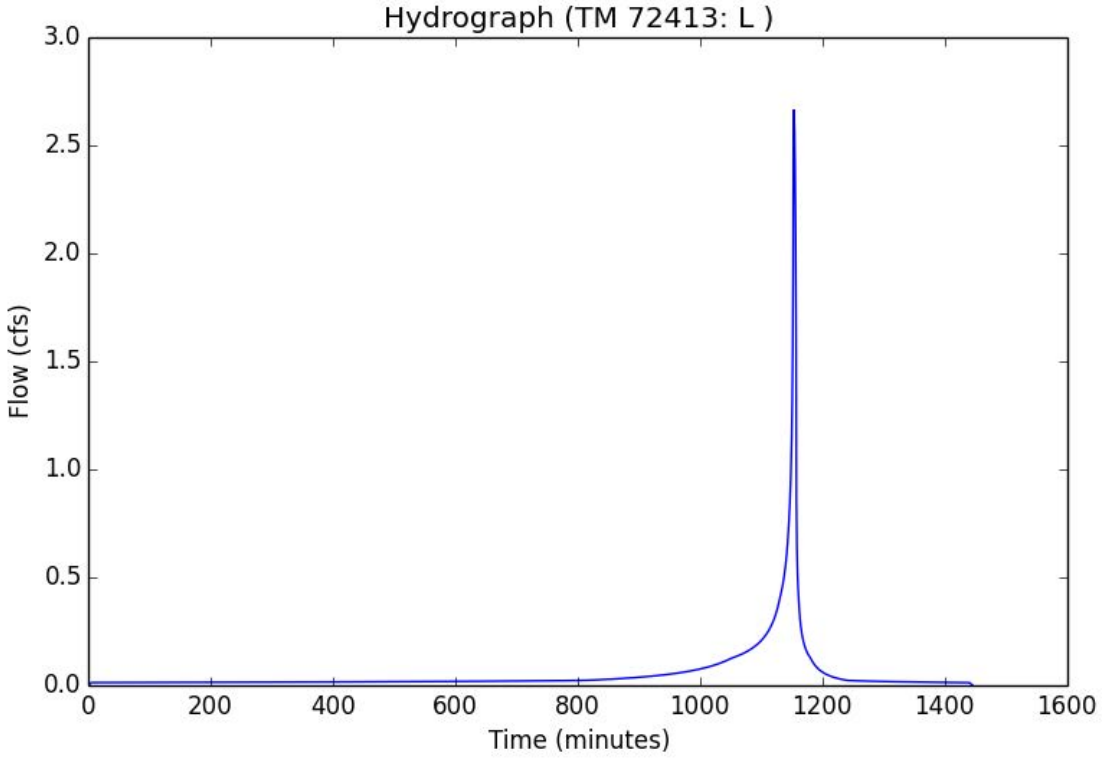
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	L
Area (ac)	0.7
Flow Path Length (ft)	224.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.8752
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.6637
Burned Peak Flow Rate (cfs)	2.7762
24-Hr Clear Runoff Volume (ac-ft)	0.1143
24-Hr Clear Runoff Volume (cu-ft)	4979.8804



Peak Flow Hydrologic Analysis

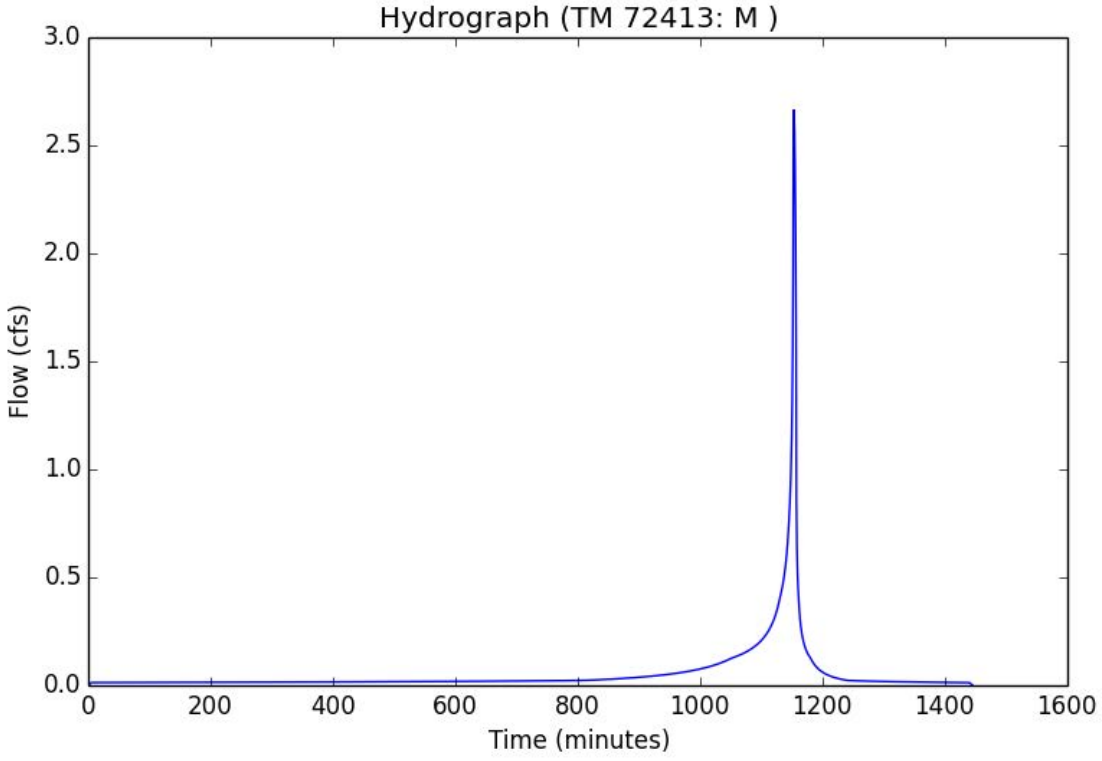
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	M
Area (ac)	0.7
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.14
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.8752
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.6637
Burned Peak Flow Rate (cfs)	2.7762
24-Hr Clear Runoff Volume (ac-ft)	0.1143
24-Hr Clear Runoff Volume (cu-ft)	4979.8804



Peak Flow Hydrologic Analysis

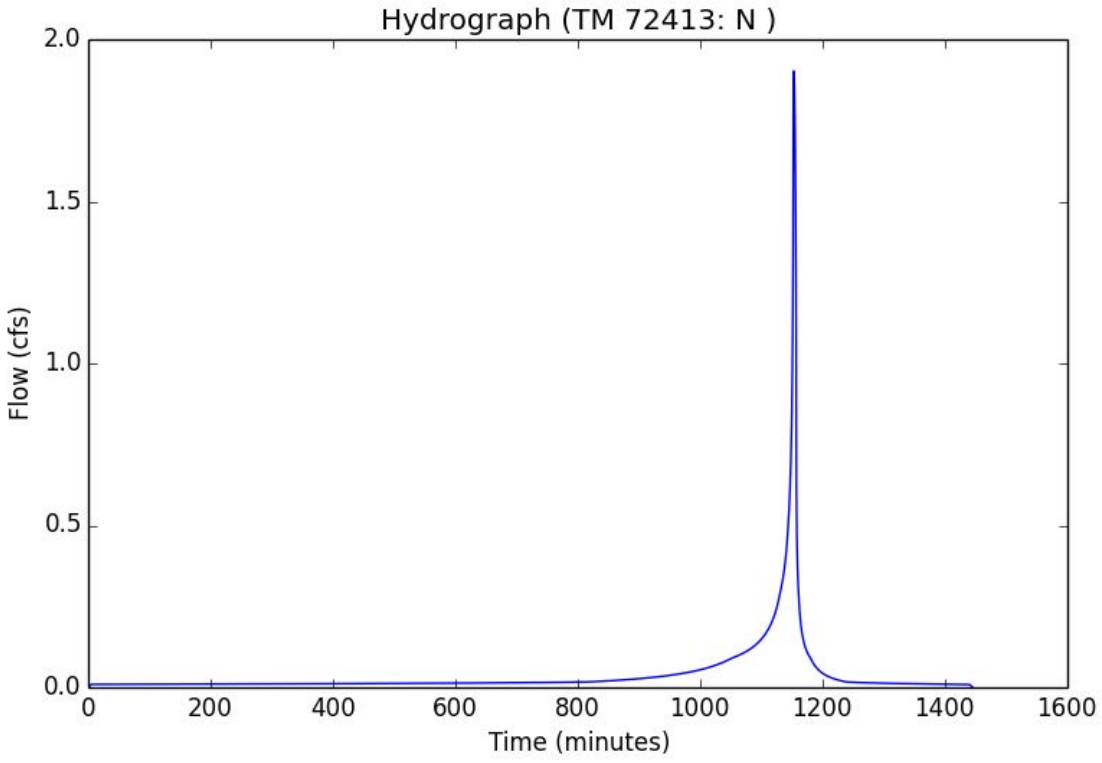
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	N
Area (ac)	0.5
Flow Path Length (ft)	170.0
Flow Path Slope (vft/hft)	0.31
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.8752
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.9027
Burned Peak Flow Rate (cfs)	1.983
24-Hr Clear Runoff Volume (ac-ft)	0.0817
24-Hr Clear Runoff Volume (cu-ft)	3557.0574



Peak Flow Hydrologic Analysis

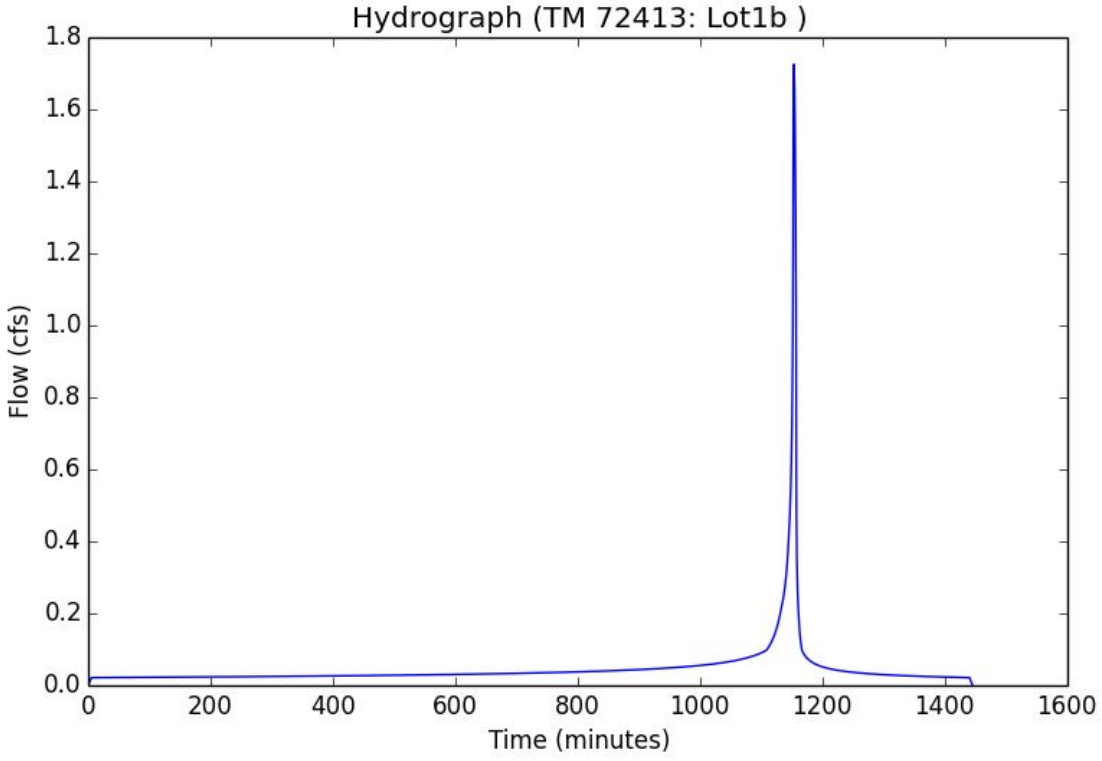
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	Lot1b
Area (ac)	0.5
Flow Path Length (ft)	640.0
Flow Path Slope (vft/hft)	0.14
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.21
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.7653
Developed Runoff Coefficient (Cd)	0.7936
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	1.7252
Burned Peak Flow Rate (cfs)	1.8581
24-Hr Clear Runoff Volume (ac-ft)	0.095
24-Hr Clear Runoff Volume (cu-ft)	4138.1542



Peak Flow Hydrologic Analysis

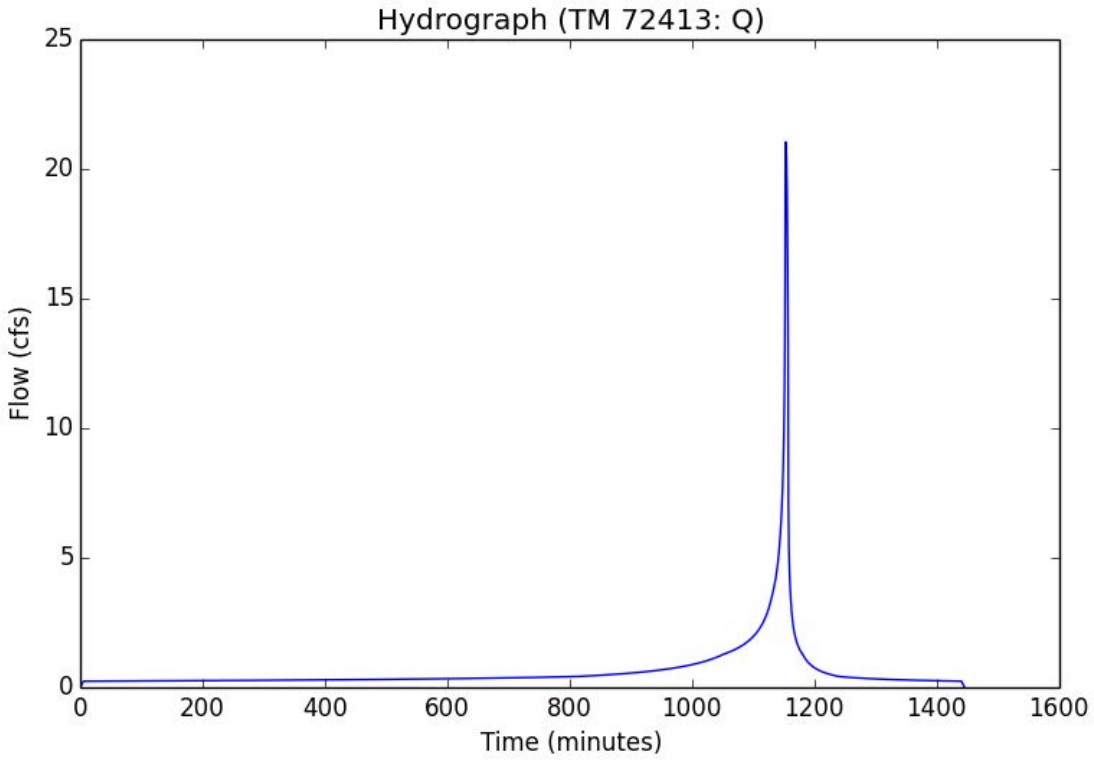
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	Q
Area (ac)	5.5
Flow Path Length (ft)	898.0
Flow Path Slope (vft/hft)	0.18
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.21
Soil Type	81
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	4.3479
Undeveloped Runoff Coefficient (Cu)	0.8747
Developed Runoff Coefficient (Cd)	0.88
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	21.0441
Burned Peak Flow Rate (cfs)	21.8941
24-Hr Clear Runoff Volume (ac-ft)	1.3021
24-Hr Clear Runoff Volume (cu-ft)	56718.8938



Peak Flow Hydrologic Analysis

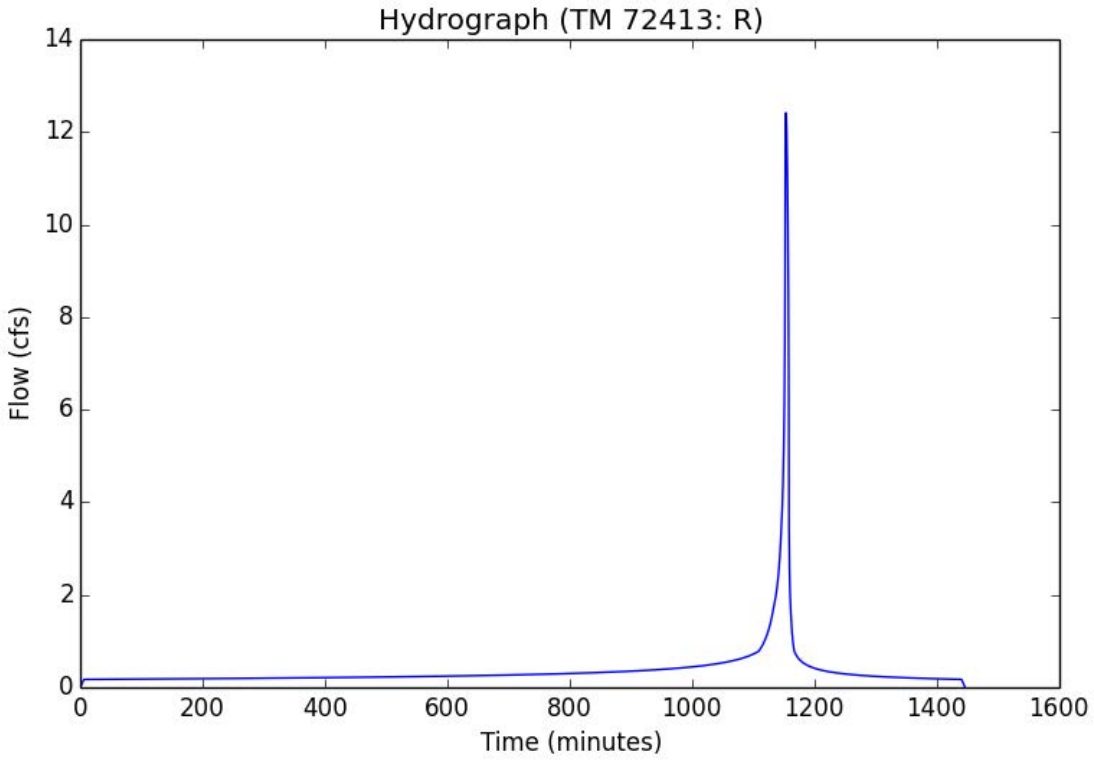
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	R
Area (ac)	4.0
Flow Path Length (ft)	750.0
Flow Path Slope (vft/hft)	0.08
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.21
Soil Type	7
Design Storm Frequency	25-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (25-yr) Rainfall Depth (in)	7.2874
Peak Intensity (in/hr)	3.9908
Undeveloped Runoff Coefficient (Cu)	0.7451
Developed Runoff Coefficient (Cd)	0.7776
Time of Concentration (min)	6.0
Clear Peak Flow Rate (cfs)	12.4135
Burned Peak Flow Rate (cfs)	13.4522
24-Hr Clear Runoff Volume (ac-ft)	0.7594
24-Hr Clear Runoff Volume (cu-ft)	33077.3278



Hydrocalc: 50-Year Storm (Capital Flood)

Note that the Hydrocalc output on the following pages was used to calculate **time of concentration ONLY**. The flows shown were not used because routing via LAR04 was used instead (output shown later in this appendix).

Peak Flow Hydrologic Analysis

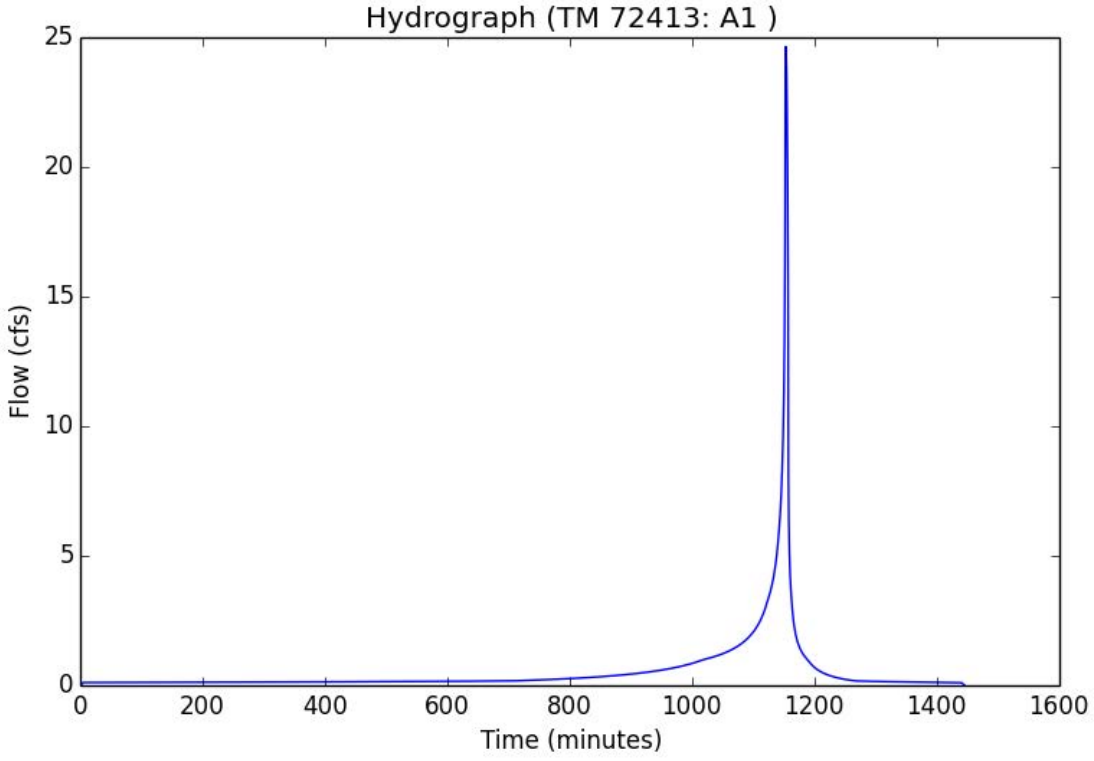
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A1
Area (ac)	5.6
Flow Path Length (ft)	971.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	24.6431
Burned Peak Flow Rate (cfs)	25.5748
24-Hr Clear Runoff Volume (ac-ft)	1.1125
24-Hr Clear Runoff Volume (cu-ft)	48458.9635



Peak Flow Hydrologic Analysis

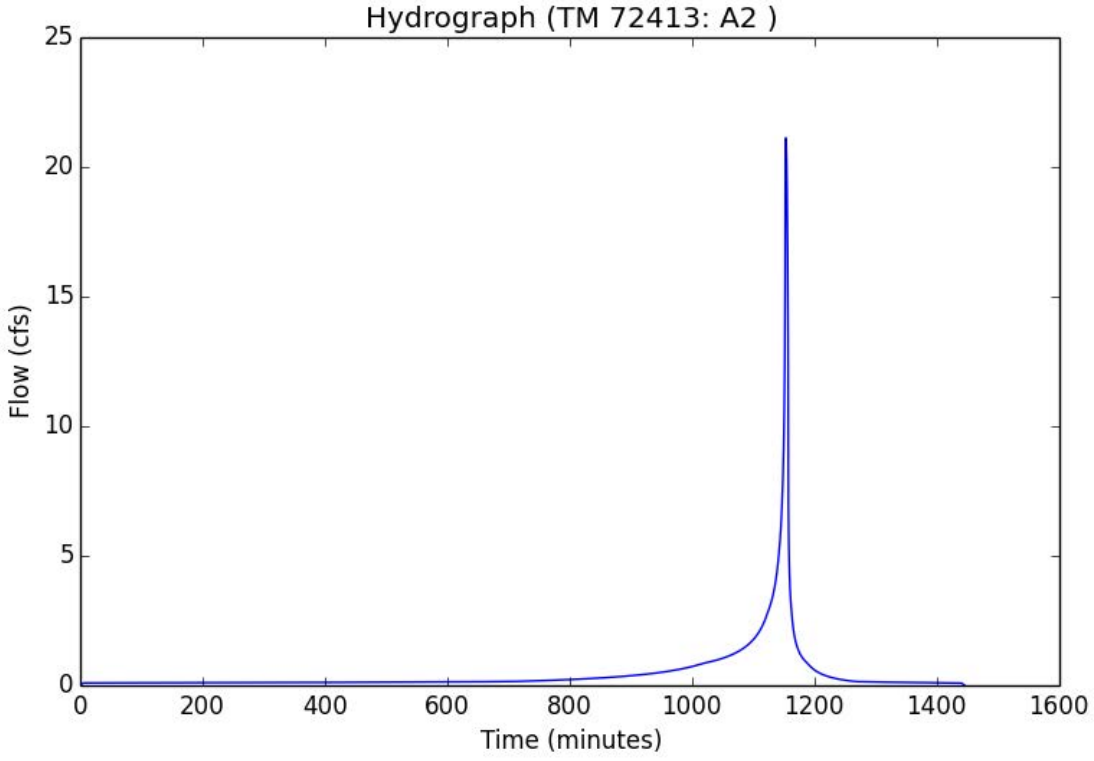
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A2
Area (ac)	4.8
Flow Path Length (ft)	812.0
Flow Path Slope (vft/hft)	0.47
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	21.1227
Burned Peak Flow Rate (cfs)	21.9213
24-Hr Clear Runoff Volume (ac-ft)	0.9535
24-Hr Clear Runoff Volume (cu-ft)	41536.2544



Peak Flow Hydrologic Analysis

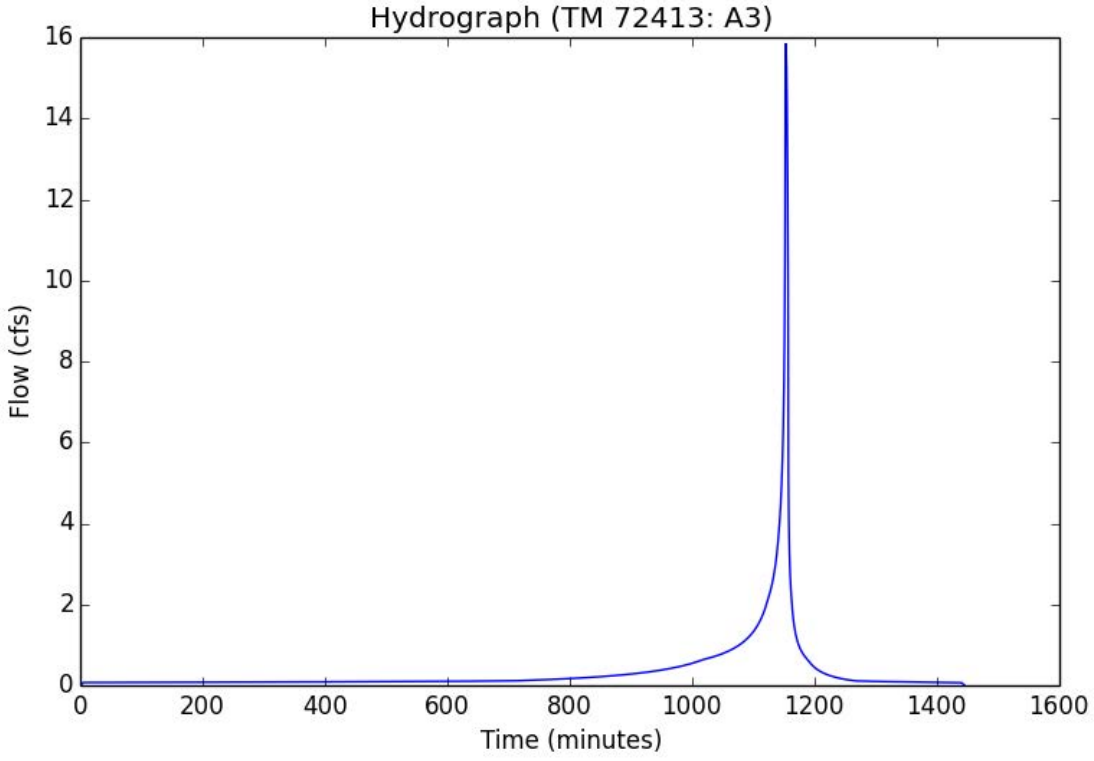
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A3
Area (ac)	3.6
Flow Path Length (ft)	926.0
Flow Path Slope (vft/hft)	0.38
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	15.842
Burned Peak Flow Rate (cfs)	16.4409
24-Hr Clear Runoff Volume (ac-ft)	0.7152
24-Hr Clear Runoff Volume (cu-ft)	31152.1908



Peak Flow Hydrologic Analysis

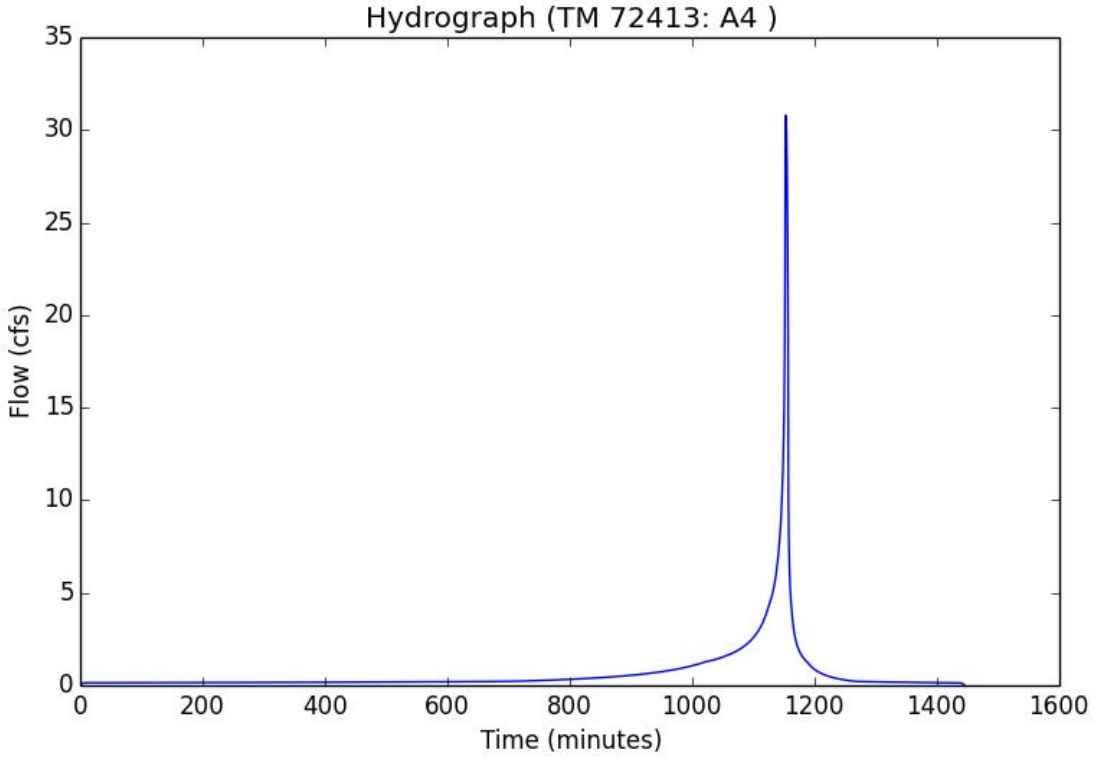
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A4
Area (ac)	7.0
Flow Path Length (ft)	749.0
Flow Path Slope (vft/hft)	0.58
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	30.8039
Burned Peak Flow Rate (cfs)	31.9685
24-Hr Clear Runoff Volume (ac-ft)	1.3906
24-Hr Clear Runoff Volume (cu-ft)	60573.7044



Peak Flow Hydrologic Analysis

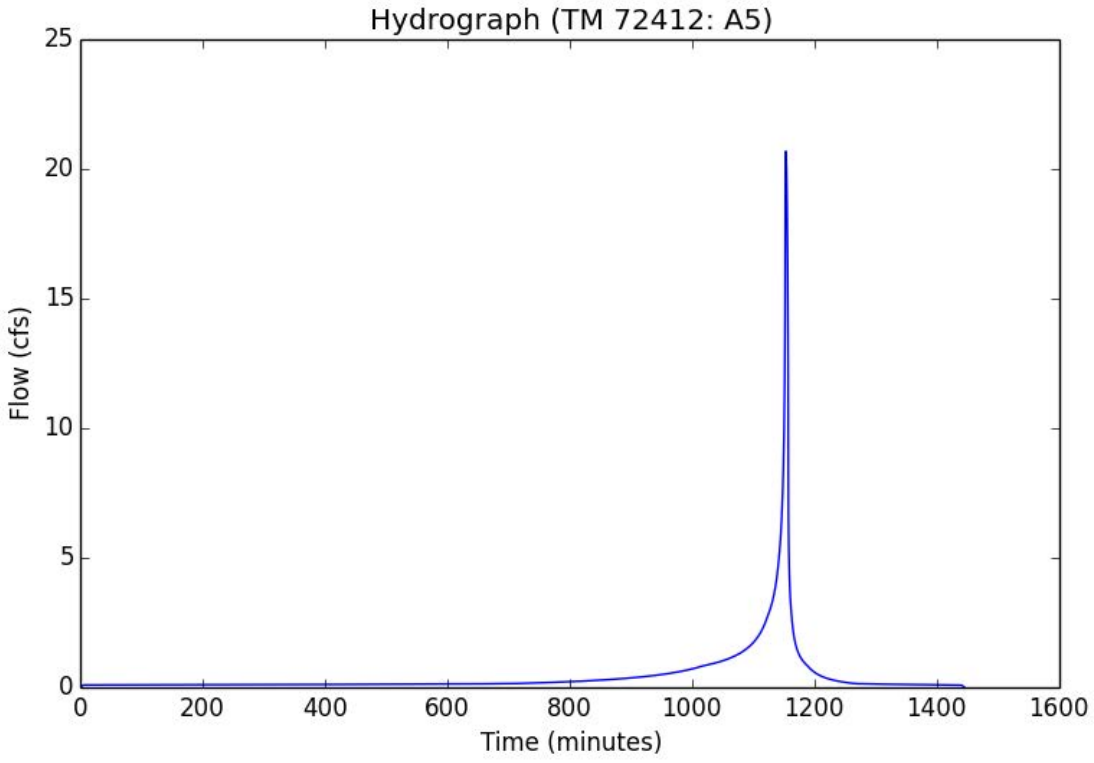
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72412
Subarea ID	A5
Area (ac)	4.7
Flow Path Length (ft)	835.0
Flow Path Slope (vft/hft)	0.32
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	20.6826
Burned Peak Flow Rate (cfs)	21.4646
24-Hr Clear Runoff Volume (ac-ft)	0.9337
24-Hr Clear Runoff Volume (cu-ft)	40670.9158



Peak Flow Hydrologic Analysis

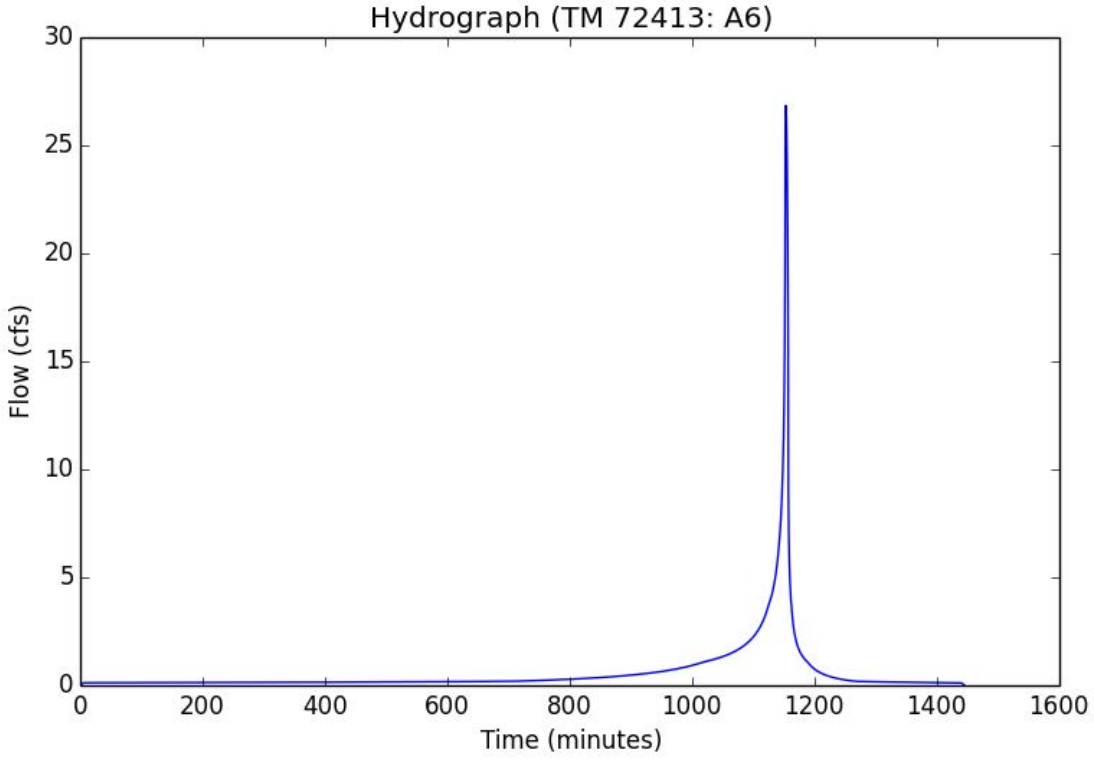
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A6
Area (ac)	6.1
Flow Path Length (ft)	886.0
Flow Path Slope (vft/hft)	0.5
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	26.8434
Burned Peak Flow Rate (cfs)	27.8583
24-Hr Clear Runoff Volume (ac-ft)	1.2118
24-Hr Clear Runoff Volume (cu-ft)	52785.6567



Peak Flow Hydrologic Analysis

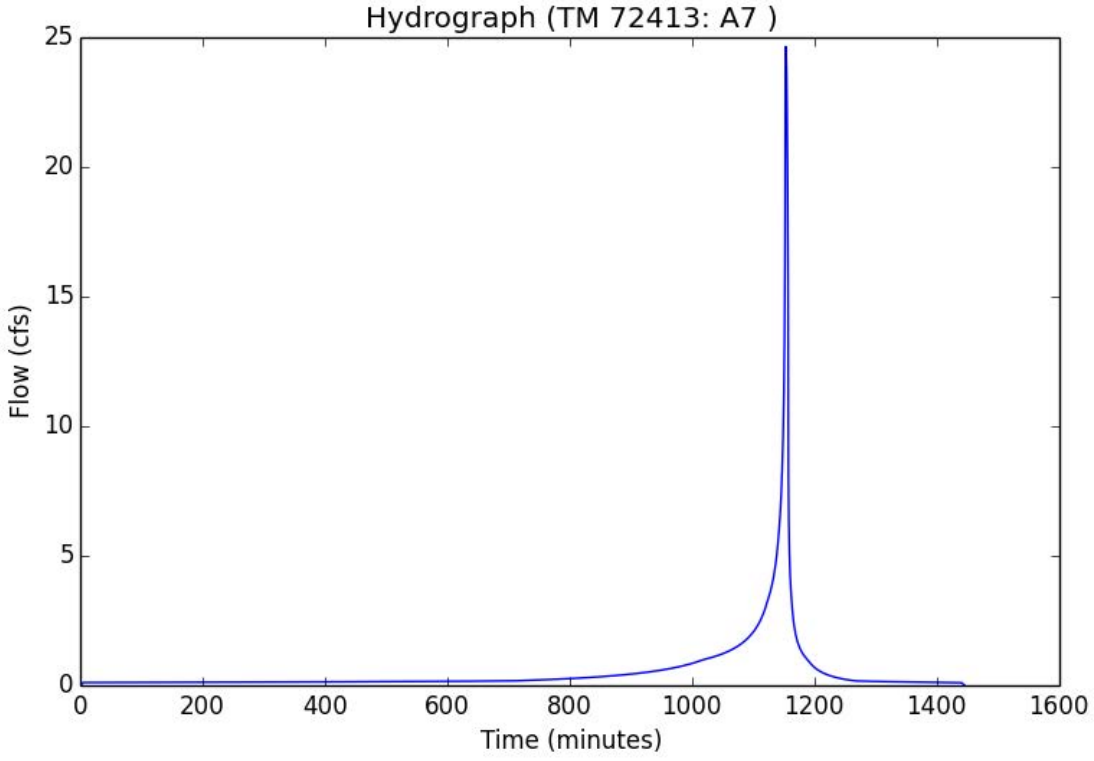
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A7
Area (ac)	5.6
Flow Path Length (ft)	983.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	24.6431
Burned Peak Flow Rate (cfs)	25.5748
24-Hr Clear Runoff Volume (ac-ft)	1.1125
24-Hr Clear Runoff Volume (cu-ft)	48458.9635



Peak Flow Hydrologic Analysis

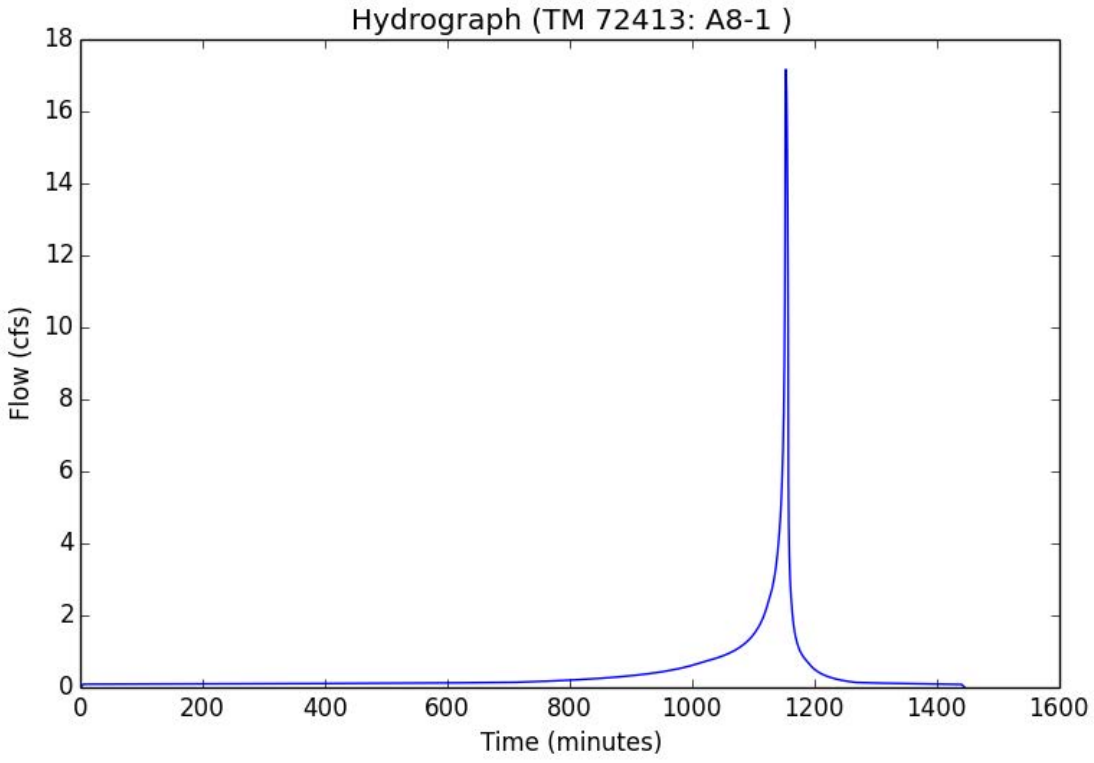
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A8-1
Area (ac)	3.9
Flow Path Length (ft)	1166.0
Flow Path Slope (vft/hft)	0.23
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.03
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8889
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	17.1666
Burned Peak Flow Rate (cfs)	17.8141
24-Hr Clear Runoff Volume (ac-ft)	0.8077
24-Hr Clear Runoff Volume (cu-ft)	35185.1891



Peak Flow Hydrologic Analysis

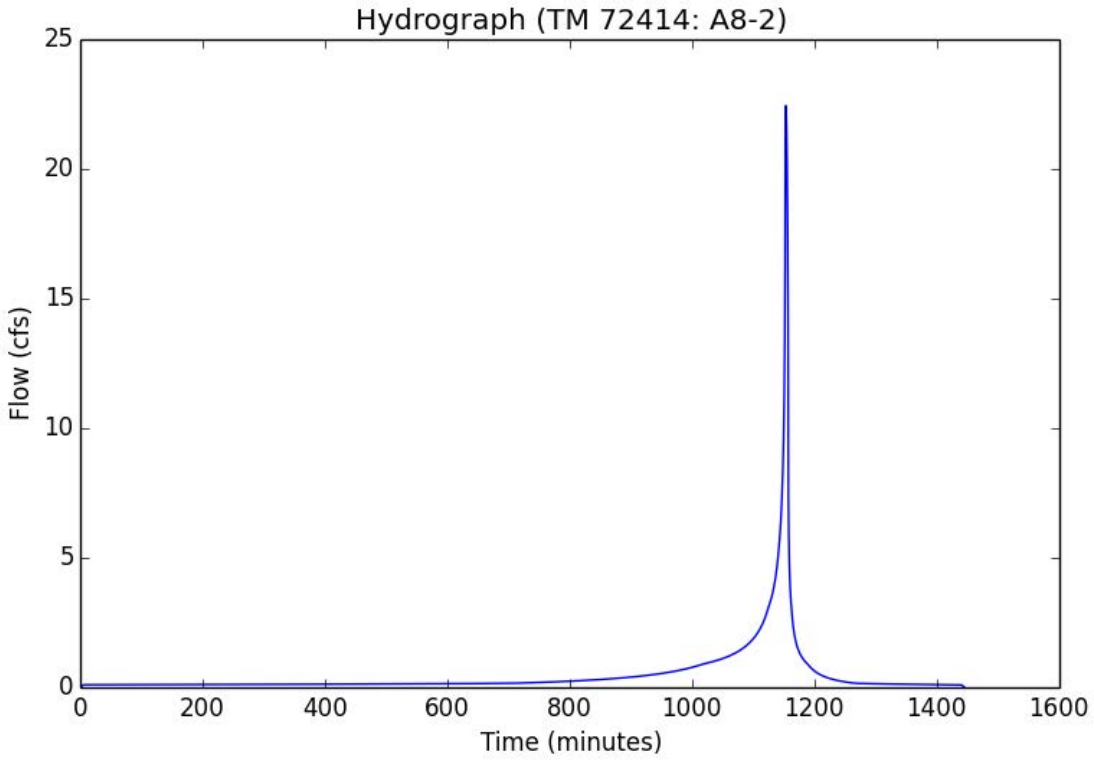
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72414
Subarea ID	A8-2
Area (ac)	5.1
Flow Path Length (ft)	766.0
Flow Path Slope (vft/hft)	0.38
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	22.4428
Burned Peak Flow Rate (cfs)	23.2913
24-Hr Clear Runoff Volume (ac-ft)	1.0131
24-Hr Clear Runoff Volume (cu-ft)	44132.2703



Peak Flow Hydrologic Analysis

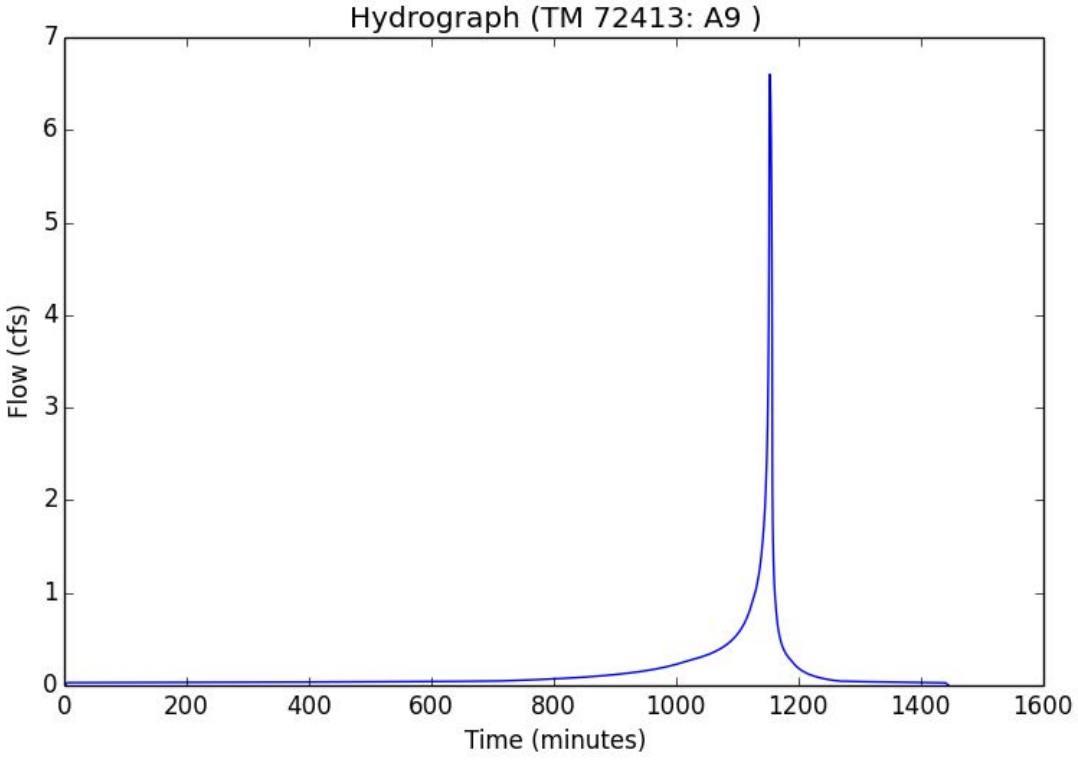
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A9
Area (ac)	1.5
Flow Path Length (ft)	655.0
Flow Path Slope (vft/hft)	0.28
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	6.6008
Burned Peak Flow Rate (cfs)	6.8504
24-Hr Clear Runoff Volume (ac-ft)	0.298
24-Hr Clear Runoff Volume (cu-ft)	12980.0795



Peak Flow Hydrologic Analysis

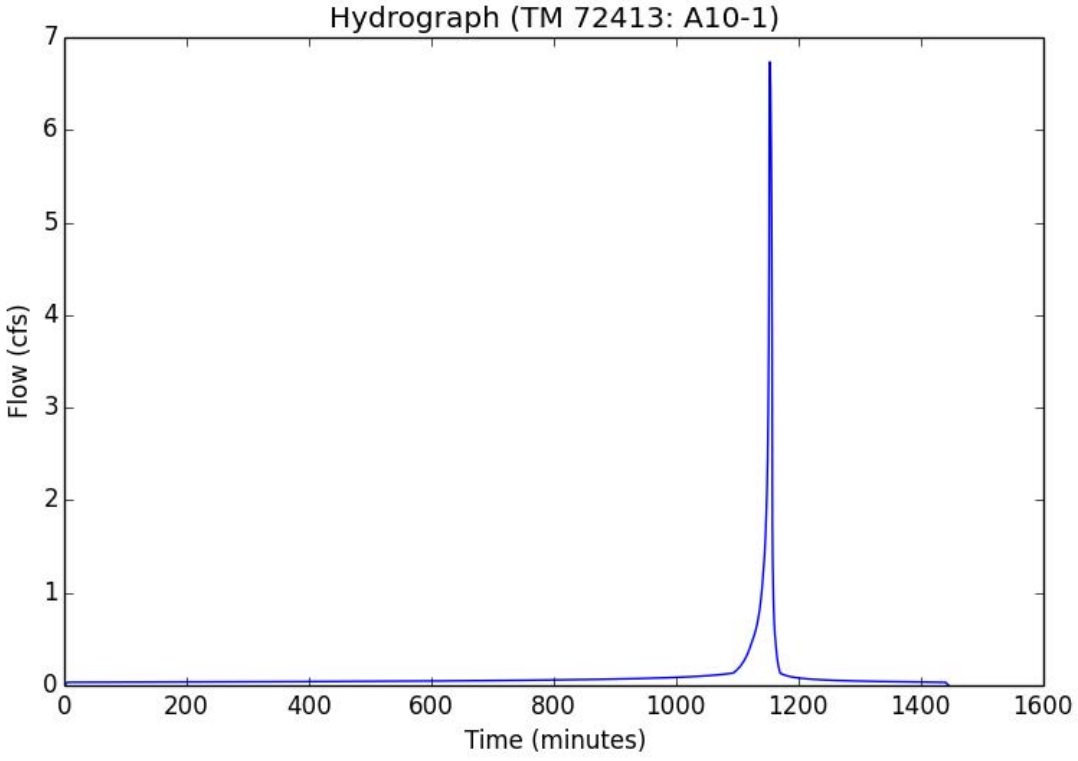
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A10-1
Area (ac)	1.7
Flow Path Length (ft)	882.0
Flow Path Slope (vft/hft)	0.13
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	7
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.7991
Developed Runoff Coefficient (Cd)	0.8001
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	6.7355
Burned Peak Flow Rate (cfs)	7.2432
24-Hr Clear Runoff Volume (ac-ft)	0.2068
24-Hr Clear Runoff Volume (cu-ft)	9010.1629



Peak Flow Hydrologic Analysis

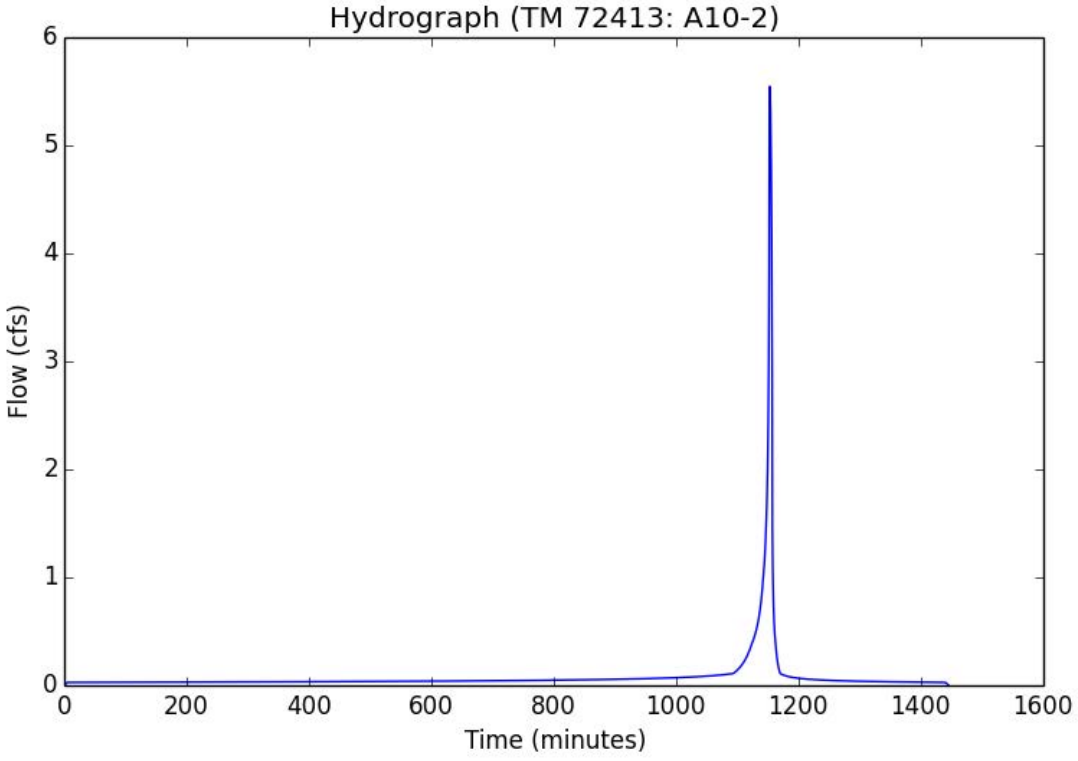
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	A10-2
Area (ac)	1.4
Flow Path Length (ft)	768.0
Flow Path Slope (vft/hft)	0.15
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	7
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.7991
Developed Runoff Coefficient (Cd)	0.8001
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	5.5469
Burned Peak Flow Rate (cfs)	5.965
24-Hr Clear Runoff Volume (ac-ft)	0.1703
24-Hr Clear Runoff Volume (cu-ft)	7420.1342



Peak Flow Hydrologic Analysis

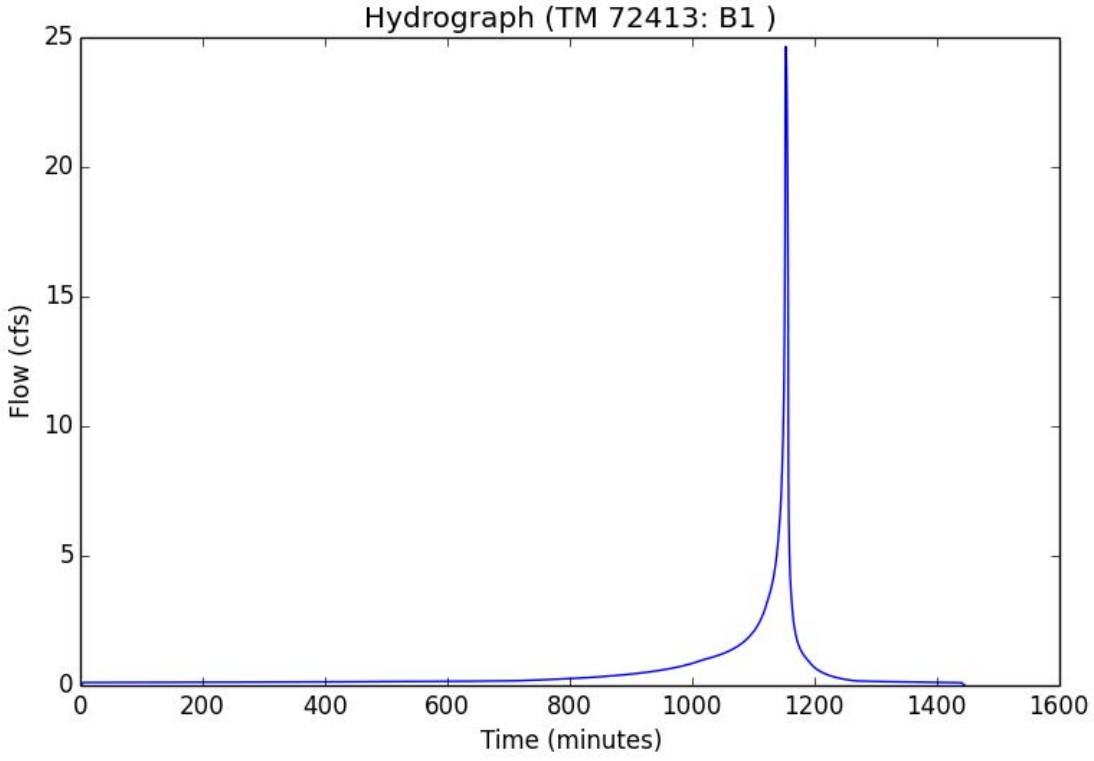
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	B1
Area (ac)	5.6
Flow Path Length (ft)	971.0
Flow Path Slope (vft/hft)	0.44
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	24.6431
Burned Peak Flow Rate (cfs)	25.5748
24-Hr Clear Runoff Volume (ac-ft)	1.1125
24-Hr Clear Runoff Volume (cu-ft)	48458.9635



Peak Flow Hydrologic Analysis

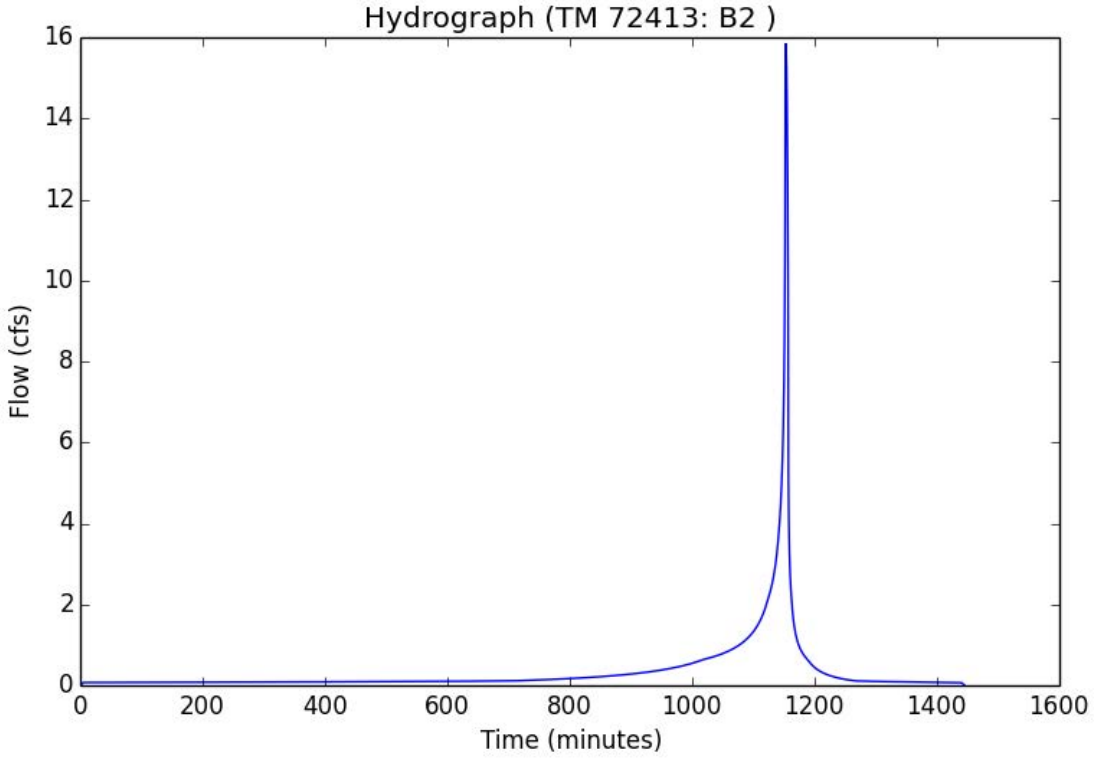
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	B2
Area (ac)	3.6
Flow Path Length (ft)	926.0
Flow Path Slope (vft/hft)	0.38
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	15.842
Burned Peak Flow Rate (cfs)	16.4409
24-Hr Clear Runoff Volume (ac-ft)	0.7152
24-Hr Clear Runoff Volume (cu-ft)	31152.1908



Peak Flow Hydrologic Analysis

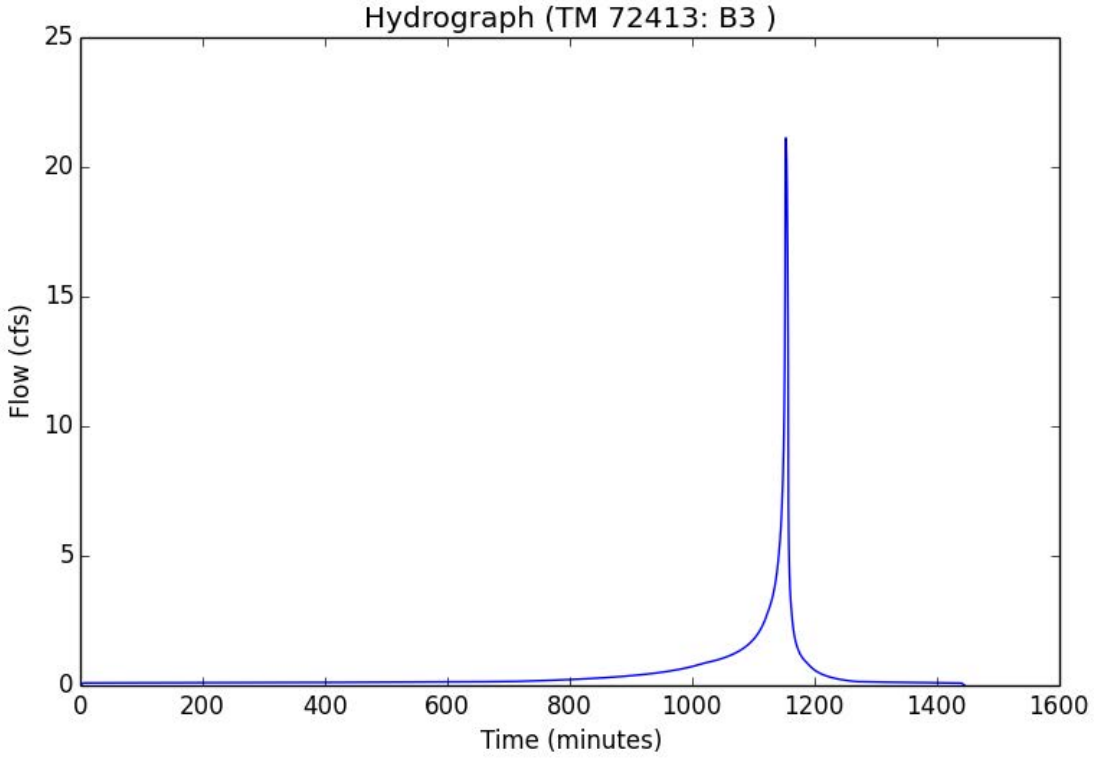
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	B3
Area (ac)	4.8
Flow Path Length (ft)	660.0
Flow Path Slope (vft/hft)	0.38
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	21.1227
Burned Peak Flow Rate (cfs)	21.9213
24-Hr Clear Runoff Volume (ac-ft)	0.9535
24-Hr Clear Runoff Volume (cu-ft)	41536.2544



Peak Flow Hydrologic Analysis

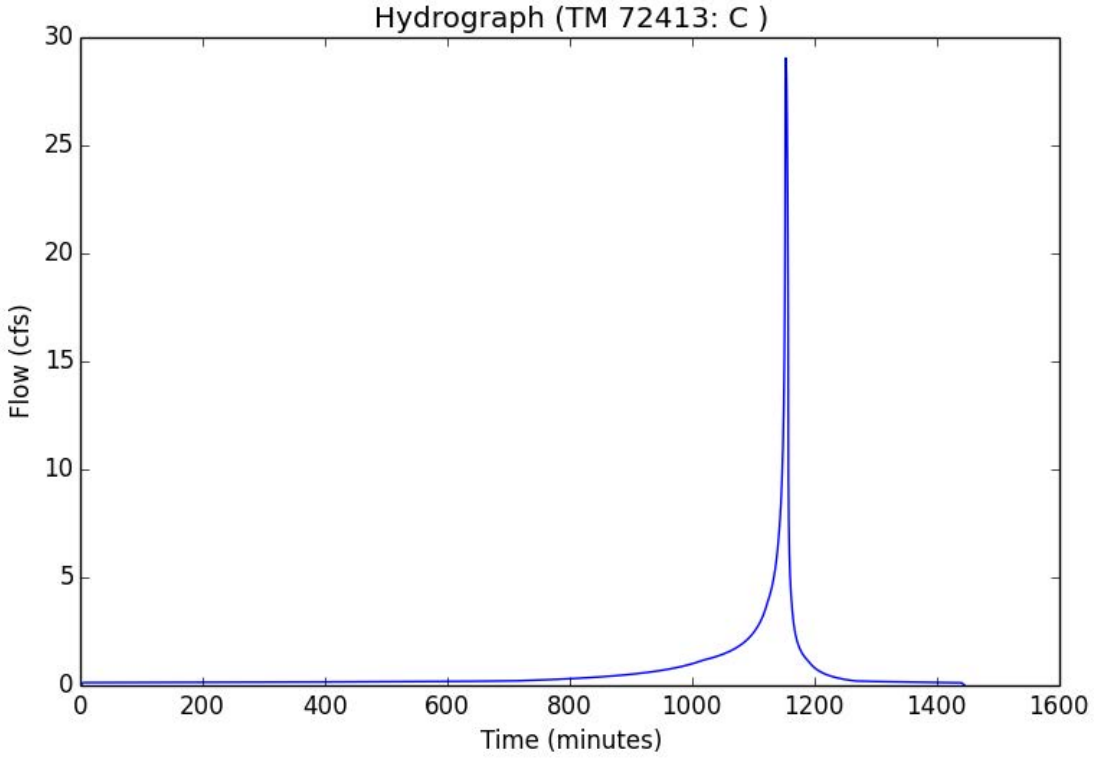
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	C
Area (ac)	6.6
Flow Path Length (ft)	908.0
Flow Path Slope (vft/hft)	0.48
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	29.0437
Burned Peak Flow Rate (cfs)	30.1417
24-Hr Clear Runoff Volume (ac-ft)	1.3111
24-Hr Clear Runoff Volume (cu-ft)	57112.3498



Peak Flow Hydrologic Analysis

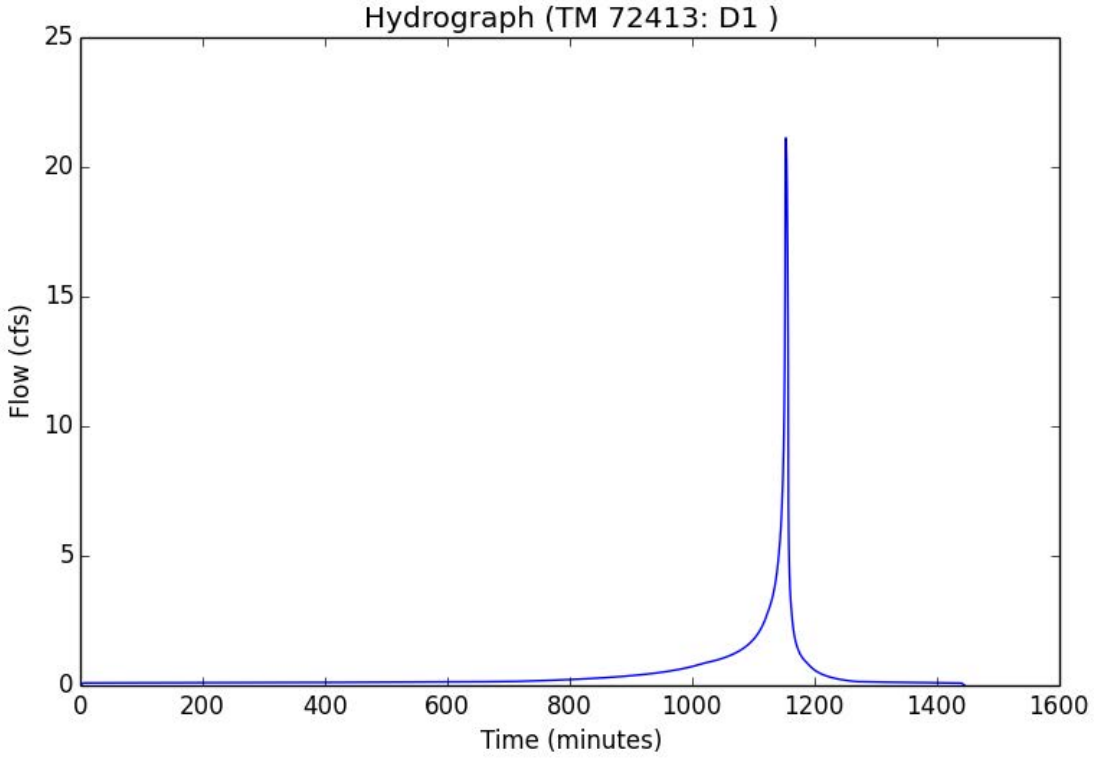
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	D1
Area (ac)	4.8
Flow Path Length (ft)	812.0
Flow Path Slope (vft/hft)	0.47
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	21.1227
Burned Peak Flow Rate (cfs)	21.9213
24-Hr Clear Runoff Volume (ac-ft)	0.9535
24-Hr Clear Runoff Volume (cu-ft)	41536.2544



Peak Flow Hydrologic Analysis

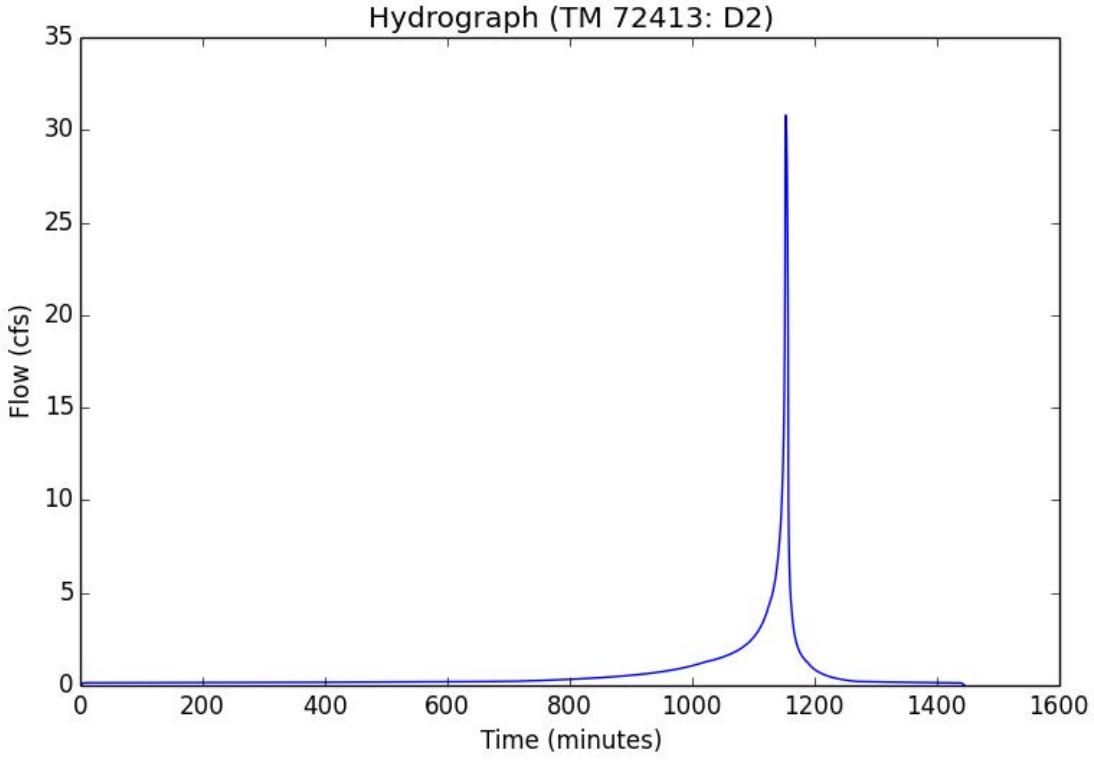
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Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	D2
Area (ac)	7.0
Flow Path Length (ft)	749.0
Flow Path Slope (vft/hft)	0.58
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	30.8039
Burned Peak Flow Rate (cfs)	31.9685
24-Hr Clear Runoff Volume (ac-ft)	1.3906
24-Hr Clear Runoff Volume (cu-ft)	60573.7044



Peak Flow Hydrologic Analysis

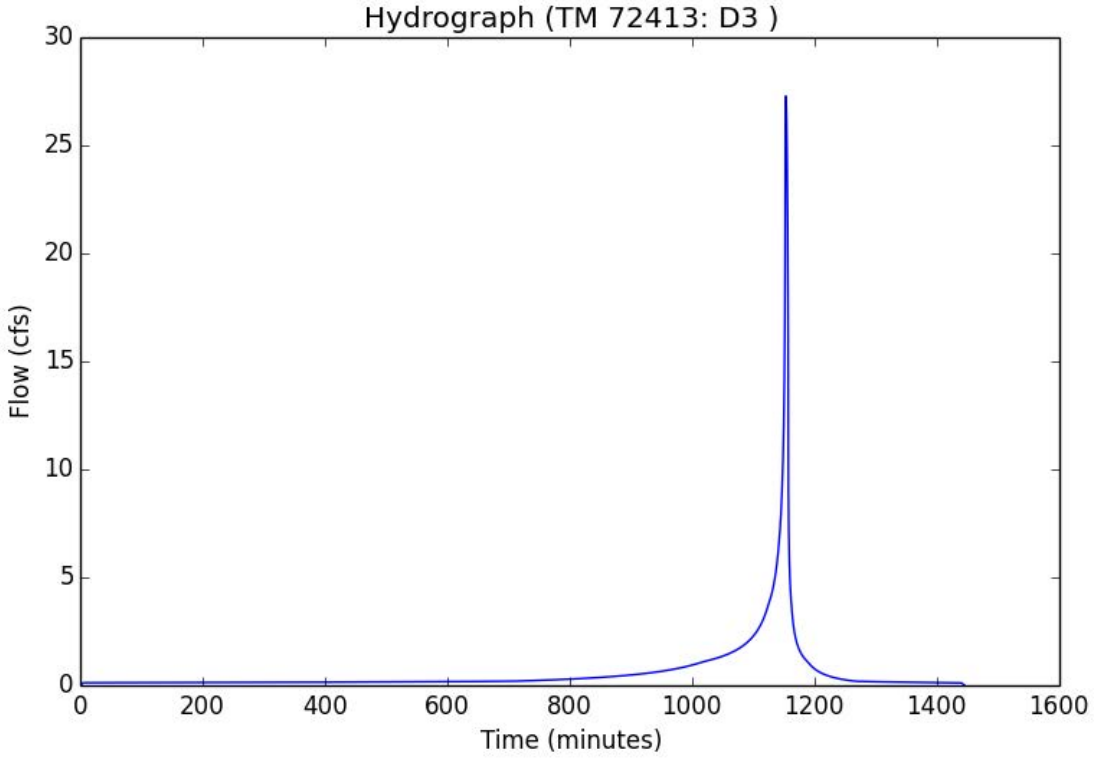
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	D3
Area (ac)	6.2
Flow Path Length (ft)	822.0
Flow Path Slope (vft/hft)	0.53
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.01
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8886
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	27.2834
Burned Peak Flow Rate (cfs)	28.315
24-Hr Clear Runoff Volume (ac-ft)	1.2317
24-Hr Clear Runoff Volume (cu-ft)	53650.9953



Peak Flow Hydrologic Analysis

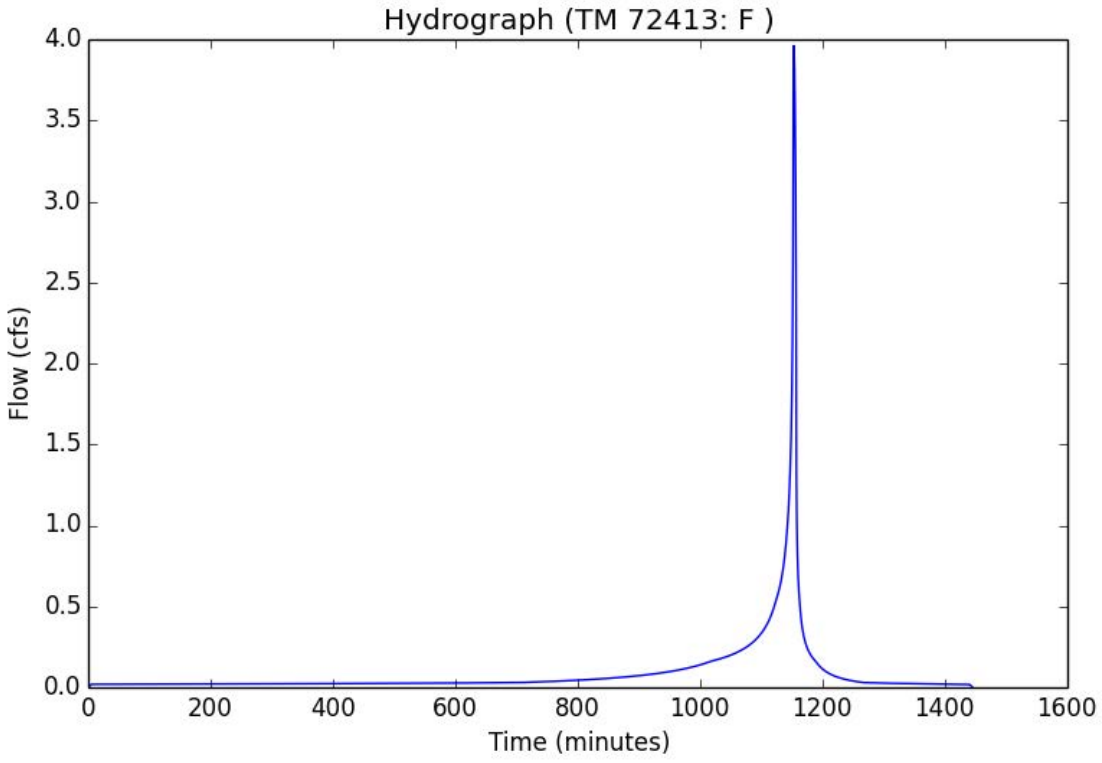
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	F
Area (ac)	0.9
Flow Path Length (ft)	540.0
Flow Path Slope (vft/hft)	0.32
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8888
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.961
Burned Peak Flow Rate (cfs)	4.1106
24-Hr Clear Runoff Volume (ac-ft)	0.1826
24-Hr Clear Runoff Volume (cu-ft)	7953.8534



Peak Flow Hydrologic Analysis

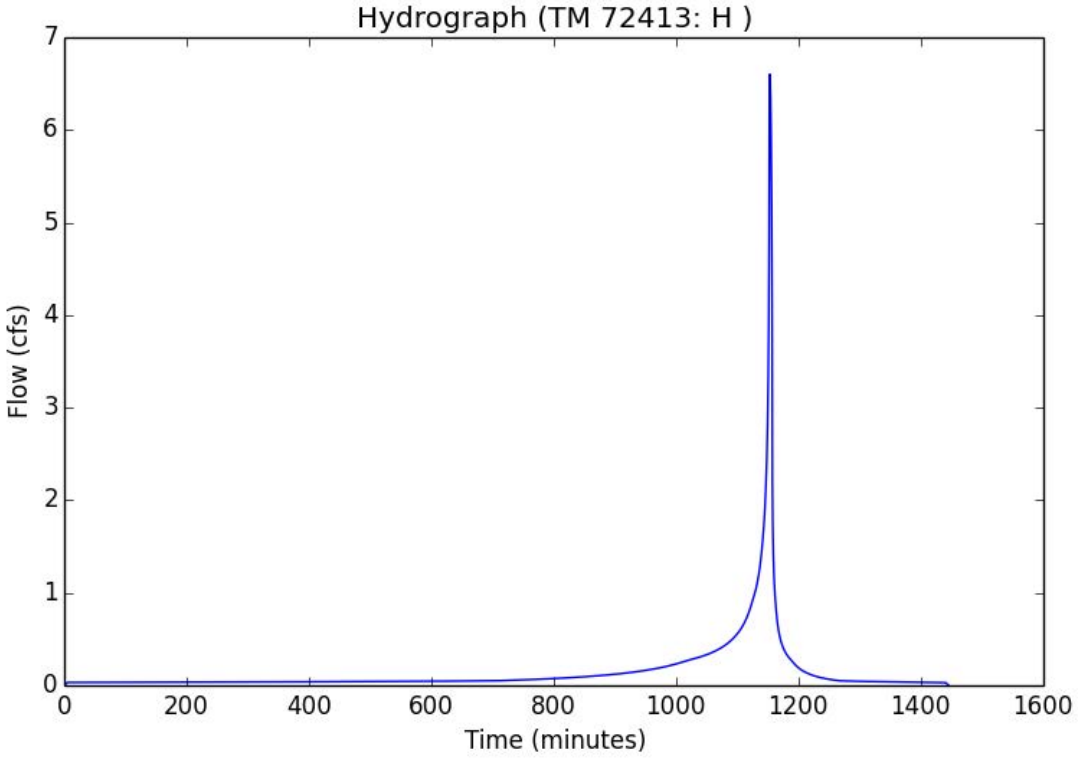
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	H
Area (ac)	1.5
Flow Path Length (ft)	758.0
Flow Path Slope (vft/hft)	0.26
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8888
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	6.6017
Burned Peak Flow Rate (cfs)	6.851
24-Hr Clear Runoff Volume (ac-ft)	0.3043
24-Hr Clear Runoff Volume (cu-ft)	13256.4223



Peak Flow Hydrologic Analysis

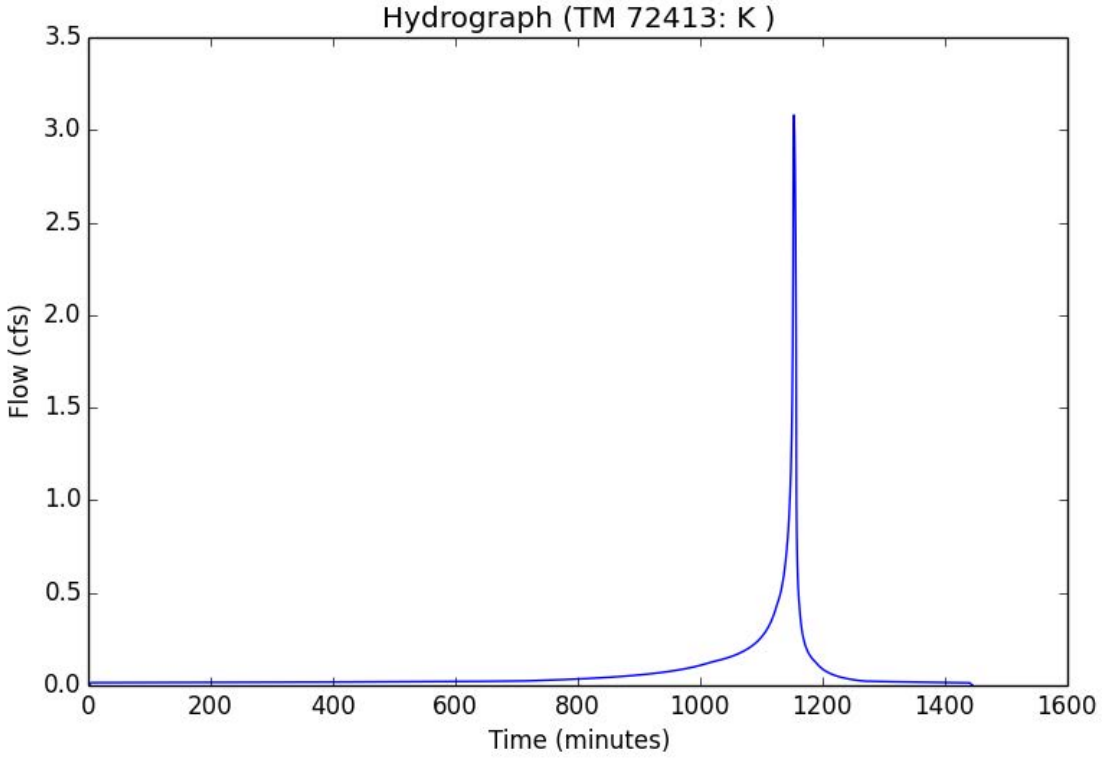
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	K
Area (ac)	0.7
Flow Path Length (ft)	237.0
Flow Path Slope (vft/hft)	0.21
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8888
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.0808
Burned Peak Flow Rate (cfs)	3.1971
24-Hr Clear Runoff Volume (ac-ft)	0.142
24-Hr Clear Runoff Volume (cu-ft)	6186.3304



Peak Flow Hydrologic Analysis

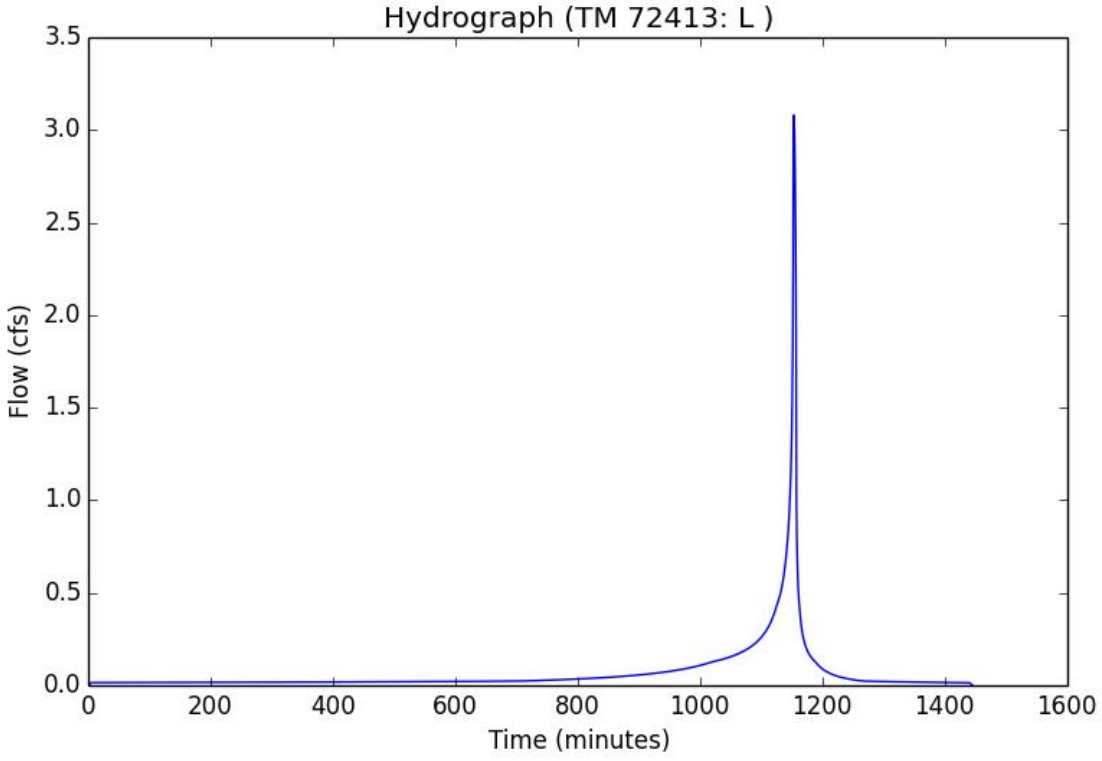
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	L
Area (ac)	0.7
Flow Path Length (ft)	224.0
Flow Path Slope (vft/hft)	0.2
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8888
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.0808
Burned Peak Flow Rate (cfs)	3.1971
24-Hr Clear Runoff Volume (ac-ft)	0.142
24-Hr Clear Runoff Volume (cu-ft)	6186.3304



Peak Flow Hydrologic Analysis

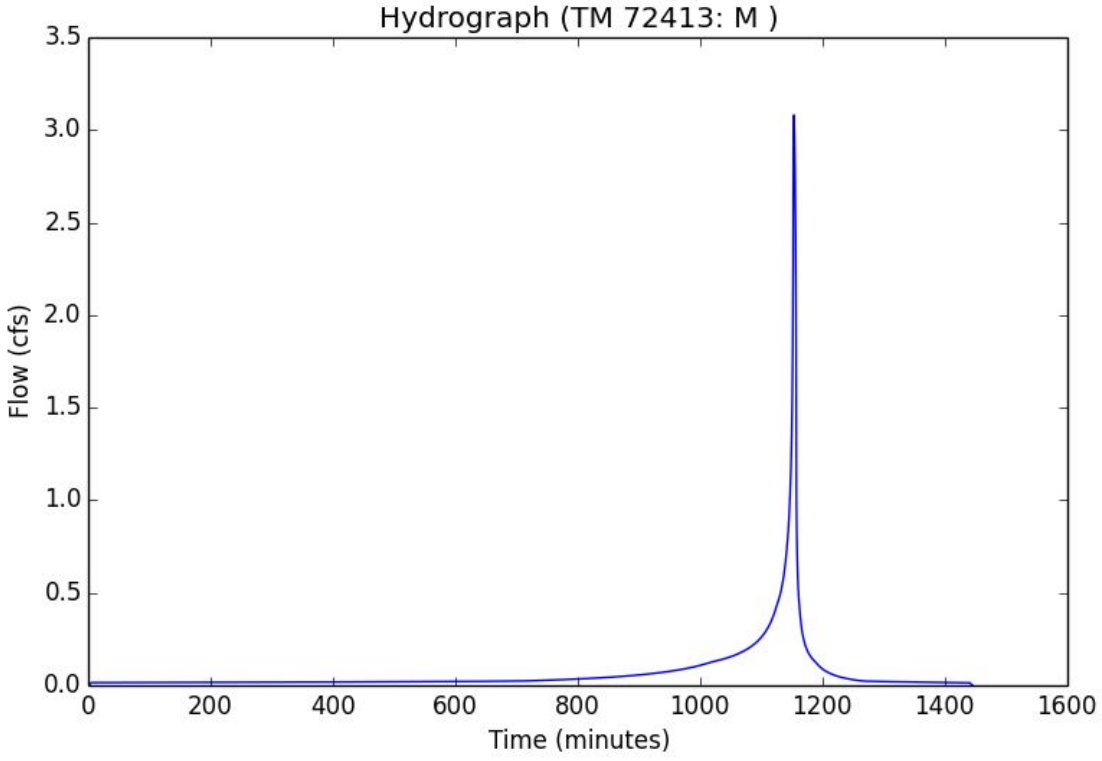
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	M
Area (ac)	0.7
Flow Path Length (ft)	310.0
Flow Path Slope (vft/hft)	0.14
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8888
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	3.0808
Burned Peak Flow Rate (cfs)	3.1971
24-Hr Clear Runoff Volume (ac-ft)	0.142
24-Hr Clear Runoff Volume (cu-ft)	6186.3304



Peak Flow Hydrologic Analysis

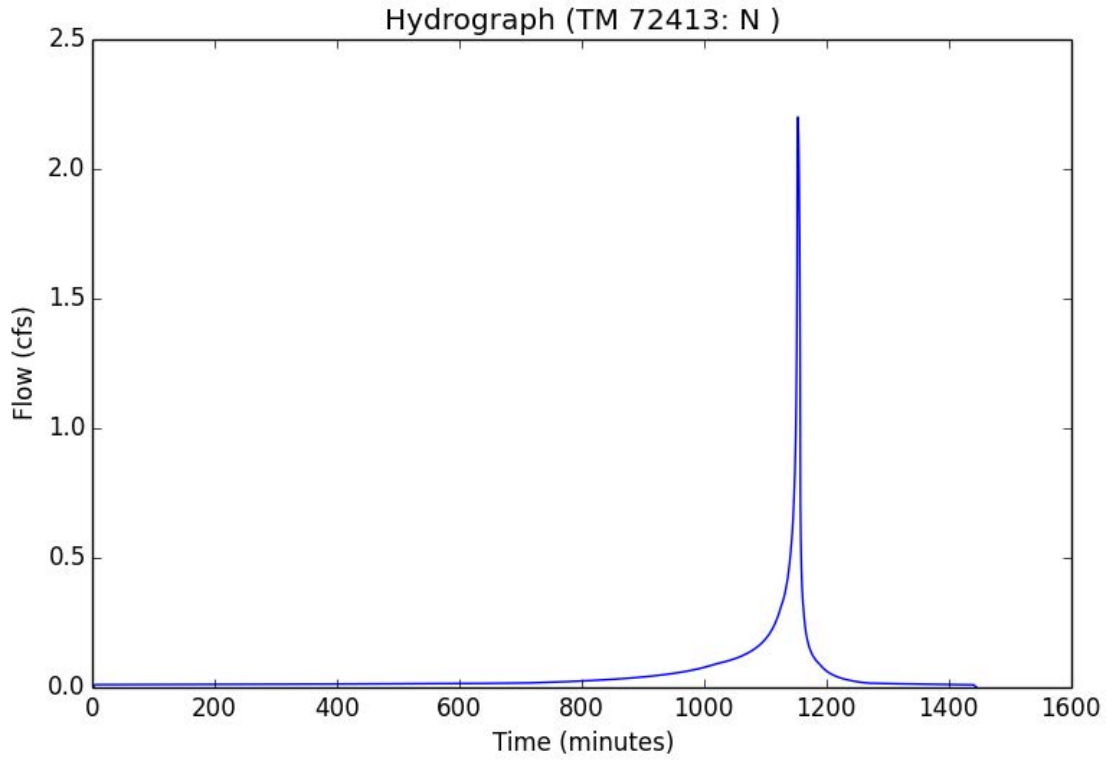
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	N
Area (ac)	0.5
Flow Path Length (ft)	170.0
Flow Path Slope (vft/hft)	0.31
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.02
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8888
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.2006
Burned Peak Flow Rate (cfs)	2.2837
24-Hr Clear Runoff Volume (ac-ft)	0.1014
24-Hr Clear Runoff Volume (cu-ft)	4418.8074



Peak Flow Hydrologic Analysis

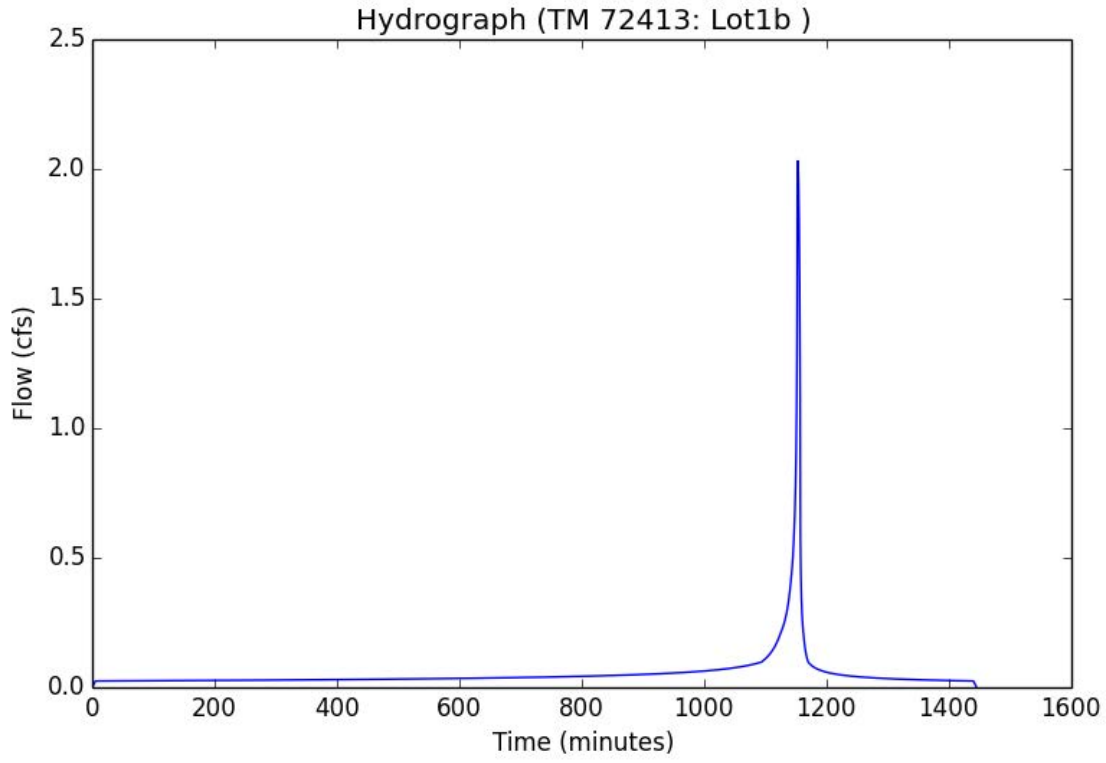
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	Lot1b
Area (ac)	0.5
Flow Path Length (ft)	640.0
Flow Path Slope (vft/hft)	0.14
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.21
Soil Type	7
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.7991
Developed Runoff Coefficient (Cd)	0.8203
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	2.031
Burned Peak Flow Rate (cfs)	2.1653
24-Hr Clear Runoff Volume (ac-ft)	0.1109
24-Hr Clear Runoff Volume (cu-ft)	4831.0492



Peak Flow Hydrologic Analysis

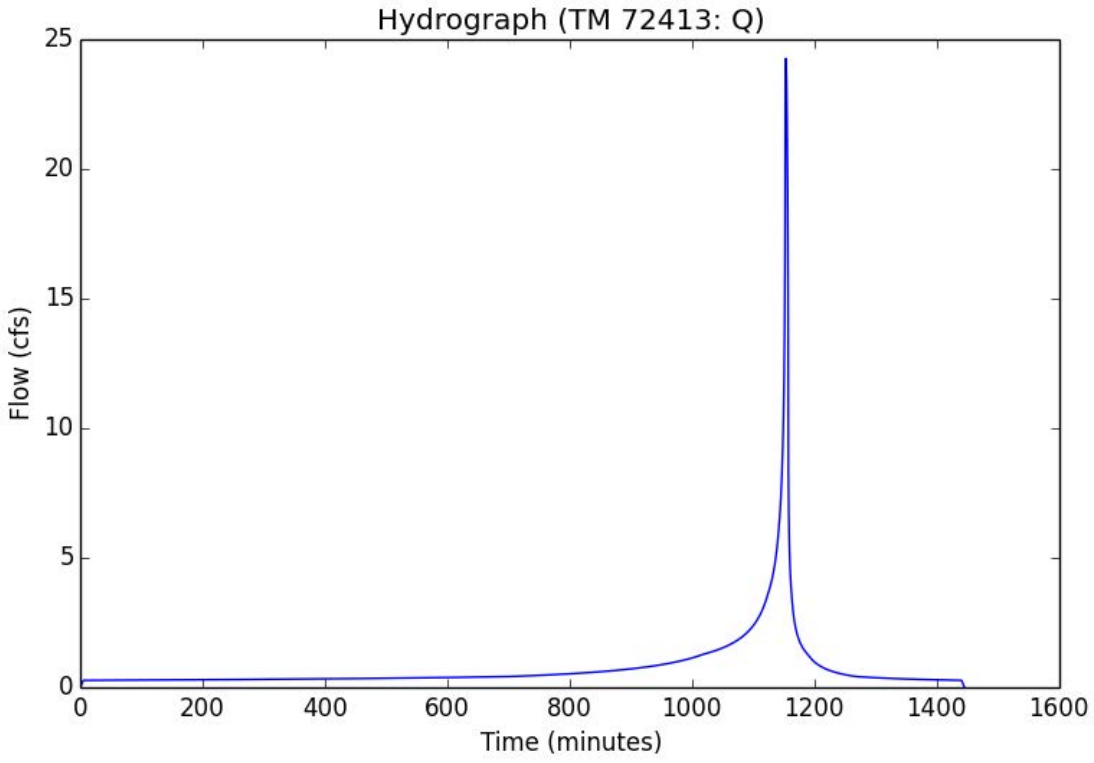
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	Q
Area (ac)	5.5
Flow Path Length (ft)	898.0
Flow Path Slope (vft/hft)	0.18
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.21
Soil Type	81
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.8885
Developed Runoff Coefficient (Cd)	0.8909
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	24.2656
Burned Peak Flow Rate (cfs)	25.1618
24-Hr Clear Runoff Volume (ac-ft)	1.5578
24-Hr Clear Runoff Volume (cu-ft)	67858.7605



Peak Flow Hydrologic Analysis

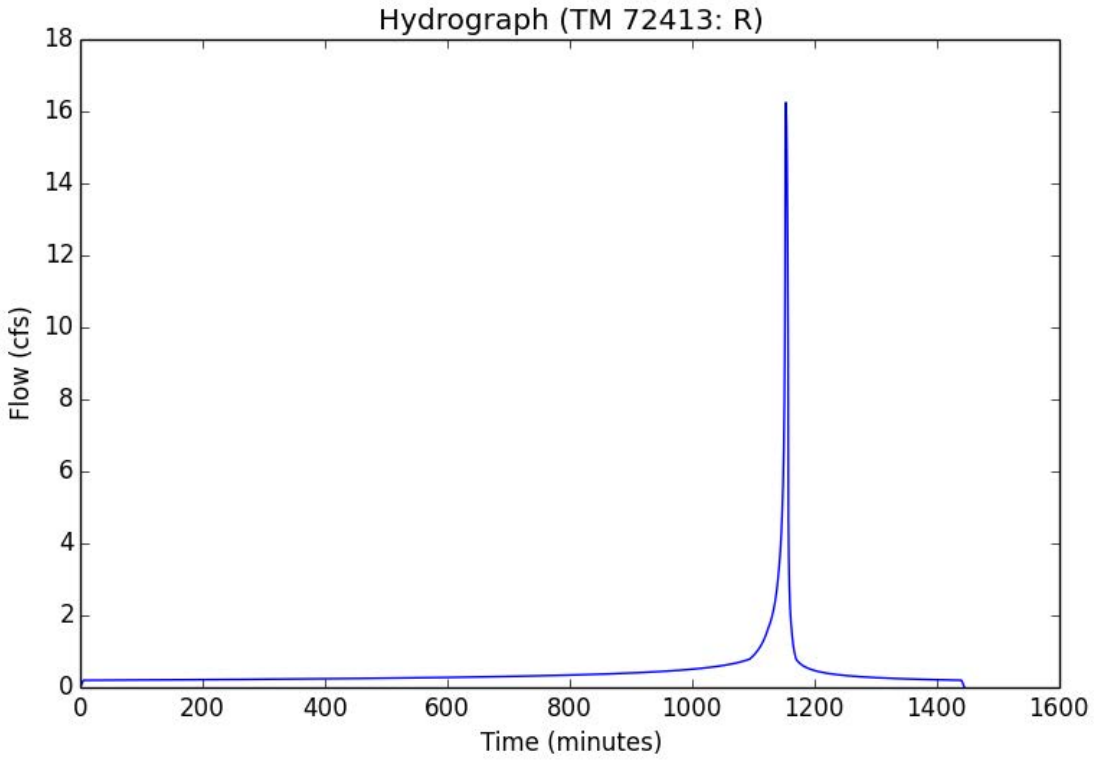
File location: P:/DREA001003 Glendora Hydrology Study/SUBMITTAL 4/hydro/50year.pdf
Version: HydroCalc 1.0.2

Input Parameters

Project Name	TM 72413
Subarea ID	R
Area (ac)	4.0
Flow Path Length (ft)	750.0
Flow Path Slope (vft/hft)	0.08
50-yr Rainfall Depth (in)	8.3
Percent Impervious	0.21
Soil Type	7
Design Storm Frequency	50-yr
Fire Factor	0.71
LID	False

Output Results

Modeled (50-yr) Rainfall Depth (in)	8.3
Peak Intensity (in/hr)	4.952
Undeveloped Runoff Coefficient (Cu)	0.7991
Developed Runoff Coefficient (Cd)	0.8203
Time of Concentration (min)	5.0
Clear Peak Flow Rate (cfs)	16.248
Burned Peak Flow Rate (cfs)	17.3221
24-Hr Clear Runoff Volume (ac-ft)	0.8872
24-Hr Clear Runoff Volume (cu-ft)	38648.3935



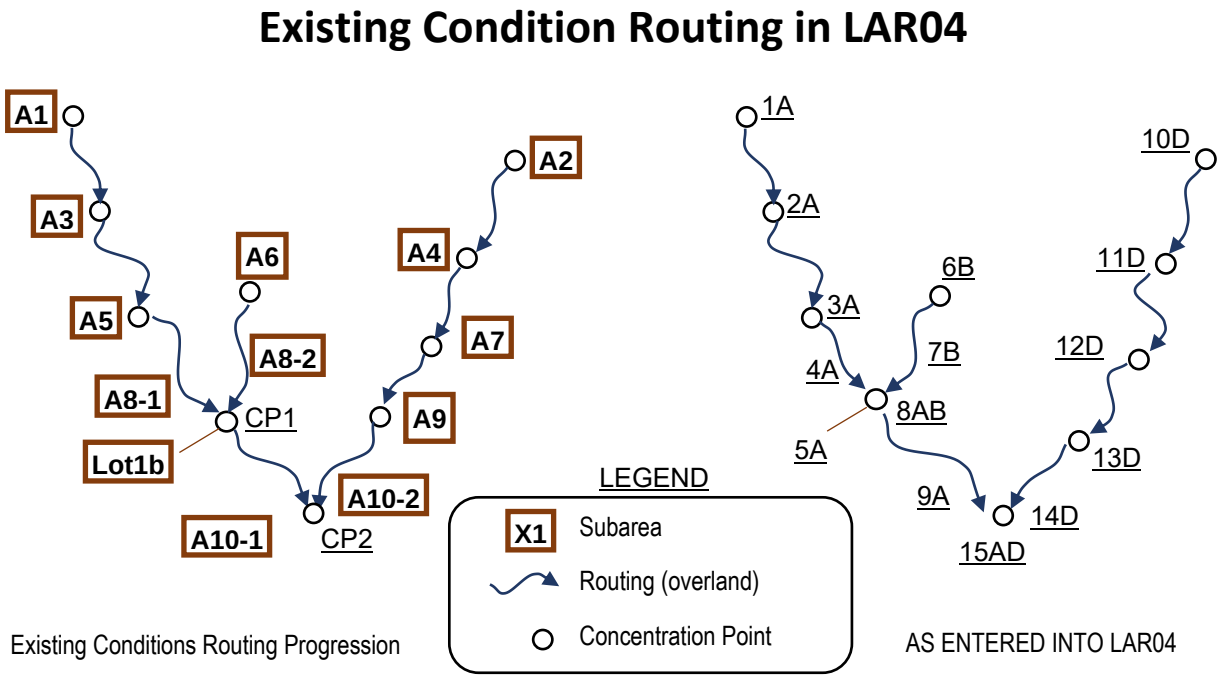


Figure C – 1. Existing condition routing schematic in LAR04.

Table C – 1. Existing condition cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	A1
2A	A3, A1
3A	A5, A3, A1
4A	A8-1,A5,A3,A1
5A	Lot1b, A8-1,A5,A3,A1
6B	A8-2, A6
7B	A8-2, A6, A8-1,A5,A3,A1
8AB	Lot1b, A8-2, A6, A8-1,A5,A3,A1
9A	A10-1, Lot1b, A8-2, A6, A8-1,A5,A3,A1
10D	A2
12D	A4, A2
12D	A7, A4, A2
13D	A9, A7, A4, A2
14D	A10-2, A9, A7, A4, A2
15AD	A10-1, Lot1b, A8-2, A6, A8-1, A5, A3, A1, A10-2, A9, A7, A4, A2

Existing Condition Clear Water 25-Year Storm (Urban Flood)

```
 Program Package Serial Number:  2223
08/01/18   FILE: ex25.i   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                    LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                        PROG F0601M

      Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
      Glendora                                                                                                STORM DAY 4
                    SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL        RAIN  PCT
      LOCATION      AREA(Ac)  Q(CFS)    AREA(Ac)  Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z     Q(CFS) NAME  TC  ZONE  IMPV
         5    1A      5.6      21.69      5.6     21.69    1     611.   .26000      .00   .00       0.   81   5  A42   .01
         5    2A      3.6      13.95      9.2     31.34    1     757.   .24000      .00   .00       0.   81   5  A42   .01
         5    3A      4.7      18.21     13.9     42.05    1     806.   .12000      .00   .00       0.   81   5  A42   .01
         5    4A      3.9      13.52     17.8     46.85    0       0.   .00000      .00   .00       0.   81   6  A42   .03
         5    5A       .5       1.76     18.3     47.51    0       0.   .00000      .00   .00       0.    7   5  A42   .21
         5    6B      6.1      23.63      6.1     23.63    1     659.   .16000      .00   .00       0.   81   5  A42   .01
         5    7B      5.1      19.76     11.2     36.31    0       0.   .00000      .00   .00       0.   81   5  A42   .01
         5    8AB    11.2      36.31     29.5     80.84    1     617.   .09000      .00   .00       0.   81   0  A42   .00
         5    9A      1.7       5.07     31.2     81.36    0       0.   .00000      .00   .00       0.    7   6  A42   .01
         5   10D      4.8      18.59      4.8     18.59    1     521.   .48000      .00   .00       0.   81   5  A42   .01
         5   11D      7.0      27.12     11.8     42.83    1     595.   .24000      .00   .00       0.   81   5  A42   .01
         5   12D      5.6      21.69     17.4     58.11    1     395.   .20000      .00   .00       0.   81   5  A42   .01
         5   13D      1.5       5.81     18.9     61.32    1     711.   .14000      .00   .00       0.   81   5  A42   .01
         5   14D      1.4       4.77     20.3     60.40    0       0.   .00000      .00   .00       0.    7   5  A42   .01
         5   15AD    20.3      60.40     51.5    141.76    0       0.   .00000      .00   .00       0.    7   0  A42   .00
```

Existing Condition Clear Water 50-Year Storm (Capital Flood)

```
 Program Package Serial Number:  2223
08/01/18   FILE: ex50.i   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                    LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                      PROG F0601M

        Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
        Glendora                                                                                                STORM DAY 4
                     SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL       RAIN  PCT
        LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE LNGTH(Ft) SLOPE  SIZE(Ft)  Z     Q(CFS) NAME  TC   ZONE  IMPV
           5    1A     5.6      25.12      5.6     25.12   1     611.   .26000     .00    .00      0.    81    5   A42   .01
           5    2A     3.6      16.15      9.2     36.56   1     757.   .24000     .00    .00      0.    81    5   A42   .01
           5    3A     4.7      21.09     13.9     49.49   1     806.   .12000     .00    .00      0.    81    5   A42   .01
           5    4A     3.9      15.68     17.8     55.70   0       0.   .00000     .00    .00      0.    81    6   A42   .03
           5    5A      .5       2.06     18.3     56.82   0       0.   .00000     .00    .00      0.     7    5   A42   .21
           5    6B     6.1      27.37      6.1     27.37   1     659.   .16000     .00    .00      0.    81    5   A42   .01
           5    7B     5.1      22.88     11.2     42.65   0       0.   .00000     .00    .00      0.    81    5   A42   .01
           5    8AB   11.2      42.65     29.5     95.99   1     617.   .09000     .00    .00      0.    81    0   A42   .00
           5    9A     1.7       6.04     31.2     96.62   0       0.   .00000     .00    .00      0.     7    6   A42   .01
           5   10D     4.8      21.53      4.8     21.53   1     521.   .48000     .00    .00      0.    81    5   A42   .01
           5   11D     7.0      31.40     11.8     49.82   1     595.   .24000     .00    .00      0.    81    5   A42   .01
           5   12D     5.6      25.12     17.4     67.98   1     395.   .20000     .00    .00      0.    81    5   A42   .01
           5   13D     1.5       6.73     18.9     71.63   1     711.   .14000     .00    .00      0.    81    5   A42   .01
           5   14D     1.4       5.64     20.3     70.68   0       0.   .00000     .00    .00      0.     7    5   A42   .01
           5   15AD   20.3      70.68     51.5    167.30   0       0.   .00000     .00    .00      0.     7    0   A42   .00
```

Existing Condition Burned 50-Year Storm (Capital Flood)

```
   Program Package Serial Number:  2223
08/03/18   FILE: ex50bu   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                    LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                      PROG F0601M

        Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
        Glendora                                                                                                STORM DAY 4
                     SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL        RAIN  PCT
        LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE LNGTH(Ft) SLOPE  SIZE(Ft)  Z     Q(CFS) NAME  TC  ZONE  IMPV
           5    1A     5.6      26.01      5.6     26.01   1     611.   .26000     .00    .00      0.   281   5  A42   .01
           5    2A     3.6      16.72      9.2     38.05   1     757.   .24000     .00    .00      0.   281   5  A42   .01
           5    3A     4.7      21.83     13.9     51.80   1     806.   .12000     .00    .00      0.   281   5  A42   .01
           5    4A     3.9      16.28     17.8     58.84   0       0.   .00000     .00    .00      0.   281   6  A42   .03
           5    5A      .5       2.18     18.3     60.07   0       0.   .00000     .00    .00      0.   207   5  A42   .21
           5    6B     6.1      28.33      6.1     28.33   1     659.   .16000     .00    .00      0.   281   5  A42   .01
           5    7B     5.1      23.68     11.2     44.52   0       0.   .00000     .00    .00      0.   281   5  A42   .01
           5    8AB   11.2      44.52     29.5    101.11   1     617.   .09000     .00    .00      0.   281   0  A42   .00
           5    9A     1.7       6.54     31.2    102.12   0       0.   .00000     .00    .00      0.   207   6  A42   .01
           5   10D     4.8      22.29      4.8     22.29   1     521.   .48000     .00    .00      0.   281   5  A42   .01
           5   11D     7.0      32.51     11.8     51.71   1     595.   .24000     .00    .00      0.   281   5  A42   .01
           5   12D     5.6      26.01     17.4     70.83   1     395.   .20000     .00    .00      0.   281   5  A42   .01
           5   13D     1.5       6.97     18.9     74.76   1     711.   .14000     .00    .00      0.   281   5  A42   .01
           5   14D     1.4       6.06     20.3     74.41   0       0.   .00000     .00    .00      0.   207   5  A42   .01
           5   15AD   20.3      74.41     51.5    176.30   0       0.   .00000     .00    .00      0.   207   0  A42   .00
```

Proposed Condition Subarea B Routing in LAR04

A schematic of the proposed condition subarea B routing in shown below, and the LAR04 output is shown on the immediately following pages. A table relating cumulative B subareas as designated in the report and the concentration point definitions in LAR04 is shown below, as well as figure showing a schematic translation between the report subarea B designations to those used in LAR04. The actual LAR04 output is shown on the immediately following pages.

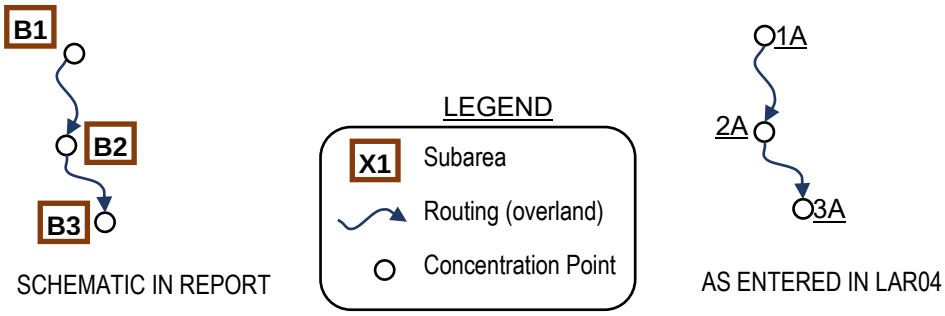


Figure C – 2. Proposed condition subareas B1 – B3 routing schematic in LAR04.

Table C – 2. Proposed condition subareas B1 – B3 cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	B1
2A	B2, B1
3A	B3, B2, B1

Subarea B Clear Water 25-Year Storm (Urban Flood)

```
 Program Package Serial Number:  2223
01/18/18   FILE: prpb     INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                    PROG F0601M

          Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
          Glendora                                                                                          STORM DAY 4
                       SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL      RAIN  PCT
          LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z    Q(CFS) NAME  TC  ZONE  IMPV
             5    1A     5.6      21.69      5.6     21.69   1     611.   .26000      .00   .00      0.   81   5   A42   .01
             5    2A     3.6      13.95      9.2     31.34   1     539.   .31000      .00   .00      0.   81   5   A42   .01
             5    3A     4.8      18.59     14.0     44.58   0       0.   .00000      .00   .00      0.   81   5   A42   .01
```

Subarea B Clear Water 50-Year Storm (Capital Flood)

```
 Program Package Serial Number:  2223
01/18/18   FILE: prpb     INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                    PROG F0601M

         Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
         Glendora                                                                                                STORM DAY 4
                     SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL       RAIN  PCT
         LOCATION    AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z    Q(CFS) NAME  TC   ZONE  IMPV
            5    1A    5.6      25.12      5.6     25.12   1     611.   .26000      .00   .00      0.   81    5   A42   .01
            5    2A    3.6      16.15      9.2     36.56   1     539.   .31000      .00   .00      0.   81    5   A42   .01
            5    3A    4.8      21.53     14.0     52.39   0       0.   .00000      .00   .00      0.   81    5   A42   .01
```

Subarea B Burned 50-Year Storm (Capital Flood)

```
 Program Package Serial Number:  2223
03/02/18   FILE: prpbbu   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                    LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                    PROG F0601M

        Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
        Glendora                                                                                                STORM DAY 4
                     SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL       RAIN  PCT
        LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z    Q(CFS) NAME  TC   ZONE  IMPV
           5    1A     5.6      26.01      5.6     26.01   1     611.   .26000      .00   .00      0.   281   5   A42   .01
           5    2A     3.6      16.72      9.2     38.05   1     539.   .31000      .00   .00      0.   281   5   A42   .01
           5    3A     4.8      22.29     14.0     54.73   0       0.   .00000      .00   .00      0.   281   5   A42   .01
```

Proposed Condition Subareas C, F, and H Routing in LAR04

A schematic of the proposed condition subareas C, F, and H routing in shown below, and the LAR04 output is shown on the immediately following pages. A table relating cumulative C, F, and H subareas as designated in the report and the concentration point definitions in LAR04 is shown below, as well as figure showing a schematic translation between the report subarea C, F, and H designations to those used in LAR04. The actual LAR04 output is shown on the immediately following pages.

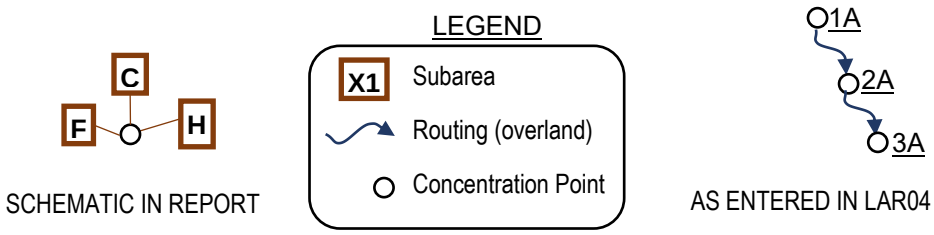


Figure C – 3. Proposed condition subareas C, F, and H routing schematic in LAR04.

Table C – 3. Proposed condition subareas C, F, and H cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	C
2A	F, C
3A	H, F, C

Subareas C, F, and H Clear Water 25-Year Storm (Urban Flood)

```
 Program Package Serial Number:  2223
03/02/18   FILE: prpc     INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                      PROG F0601M

          Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25  SOIL DATA FILE: C:\LAR04\cst_soilx_83.dat
          Glendora                                                                                                STORM DAY 4
                       SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV     CONV     CONV   CONV  CONTROL SOIL      RAIN  PCT
          LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac)  Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)   Z    Q(CFS) NAME  TC  ZONE  IMPV
             5    1A     6.6      25.57      6.6      25.57   0       0.   .00000      .00   .00       0.   81   5   A42   .01
             5    2A      .9       3.49      7.5      29.05   0       0.   .00000      .00   .00       0.   81   5   A42   .02
             5    3A     1.5       5.81      9.0      34.87   1       1.   .00010      .00   .00       0.   81   5   A42   .02
```

Subareas C, F, and H Clear Water 50-Year Storm (Capital Flood)

```
 Program Package Serial Number:  2223
03/02/18   FILE: prpc     INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                      PROG F0601M

          Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
          Glendora                                                                                          STORM DAY 4
                       SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL      RAIN  PCT
          LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z    Q(CFS) NAME  TC  ZONE  IMPV
             5    1A     6.6      29.61      6.6     29.61   0       0.   .00000      .00   .00       0.   81   5  A42   .01
             5    2A      .9       4.04      7.5     33.65   0       0.   .00000      .00   .00       0.   81   5  A42   .02
             5    3A     1.5       6.73      9.0     40.38   1       1.   .00010      .00   .00       0.   81   5  A42   .02
```

Subareas C, F, and H Burned 50-Year Storm (Capital Flood)

```
 Program Package Serial Number:  2223
03/02/18   FILE: prpcbu   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                    LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                    PROG F0601M

        Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
        Glendora                                                                                                STORM DAY 4
                     SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL       RAIN  PCT
        LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z    Q(CFS) NAME  TC   ZONE  IMPV
           5    1A     6.6      30.65      6.6     30.65   0       0.   .00000      .00   .00       0.  281   5   A42   .01
           5    2A      .9       4.18      7.5     34.83   0       0.   .00000      .00   .00       0.  281   5   A42   .02
           5    3A     1.5       6.96      9.0     41.79   1       1.   .00010      .00   .00       0.  281   5   A42   .02
```

Proposed Condition Subarea D Routing in LAR04

A schematic of the proposed condition subareas D routing in shown below, and the LAR04 output is shown on the immediately following pages. A table relating cumulative D subareas as designated in the report and the concentration point definitions in LAR04 is shown below, as well as figure showing a schematic translation between the report subarea D designations to those used in LAR04. The actual LAR04 output is shown on the immediately following pages.

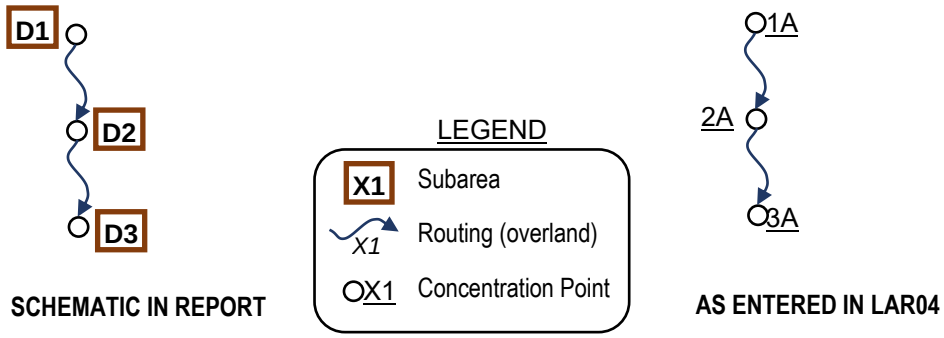


Figure C – 4. Proposed conditions subareas D1 – D3 routing schematic in LAR04.

Table C – 4. Proposed conditions subareas D1 – D3 cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	D1
2A	D2, D1
3A	D3, D2, D1

The LAR04 output for this analysis is shown on the immediately following pages.

Subarea D Clear Water 25-Year Storm (Urban Flood)

```
 Program Package Serial Number:  2223
01/18/18   FILE: prpd     INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                      PROG F0601M

          Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
          Glendora                                                                                                STORM DAY 4
                       SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV     CONV     CONV   CONV  CONTROL SOIL      RAIN  PCT
          LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z     Q(CFS) NAME  TC  ZONE  IMPV
             5    1A     4.8      18.59      4.8     18.59   1     521.   .48000      .00   .00       0.   81   5   A42   .01
             5    2A     7.0      27.12     11.8     42.83   1     431.   .32000      .00   .00       0.   81   5   A42   .01
             5    3A     6.2      24.02     18.0     62.18   0       0.   .00000      .00   .00       0.   81   5   A42   .01
```

Subarea D Clear Water 50-Year Storm (Capital Flood)

```
 Program Package Serial Number:  2223
01/18/18   FILE: prpd     INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                      PROG F0601M

          Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
          Glendora                                                                                          STORM DAY 4
                       SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL      RAIN  PCT
          LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac)  Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z    Q(CFS) NAME  TC  ZONE  IMPV
             5    1A     4.8      21.53       4.8     21.53   1     521.   .48000      .00   .00       0.   81   5   A42   .01
             5    2A     7.0      31.40      11.8     49.82   1     431.   .32000      .00   .00       0.   81   5   A42   .01
             5    3A     6.2      27.82      18.0     72.42   0       0.   .00000      .00   .00       0.   81   5   A42   .01
```

Subarea D Burned 50-Year Storm (Capital Flood)

```
 Program Package Serial Number:  2223
03/02/18   FILE: prpdbu   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                    PROG F0601M

         Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
         Glendora                                                                                          STORM DAY 4
                     SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV     CONV     CONV   CONV  CONTROL SOIL      RAIN  PCT
         LOCATION    AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z    Q(CFS) NAME  TC  ZONE  IMPV
            5    1A    4.8      22.29      4.8     22.29   1     521.   .48000      .00   .00       0.  281   5   A42   .01
            5    2A    7.0      32.51     11.8     51.71   1     431.   .32000      .00   .00       0.  281   5   A42   .01
            5    3A    6.2      28.79     18.0     75.30   0       0.   .00000      .00   .00       0.  281   5   A42   .01

 Program Package Serial Number:  2223
03/02/18   FILE: prpdbu   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     3
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                    PROG F0601M
```

Detention Analyses with Retard

The detention analyses output from the Retard program is shown on the immediately following pages.

Detention Subarea B Clear Water Urban Flood

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2009 Version 6.5
------------------------------------------------------------------------
Study Date : 03/07/18 Input hydrograph file name : prpb25.hyd
Output hydrograph file name: b50.hin


Program computation of outflow v. depth


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)

Total outflow at this depth =     25.46(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    3.00(Ft.)   Flow =     46.77 (CFS)

Total outflow at this depth =     46.77(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    4.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    4.00(Ft.)   Flow =     72.00 (CFS)

Total outflow at this depth =     72.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    5.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    5.00(Ft.)   Flow =    100.62 (CFS)

Total outflow at this depth =    100.62(CFS)

------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
```

Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.060	9.000	0.054	0.066
2.000	0.150	25.456	0.132	0.168
3.000	0.300	46.765	0.268	0.332
4.000	0.500	72.000	0.450	0.550
5.000	0.750	100.623	0.681	0.819

Hydrograph Detention Basin Routing

Hydrograph at 5 3 A Storm Day: 4 Drainage Area = 14.00

Total flood hydrograph volume this storm day = 2.23 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 11.2 22.3 33.5 44.6	Depth (Ft.)
0	0.0	0.1	0.000	O	0.0
100	0.3	0.3	0.002	O	0.0
200	0.3	0.3	0.002	O	0.0
300	0.3	0.3	0.002	O	0.0
400	0.3	0.3	0.002	O	0.0
500	0.3	0.3	0.002	O	0.0
600	0.3	0.3	0.002	O	0.0
700	0.4	0.4	0.003	O	0.0
800	0.4	0.4	0.003	O	0.0
900	0.6	0.6	0.004	O	0.1
1000	1.2	1.2	0.008	O	0.1
1050	2.0	1.9	0.013	IO	0.2
1100	3.4	3.3	0.022	I O	0.4
1110	4.6	4.1	0.028	IO I	0.5
1120	5.8	5.3	0.035	IO I	0.6
1130	7.3	6.7	0.044	IO I	0.7
1131	7.4	6.8	0.045	IO I	0.8
1132	7.6	7.0	0.046	IO I	0.8
1133	7.9	7.1	0.048	O I	0.8
1134	8.2	7.3	0.049	O I	0.8
1135	8.6	7.6	0.050	OI I	0.8
1136	8.9	7.8	0.052	OI I	0.9
1137	9.3	8.1	0.054	OI I	0.9
1138	9.7	8.4	0.056	O I	0.9
1139	10.1	8.7	0.058	OI I	1.0
1140	10.5	9.1	0.060	OI I	1.0
1141	11.2	9.5	0.063	O I I	1.0
1142	11.7	10.0	0.066	OI I	1.1
1143	12.2	10.5	0.068	OI I	1.1
1144	12.9	11.0	0.071	OI I	1.1
1145	13.8	11.7	0.075	OI I	1.2
1146	14.8	12.4	0.078	O I I	1.2
1147	15.8	13.1	0.083	IO I I	1.3
1148	16.8	14.0	0.087	I O I I	1.3
1149	20.3	15.4	0.095	I O I I	1.4
1150	24.3	17.4	0.106	I O I I	1.5
1151	29.3	20.0	0.120	I O I I	1.7
1152	35.5	23.5	0.139	I O I	1.9
1153	42.5	27.3	0.163	I O I	2.1
1154	44.6	30.4	0.185	I O I	2.2
1155	44.0	32.8	0.202	I O I	2.3
1156	40.2	34.1	0.211	I O I	2.4
1157	34.2	34.1	0.211	I O	2.4
1158	26.9	32.8	0.202	I O I	2.3
1159	21.7	30.9	0.188	I O I	2.3
1160	17.4	28.5	0.171	I O I	2.1
1161	14.2	25.9	0.153	I O I	2.0
1162	11.7	22.9	0.136	I O I	1.8
1163	10.0	20.0	0.120	I O I	1.7
1164	8.7	17.5	0.106	I O I	1.5
1165	7.8	15.3	0.094	I O I	1.4
1166	7.0	13.4	0.084	I O I	1.3
1167	6.4	11.9	0.076	I O I	1.2
1168	5.9	10.5	0.068	I O I	1.1
1169	5.5	9.4	0.062	I O I	1.0
1170	5.2	8.6	0.057	I O I	1.0

1171	4.9	7.9	0.052	| I O |	|	|	| 0.9
1172	4.6	7.3	0.048	| I O |	|	|	| 0.8
1173	4.3	6.7	0.045	| IO |	|	|	| 0.7
1174	4.1	6.2	0.041	| I O |	|	|	| 0.7
1175	3.9	5.8	0.039	| I O |	|	|	| 0.6
1176	3.7	5.4	0.036	| IO |	|	|	| 0.6
1177	3.5	5.0	0.034	| IO |	|	|	| 0.6
1178	3.4	4.7	0.032	| IO |	|	|	| 0.5
1179	3.2	4.4	0.030	| IO |	|	|	| 0.5
1180	3.1	4.2	0.028	| IO |	|	|	| 0.5
1181	3.0	4.0	0.026	| O |	|	|	| 0.4
1182	2.9	3.8	0.025	| O |	|	|	| 0.4
1183	2.8	3.6	0.024	| O |	|	|	| 0.4
1184	2.6	3.4	0.023	|IO |	|	|	| 0.4
1185	2.6	3.3	0.022	|IO |	|	|	| 0.4
1186	2.4	3.1	0.021	|IO |	|	|	| 0.3
1187	2.4	3.0	0.020	|IO |	|	|	| 0.3
1188	2.3	2.8	0.019	|IO |	|	|	| 0.3
1189	2.2	2.7	0.018	|O |	|	|	| 0.3
1190	2.1	2.6	0.017	|O |	|	|	| 0.3
1191	2.1	2.5	0.017	|O |	|	|	| 0.3
1192	2.0	2.4	0.016	|O |	|	|	| 0.3
1193	2.0	2.3	0.016	|O |	|	|	| 0.3
1194	1.9	2.3	0.015	|O |	|	|	| 0.3
1195	1.9	2.2	0.015	|O |	|	|	| 0.2
1196	1.8	2.1	0.014	|O |	|	|	| 0.2
1197	1.8	2.1	0.014	|O |	|	|	| 0.2
1198	1.7	2.0	0.013	|O |	|	|	| 0.2
1199	1.7	1.9	0.013	|O |	|	|	| 0.2
1200	1.6	1.9	0.012	|O |	|	|	| 0.2
1201	1.6	1.8	0.012	|O |	|	|	| 0.2
1202	1.5	1.8	0.012	|O |	|	|	| 0.2
1203	1.5	1.7	0.011	|O |	|	|	| 0.2
1204	1.4	1.7	0.011	|O |	|	|	| 0.2
1205	1.4	1.6	0.011	|O |	|	|	| 0.2
1206	1.4	1.6	0.010	|O |	|	|	| 0.2
1207	1.4	1.5	0.010	|O |	|	|	| 0.2
1208	1.3	1.5	0.010	IO |	|	|	| 0.2
1209	1.3	1.5	0.010	IO |	|	|	| 0.2
1210	1.3	1.4	0.010	IO |	|	|	| 0.2
1211	1.2	1.4	0.009	O |	|	|	| 0.2
1212	1.2	1.3	0.009	O |	|	|	| 0.1
1213	1.2	1.3	0.009	O |	|	|	| 0.1
1214	1.1	1.3	0.009	O |	|	|	| 0.1
1215	1.1	1.2	0.008	O |	|	|	| 0.1
1216	1.1	1.2	0.008	O |	|	|	| 0.1
1217	1.0	1.2	0.008	O |	|	|	| 0.1
1218	1.0	1.1	0.008	O |	|	|	| 0.1
1219	1.0	1.1	0.007	O |	|	|	| 0.1
1220	1.0	1.1	0.007	O |	|	|	| 0.1
1221	0.9	1.1	0.007	O |	|	|	| 0.1
1222	0.9	1.0	0.007	O |	|	|	| 0.1
1223	0.9	1.0	0.007	O |	|	|	| 0.1
1224	0.9	1.0	0.007	O |	|	|	| 0.1
1225	0.9	1.0	0.006	O |	|	|	| 0.1
1226	0.8	0.9	0.006	O |	|	|	| 0.1
1227	0.8	0.9	0.006	O |	|	|	| 0.1
1228	0.8	0.9	0.006	O |	|	|	| 0.1
1229	0.8	0.9	0.006	O |	|	|	| 0.1
1230	0.7	0.8	0.006	O |	|	|	| 0.1
1231	0.7	0.8	0.005	O |	|	|	| 0.1
1232	0.7	0.8	0.005	O |	|	|	| 0.1
1233	0.7	0.8	0.005	O |	|	|	| 0.1
1234	0.7	0.8	0.005	O |	|	|	| 0.1
1235	0.6	0.7	0.005	O |	|	|	| 0.1
1236	0.6	0.7	0.005	O |	|	|	| 0.1
1237	0.6	0.7	0.005	O |	|	|	| 0.1
1238	0.6	0.7	0.004	O |	|	|	| 0.1
1239	0.6	0.7	0.004	O |	|	|	| 0.1
1240	0.5	0.6	0.004	O |	|	|	| 0.1
1241	0.6	0.6	0.004	O |	|	|	| 0.1
1242	0.5	0.6	0.004	O |	|	|	| 0.1
1243	0.5	0.6	0.004	O |	|	|	| 0.1
1244	0.5	0.6	0.004	O |	|	|	| 0.1
1245	0.5	0.6	0.004	O |	|	|	| 0.1
1246	0.5	0.5	0.004	O |	|	|	| 0.1

1247	0.5	0.5	0.004	O	|	|	|	0.1
1248	0.5	0.5	0.004	O	|	|	|	0.1
1249	0.5	0.5	0.003	O	|	|	|	0.1
1250	0.5	0.5	0.003	O	|	|	|	0.1
1251	0.5	0.5	0.003	O	|	|	|	0.1
1252	0.5	0.5	0.003	O	|	|	|	0.1
1253	0.4	0.5	0.003	O	|	|	|	0.1
1254	0.4	0.5	0.003	O	|	|	|	0.1
1255	0.4	0.5	0.003	O	|	|	|	0.1
1256	0.4	0.4	0.003	O	|	|	|	0.0
1257	0.4	0.4	0.003	O	|	|	|	0.0
1258	0.4	0.4	0.003	O	|	|	|	0.0
1259	0.4	0.4	0.003	O	|	|	|	0.0
1260	0.4	0.4	0.003	O	|	|	|	0.0
1261	0.4	0.4	0.003	O	|	|	|	0.0
1262	0.4	0.4	0.003	O	|	|	|	0.0
1263	0.4	0.4	0.003	O	|	|	|	0.0
1264	0.4	0.4	0.003	O	|	|	|	0.0
1265	0.4	0.4	0.003	O	|	|	|	0.0
1266	0.4	0.4	0.003	O	|	|	|	0.0
1267	0.4	0.4	0.003	O	|	|	|	0.0
1268	0.4	0.4	0.003	O	|	|	|	0.0
1269	0.4	0.4	0.003	O	|	|	|	0.0
1270	0.4	0.4	0.003	O	|	|	|	0.0
1271	0.4	0.4	0.003	O	|	|	|	0.0
1272	0.4	0.4	0.003	O	|	|	|	0.0
1273	0.4	0.4	0.003	O	|	|	|	0.0
1274	0.4	0.4	0.003	O	|	|	|	0.0
1275	0.4	0.4	0.003	O	|	|	|	0.0
1276	0.4	0.4	0.003	O	|	|	|	0.0
1277	0.4	0.4	0.003	O	|	|	|	0.0
1278	0.4	0.4	0.003	O	|	|	|	0.0
1279	0.4	0.4	0.003	O	|	|	|	0.0
1280	0.4	0.4	0.003	O	|	|	|	0.0
1281	0.4	0.4	0.003	O	|	|	|	0.0
1282	0.4	0.4	0.003	O	|	|	|	0.0
1283	0.4	0.4	0.003	O	|	|	|	0.0
1284	0.4	0.4	0.003	O	|	|	|	0.0
1285	0.4	0.4	0.003	O	|	|	|	0.0
1286	0.4	0.4	0.003	O	|	|	|	0.0
1287	0.4	0.4	0.003	O	|	|	|	0.0
1288	0.4	0.4	0.003	O	|	|	|	0.0
1289	0.4	0.4	0.003	O	|	|	|	0.0
1290	0.4	0.4	0.003	O	|	|	|	0.0
1291	0.4	0.4	0.003	O	|	|	|	0.0
1292	0.4	0.4	0.003	O	|	|	|	0.0
1293	0.4	0.4	0.003	O	|	|	|	0.0
1294	0.4	0.4	0.003	O	|	|	|	0.0
1295	0.4	0.4	0.003	O	|	|	|	0.0
1296	0.4	0.4	0.003	O	|	|	|	0.0
1297	0.4	0.4	0.003	O	|	|	|	0.0
1298	0.3	0.4	0.003	O	|	|	|	0.0
1299	0.3	0.4	0.002	O	|	|	|	0.0
1300	0.4	0.4	0.002	O	|	|	|	0.0
1310	0.3	0.3	0.002	O	|	|	|	0.0
1320	0.3	0.3	0.002	O	|	|	|	0.0
1330	0.3	0.3	0.002	O	|	|	|	0.0
1340	0.3	0.3	0.002	O	|	|	|	0.0
1350	0.3	0.3	0.002	O	|	|	|	0.0
1360	0.3	0.3	0.002	O	|	|	|	0.0
1370	0.3	0.3	0.002	O	|	|	|	0.0
1380	0.3	0.3	0.002	O	|	|	|	0.0
1390	0.3	0.3	0.002	O	|	|	|	0.0
1400	0.3	0.3	0.002	O	|	|	|	0.0
1420	0.3	0.3	0.002	O	|	|	|	0.0
1440	0.3	0.3	0.002	O	|	|	|	0.0
1460	0.2	0.2	0.001	O	|	|	|	0.0
1500	0.2	0.2	0.001	O	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 34.13(CFS)
Peak flow time = 1157 Min., time interval # = 43
Maximum depth in basin = 2.41(Ft.)

Detention Subarea B Clear Water Capital Flood

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2009 Version 6.5
------------------------------------------------------------------------
Study Date : 03/07/18 Input hydrograph file name : prpb.hyd
Output hydrograph file name: b50.hin


Program computation of outflow v. depth

************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)

Total outflow at this depth =     25.46(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    3.00(Ft.)   Flow =     46.77 (CFS)

Total outflow at this depth =     46.77(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    4.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    4.00(Ft.)   Flow =     72.00 (CFS)

Total outflow at this depth =     72.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    5.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    5.00(Ft.)   Flow =    100.62 (CFS)

Total outflow at this depth =    100.62(CFS)

------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
```

Basin Depth (Ft.)	Storage (Ac.Ft)	Outflow (CFS)	(S-O*dt/2) (Ac.Ft)	(S+O*dt/2) (Ac.Ft)
0.000	0.000	0.000	0.000	0.000
1.000	0.060	9.000	0.054	0.066
2.000	0.150	25.456	0.132	0.168
3.000	0.300	46.765	0.268	0.332
4.000	0.500	72.000	0.450	0.550
5.000	0.750	100.623	0.681	0.819

Hydrograph Detention Basin Routing

Hydrograph at 5 3 A Storm Day: 4 Drainage Area = 14.00

Total flood hydrograph volume this storm day = 2.76 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 13.1 26.2 39.3 52.4	Depth (Ft.)
0	0.0	0.1	0.000	O | | | |	0.0
100	0.3	0.3	0.002	O | | | |	0.0
200	0.3	0.3	0.002	O | | | |	0.0
300	0.3	0.3	0.002	O | | | |	0.0
400	0.3	0.3	0.002	O | | | |	0.0
500	0.4	0.4	0.003	O | | | |	0.0
600	0.4	0.4	0.003	O | | | |	0.0
700	0.4	0.4	0.003	O | | | |	0.0
800	0.6	0.6	0.004	O | | | |	0.1
900	1.0	1.0	0.007	O | | | |	0.1
1000	1.7	1.7	0.011	|O | | | |	0.2
1050	2.7	2.6	0.017	|O | | | |	0.3
1100	4.3	4.2	0.028	| O | | | |	0.5
1110	5.8	5.2	0.035	| O | | | |	0.6
1120	7.1	6.5	0.044	| OI | | | |	0.7
1130	8.8	8.1	0.054	| OI | | | |	0.9
1131	9.0	8.3	0.055	| O | | | |	0.9
1132	9.3	8.5	0.056	| O | | | |	0.9
1133	9.6	8.7	0.058	| O | | | |	1.0
1134	10.0	8.9	0.059	| OI | | | |	1.0
1135	10.4	9.2	0.061	| OI | | | |	1.0
1136	10.8	9.6	0.063	| OI | | | |	1.0
1137	11.3	10.0	0.065	| O | | | |	1.1
1138	11.8	10.4	0.068	| OI| | | |	1.1
1139	12.2	10.8	0.070	| OI| | | |	1.1
1140	12.7	11.2	0.072	| OI| | | |	1.1
1141	13.4	11.7	0.075	| OI | | |	1.2
1142	14.0	12.2	0.078	| OI | | |	1.2
1143	14.7	12.8	0.081	| OI | | |	1.2
1144	15.4	13.4	0.084	| OI | | |	1.3
1145	16.5	14.1	0.088	| O I | | |	1.3
1146	17.6	14.9	0.092	| |OI | | |	1.4
1147	18.8	15.7	0.097	| |O I | | |	1.4
1148	20.1	16.7	0.102	| O I | | |	1.5
1149	24.1	18.4	0.111	| O I | | |	1.6
1150	28.8	20.7	0.124	| O |I | |	1.7
1151	34.7	23.8	0.141	| O | I | |	1.9
1152	42.0	27.4	0.164	| O |I |	2.1
1153	50.1	31.4	0.192	| O | I |	2.3
1154	52.4	35.2	0.218	| O | I	2.5
1155	51.4	38.1	0.239	| O| I|	2.6
1156	46.7	39.6	0.250	| O I |	2.7
1157	39.5	39.6	0.249	| O |	2.7
1158	31.0	38.1	0.239	| I O| |	2.6
1159	24.9	35.7	0.222	| I| O | |	2.5
1160	19.9	32.9	0.202	| I | O | |	2.3
1161	16.3	29.9	0.182	|I | O | |	2.2
1162	13.5	27.0	0.161	| I O | |	2.1
1163	11.6	24.0	0.142	| I| O | |	1.9
1164	10.2	20.9	0.125	| I | O | |	1.7
1165	9.1	18.2	0.111	| I | O | |	1.6
1166	8.3	16.0	0.098	| I |O | |	1.4
1167	7.7	14.2	0.088	| I O | | |	1.3
1168	7.1	12.6	0.080	| I O| | |	1.2
1169	6.6	11.2	0.072	| I O | | |	1.1
1170	6.2	10.1	0.066	| I O | | |	1.1

1171	5.9	9.2	0.061	| I O |	|	|	| 1.0
1172	5.6	8.5	0.056	| I O |	|	|	| 0.9
1173	5.3	7.9	0.053	| IO |	|	|	| 0.9
1174	5.1	7.4	0.049	| IO |	|	|	| 0.8
1175	4.9	6.9	0.046	| I O |	|	|	| 0.8
1176	4.6	6.5	0.043	| IO |	|	|	| 0.7
1177	4.4	6.1	0.041	| IO |	|	|	| 0.7
1178	4.3	5.7	0.038	| IO |	|	|	| 0.6
1179	4.1	5.4	0.036	| IO |	|	|	| 0.6
1180	3.9	5.2	0.034	| IO |	|	|	| 0.6
1181	3.8	4.9	0.033	| O |	|	|	| 0.5
1182	3.7	4.7	0.031	| O |	|	|	| 0.5
1183	3.5	4.5	0.030	| O |	|	|	| 0.5
1184	3.4	4.3	0.028	| O |	|	|	| 0.5
1185	3.3	4.1	0.027	| O |	|	|	| 0.5
1186	3.1	3.9	0.026	|IO |	|	|	| 0.4
1187	3.1	3.7	0.025	|IO |	|	|	| 0.4
1188	2.9	3.6	0.024	|IO |	|	|	| 0.4
1189	2.9	3.5	0.023	|IO |	|	|	| 0.4
1190	2.8	3.3	0.022	|IO |	|	|	| 0.4
1191	2.7	3.2	0.021	|O |	|	|	| 0.4
1192	2.6	3.1	0.021	|O |	|	|	| 0.3
1193	2.5	3.0	0.020	|O |	|	|	| 0.3
1194	2.5	2.9	0.019	|O |	|	|	| 0.3
1195	2.4	2.8	0.019	|O |	|	|	| 0.3
1196	2.4	2.7	0.018	|O |	|	|	| 0.3
1197	2.3	2.6	0.018	|O |	|	|	| 0.3
1198	2.2	2.6	0.017	|O |	|	|	| 0.3
1199	2.2	2.5	0.017	|O |	|	|	| 0.3
1200	2.2	2.4	0.016	|O |	|	|	| 0.3
1201	2.1	2.4	0.016	|O |	|	|	| 0.3
1202	2.0	2.3	0.015	|O |	|	|	| 0.3
1203	2.0	2.2	0.015	|O |	|	|	| 0.2
1204	1.9	2.2	0.015	|O |	|	|	| 0.2
1205	1.9	2.1	0.014	|O |	|	|	| 0.2
1206	1.9	2.1	0.014	|O |	|	|	| 0.2
1207	1.8	2.0	0.014	|O |	|	|	| 0.2
1208	1.8	2.0	0.013	|O |	|	|	| 0.2
1209	1.8	2.0	0.013	|O |	|	|	| 0.2
1210	1.7	1.9	0.013	|O |	|	|	| 0.2
1211	1.7	1.9	0.012	|O |	|	|	| 0.2
1212	1.7	1.8	0.012	|O |	|	|	| 0.2
1213	1.6	1.8	0.012	IO |	|	|	| 0.2
1214	1.6	1.8	0.012	IO |	|	|	| 0.2
1215	1.6	1.7	0.012	IO |	|	|	| 0.2
1216	1.5	1.7	0.011	IO |	|	|	| 0.2
1217	1.5	1.6	0.011	IO |	|	|	| 0.2
1218	1.4	1.6	0.011	O |	|	|	| 0.2
1219	1.5	1.6	0.011	O |	|	|	| 0.2
1220	1.4	1.5	0.010	O |	|	|	| 0.2
1221	1.4	1.5	0.010	O |	|	|	| 0.2
1222	1.4	1.5	0.010	O |	|	|	| 0.2
1223	1.3	1.5	0.010	O |	|	|	| 0.2
1224	1.3	1.4	0.010	O |	|	|	| 0.2
1225	1.3	1.4	0.009	O |	|	|	| 0.2
1226	1.3	1.4	0.009	O |	|	|	| 0.2
1227	1.2	1.4	0.009	O |	|	|	| 0.2
1228	1.2	1.3	0.009	O |	|	|	| 0.1
1229	1.2	1.3	0.009	O |	|	|	| 0.1
1230	1.2	1.3	0.009	O |	|	|	| 0.1
1231	1.1	1.2	0.008	O |	|	|	| 0.1
1232	1.1	1.2	0.008	O |	|	|	| 0.1
1233	1.1	1.2	0.008	O |	|	|	| 0.1
1234	1.0	1.2	0.008	O |	|	|	| 0.1
1235	1.0	1.1	0.008	O |	|	|	| 0.1
1236	1.0	1.1	0.007	O |	|	|	| 0.1
1237	1.0	1.1	0.007	O |	|	|	| 0.1
1238	0.9	1.1	0.007	O |	|	|	| 0.1
1239	1.0	1.0	0.007	O |	|	|	| 0.1
1240	0.9	1.0	0.007	O |	|	|	| 0.1
1241	1.0	1.0	0.007	O |	|	|	| 0.1
1242	0.9	1.0	0.007	O |	|	|	| 0.1
1243	0.9	1.0	0.006	O |	|	|	| 0.1
1244	0.9	1.0	0.006	O |	|	|	| 0.1
1245	0.9	0.9	0.006	O |	|	|	| 0.1
1246	0.8	0.9	0.006	O |	|	|	| 0.1

1247	0.8	0.9	0.006	O	|	|	|	0.1
1248	0.8	0.9	0.006	O	|	|	|	0.1
1249	0.8	0.9	0.006	O	|	|	|	0.1
1250	0.8	0.9	0.006	O	|	|	|	0.1
1251	0.8	0.8	0.006	O	|	|	|	0.1
1252	0.8	0.8	0.006	O	|	|	|	0.1
1253	0.7	0.8	0.005	O	|	|	|	0.1
1254	0.7	0.8	0.005	O	|	|	|	0.1
1255	0.7	0.8	0.005	O	|	|	|	0.1
1256	0.7	0.8	0.005	O	|	|	|	0.1
1257	0.7	0.7	0.005	O	|	|	|	0.1
1258	0.7	0.7	0.005	O	|	|	|	0.1
1259	0.6	0.7	0.005	O	|	|	|	0.1
1260	0.6	0.7	0.005	O	|	|	|	0.1
1261	0.6	0.7	0.004	O	|	|	|	0.1
1262	0.6	0.7	0.004	O	|	|	|	0.1
1263	0.6	0.6	0.004	O	|	|	|	0.1
1264	0.6	0.6	0.004	O	|	|	|	0.1
1265	0.6	0.6	0.004	O	|	|	|	0.1
1266	0.6	0.6	0.004	O	|	|	|	0.1
1267	0.5	0.6	0.004	O	|	|	|	0.1
1268	0.5	0.6	0.004	O	|	|	|	0.1
1269	0.5	0.6	0.004	O	|	|	|	0.1
1270	0.5	0.6	0.004	O	|	|	|	0.1
1271	0.5	0.5	0.004	O	|	|	|	0.1
1272	0.5	0.5	0.004	O	|	|	|	0.1
1273	0.5	0.5	0.004	O	|	|	|	0.1
1274	0.5	0.5	0.003	O	|	|	|	0.1
1275	0.5	0.5	0.003	O	|	|	|	0.1
1276	0.5	0.5	0.003	O	|	|	|	0.1
1277	0.5	0.5	0.003	O	|	|	|	0.1
1278	0.5	0.5	0.003	O	|	|	|	0.1
1279	0.5	0.5	0.003	O	|	|	|	0.1
1280	0.4	0.5	0.003	O	|	|	|	0.1
1281	0.4	0.5	0.003	O	|	|	|	0.1
1282	0.4	0.5	0.003	O	|	|	|	0.1
1283	0.4	0.4	0.003	O	|	|	|	0.0
1284	0.4	0.4	0.003	O	|	|	|	0.0
1285	0.4	0.4	0.003	O	|	|	|	0.0
1286	0.4	0.4	0.003	O	|	|	|	0.0
1287	0.4	0.4	0.003	O	|	|	|	0.0
1288	0.4	0.4	0.003	O	|	|	|	0.0
1289	0.4	0.4	0.003	O	|	|	|	0.0
1290	0.4	0.4	0.003	O	|	|	|	0.0
1291	0.4	0.4	0.003	O	|	|	|	0.0
1292	0.4	0.4	0.003	O	|	|	|	0.0
1293	0.4	0.4	0.003	O	|	|	|	0.0
1294	0.4	0.4	0.003	O	|	|	|	0.0
1295	0.4	0.4	0.003	O	|	|	|	0.0
1296	0.4	0.4	0.003	O	|	|	|	0.0
1297	0.4	0.4	0.003	O	|	|	|	0.0
1298	0.4	0.4	0.003	O	|	|	|	0.0
1299	0.4	0.4	0.003	O	|	|	|	0.0
1300	0.4	0.4	0.003	O	|	|	|	0.0
1310	0.4	0.4	0.003	O	|	|	|	0.0
1320	0.4	0.4	0.003	O	|	|	|	0.0
1330	0.4	0.4	0.003	O	|	|	|	0.0
1340	0.4	0.4	0.003	O	|	|	|	0.0
1350	0.3	0.3	0.002	O	|	|	|	0.0
1360	0.3	0.3	0.002	O	|	|	|	0.0
1370	0.3	0.3	0.002	O	|	|	|	0.0
1380	0.3	0.3	0.002	O	|	|	|	0.0
1390	0.3	0.3	0.002	O	|	|	|	0.0
1400	0.3	0.3	0.002	O	|	|	|	0.0
1420	0.3	0.3	0.002	O	|	|	|	0.0
1440	0.3	0.3	0.002	O	|	|	|	0.0
1460	0.2	0.2	0.001	O	|	|	|	0.0
1500	0.2	0.2	0.001	O	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 39.61(CFS)
Peak flow time = 1156 Min., time interval # = 42
Maximum depth in basin = 2.66(Ft.)

Detention Subarea B Burned Capital Flood

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2004 Version 6.4
------------------------------------------------------------------------
Study Date : 03/07/18 Input hydrograph file name : prpbbu.hyd
Output hydrograph file name: b50.hin


Program computation of outflow v. depth

************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)

Total outflow at this depth =     25.46(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    3.00(Ft.)   Flow =     46.77 (CFS)

Total outflow at this depth =     46.77(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    4.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    4.00(Ft.)   Flow =     72.00 (CFS)

Total outflow at this depth =     72.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    5.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    5.00(Ft.)   Flow =    100.62 (CFS)

Total outflow at this depth =    100.62(CFS)

------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
```

```
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------------
 0.000      0.000      0.000      0.000        0.000
 1.000      0.060      9.000      0.054        0.066
 2.000      0.150     25.456      0.132        0.168
 3.000      0.300     46.765      0.268        0.332
 4.000      0.500     72.000      0.450        0.550
 5.000      0.750    100.623      0.681        0.819
------------------------------------------------------------------------

                    Hydrograph Detention Basin Routing
Hydrograph at 5 3 A Storm Day: 4 Drainage Area =   14.00
Total flood hydrograph volume this storm day =    3.93 Ac. Ft.
------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
 (Min)  (CFS)   (CFS)     (Ac.Ft) .0      13.7    27.4    41.0    54.7 (Ft.)
    0     0.0     0.0      0.000  O       |       |       |       |      0.0
  100     0.7     0.7      0.004  O       |       |       |       |      0.1
  200     0.7     0.7      0.005  O       |       |       |       |      0.1
  300     0.7     0.7      0.005  O       |       |       |       |      0.1
  400     0.8     0.8      0.005  O       |       |       |       |      0.1
  500     0.8     0.8      0.005  O       |       |       |       |      0.1
  600     0.9     0.9      0.006  O       |       |       |       |      0.1
  700     1.0     1.0      0.007  O       |       |       |       |      0.1
  800     1.2     1.2      0.008  O       |       |       |       |      0.1
  900     1.7     1.7      0.011  O       |       |       |       |      0.2
 1000     2.5     2.5      0.016  |O      |       |       |       |      0.3
 1050     3.6     3.5      0.023  | O     |       |       |       |      0.4
 1100     5.3     5.2      0.034  |  O    |       |       |       |      0.6
 1110     6.9     6.3      0.042  |  OI   |       |       |       |      0.7
 1120     8.4     7.8      0.052  |   O   |       |       |       |      0.9
 1130    10.2     9.5      0.063  |    O  |       |       |       |      1.0
 1131    10.4     9.7      0.064  |    OI |       |       |       |      1.0
 1132    10.7     9.9      0.065  |    OI |       |       |       |      1.1
 1133    11.0    10.2      0.066  |    OI |       |       |       |      1.1
 1134    11.4    10.4      0.068  |     O |       |       |       |      1.1
 1135    11.9    10.8      0.070  |     O |       |       |       |      1.1
 1136    12.2    11.1      0.071  |     OI|       |       |       |      1.1
 1137    12.8    11.5      0.074  |     OI|       |       |       |      1.2
 1138    13.3    11.9      0.076  |     OI|       |       |       |      1.2
 1139    13.8    12.3      0.078  |      OI       |       |       |      1.2
 1140    14.3    12.8      0.081  |      OI       |       |       |      1.2
 1141    15.0    13.3      0.083  |      OI       |       |       |      1.3
 1142    15.6    13.8      0.086  |       OI      |       |       |      1.3
 1143    16.3    14.3      0.089  |       OI      |       |       |      1.3
 1144    17.1    15.0      0.093  |       O I     |       |       |      1.4
 1145    18.3    15.7      0.097  |       |OI     |       |       |      1.4
 1146    19.4    16.5      0.101  |       |O I    |       |       |      1.5
 1147    20.6    17.4      0.106  |       | O I   |       |       |      1.5
 1148    21.9    18.4      0.112  |       | O I   |       |       |      1.6
 1149    26.1    20.2      0.121  |       |  O   I|       |       |      1.7
 1150    30.8    22.5      0.134  |       |    O  | I     |       |      1.8
 1151    36.9    25.7      0.152  |       |     O|    I  |       |      2.0
 1152    44.3    29.0      0.175  |       |      O       |I      |      2.2
 1153    52.5    33.2      0.204  |       |       |  O    |     I |      2.4
 1154    54.7    37.0      0.231  |       |       |    O  |       I      2.5
 1155    53.6    40.0      0.252  |       |       |     O|      I|      2.7
 1156    48.8    41.6      0.263  |       |       |      O   I   |      2.8
 1157    41.4    41.5      0.263  |       |       |      O       |      2.8
 1158    32.7    40.0      0.252  |       |       |  I   O|      |      2.7
 1159    26.4    37.5      0.235  |       |      I|    O  |      |      2.6
 1160    21.4    34.7      0.215  |       |   I   |   O   |      |      2.4
 1161    17.6    31.6      0.193  |       | I     | O     |      |      2.3
 1162    14.8    28.6      0.172  |       I       O       |      |      2.1
 1163    12.8    25.8      0.152  |      I|      O|       |      |      2.0
 1164    11.4    22.7      0.135  |     I |     O |       |      |      1.8
 1165    10.3    19.9      0.120  |     I |  O    |       |      |      1.7
 1166     9.5    17.6      0.107  |    I  | O     |       |      |      1.5
 1167     8.8    15.6      0.096  |    I  |O      |       |      |      1.4
 1168     8.2    14.0      0.087  |   I   O       |       |      |      1.3
```

1169	7.7	12.6	0.079	| I O|	|	|	|	1.2
1170	7.3	11.4	0.073	| I O |	|	|	|	1.1
1171	7.0	10.4	0.068	| I O |	|	|	|	1.1
1172	6.6	9.6	0.063	| I O |	|	|	|	1.0
1173	6.3	8.9	0.059	| I O |	|	|	|	1.0
1174	6.1	8.3	0.056	| IO |	|	|	|	0.9
1175	5.9	7.9	0.053	| IO |	|	|	|	0.9
1176	5.6	7.5	0.050	| IO |	|	|	|	0.8
1177	5.4	7.1	0.047	| IO |	|	|	|	0.8
1178	5.2	6.7	0.045	| O |	|	|	|	0.7
1179	5.0	6.4	0.043	| IO |	|	|	|	0.7
1180	4.9	6.1	0.041	| IO |	|	|	|	0.7
1181	4.7	5.9	0.039	| IO |	|	|	|	0.7
1182	4.6	5.6	0.037	| IO |	|	|	|	0.6
1183	4.4	5.4	0.036	| IO |	|	|	|	0.6
1184	4.3	5.2	0.035	| IO |	|	|	|	0.6
1185	4.2	5.0	0.033	| O |	|	|	|	0.6
1186	4.0	4.8	0.032	| O |	|	|	|	0.5
1187	4.0	4.7	0.031	| O |	|	|	|	0.5
1188	3.8	4.5	0.030	| O |	|	|	|	0.5
1189	3.7	4.3	0.029	| O |	|	|	|	0.5
1190	3.6	4.2	0.028	| O |	|	|	|	0.5
1191	3.6	4.1	0.027	| O |	|	|	|	0.5
1192	3.4	4.0	0.026	|IO |	|	|	|	0.4
1193	3.4	3.9	0.026	|IO |	|	|	|	0.4
1194	3.3	3.8	0.025	|IO |	|	|	|	0.4
1195	3.3	3.7	0.024	|IO |	|	|	|	0.4
1196	3.2	3.6	0.024	|IO |	|	|	|	0.4
1197	3.1	3.5	0.023	|IO |	|	|	|	0.4
1198	3.0	3.4	0.023	|O |	|	|	|	0.4
1199	3.0	3.3	0.022	|O |	|	|	|	0.4
1200	3.0	3.3	0.022	|O |	|	|	|	0.4
1201	2.9	3.2	0.021	|O |	|	|	|	0.4
1202	2.8	3.1	0.021	|O |	|	|	|	0.3
1203	2.8	3.1	0.020	|O |	|	|	|	0.3
1204	2.7	3.0	0.020	|O |	|	|	|	0.3
1205	2.7	2.9	0.020	|O |	|	|	|	0.3
1206	2.6	2.9	0.019	|O |	|	|	|	0.3
1207	2.6	2.8	0.019	|O |	|	|	|	0.3
1208	2.5	2.8	0.018	|O |	|	|	|	0.3
1209	2.5	2.7	0.018	|O |	|	|	|	0.3
1210	2.5	2.7	0.018	|O |	|	|	|	0.3
1211	2.4	2.6	0.017	|O |	|	|	|	0.3
1212	2.4	2.6	0.017	|O |	|	|	|	0.3
1213	2.4	2.5	0.017	|O |	|	|	|	0.3
1214	2.3	2.5	0.017	|O |	|	|	|	0.3
1215	2.3	2.5	0.016	|O |	|	|	|	0.3
1216	2.2	2.4	0.016	|O |	|	|	|	0.3
1217	2.2	2.4	0.016	|O |	|	|	|	0.3
1218	2.1	2.3	0.015	|O |	|	|	|	0.3
1219	2.2	2.3	0.015	|O |	|	|	|	0.3
1220	2.1	2.3	0.015	|O |	|	|	|	0.3
1221	2.1	2.2	0.015	|O |	|	|	|	0.2
1222	2.1	2.2	0.015	|O |	|	|	|	0.2
1223	2.0	2.2	0.014	|O |	|	|	|	0.2
1224	2.0	2.1	0.014	|O |	|	|	|	0.2
1225	2.0	2.1	0.014	|O |	|	|	|	0.2
1226	1.9	2.1	0.014	|O |	|	|	|	0.2
1227	1.9	2.0	0.014	|O |	|	|	|	0.2
1228	1.9	2.0	0.013	|O |	|	|	|	0.2
1229	1.8	2.0	0.013	|O |	|	|	|	0.2
1230	1.8	1.9	0.013	|O |	|	|	|	0.2
1231	1.8	1.9	0.013	|O |	|	|	|	0.2
1232	1.8	1.9	0.013	|O |	|	|	|	0.2
1233	1.8	1.9	0.013	|O |	|	|	|	0.2
1234	1.7	1.8	0.012	IO |	|	|	|	0.2
1235	1.7	1.8	0.012	IO |	|	|	|	0.2
1236	1.7	1.8	0.012	IO |	|	|	|	0.2
1237	1.6	1.8	0.012	IO |	|	|	|	0.2
1238	1.6	1.7	0.012	IO |	|	|	|	0.2
1239	1.6	1.7	0.011	O |	|	|	|	0.2
1240	1.6	1.7	0.011	O |	|	|	|	0.2
1241	1.6	1.7	0.011	O |	|	|	|	0.2
1242	1.5	1.6	0.011	O |	|	|	|	0.2
1243	1.5	1.6	0.011	O |	|	|	|	0.2
1244	1.5	1.6	0.011	O |	|	|	|	0.2

1245	1.5	1.6	0.010	O	|	|	|	|	0.2
1246	1.4	1.5	0.010	O	|	|	|	|	0.2
1247	1.4	1.5	0.010	O	|	|	|	|	0.2
1248	1.5	1.5	0.010	O	|	|	|	|	0.2
1249	1.4	1.5	0.010	O	|	|	|	|	0.2
1250	1.4	1.5	0.010	O	|	|	|	|	0.2
1251	1.4	1.5	0.010	O	|	|	|	|	0.2
1252	1.4	1.4	0.010	O	|	|	|	|	0.2
1253	1.3	1.4	0.009	O	|	|	|	|	0.2
1254	1.3	1.4	0.009	O	|	|	|	|	0.2
1255	1.3	1.4	0.009	O	|	|	|	|	0.2
1256	1.3	1.4	0.009	O	|	|	|	|	0.2
1257	1.3	1.4	0.009	O	|	|	|	|	0.2
1258	1.2	1.3	0.009	O	|	|	|	|	0.1
1259	1.2	1.3	0.009	O	|	|	|	|	0.1
1260	1.2	1.3	0.009	O	|	|	|	|	0.1
1261	1.2	1.3	0.008	O	|	|	|	|	0.1
1262	1.2	1.3	0.008	O	|	|	|	|	0.1
1263	1.2	1.2	0.008	O	|	|	|	|	0.1
1264	1.1	1.2	0.008	O	|	|	|	|	0.1
1265	1.1	1.2	0.008	O	|	|	|	|	0.1
1266	1.1	1.2	0.008	O	|	|	|	|	0.1
1267	1.1	1.2	0.008	O	|	|	|	|	0.1
1268	1.1	1.2	0.008	O	|	|	|	|	0.1
1269	1.1	1.1	0.008	O	|	|	|	|	0.1
1270	1.1	1.1	0.008	O	|	|	|	|	0.1
1271	1.1	1.1	0.008	O	|	|	|	|	0.1
1272	1.1	1.1	0.007	O	|	|	|	|	0.1
1273	1.1	1.1	0.007	O	|	|	|	|	0.1
1274	1.1	1.1	0.007	O	|	|	|	|	0.1
1275	1.0	1.1	0.007	O	|	|	|	|	0.1
1276	1.0	1.1	0.007	O	|	|	|	|	0.1
1277	1.0	1.1	0.007	O	|	|	|	|	0.1
1278	1.0	1.1	0.007	O	|	|	|	|	0.1
1279	1.0	1.0	0.007	O	|	|	|	|	0.1
1280	1.0	1.0	0.007	O	|	|	|	|	0.1
1281	1.0	1.0	0.007	O	|	|	|	|	0.1
1282	1.0	1.0	0.007	O	|	|	|	|	0.1
1283	1.0	1.0	0.007	O	|	|	|	|	0.1
1284	1.0	1.0	0.007	O	|	|	|	|	0.1
1285	1.0	1.0	0.007	O	|	|	|	|	0.1
1286	1.0	1.0	0.007	O	|	|	|	|	0.1
1287	1.0	1.0	0.007	O	|	|	|	|	0.1
1288	1.0	1.0	0.007	O	|	|	|	|	0.1
1289	1.0	1.0	0.007	O	|	|	|	|	0.1
1290	1.0	1.0	0.007	O	|	|	|	|	0.1
1291	1.0	1.0	0.007	O	|	|	|	|	0.1
1292	1.0	1.0	0.007	O	|	|	|	|	0.1
1293	1.0	1.0	0.007	O	|	|	|	|	0.1
1294	0.9	1.0	0.007	O	|	|	|	|	0.1
1295	0.9	1.0	0.006	O	|	|	|	|	0.1
1296	0.9	1.0	0.006	O	|	|	|	|	0.1
1297	0.9	0.9	0.006	O	|	|	|	|	0.1
1298	0.9	0.9	0.006	O	|	|	|	|	0.1
1299	0.9	0.9	0.006	O	|	|	|	|	0.1
1300	0.9	0.9	0.006	O	|	|	|	|	0.1
1310	0.9	0.9	0.006	O	|	|	|	|	0.1
1320	0.9	0.9	0.006	O	|	|	|	|	0.1
1330	0.8	0.8	0.006	O	|	|	|	|	0.1
1340	0.8	0.8	0.005	O	|	|	|	|	0.1
1350	0.8	0.8	0.005	O	|	|	|	|	0.1
1360	0.8	0.8	0.005	O	|	|	|	|	0.1
1370	0.8	0.8	0.005	O	|	|	|	|	0.1
1380	0.7	0.7	0.005	O	|	|	|	|	0.1
1390	0.7	0.7	0.005	O	|	|	|	|	0.1
1400	0.7	0.7	0.005	O	|	|	|	|	0.1
1420	0.7	0.7	0.005	O	|	|	|	|	0.1
1440	0.7	0.7	0.005	O	|	|	|	|	0.1
1460	0.4	0.5	0.003	O	|	|	|	|	0.1
1500	0.4	0.3	0.002	O	|	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 41.55(CFS)
Peak flow time = 1156 Min., time interval # = 42
Maximum depth in basin = 2.76(Ft.)

Detention Subareas C, F, & H Clear Water Urban Flood

```
    CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2009 Version 6.5
------------------------------------------------------------------------
Study Date : 08/01/18 Input hydrograph file name : prpc25.hyd
Output hydrograph file name: c25.hin


Program computation of outflow v. depth


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    0.50(Ft.)   Flow =     10.61 (CFS)

Total outflow at this depth =     36.06(CFS)

------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------------
 0.000      0.000      0.000      0.000        0.000
 1.000      0.080      9.000      0.074        0.086
 2.000      0.190     36.062      0.165        0.215
------------------------------------------------------------

                  Hydrograph Detention Basin Routing
Hydrograph at 5 3 A Storm Day: 4 Drainage Area =    9.00
Total flood hydrograph volume this storm day =    1.44 Ac. Ft.
------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
 (Min)  (CFS)   (CFS)     (Ac.Ft) .0       8.7    17.4    26.2    34.9 (Ft.)
    0     0.0     0.0      0.000  O       |       |       |       |      0.0
  100     0.2     0.2      0.002  O       |       |       |       |      0.0
  200     0.2     0.2      0.002  O       |       |       |       |      0.0
  300     0.2     0.2      0.002  O       |       |       |       |      0.0
  400     0.2     0.2      0.002  O       |       |       |       |      0.0
  500     0.2     0.2      0.002  O       |       |       |       |      0.0
  600     0.2     0.2      0.002  O       |       |       |       |      0.0
  700     0.2     0.2      0.002  O       |       |       |       |      0.0
```

```
 800    0.3    0.3    0.003  O      |      |      |      |     0.0
 900    0.4    0.4    0.004  O      |      |      |      |     0.0
1000    0.8    0.8    0.007  O      |      |      |      |     0.1
1050    1.4    1.3    0.012  |O     |      |      |      |     0.1
1100    2.3    2.2    0.019  | O    |      |      |      |     0.2
1110    3.4    2.9    0.025  | OI   |      |      |      |     0.3
1120    3.9    3.6    0.032  |  O   |      |      |      |     0.4
1130    5.0    4.4    0.039  |   O  |      |      |      |     0.5
1131    5.1    4.5    0.040  |   O  |      |      |      |     0.5
1132    5.3    4.6    0.041  |   O  |      |      |      |     0.5
1133    5.6    4.8    0.042  |   OI |      |      |      |     0.5
1134    5.9    4.9    0.044  |   OI |      |      |      |     0.5
1135    6.2    5.1    0.045  |   OI |      |      |      |     0.6
1136    6.3    5.3    0.047  |   OI |      |      |      |     0.6
1137    6.7    5.5    0.049  |    OI|      |      |      |     0.6
1138    7.0    5.7    0.051  |    OI|      |      |      |     0.6
1139    7.2    5.9    0.053  |    OI|      |      |      |     0.7
1140    7.4    6.1    0.055  |    OI|      |      |      |     0.7
1141    8.1    6.4    0.057  |    O I      |      |      |     0.7
1142    8.5    6.7    0.060  |     OI      |      |      |     0.7
1143    8.8    7.0    0.062  |     O I     |      |      |     0.8
1144    9.2    7.3    0.065  |     O I     |      |      |     0.8
1145   10.3    7.8    0.069  |      O|I     |      |      |     0.9
1146   11.0    8.2    0.073  |      O| I    |      |      |     0.9
1147   11.7    8.7    0.078  |      O| I    |      |      |     1.0
1148   12.4    9.5    0.082  |       O  I   |      |      |     1.0
1149   17.3   11.8    0.091  |       | O   I|      |      |     1.1
1150   21.7   14.6    0.103  |       |   O  |  I   |      |     1.2
1151   26.0   17.9    0.116  |       |      O     I|      |     1.3
1152   30.4   21.5    0.131  |       |       |  O   |  I   |     1.5
1153   34.9   25.4    0.147  |       |       |     O|      I    1.6
1154   30.5   26.9    0.153  |       |       |      O  I   |     1.7
1155   25.3   26.4    0.151  |       |       |     IO       |     1.6
1156   19.8   24.5    0.143  |       |       | I   O |      |     1.6
1157   14.1   21.5    0.131  |       |   I   |  O   |       |     1.5
1158    8.5   17.7    0.115  |      I|      O       |       |     1.3
1159    6.8   14.6    0.103  |     I |    O  |      |       |     1.2
1160    5.8   12.0    0.092  |    I  |  O    |      |       |     1.1
1161    5.2   10.0    0.084  |   I   |O      |      |       |     1.0
1162    4.7    8.8    0.078  |   I   O       |      |       |     1.0
1163    4.3    8.1    0.072  |  I   O|       |      |       |     0.9
1164    4.0    7.5    0.067  |  I  O |       |      |       |     0.8
1165    3.7    7.0    0.062  |  I  O |       |      |       |     0.8
1166    3.4    6.5    0.057  |  I O  |       |      |       |     0.7
1167    3.2    6.0    0.053  | I  O  |       |      |       |     0.7
1168    3.0    5.6    0.049  | I  O  |       |      |       |     0.6
1169    2.8    5.2    0.046  | I O   |       |      |       |     0.6
1170    2.7    4.8    0.043  | I O   |       |      |       |     0.5
1171    2.6    4.5    0.040  | I O   |       |      |       |     0.5
1172    2.4    4.2    0.037  | IO    |       |      |       |     0.5
1173    2.3    3.9    0.035  | IO    |       |      |       |     0.4
1174    2.2    3.7    0.033  | IO    |       |      |       |     0.4
1175    2.1    3.4    0.031  |I O    |       |      |       |     0.4
1176    2.0    3.2    0.029  |IO     |       |      |       |     0.4
1177    1.9    3.0    0.027  |IO     |       |      |       |     0.3
1178    1.9    2.9    0.026  |IO     |       |      |       |     0.3
1179    1.7    2.7    0.024  |IO     |       |      |       |     0.3
1180    1.6    2.6    0.023  |IO     |       |      |       |     0.3
1181    1.6    2.4    0.021  |IO     |       |      |       |     0.3
1182    1.6    2.3    0.020  |IO     |       |      |       |     0.3
1183    1.5    2.2    0.019  |IO     |       |      |       |     0.2
1184    1.4    2.1    0.018  |O      |       |      |       |     0.2
1185    1.4    2.0    0.018  |O      |       |      |       |     0.2
1186    1.3    1.9    0.017  |O      |       |      |       |     0.2
1187    1.3    1.8    0.016  |O      |       |      |       |     0.2
1188    1.3    1.7    0.015  |O      |       |      |       |     0.2
1189    1.3    1.7    0.015  |O      |       |      |       |     0.2
1190    1.2    1.6    0.014  |O      |       |      |       |     0.2
1191    1.2    1.5    0.014  |O      |       |      |       |     0.2
1192    1.1    1.5    0.013  |O      |       |      |       |     0.2
1193    1.1    1.4    0.013  |O      |       |      |       |     0.2
1194    1.1    1.4    0.012  |O      |       |      |       |     0.2
1195    1.1    1.3    0.012  |O      |       |      |       |     0.1
1196    1.1    1.3    0.012  |O      |       |      |       |     0.1
1197    1.0    1.3    0.011  IO      |       |      |       |     0.1
1198    0.9    1.2    0.011  IO      |       |      |       |     0.1
```

1199	0.9	1.2	0.010	IO				0.1
1200	0.9	1.1	0.010	IO				0.1
1201	0.9	1.1	0.010	IO				0.1
1202	0.9	1.1	0.009	O				0.1
1203	0.9	1.0	0.009	O				0.1
1204	0.8	1.0	0.009	O				0.1
1205	0.8	1.0	0.009	O				0.1
1206	0.8	1.0	0.008	O				0.1
1207	0.8	0.9	0.008	O				0.1
1208	0.7	0.9	0.008	O				0.1
1209	0.7	0.9	0.008	O				0.1
1210	0.7	0.8	0.008	O				0.1
1211	0.7	0.8	0.007	O				0.1
1212	0.7	0.8	0.007	O				0.1
1213	0.7	0.8	0.007	O				0.1
1214	0.6	0.8	0.007	O				0.1
1215	0.6	0.7	0.007	O				0.1
1216	0.6	0.7	0.006	O				0.1
1217	0.5	0.7	0.006	O				0.1
1218	0.5	0.7	0.006	O				0.1
1219	0.6	0.7	0.006	O				0.1
1220	0.5	0.6	0.006	O				0.1
1221	0.5	0.6	0.005	O				0.1
1222	0.5	0.6	0.005	O				0.1
1223	0.5	0.6	0.005	O				0.1
1224	0.5	0.6	0.005	O				0.1
1225	0.5	0.6	0.005	O				0.1
1226	0.5	0.6	0.005	O				0.1
1227	0.4	0.5	0.005	O				0.1
1228	0.4	0.5	0.005	O				0.1
1229	0.4	0.5	0.004	O				0.1
1230	0.4	0.5	0.004	O				0.1
1231	0.3	0.5	0.004	O				0.1
1232	0.4	0.4	0.004	O				0.0
1233	0.4	0.4	0.004	O				0.0
1234	0.3	0.4	0.004	O				0.0
1235	0.3	0.4	0.004	O				0.0
1236	0.3	0.4	0.003	O				0.0
1237	0.3	0.4	0.003	O				0.0
1238	0.3	0.4	0.003	O				0.0
1239	0.3	0.4	0.003	O				0.0
1240	0.3	0.3	0.003	O				0.0
1241	0.3	0.3	0.003	O				0.0
1242	0.3	0.3	0.003	O				0.0
1243	0.3	0.3	0.003	O				0.0
1244	0.3	0.3	0.003	O				0.0
1245	0.3	0.3	0.003	O				0.0
1246	0.3	0.3	0.003	O				0.0
1247	0.3	0.3	0.003	O				0.0
1248	0.3	0.3	0.003	O				0.0
1249	0.3	0.3	0.003	O				0.0
1250	0.3	0.3	0.003	O				0.0
1251	0.3	0.3	0.003	O				0.0
1252	0.3	0.3	0.003	O				0.0
1253	0.3	0.3	0.003	O				0.0
1254	0.3	0.3	0.003	O				0.0
1255	0.3	0.3	0.003	O				0.0
1256	0.3	0.3	0.003	O				0.0
1257	0.3	0.3	0.003	O				0.0
1258	0.3	0.3	0.003	O				0.0
1259	0.3	0.3	0.003	O				0.0
1260	0.3	0.3	0.003	O				0.0
1261	0.3	0.3	0.003	O				0.0
1262	0.3	0.3	0.003	O				0.0
1263	0.3	0.3	0.003	O				0.0
1264	0.3	0.3	0.003	O				0.0
1265	0.3	0.3	0.003	O				0.0
1266	0.3	0.3	0.003	O				0.0
1267	0.3	0.3	0.003	O				0.0
1268	0.3	0.3	0.003	O				0.0
1269	0.3	0.3	0.003	O				0.0
1270	0.3	0.3	0.003	O				0.0
1271	0.3	0.3	0.003	O				0.0
1272	0.2	0.3	0.003	O				0.0
1273	0.2	0.3	0.002	O				0.0
1274	0.3	0.3	0.002	O				0.0

1275	0.2	0.3	0.002	O	|	|	|	|	0.0
1276	0.2	0.3	0.002	O	|	|	|	|	0.0
1277	0.2	0.2	0.002	O	|	|	|	|	0.0
1278	0.2	0.2	0.002	O	|	|	|	|	0.0
1279	0.2	0.2	0.002	O	|	|	|	|	0.0
1280	0.2	0.2	0.002	O	|	|	|	|	0.0
1281	0.2	0.2	0.002	O	|	|	|	|	0.0
1282	0.2	0.2	0.002	O	|	|	|	|	0.0
1283	0.2	0.2	0.002	O	|	|	|	|	0.0
1284	0.2	0.2	0.002	O	|	|	|	|	0.0
1285	0.2	0.2	0.002	O	|	|	|	|	0.0
1286	0.2	0.2	0.002	O	|	|	|	|	0.0
1287	0.2	0.2	0.002	O	|	|	|	|	0.0
1288	0.2	0.2	0.002	O	|	|	|	|	0.0
1289	0.2	0.2	0.002	O	|	|	|	|	0.0
1290	0.2	0.2	0.002	O	|	|	|	|	0.0
1291	0.2	0.2	0.002	O	|	|	|	|	0.0
1292	0.2	0.2	0.002	O	|	|	|	|	0.0
1293	0.2	0.2	0.002	O	|	|	|	|	0.0
1294	0.2	0.2	0.002	O	|	|	|	|	0.0
1295	0.2	0.2	0.002	O	|	|	|	|	0.0
1296	0.2	0.2	0.002	O	|	|	|	|	0.0
1297	0.2	0.2	0.002	O	|	|	|	|	0.0
1298	0.2	0.2	0.002	O	|	|	|	|	0.0
1299	0.2	0.2	0.002	O	|	|	|	|	0.0
1300	0.2	0.2	0.002	O	|	|	|	|	0.0
1310	0.2	0.2	0.002	O	|	|	|	|	0.0
1320	0.2	0.2	0.002	O	|	|	|	|	0.0
1330	0.2	0.2	0.002	O	|	|	|	|	0.0
1340	0.2	0.2	0.002	O	|	|	|	|	0.0
1350	0.2	0.2	0.002	O	|	|	|	|	0.0
1360	0.2	0.2	0.002	O	|	|	|	|	0.0
1370	0.2	0.2	0.002	O	|	|	|	|	0.0
1380	0.2	0.2	0.002	O	|	|	|	|	0.0
1390	0.2	0.2	0.002	O	|	|	|	|	0.0
1400	0.2	0.2	0.002	O	|	|	|	|	0.0
1420	0.2	0.2	0.002	O	|	|	|	|	0.0
1440	0.2	0.2	0.002	O	|	|	|	|	0.0
1460	0.0	0.1	0.001	O	|	|	|	|	0.0
1500	0.0	0.0	0.000	O	|	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 26.89(CFS)
Peak flow time = 1154 Min., time interval # = 40
Maximum depth in basin = 1.66(Ft.)

Detention Subareas C, F, & H Clear Water Capital Flood

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2009 Version 6.5
------------------------------------------------------------------------
Study Date : 08/01/18 Input hydrograph file name : prpc50.hyd
Output hydrograph file name: c50.hin


Program computation of outflow v. depth




************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    0.50(Ft.)   Flow =     10.61 (CFS)

Total outflow at this depth =     36.06(CFS)

------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------------
 0.000      0.000      0.000      0.000        0.000
 1.000      0.080      9.000      0.074        0.086
 2.000      0.190     36.062      0.165        0.215
------------------------------------------------------------------------


                    Hydrograph Detention Basin Routing
Hydrograph at 5 3 A Storm Day: 4 Drainage Area =    9.00
Total flood hydrograph volume this storm day =    1.76 Ac. Ft.
------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------
Time   Inflow  Outflow    Storage                                  Depth
(Min)  (CFS)   (CFS)     (Ac.Ft) .0      10.1    20.2    30.3    40.4 (Ft.)
    0    0.0     0.0      0.000  O       |       |       |       |      0.0
  100    0.2     0.2      0.002  O       |       |       |       |      0.0
  200    0.2     0.2      0.002  O       |       |       |       |      0.0
  300    0.2     0.2      0.002  O       |       |       |       |      0.0
  400    0.2     0.2      0.002  O       |       |       |       |      0.0
```

```
 500    0.2    0.2    0.002  O      |      |      |      |     0.0
 600    0.2    0.2    0.002  O      |      |      |      |     0.0
 700    0.3    0.3    0.003  O      |      |      |      |     0.0
 800    0.4    0.4    0.004  O      |      |      |      |     0.0
 900    0.7    0.7    0.006  O      |      |      |      |     0.1
1000    1.1    1.1    0.010  O      |      |      |      |     0.1
1050    1.8    1.7    0.015  |O     |      |      |      |     0.2
1100    2.9    2.8    0.025  | O    |      |      |      |     0.3
1110    4.1    3.5    0.031  | OI   |      |      |      |     0.4
1120    4.8    4.3    0.039  |  O   |      |      |      |     0.5
1130    6.0    5.3    0.047  |   O  |      |      |      |     0.6
1131    6.2    5.5    0.049  |   O  |      |      |      |     0.6
1132    6.4    5.6    0.050  |   OI |      |      |      |     0.6
1133    6.7    5.8    0.051  |   OI |      |      |      |     0.6
1134    7.1    6.0    0.053  |   OI |      |      |      |     0.7
1135    7.5    6.2    0.055  |   OI |      |      |      |     0.7
1136    7.6    6.4    0.057  |    OI|      |      |      |     0.7
1137    8.1    6.6    0.059  |    OI|      |      |      |     0.7
1138    8.4    6.9    0.061  |    OI|      |      |      |     0.8
1139    8.6    7.1    0.063  |    OI|      |      |      |     0.8
1140    8.9    7.4    0.066  |    O I      |      |      |     0.8
1141    9.6    7.7    0.068  |     OI      |      |      |     0.9
1142   10.0    8.0    0.071  |     OI      |      |      |     0.9
1143   10.5    8.4    0.075  |     O I     |      |      |     0.9
1144   11.0    8.8    0.078  |     O I     |      |      |     1.0
1145   12.2    9.5    0.082  |      O|I     |      |      |     1.0
1146   13.0   10.5    0.086  |       O I   |      |      |     1.1
1147   13.8   11.5    0.090  |       |OI   |      |      |     1.1
1148   14.6   12.4    0.094  |       |O I  |      |      |     1.1
1149   20.3   14.7    0.103  |       |  O   I      |      |     1.2
1150   25.3   17.8    0.116  |       |    O |  I   |      |     1.3
1151   30.2   21.4    0.130  |       |      O     I|      |     1.5
1152   35.3   25.4    0.147  |       |       |  O   |  I   |     1.6
1153   40.4   29.7    0.164  |       |       |     O|      I    1.8
1154   35.4   31.4    0.171  |       |       |      O  I  |     1.8
1155   29.5   30.8    0.169  |       |       |     IO     |     1.8
1156   23.2   28.6    0.160  |       |       | I  O |     |     1.7
1157   16.6   25.1    0.146  |       |   I  |  O   |     |     1.6
1158   10.0   20.8    0.128  |      I|      O      |     |     1.4
1159    8.2   17.1    0.113  |     I |    O |      |     |     1.3
1160    7.0   14.2    0.101  |    I  |  O   |      |     |     1.2
1161    6.3   11.9    0.092  |   I   |O     |      |     |     1.1
1162    5.6   10.1    0.084  |   I  O|      |      |     |     1.0
1163    5.2    8.8    0.079  |   I O |      |      |     |     1.0
1164    4.8    8.3    0.073  |  I  O |      |      |     |     0.9
1165    4.5    7.7    0.069  |  I  O |      |      |     |     0.9
1166    4.1    7.2    0.064  |  I O  |      |      |     |     0.8
1167    3.9    6.7    0.060  |  I O  |      |      |     |     0.7
1168    3.7    6.3    0.056  | I O   |      |      |     |     0.7
1169    3.5    5.9    0.052  | I O   |      |      |     |     0.7
1170    3.3    5.5    0.049  | I O   |      |      |     |     0.6
1171    3.2    5.2    0.046  | I O   |      |      |     |     0.6
1172    3.0    4.9    0.043  | IO    |      |      |     |     0.5
1173    2.9    4.6    0.041  | IO    |      |      |     |     0.5
1174    2.8    4.3    0.038  | IO    |      |      |     |     0.5
1175    2.7    4.1    0.036  | IO    |      |      |     |     0.5
1176    2.5    3.9    0.034  |I O    |      |      |     |     0.4
1177    2.4    3.7    0.032  |IO     |      |      |     |     0.4
1178    2.4    3.5    0.031  |IO     |      |      |     |     0.4
1179    2.3    3.3    0.029  |IO     |      |      |     |     0.4
1180    2.2    3.1    0.028  |IO     |      |      |     |     0.3
1181    2.2    3.0    0.027  |IO     |      |      |     |     0.3
1182    2.1    2.9    0.026  |IO     |      |      |     |     0.3
1183    2.0    2.8    0.024  |IO     |      |      |     |     0.3
1184    1.9    2.6    0.023  |IO     |      |      |     |     0.3
1185    1.9    2.5    0.022  |O      |      |      |     |     0.3
1186    1.7    2.4    0.021  |O      |      |      |     |     0.3
1187    1.7    2.3    0.020  |O      |      |      |     |     0.3
1188    1.6    2.2    0.020  |O      |      |      |     |     0.2
1189    1.6    2.1    0.019  |O      |      |      |     |     0.2
1190    1.6    2.0    0.018  |O      |      |      |     |     0.2
1191    1.6    2.0    0.018  |O      |      |      |     |     0.2
1192    1.5    1.9    0.017  |O      |      |      |     |     0.2
1193    1.5    1.9    0.016  |O      |      |      |     |     0.2
1194    1.5    1.8    0.016  |O      |      |      |     |     0.2
1195    1.4    1.7    0.015  |O      |      |      |     |     0.2
```

1196	1.4	1.7	0.015	|O	|	|	|	0.2
1197	1.3	1.6	0.015	|O	|	|	|	0.2
1198	1.3	1.6	0.014	|O	|	|	|	0.2
1199	1.3	1.5	0.014	|O	|	|	|	0.2
1200	1.3	1.5	0.013	|O	|	|	|	0.2
1201	1.2	1.5	0.013	IO	|	|	|	0.2
1202	1.2	1.4	0.013	IO	|	|	|	0.2
1203	1.2	1.4	0.012	IO	|	|	|	0.2
1204	1.1	1.4	0.012	IO	|	|	|	0.2
1205	1.1	1.3	0.012	IO	|	|	|	0.1
1206	1.1	1.3	0.011	IO	|	|	|	0.1
1207	1.1	1.3	0.011	O	|	|	|	0.1
1208	1.0	1.2	0.011	O	|	|	|	0.1
1209	1.0	1.2	0.011	O	|	|	|	0.1
1210	1.0	1.2	0.010	O	|	|	|	0.1
1211	1.0	1.1	0.010	O	|	|	|	0.1
1212	1.0	1.1	0.010	O	|	|	|	0.1
1213	1.0	1.1	0.010	O	|	|	|	0.1
1214	0.9	1.1	0.010	O	|	|	|	0.1
1215	0.9	1.0	0.009	O	|	|	|	0.1
1216	0.9	1.0	0.009	O	|	|	|	0.1
1217	0.8	1.0	0.009	O	|	|	|	0.1
1218	0.8	1.0	0.009	O	|	|	|	0.1
1219	0.9	1.0	0.009	O	|	|	|	0.1
1220	0.8	0.9	0.008	O	|	|	|	0.1
1221	0.8	0.9	0.008	O	|	|	|	0.1
1222	0.8	0.9	0.008	O	|	|	|	0.1
1223	0.8	0.9	0.008	O	|	|	|	0.1
1224	0.7	0.9	0.008	O	|	|	|	0.1
1225	0.7	0.8	0.007	O	|	|	|	0.1
1226	0.7	0.8	0.007	O	|	|	|	0.1
1227	0.7	0.8	0.007	O	|	|	|	0.1
1228	0.7	0.8	0.007	O	|	|	|	0.1
1229	0.7	0.8	0.007	O	|	|	|	0.1
1230	0.7	0.8	0.007	O	|	|	|	0.1
1231	0.6	0.7	0.007	O	|	|	|	0.1
1232	0.7	0.7	0.007	O	|	|	|	0.1
1233	0.7	0.7	0.006	O	|	|	|	0.1
1234	0.6	0.7	0.006	O	|	|	|	0.1
1235	0.6	0.7	0.006	O	|	|	|	0.1
1236	0.6	0.7	0.006	O	|	|	|	0.1
1237	0.6	0.7	0.006	O	|	|	|	0.1
1238	0.5	0.6	0.006	O	|	|	|	0.1
1239	0.6	0.6	0.006	O	|	|	|	0.1
1240	0.5	0.6	0.005	O	|	|	|	0.1
1241	0.6	0.6	0.005	O	|	|	|	0.1
1242	0.5	0.6	0.005	O	|	|	|	0.1
1243	0.5	0.6	0.005	O	|	|	|	0.1
1244	0.5	0.6	0.005	O	|	|	|	0.1
1245	0.5	0.6	0.005	O	|	|	|	0.1
1246	0.4	0.5	0.005	O	|	|	|	0.1
1247	0.4	0.5	0.005	O	|	|	|	0.1
1248	0.5	0.5	0.005	O	|	|	|	0.1
1249	0.4	0.5	0.004	O	|	|	|	0.1
1250	0.4	0.5	0.004	O	|	|	|	0.1
1251	0.4	0.5	0.004	O	|	|	|	0.1
1252	0.4	0.5	0.004	O	|	|	|	0.1
1253	0.4	0.5	0.004	O	|	|	|	0.1
1254	0.4	0.4	0.004	O	|	|	|	0.0
1255	0.4	0.4	0.004	O	|	|	|	0.0
1256	0.4	0.4	0.004	O	|	|	|	0.0
1257	0.4	0.4	0.004	O	|	|	|	0.0
1258	0.4	0.4	0.004	O	|	|	|	0.0
1259	0.4	0.4	0.004	O	|	|	|	0.0
1260	0.4	0.4	0.004	O	|	|	|	0.0
1261	0.4	0.4	0.004	O	|	|	|	0.0
1262	0.4	0.4	0.004	O	|	|	|	0.0
1263	0.4	0.4	0.004	O	|	|	|	0.0
1264	0.3	0.4	0.004	O	|	|	|	0.0
1265	0.3	0.4	0.003	O	|	|	|	0.0
1266	0.3	0.4	0.003	O	|	|	|	0.0
1267	0.3	0.4	0.003	O	|	|	|	0.0
1268	0.3	0.4	0.003	O	|	|	|	0.0
1269	0.3	0.3	0.003	O	|	|	|	0.0
1270	0.3	0.3	0.003	O	|	|	|	0.0
1271	0.3	0.3	0.003	O	|	|	|	0.0

1272	0.3	0.3	0.003	O	|	|	|	0.0
1273	0.3	0.3	0.003	O	|	|	|	0.0
1274	0.3	0.3	0.003	O	|	|	|	0.0
1275	0.3	0.3	0.003	O	|	|	|	0.0
1276	0.3	0.3	0.003	O	|	|	|	0.0
1277	0.3	0.3	0.003	O	|	|	|	0.0
1278	0.3	0.3	0.003	O	|	|	|	0.0
1279	0.3	0.3	0.003	O	|	|	|	0.0
1280	0.3	0.3	0.003	O	|	|	|	0.0
1281	0.3	0.3	0.003	O	|	|	|	0.0
1282	0.3	0.3	0.003	O	|	|	|	0.0
1283	0.3	0.3	0.003	O	|	|	|	0.0
1284	0.3	0.3	0.003	O	|	|	|	0.0
1285	0.3	0.3	0.003	O	|	|	|	0.0
1286	0.3	0.3	0.003	O	|	|	|	0.0
1287	0.3	0.3	0.003	O	|	|	|	0.0
1288	0.3	0.3	0.003	O	|	|	|	0.0
1289	0.3	0.3	0.003	O	|	|	|	0.0
1290	0.3	0.3	0.003	O	|	|	|	0.0
1291	0.3	0.3	0.003	O	|	|	|	0.0
1292	0.3	0.3	0.003	O	|	|	|	0.0
1293	0.3	0.3	0.003	O	|	|	|	0.0
1294	0.3	0.3	0.003	O	|	|	|	0.0
1295	0.2	0.3	0.003	O	|	|	|	0.0
1296	0.2	0.3	0.002	O	|	|	|	0.0
1297	0.3	0.3	0.002	O	|	|	|	0.0
1298	0.2	0.3	0.002	O	|	|	|	0.0
1299	0.2	0.3	0.002	O	|	|	|	0.0
1300	0.3	0.3	0.002	O	|	|	|	0.0
1310	0.2	0.2	0.002	O	|	|	|	0.0
1320	0.2	0.2	0.002	O	|	|	|	0.0
1330	0.2	0.2	0.002	O	|	|	|	0.0
1340	0.2	0.2	0.002	O	|	|	|	0.0
1350	0.2	0.2	0.002	O	|	|	|	0.0
1360	0.2	0.2	0.002	O	|	|	|	0.0
1370	0.2	0.2	0.002	O	|	|	|	0.0
1380	0.2	0.2	0.002	O	|	|	|	0.0
1390	0.2	0.2	0.002	O	|	|	|	0.0
1400	0.2	0.2	0.002	O	|	|	|	0.0
1420	0.2	0.2	0.002	O	|	|	|	0.0
1440	0.2	0.2	0.002	O	|	|	|	0.0
1460	0.0	0.1	0.001	O	|	|	|	0.0
1500	0.0	0.0	0.000	O	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 31.38(CFS)
Peak flow time = 1154 Min., time interval # = 40
Maximum depth in basin = 1.83(Ft.)

Detention Subareas C, F, & H Burned Capital Flood

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2009 Version 6.5
------------------------------------------------------------------------
Study Date : 08/02/18 Input hydrograph file name : prpcbu.hyd
Output hydrograph file name: c50bu.hin


Program computation of outflow v. depth


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    0.50(Ft.)   Flow =     10.61 (CFS)

Total outflow at this depth =     36.06(CFS)

------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------------
 0.000      0.000      0.000      0.000        0.000
 1.000      0.080      9.000      0.074        0.086
 2.000      0.190     36.062      0.165        0.215
------------------------------------------------------------------------

                  Hydrograph Detention Basin Routing
Hydrograph at 5 3 A Storm Day: 4 Drainage Area =    9.00
Total flood hydrograph volume this storm day =    2.51 Ac. Ft.
------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
------------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
 (Min)  (CFS)   (CFS)     (Ac.Ft) .0      10.4    20.9    31.3    41.8 (Ft.)
    0     0.0     0.0      0.000  O       |       |       |       |      0.0
  100     0.4     0.4      0.003  O       |       |       |       |      0.0
  200     0.5     0.5      0.004  O       |       |       |       |      0.1
  300     0.5     0.5      0.004  O       |       |       |       |      0.1
  400     0.5     0.5      0.004  O       |       |       |       |      0.1
  500     0.5     0.5      0.004  O       |       |       |       |      0.1
  600     0.6     0.6      0.005  O       |       |       |       |      0.1
  700     0.6     0.6      0.005  O       |       |       |       |      0.1
  800     0.8     0.8      0.007  O       |       |       |       |      0.1
  900     1.1     1.1      0.010  O       |       |       |       |      0.1
```

```
1000    1.6    1.6    0.014 |O     |      |      |      |     0.2
1050    2.4    2.3    0.020 |O     |      |      |      |     0.3
1100    3.5    3.4    0.030 | O    |      |      |      |     0.4
1110    4.9    4.2    0.037 |  O   |      |      |      |     0.5
1120    5.6    5.1    0.046 |  OI  |      |      |      |     0.6
1130    6.9    6.2    0.055 |   OI |      |      |      |     0.7
1131    7.1    6.3    0.056 |   OI |      |      |      |     0.7
1132    7.3    6.5    0.057 |   OI |      |      |      |     0.7
1133    7.7    6.6    0.059 |    O |      |      |      |     0.7
1134    8.1    6.8    0.061 |    OI|      |      |      |     0.8
1135    8.4    7.1    0.063 |    OI|      |      |      |     0.8
1136    8.5    7.3    0.065 |    OI|      |      |      |     0.8
1137    9.0    7.5    0.067 |    OI|      |      |      |     0.8
1138    9.3    7.8    0.069 |    O I      |      |      |     0.9
1139    9.6    8.0    0.071 |     OI      |      |      |     0.9
1140    9.9    8.3    0.074 |     OI      |      |      |     0.9
1141   10.7    8.7    0.077 |     O I     |      |      |     1.0
1142   11.1    9.0    0.080 |     O I     |      |      |     1.0
1143   11.5    9.7    0.083 |      OI     |      |      |     1.0
1144   12.0   10.4    0.086 |      O|I    |      |      |     1.1
1145   13.3   11.2    0.089 |       O I   |      |      |     1.1
1146   14.1   12.1    0.092 |       |OI   |      |      |     1.1
1147   15.0   12.9    0.096 |       |O I  |      |      |     1.1
1148   15.8   13.8    0.099 |       | O I |      |      |     1.2
1149   21.6   16.0    0.109 |       |   O  I      |      |     1.3
1150   26.6   19.1    0.121 |       |     O |  I  |      |     1.4
1151   31.6   22.7    0.136 |       |       |O     I      |     1.5
1152   36.7   26.8    0.152 |       |       |  O  |  I   |     1.7
1153   41.8   31.1    0.170 |       |       |     O|     I|     1.8
1154   36.8   32.8    0.177 |       |       |      |O  I  |     1.9
1155   30.8   32.2    0.174 |       |       |     IO       |     1.9
1156   24.5   30.0    0.165 |       |       | I  O |       |     1.8
1157   17.8   26.4    0.151 |       |   I   |  O   |       |     1.6
1158   11.1   22.0    0.133 |       I      O       |       |     1.5
1159    9.1   18.3    0.118 |    I  |   O   |       |       |     1.3
1160    7.9   15.3    0.105 |    I  |  O    |       |       |     1.2
1161    7.2   12.9    0.096 |   I   |O      |       |       |     1.1
1162    6.5   11.1    0.088 |  I  O       |       |       |     1.1
1163    6.0    9.6    0.082 |  I  O|      |       |       |     1.0
1164    5.6    8.7    0.078 |  I O |      |       |       |     1.0
1165    5.2    8.2    0.073 | I  O |      |       |       |     0.9
1166    4.9    7.7    0.069 | I O  |      |       |       |     0.9
1167    4.7    7.3    0.065 | I O  |      |       |       |     0.8
1168    4.4    6.9    0.061 | I O  |      |       |       |     0.8
1169    4.2    6.5    0.058 | IO   |      |       |       |     0.7
1170    4.0    6.1    0.055 | IO   |      |       |       |     0.7
1171    3.9    5.8    0.052 |I O   |      |       |       |     0.6
1172    3.7    5.5    0.049 |I O   |      |       |       |     0.6
1173    3.5    5.2    0.046 |IO    |      |       |       |     0.6
1174    3.4    5.0    0.044 |IO    |      |       |       |     0.6
1175    3.3    4.7    0.042 |IO    |      |       |       |     0.5
1176    3.2    4.5    0.040 |IO    |      |       |       |     0.5
1177    3.1    4.3    0.038 |IO    |      |       |       |     0.5
1178    3.1    4.1    0.037 |IO    |      |       |       |     0.5
1179    2.9    4.0    0.035 |IO    |      |       |       |     0.4
1180    2.8    3.8    0.034 |O     |      |       |       |     0.4
1181    2.8    3.6    0.032 |O     |      |       |       |     0.4
1182    2.7    3.5    0.031 |O     |      |       |       |     0.4
1183    2.6    3.4    0.030 |IO    |      |       |       |     0.4
1184    2.5    3.3    0.029 |IO    |      |       |       |     0.4
1185    2.5    3.1    0.028 |IO    |      |       |       |     0.3
1186    2.3    3.0    0.027 |IO    |      |       |       |     0.3
1187    2.3    2.9    0.026 |IO    |      |       |       |     0.3
1188    2.2    2.8    0.025 |IO    |      |       |       |     0.3
1189    2.2    2.7    0.024 |IO    |      |       |       |     0.3
1190    2.1    2.6    0.023 |IO    |      |       |       |     0.3
1191    2.1    2.6    0.023 |O     |      |       |       |     0.3
1192    2.0    2.5    0.022 |O     |      |       |       |     0.3
1193    2.0    2.4    0.021 |O     |      |       |       |     0.3
1194    2.0    2.4    0.021 |O     |      |       |       |     0.3
1195    1.9    2.3    0.020 |O     |      |       |       |     0.3
1196    1.9    2.2    0.020 |O     |      |       |       |     0.2
1197    1.9    2.2    0.019 |O     |      |       |       |     0.2
1198    1.8    2.1    0.019 |O     |      |       |       |     0.2
1199    1.8    2.1    0.018 |O     |      |       |       |     0.2
1200    1.8    2.0    0.018 |O     |      |       |       |     0.2
```

1201	1.7	2.0	0.018	|O	|	|	|	0.2
1202	1.7	1.9	0.017	|O	|	|	|	0.2
1203	1.7	1.9	0.017	|O	|	|	|	0.2
1204	1.6	1.9	0.017	|O	|	|	|	0.2
1205	1.6	1.8	0.016	|O	|	|	|	0.2
1206	1.6	1.8	0.016	|O	|	|	|	0.2
1207	1.6	1.8	0.016	|O	|	|	|	0.2
1208	1.5	1.7	0.015	|O	|	|	|	0.2
1209	1.5	1.7	0.015	|O	|	|	|	0.2
1210	1.5	1.7	0.015	|O	|	|	|	0.2
1211	1.4	1.6	0.014	|O	|	|	|	0.2
1212	1.4	1.6	0.014	|O	|	|	|	0.2
1213	1.4	1.6	0.014	|O	|	|	|	0.2
1214	1.4	1.5	0.014	|O	|	|	|	0.2
1215	1.4	1.5	0.014	|O	|	|	|	0.2
1216	1.4	1.5	0.013	|O	|	|	|	0.2
1217	1.3	1.5	0.013	IO	|	|	|	0.2
1218	1.3	1.5	0.013	IO	|	|	|	0.2
1219	1.4	1.4	0.013	|O	|	|	|	0.2
1220	1.3	1.4	0.013	IO	|	|	|	0.2
1221	1.3	1.4	0.012	IO	|	|	|	0.2
1222	1.3	1.4	0.012	IO	|	|	|	0.2
1223	1.3	1.4	0.012	IO	|	|	|	0.2
1224	1.2	1.4	0.012	IO	|	|	|	0.2
1225	1.2	1.3	0.012	IO	|	|	|	0.1
1226	1.2	1.3	0.012	IO	|	|	|	0.1
1227	1.1	1.3	0.011	O	|	|	|	0.1
1228	1.1	1.3	0.011	O	|	|	|	0.1
1229	1.1	1.2	0.011	O	|	|	|	0.1
1230	1.1	1.2	0.011	O	|	|	|	0.1
1231	1.0	1.2	0.011	O	|	|	|	0.1
1232	1.1	1.2	0.010	O	|	|	|	0.1
1233	1.1	1.2	0.010	O	|	|	|	0.1
1234	1.0	1.1	0.010	O	|	|	|	0.1
1235	1.0	1.1	0.010	O	|	|	|	0.1
1236	1.0	1.1	0.010	O	|	|	|	0.1
1237	1.0	1.1	0.010	O	|	|	|	0.1
1238	0.9	1.1	0.009	O	|	|	|	0.1
1239	1.0	1.1	0.009	O	|	|	|	0.1
1240	0.9	1.0	0.009	O	|	|	|	0.1
1241	1.0	1.0	0.009	O	|	|	|	0.1
1242	0.9	1.0	0.009	O	|	|	|	0.1
1243	0.9	1.0	0.009	O	|	|	|	0.1
1244	0.9	1.0	0.009	O	|	|	|	0.1
1245	0.9	1.0	0.009	O	|	|	|	0.1
1246	0.8	0.9	0.008	O	|	|	|	0.1
1247	0.8	0.9	0.008	O	|	|	|	0.1
1248	0.9	0.9	0.008	O	|	|	|	0.1
1249	0.8	0.9	0.008	O	|	|	|	0.1
1250	0.8	0.9	0.008	O	|	|	|	0.1
1251	0.8	0.9	0.008	O	|	|	|	0.1
1252	0.8	0.9	0.008	O	|	|	|	0.1
1253	0.8	0.9	0.008	O	|	|	|	0.1
1254	0.8	0.8	0.008	O	|	|	|	0.1
1255	0.8	0.8	0.007	O	|	|	|	0.1
1256	0.8	0.8	0.007	O	|	|	|	0.1
1257	0.8	0.8	0.007	O	|	|	|	0.1
1258	0.8	0.8	0.007	O	|	|	|	0.1
1259	0.8	0.8	0.007	O	|	|	|	0.1
1260	0.8	0.8	0.007	O	|	|	|	0.1
1261	0.8	0.8	0.007	O	|	|	|	0.1
1262	0.8	0.8	0.007	O	|	|	|	0.1
1263	0.8	0.8	0.007	O	|	|	|	0.1
1264	0.7	0.8	0.007	O	|	|	|	0.1
1265	0.7	0.8	0.007	O	|	|	|	0.1
1266	0.7	0.8	0.007	O	|	|	|	0.1
1267	0.7	0.8	0.007	O	|	|	|	0.1
1268	0.7	0.8	0.007	O	|	|	|	0.1
1269	0.7	0.7	0.007	O	|	|	|	0.1
1270	0.7	0.7	0.007	O	|	|	|	0.1
1271	0.7	0.7	0.007	O	|	|	|	0.1
1272	0.6	0.7	0.006	O	|	|	|	0.1
1273	0.6	0.7	0.006	O	|	|	|	0.1
1274	0.7	0.7	0.006	O	|	|	|	0.1
1275	0.6	0.7	0.006	O	|	|	|	0.1
1276	0.6	0.7	0.006	O	|	|	|	0.1

1277	0.6	0.7	0.006	O	|	|	|	| 0.1
1278	0.6	0.7	0.006	O	|	|	|	| 0.1
1279	0.6	0.6	0.006	O	|	|	|	| 0.1
1280	0.6	0.6	0.006	O	|	|	|	| 0.1
1281	0.6	0.6	0.006	O	|	|	|	| 0.1
1282	0.6	0.6	0.006	O	|	|	|	| 0.1
1283	0.6	0.6	0.006	O	|	|	|	| 0.1
1284	0.6	0.6	0.006	O	|	|	|	| 0.1
1285	0.6	0.6	0.005	O	|	|	|	| 0.1
1286	0.6	0.6	0.005	O	|	|	|	| 0.1
1287	0.6	0.6	0.005	O	|	|	|	| 0.1
1288	0.6	0.6	0.005	O	|	|	|	| 0.1
1289	0.6	0.6	0.005	O	|	|	|	| 0.1
1290	0.6	0.6	0.005	O	|	|	|	| 0.1
1291	0.6	0.6	0.005	O	|	|	|	| 0.1
1292	0.6	0.6	0.005	O	|	|	|	| 0.1
1293	0.6	0.6	0.005	O	|	|	|	| 0.1
1294	0.6	0.6	0.005	O	|	|	|	| 0.1
1295	0.6	0.6	0.005	O	|	|	|	| 0.1
1296	0.6	0.6	0.005	O	|	|	|	| 0.1
1297	0.6	0.6	0.005	O	|	|	|	| 0.1
1298	0.6	0.6	0.005	O	|	|	|	| 0.1
1299	0.6	0.6	0.005	O	|	|	|	| 0.1
1300	0.6	0.6	0.005	O	|	|	|	| 0.1
1310	0.6	0.6	0.005	O	|	|	|	| 0.1
1320	0.6	0.6	0.005	O	|	|	|	| 0.1
1330	0.5	0.5	0.005	O	|	|	|	| 0.1
1340	0.5	0.5	0.005	O	|	|	|	| 0.1
1350	0.5	0.5	0.004	O	|	|	|	| 0.1
1360	0.5	0.5	0.004	O	|	|	|	| 0.1
1370	0.5	0.5	0.004	O	|	|	|	| 0.1
1380	0.5	0.5	0.004	O	|	|	|	| 0.1
1390	0.5	0.5	0.004	O	|	|	|	| 0.1
1400	0.5	0.5	0.004	O	|	|	|	| 0.1
1420	0.4	0.4	0.004	O	|	|	|	| 0.0
1440	0.4	0.4	0.004	O	|	|	|	| 0.0
1460	0.0	0.1	0.001	O	|	|	|	| 0.0
1500	0.0	0.0	0.000	O	|	|	|	| 0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 32.77(CFS)
Peak flow time = 1154 Min., time interval # = 40
Maximum depth in basin = 1.88(Ft.)

Detention Subarea D Clear Water Urban Flood

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2009 Version 6.5
------------------------------------------------------------------------
Study Date : 08/02/18 Input hydrograph file name : prpd25.hyd
Output hydrograph file name: d25.hin


Program computation of outflow v. depth




************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    0.40(Ft.)   Flow =      7.59 (CFS)

Total outflow at this depth =     33.05(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    3.00(Ft.)   Flow =     46.77 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.40(Ft.)   Flow =     49.70 (CFS)

Total outflow at this depth =     96.46(CFS)

------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------
------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------
------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------
 0.000      0.000      0.000      0.000        0.000
 1.000      0.080      9.000      0.074        0.086
 2.000      0.200     33.045      0.177        0.223
 3.000      0.400     96.460      0.334        0.466
```

Hydrograph Detention Basin Routing
Hydrograph at 5 3 A Storm Day: 4 Drainage Area = 18.00
Total flood hydrograph volume this storm day = 2.79 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 15.6 31.1 46.7 62.2	Depth (Ft.)
0	0.0	0.1	0.001	O	0.0
100	0.2	0.2	0.002	O	0.0
200	0.2	0.2	0.002	O	0.0
300	0.3	0.3	0.003	O	0.0
400	0.4	0.4	0.004	O	0.0
500	0.4	0.4	0.004	O	0.0
600	0.4	0.4	0.004	O	0.0
700	0.5	0.5	0.004	O	0.1
800	0.5	0.5	0.004	O	0.1
900	0.8	0.8	0.007	O	0.1
1000	1.6	1.6	0.014	O	0.2
1050	2.7	2.6	0.023	O	0.3
1100	4.4	4.2	0.037	O	0.5
1110	6.2	5.3	0.047	OI	0.6
1120	7.7	6.8	0.061	O	0.8
1130	9.5	8.5	0.075	O	0.9
1131	9.8	8.7	0.077	OI	1.0
1132	10.1	8.9	0.079	OI	1.0
1133	10.5	9.2	0.081	OI	1.0
1134	10.9	9.6	0.083	OI	1.0
1135	11.5	10.1	0.085	O	1.0
1136	11.9	10.5	0.087	OI	1.1
1137	12.6	11.0	0.090	OI	1.1
1138	13.1	11.5	0.093	OI	1.1
1139	13.6	12.0	0.095	O	1.1
1140	14.1	12.5	0.098	OI	1.1
1141	15.0	13.1	0.101	OI	1.2
1142	15.7	13.8	0.104	OI	1.2
1143	16.5	14.4	0.107	OI	1.2
1144	17.3	15.1	0.111	OI	1.3
1145	18.7	16.0	0.115	OI	1.3
1146	20.0	17.0	0.120	O I	1.3
1147	21.5	18.1	0.125	O I	1.4
1148	23.0	19.3	0.131	O I	1.4
1149	28.0	21.4	0.142	O I	1.5
1150	34.6	24.6	0.158	O I	1.6
1151	42.8	29.0	0.180	O I	1.8
1152	51.9	35.3	0.207	O I	2.0
1153	61.3	44.6	0.236	O I	2.2
1154	62.2	50.9	0.256	O I	2.3
1155	57.5	53.3	0.264	O I	2.3
1156	48.9	51.7	0.259	IO	2.3
1157	38.9	47.1	0.244	I O	2.2
1158	28.6	40.5	0.223	I O	2.1
1159	21.7	33.7	0.202	I O	2.0
1160	16.8	29.4	0.182	I O	1.8
1161	13.8	25.6	0.163	I O	1.7
1162	11.7	22.2	0.146	I O	1.6
1163	10.4	19.4	0.132	I O	1.4
1164	9.4	17.0	0.120	I O	1.3
1165	8.6	14.9	0.110	I O	1.2
1166	7.8	13.2	0.101	I O	1.2
1167	7.3	11.8	0.094	I O	1.1
1168	6.8	10.6	0.088	I O	1.1
1169	6.4	9.6	0.083	IO	1.0
1170	6.0	8.8	0.078	IO	1.0
1171	5.7	8.4	0.074	I O	0.9
1172	5.4	7.9	0.071	I O	0.9
1173	5.1	7.5	0.067	IO	0.8
1174	4.9	7.2	0.064	IO	0.8
1175	4.6	6.8	0.060	IO	0.8
1176	4.4	6.4	0.057	IO	0.7
1177	4.2	6.1	0.054	IO	0.7
1178	4.1	5.8	0.052	O	0.6
1179	3.8	5.5	0.049	IO	0.6

1180	3.7	5.3	0.047	IO				0.6
1181	3.6	5.0	0.045	IO				0.6
1182	3.4	4.8	0.043	IO				0.5
1183	3.3	4.6	0.041	IO				0.5
1184	3.2	4.4	0.039	IO				0.5
1185	3.1	4.2	0.037	IO				0.5
1186	2.9	4.0	0.036	IO				0.4
1187	2.9	3.9	0.034	O				0.4
1188	2.7	3.7	0.033	O				0.4
1189	2.7	3.5	0.032	O				0.4
1190	2.6	3.4	0.030	O				0.4
1191	2.5	3.3	0.029	O				0.4
1192	2.4	3.2	0.028	O				0.4
1193	2.4	3.0	0.027	O				0.3
1194	2.3	2.9	0.026	O				0.3
1195	2.3	2.8	0.025	O				0.3
1196	2.2	2.8	0.024	O				0.3
1197	2.2	2.7	0.024	O				0.3
1198	2.1	2.6	0.023	O				0.3
1199	2.0	2.5	0.022	O				0.3
1200	2.0	2.4	0.022	O				0.3
1201	1.9	2.4	0.021	IO				0.3
1202	1.9	2.3	0.020	IO				0.3
1203	1.8	2.2	0.020	IO				0.2
1204	1.7	2.1	0.019	IO				0.2
1205	1.7	2.1	0.019	IO				0.2
1206	1.7	2.0	0.018	IO				0.2
1207	1.7	2.0	0.018	IO				0.2
1208	1.6	1.9	0.017	O				0.2
1209	1.6	1.9	0.017	O				0.2
1210	1.5	1.8	0.016	O				0.2
1211	1.5	1.8	0.016	O				0.2
1212	1.5	1.7	0.015	O				0.2
1213	1.4	1.7	0.015	O				0.2
1214	1.4	1.6	0.015	O				0.2
1215	1.3	1.6	0.014	O				0.2
1216	1.3	1.6	0.014	O				0.2
1217	1.2	1.5	0.013	O				0.2
1218	1.2	1.5	0.013	O				0.2
1219	1.2	1.4	0.013	O				0.2
1220	1.2	1.4	0.012	O				0.2
1221	1.1	1.3	0.012	O				0.1
1222	1.1	1.3	0.012	O				0.1
1223	1.1	1.3	0.011	O				0.1
1224	1.1	1.3	0.011	O				0.1
1225	1.0	1.2	0.011	O				0.1
1226	1.0	1.2	0.011	O				0.1
1227	1.0	1.2	0.010	O				0.1
1228	0.9	1.1	0.010	O				0.1
1229	0.9	1.1	0.010	O				0.1
1230	0.9	1.1	0.009	O				0.1
1231	0.8	1.0	0.009	O				0.1
1232	0.9	1.0	0.009	O				0.1
1233	0.8	1.0	0.009	O				0.1
1234	0.8	1.0	0.008	O				0.1
1235	0.8	0.9	0.008	O				0.1
1236	0.8	0.9	0.008	O				0.1
1237	0.7	0.9	0.008	O				0.1
1238	0.7	0.9	0.008	O				0.1
1239	0.7	0.8	0.007	O				0.1
1240	0.7	0.8	0.007	O				0.1
1241	0.7	0.8	0.007	O				0.1
1242	0.6	0.8	0.007	O				0.1
1243	0.6	0.7	0.007	O				0.1
1244	0.6	0.7	0.006	O				0.1
1245	0.6	0.7	0.006	O				0.1
1246	0.6	0.7	0.006	O				0.1
1247	0.6	0.7	0.006	O				0.1
1248	0.6	0.7	0.006	O				0.1
1249	0.6	0.7	0.006	O				0.1
1250	0.6	0.6	0.006	O				0.1
1251	0.6	0.6	0.006	O				0.1
1252	0.5	0.6	0.006	O				0.1
1253	0.5	0.6	0.005	O				0.1
1254	0.5	0.6	0.005	O				0.1
1255	0.5	0.6	0.005	O				0.1

1256	0.5	0.6	0.005	O	|	|	|	|	0.1
1257	0.5	0.6	0.005	O	|	|	|	|	0.1
1258	0.5	0.5	0.005	O	|	|	|	|	0.1
1259	0.5	0.5	0.005	O	|	|	|	|	0.1
1260	0.5	0.5	0.005	O	|	|	|	|	0.1
1261	0.5	0.5	0.005	O	|	|	|	|	0.1
1262	0.5	0.5	0.005	O	|	|	|	|	0.1
1263	0.5	0.5	0.005	O	|	|	|	|	0.1
1264	0.5	0.5	0.005	O	|	|	|	|	0.1
1265	0.5	0.5	0.005	O	|	|	|	|	0.1
1266	0.5	0.5	0.005	O	|	|	|	|	0.1
1267	0.5	0.5	0.005	O	|	|	|	|	0.1
1268	0.5	0.5	0.005	O	|	|	|	|	0.1
1269	0.5	0.5	0.005	O	|	|	|	|	0.1
1270	0.5	0.5	0.005	O	|	|	|	|	0.1
1271	0.5	0.5	0.005	O	|	|	|	|	0.1
1272	0.5	0.5	0.004	O	|	|	|	|	0.1
1273	0.5	0.5	0.004	O	|	|	|	|	0.1
1274	0.5	0.5	0.004	O	|	|	|	|	0.1
1275	0.5	0.5	0.004	O	|	|	|	|	0.1
1276	0.5	0.5	0.004	O	|	|	|	|	0.1
1277	0.5	0.5	0.004	O	|	|	|	|	0.1
1278	0.5	0.5	0.004	O	|	|	|	|	0.1
1279	0.5	0.5	0.004	O	|	|	|	|	0.1
1280	0.5	0.5	0.004	O	|	|	|	|	0.1
1281	0.5	0.5	0.004	O	|	|	|	|	0.1
1282	0.5	0.5	0.004	O	|	|	|	|	0.1
1283	0.5	0.5	0.004	O	|	|	|	|	0.1
1284	0.5	0.5	0.004	O	|	|	|	|	0.1
1285	0.5	0.5	0.004	O	|	|	|	|	0.1
1286	0.5	0.5	0.004	O	|	|	|	|	0.1
1287	0.5	0.5	0.004	O	|	|	|	|	0.1
1288	0.5	0.5	0.004	O	|	|	|	|	0.1
1289	0.5	0.5	0.004	O	|	|	|	|	0.1
1290	0.5	0.5	0.004	O	|	|	|	|	0.1
1291	0.5	0.5	0.004	O	|	|	|	|	0.1
1292	0.5	0.5	0.004	O	|	|	|	|	0.1
1293	0.5	0.5	0.004	O	|	|	|	|	0.1
1294	0.5	0.5	0.004	O	|	|	|	|	0.1
1295	0.4	0.5	0.004	O	|	|	|	|	0.1
1296	0.4	0.5	0.004	O	|	|	|	|	0.1
1297	0.5	0.5	0.004	O	|	|	|	|	0.1
1298	0.4	0.5	0.004	O	|	|	|	|	0.1
1299	0.4	0.5	0.004	O	|	|	|	|	0.1
1300	0.4	0.4	0.004	O	|	|	|	|	0.0
1310	0.4	0.4	0.004	O	|	|	|	|	0.0
1320	0.4	0.4	0.004	O	|	|	|	|	0.0
1330	0.4	0.4	0.004	O	|	|	|	|	0.0
1340	0.4	0.4	0.004	O	|	|	|	|	0.0
1350	0.4	0.4	0.004	O	|	|	|	|	0.0
1360	0.4	0.4	0.004	O	|	|	|	|	0.0
1370	0.4	0.4	0.004	O	|	|	|	|	0.0
1380	0.4	0.4	0.004	O	|	|	|	|	0.0
1390	0.3	0.3	0.003	O	|	|	|	|	0.0
1400	0.3	0.3	0.003	O	|	|	|	|	0.0
1420	0.2	0.2	0.002	O	|	|	|	|	0.0
1440	0.2	0.2	0.002	O	|	|	|	|	0.0
1460	0.1	0.1	0.001	O	|	|	|	|	0.0
1500	0.1	0.1	0.001	O	|	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 53.27(CFS)
Peak flow time = 1155 Min., time interval # = 41
Maximum depth in basin = 2.32(Ft.)

Detention Subarea D Clear Water Capital Flood

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2009 Version 6.5
------------------------------------------------------------------------
Study Date : 08/09/18 Input hydrograph file name : prpd50.hyd
Output hydrograph file name: d50cl.hin


Program computation of outflow v. depth




************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    0.40(Ft.)   Flow =      7.59 (CFS)

Total outflow at this depth =     33.05(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    3.00(Ft.)   Flow =     46.77 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.40(Ft.)   Flow =     49.70 (CFS)

Total outflow at this depth =     96.46(CFS)

------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------
------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------
------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------
 0.000      0.000      0.000      0.000        0.000
 1.000      0.080      9.000      0.074        0.086
 2.000      0.200     33.045      0.177        0.223
```

```
 3.000      0.400     96.460      0.334        0.466
-------------------------------------------------------------------------

                                        Hydrograph Detention Basin Routing
Hydrograph at 5 3 A Storm Day: 4 Drainage Area =   18.00
Total flood hydrograph volume this storm day =    3.53 Ac. Ft.
-------------------------------------------------------------------------

Graph values: 'I'= unit inflow; 'O'=outflow at time shown
-------------------------------------------------------------------------
 Time   Inflow  Outflow    Storage                                    Depth
 (Min)  (CFS)   (CFS)     (Ac.Ft) .0      18.1    36.2    54.3    72.4 (Ft.)
    0     0.0     0.1      0.001  O       |       |       |       |      0.0
  100     0.3     0.3      0.003  O       |       |       |       |      0.0
  200     0.4     0.4      0.004  O       |       |       |       |      0.0
  300     0.4     0.4      0.004  O       |       |       |       |      0.0
  400     0.4     0.4      0.004  O       |       |       |       |      0.0
  500     0.5     0.5      0.004  O       |       |       |       |      0.1
  600     0.5     0.5      0.004  O       |       |       |       |      0.1
  700     0.5     0.5      0.004  O       |       |       |       |      0.1
  800     0.8     0.8      0.007  O       |       |       |       |      0.1
  900     1.3     1.3      0.011  O       |       |       |       |      0.1
 1000     2.2     2.1      0.019  O       |       |       |       |      0.2
 1050     3.5     3.3      0.030  |O      |       |       |       |      0.4
 1100     5.6     5.4      0.048  | O     |       |       |       |      0.6
 1110     7.7     6.7      0.059  | OI    |       |       |       |      0.7
 1120     9.4     8.4      0.075  |  OI   |       |       |       |      0.9
 1130    11.6    10.8      0.089  |   OI  |       |       |       |      1.1
 1131    11.9    11.1      0.090  |   OI  |       |       |       |      1.1
 1132    12.2    11.4      0.092  |    O  |       |       |       |      1.1
 1133    12.7    11.7      0.093  |    O  |       |       |       |      1.1
 1134    13.3    12.1      0.095  |    O  |       |       |       |      1.1
 1135    13.9    12.5      0.098  |    OI |       |       |       |      1.1
 1136    14.4    13.0      0.100  |    OI |       |       |       |      1.2
 1137    15.2    13.5      0.103  |    OI |       |       |       |      1.2
 1138    15.8    14.1      0.105  |     O |       |       |       |      1.2
 1139    16.3    14.6      0.108  |     OI|       |       |       |      1.2
 1140    16.9    15.2      0.111  |     OI|       |       |       |      1.3
 1141    17.9    15.8      0.114  |     OI|       |       |       |      1.3
 1142    18.8    16.5      0.118  |      OI       |       |       |      1.3
 1143    19.7    17.3      0.121  |      OI       |       |       |      1.3
 1144    20.7    18.1      0.126  |       OI      |       |       |      1.4
 1145    22.2    19.1      0.131  |       OI      |       |       |      1.4
 1146    23.8    20.3      0.136  |       O I     |       |       |      1.5
 1147    25.5    21.5      0.143  |       |O I    |       |       |      1.5
 1148    27.2    22.9      0.149  |       | O I   |       |       |      1.6
 1149    33.2    25.4      0.162  |       |  O  I |       |       |      1.7
 1150    40.9    29.2      0.181  |       |   O   | I     |       |      1.8
 1151    50.5    35.0      0.206  |       |      O|     I |       |      2.0
 1152    61.0    44.3      0.235  |       |       |  O    | I     |      2.2
 1153    71.7    54.1      0.266  |       |       |      O|      I|      2.3
 1154    72.4    60.7      0.287  |       |       |       | O     I      2.4
 1155    66.6    62.8      0.294  |       |       |       |  O I  |      2.5
 1156    56.6    60.6      0.287  |       |       |       |IO     |      2.4
 1157    45.0    55.0      0.269  |       |       |  I    O       |      2.3
 1158    33.0    47.1      0.244  |       |     I |   O   |       |      2.2
 1159    25.1    39.2      0.219  |       |  I    |O      |       |      2.1
 1160    19.6    32.5      0.197  |       I     O |       |       |      2.0
 1161    16.2    28.5      0.177  |      I|   O   |       |       |      1.8
 1162    13.9    25.0      0.160  |     I |  O    |       |       |      1.7
 1163    12.3    21.9      0.144  |    I  |O      |       |       |      1.5
 1164    11.2    19.3      0.131  |   I   O       |       |       |      1.4
 1165    10.2    17.1      0.120  |   I  O|       |       |       |      1.3
 1166     9.4    15.2      0.111  |   I O |       |       |       |      1.3
 1167     8.8    13.7      0.103  |  I  O |       |       |       |      1.2
 1168     8.2    12.3      0.097  |  I O  |       |       |       |      1.1
 1169     7.8    11.2      0.091  |  IO   |       |       |       |      1.1
 1170     7.3    10.3      0.086  |  IO   |       |       |       |      1.1
 1171     7.0     9.5      0.082  |  IO   |       |       |       |      1.0
 1172     6.7     8.9      0.079  | IO    |       |       |       |      1.0
 1173     6.3     8.5      0.076  | IO    |       |       |       |      0.9
 1174     6.1     8.2      0.073  | IO    |       |       |       |      0.9
 1175     5.8     7.8      0.070  | IO    |       |       |       |      0.9
 1176     5.5     7.5      0.067  | IO    |       |       |       |      0.8
 1177     5.3     7.2      0.064  | IO    |       |       |       |      0.8
 1178     5.2     6.9      0.061  | IO    |       |       |       |      0.8
```

1179	4.9	6.6	0.059	| O	|	|	|	0.7
1180	4.7	6.3	0.056	| O	|	|	|	0.7
1181	4.6	6.1	0.054	| O	|	|	|	0.7
1182	4.4	5.8	0.052	|IO	|	|	|	0.6
1183	4.3	5.6	0.050	|IO	|	|	|	0.6
1184	4.1	5.4	0.048	|IO	|	|	|	0.6
1185	4.0	5.2	0.046	|IO	|	|	|	0.6
1186	3.8	5.0	0.044	|IO	|	|	|	0.6
1187	3.7	4.8	0.043	|IO	|	|	|	0.5
1188	3.6	4.6	0.041	|IO	|	|	|	0.5
1189	3.5	4.5	0.040	|O	|	|	|	0.5
1190	3.4	4.3	0.038	|O	|	|	|	0.5
1191	3.3	4.2	0.037	|O	|	|	|	0.5
1192	3.2	4.0	0.036	|O	|	|	|	0.4
1193	3.1	3.9	0.035	|O	|	|	|	0.4
1194	3.1	3.8	0.034	|O	|	|	|	0.4
1195	3.0	3.7	0.033	|O	|	|	|	0.4
1196	2.9	3.6	0.032	|O	|	|	|	0.4
1197	2.8	3.5	0.031	|O	|	|	|	0.4
1198	2.8	3.4	0.030	|O	|	|	|	0.4
1199	2.7	3.3	0.029	|O	|	|	|	0.4
1200	2.6	3.2	0.028	|O	|	|	|	0.4
1201	2.6	3.1	0.027	|O	|	|	|	0.3
1202	2.5	3.0	0.027	|O	|	|	|	0.3
1203	2.5	2.9	0.026	|O	|	|	|	0.3
1204	2.4	2.9	0.025	|O	|	|	|	0.3
1205	2.3	2.8	0.025	|O	|	|	|	0.3
1206	2.3	2.7	0.024	|O	|	|	|	0.3
1207	2.3	2.6	0.024	|O	|	|	|	0.3
1208	2.2	2.6	0.023	IO	|	|	|	0.3
1209	2.2	2.5	0.022	IO	|	|	|	0.3
1210	2.2	2.5	0.022	IO	|	|	|	0.3
1211	2.1	2.4	0.022	IO	|	|	|	0.3
1212	2.1	2.4	0.021	IO	|	|	|	0.3
1213	2.0	2.3	0.021	IO	|	|	|	0.3
1214	1.9	2.3	0.020	IO	|	|	|	0.3
1215	1.9	2.2	0.020	O	|	|	|	0.2
1216	1.9	2.2	0.019	O	|	|	|	0.2
1217	1.8	2.1	0.019	O	|	|	|	0.2
1218	1.8	2.1	0.018	O	|	|	|	0.2
1219	1.8	2.0	0.018	O	|	|	|	0.2
1220	1.7	2.0	0.018	O	|	|	|	0.2
1221	1.7	1.9	0.017	O	|	|	|	0.2
1222	1.7	1.9	0.017	O	|	|	|	0.2
1223	1.7	1.9	0.017	O	|	|	|	0.2
1224	1.6	1.8	0.016	O	|	|	|	0.2
1225	1.6	1.8	0.016	O	|	|	|	0.2
1226	1.6	1.8	0.016	O	|	|	|	0.2
1227	1.5	1.7	0.015	O	|	|	|	0.2
1228	1.5	1.7	0.015	O	|	|	|	0.2
1229	1.4	1.7	0.015	O	|	|	|	0.2
1230	1.4	1.6	0.014	O	|	|	|	0.2
1231	1.3	1.6	0.014	O	|	|	|	0.2
1232	1.4	1.5	0.014	O	|	|	|	0.2
1233	1.3	1.5	0.013	O	|	|	|	0.2
1234	1.3	1.5	0.013	O	|	|	|	0.2
1235	1.3	1.5	0.013	O	|	|	|	0.2
1236	1.3	1.4	0.013	O	|	|	|	0.2
1237	1.2	1.4	0.012	O	|	|	|	0.2
1238	1.2	1.4	0.012	O	|	|	|	0.2
1239	1.2	1.3	0.012	O	|	|	|	0.1
1240	1.1	1.3	0.012	O	|	|	|	0.1
1241	1.2	1.3	0.012	O	|	|	|	0.1
1242	1.1	1.3	0.011	O	|	|	|	0.1
1243	1.1	1.2	0.011	O	|	|	|	0.1
1244	1.1	1.2	0.011	O	|	|	|	0.1
1245	1.1	1.2	0.011	O	|	|	|	0.1
1246	1.0	1.2	0.010	O	|	|	|	0.1
1247	1.0	1.2	0.010	O	|	|	|	0.1
1248	1.0	1.1	0.010	O	|	|	|	0.1
1249	1.0	1.1	0.010	O	|	|	|	0.1
1250	1.0	1.1	0.010	O	|	|	|	0.1
1251	1.0	1.1	0.010	O	|	|	|	0.1
1252	0.9	1.1	0.009	O	|	|	|	0.1
1253	0.9	1.0	0.009	O	|	|	|	0.1
1254	0.9	1.0	0.009	O	|	|	|	0.1

1255	0.8	1.0	0.009	O	|	|	|	|	0.1
1256	0.8	1.0	0.009	O	|	|	|	|	0.1
1257	0.8	0.9	0.008	O	|	|	|	|	0.1
1258	0.8	0.9	0.008	O	|	|	|	|	0.1
1259	0.8	0.9	0.008	O	|	|	|	|	0.1
1260	0.8	0.9	0.008	O	|	|	|	|	0.1
1261	0.8	0.9	0.008	O	|	|	|	|	0.1
1262	0.8	0.9	0.008	O	|	|	|	|	0.1
1263	0.7	0.8	0.007	O	|	|	|	|	0.1
1264	0.7	0.8	0.007	O	|	|	|	|	0.1
1265	0.7	0.8	0.007	O	|	|	|	|	0.1
1266	0.7	0.8	0.007	O	|	|	|	|	0.1
1267	0.7	0.8	0.007	O	|	|	|	|	0.1
1268	0.6	0.7	0.007	O	|	|	|	|	0.1
1269	0.6	0.7	0.006	O	|	|	|	|	0.1
1270	0.6	0.7	0.006	O	|	|	|	|	0.1
1271	0.6	0.7	0.006	O	|	|	|	|	0.1
1272	0.6	0.7	0.006	O	|	|	|	|	0.1
1273	0.6	0.7	0.006	O	|	|	|	|	0.1
1274	0.6	0.7	0.006	O	|	|	|	|	0.1
1275	0.6	0.7	0.006	O	|	|	|	|	0.1
1276	0.6	0.6	0.006	O	|	|	|	|	0.1
1277	0.6	0.6	0.006	O	|	|	|	|	0.1
1278	0.6	0.6	0.006	O	|	|	|	|	0.1
1279	0.6	0.6	0.006	O	|	|	|	|	0.1
1280	0.6	0.6	0.006	O	|	|	|	|	0.1
1281	0.5	0.6	0.005	O	|	|	|	|	0.1
1282	0.5	0.6	0.005	O	|	|	|	|	0.1
1283	0.5	0.6	0.005	O	|	|	|	|	0.1
1284	0.5	0.6	0.005	O	|	|	|	|	0.1
1285	0.5	0.6	0.005	O	|	|	|	|	0.1
1286	0.5	0.5	0.005	O	|	|	|	|	0.1
1287	0.5	0.5	0.005	O	|	|	|	|	0.1
1288	0.5	0.5	0.005	O	|	|	|	|	0.1
1289	0.5	0.5	0.005	O	|	|	|	|	0.1
1290	0.5	0.5	0.005	O	|	|	|	|	0.1
1291	0.5	0.5	0.005	O	|	|	|	|	0.1
1292	0.5	0.5	0.005	O	|	|	|	|	0.1
1293	0.5	0.5	0.005	O	|	|	|	|	0.1
1294	0.5	0.5	0.005	O	|	|	|	|	0.1
1295	0.5	0.5	0.005	O	|	|	|	|	0.1
1296	0.5	0.5	0.005	O	|	|	|	|	0.1
1297	0.5	0.5	0.005	O	|	|	|	|	0.1
1298	0.5	0.5	0.005	O	|	|	|	|	0.1
1299	0.5	0.5	0.005	O	|	|	|	|	0.1
1300	0.5	0.5	0.004	O	|	|	|	|	0.1
1310	0.5	0.5	0.004	O	|	|	|	|	0.1
1320	0.5	0.5	0.004	O	|	|	|	|	0.1
1330	0.5	0.5	0.004	O	|	|	|	|	0.1
1340	0.4	0.4	0.004	O	|	|	|	|	0.0
1350	0.4	0.4	0.004	O	|	|	|	|	0.0
1360	0.4	0.4	0.004	O	|	|	|	|	0.0
1370	0.4	0.4	0.004	O	|	|	|	|	0.0
1380	0.4	0.4	0.004	O	|	|	|	|	0.0
1390	0.4	0.4	0.004	O	|	|	|	|	0.0
1400	0.4	0.4	0.004	O	|	|	|	|	0.0
1420	0.4	0.4	0.004	O	|	|	|	|	0.0
1440	0.4	0.4	0.004	O	|	|	|	|	0.0
1460	0.1	0.2	0.002	O	|	|	|	|	0.0
1500	0.1	0.1	0.001	O	|	|	|	|	0.0

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 62.80(CFS)
Peak flow time = 1155 Min., time interval # = 41
Maximum depth in basin = 2.47(Ft.)

Detention Subarea D Burned Capital Flood

```
CIVILCADD/CIVILDESIGN  Engineering Software, (c) 1997-2009 Version 6.5
------------------------------------------------------------------------
Study Date : 08/02/18 Input hydrograph file name : prpdbu.hyd
Output hydrograph file name: d50.hin


Program computation of outflow v. depth




************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    1.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.00(Ft.)   Flow =      9.00 (CFS)

Total outflow at this depth =      9.00(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    2.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    2.00(Ft.)   Flow =     25.46 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    0.40(Ft.)   Flow =      7.59 (CFS)

Total outflow at this depth =     33.05(CFS)


************************************************************
CALCULATED OUTFLOW DATA AT DEPTH =    3.00(Ft.)
************************************************************

Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =   3.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    3.00(Ft.)   Flow =     46.77 (CFS)


Weir capacity using equation Q = CLH^Exp(Using Feet as units)
Weir Length =  10.00(Ft.)   C value =   3.00   Exp =   1.50
Weir flow:        Depth = H =    1.40(Ft.)   Flow =     49.70 (CFS)

Total outflow at this depth =     96.46(CFS)

------------------------------------------------------------------------
Hydrograph time unit varies
Initial depth in storage basin =   0.00(Ft.)
------------------------------------------------------------------------
------------------------------------------------------------------------
Initial basin depth =   0.00 (Ft.)
Initial basin storage =      0.00 (Ac.Ft)
Initial basin outflow =   0.00 (CFS)
------------------------------------------------------------------------
------------------------------------------------------------------------
Depth vs. Storage and Depth vs. Discharge data @ 1 Min. Intervals:
 Basin Depth  Storage    Outflow   (S-O*dt/2)   (S+O*dt/2)
     (Ft.)    (Ac.Ft)    (CFS)     (Ac.Ft)    (Ac.Ft)
------------------------------------------------------------------------
 0.000      0.000      0.000      0.000        0.000
 1.000      0.080      9.000      0.074        0.086
 2.000      0.200     33.045      0.177        0.223
 3.000      0.400     96.460      0.334        0.466
------------------------------------------------------------------------
```

Hydrograph Detention Basin Routing
Hydrograph at 5 3 A Storm Day: 4 Drainage Area = 18.00
Total flood hydrograph volume this storm day = 5.04 Ac. Ft.

Graph values: 'I'= unit inflow; 'O'=outflow at time shown

Time (Min)	Inflow (CFS)	Outflow (CFS)	Storage (Ac.Ft)	.0 18.8 37.6 56.5 75.3	Depth (Ft.)
0	0.0	0.1	0.001	O	0.0
100	0.9	0.8	0.008	O	0.1
200	0.9	0.9	0.008	O	0.1
300	0.9	0.9	0.008	O	0.1
400	1.0	1.0	0.009	O	0.1
500	1.1	1.1	0.010	O	0.1
600	1.1	1.1	0.010	O	0.1
700	1.2	1.2	0.011	O	0.1
800	1.6	1.6	0.014	O	0.2
900	2.2	2.2	0.019	O	0.2
1000	3.2	3.1	0.028	O	0.3
1050	4.7	4.5	0.040	O	0.5
1100	6.9	6.6	0.059	O	0.7
1110	9.2	8.1	0.072	O	0.9
1120	11.0	10.3	0.087	O	1.1
1130	13.3	12.6	0.098	O	1.1
1131	13.7	12.9	0.099	O	1.2
1132	14.0	13.1	0.101	O	1.2
1133	14.5	13.5	0.102	OI	1.2
1134	15.1	13.9	0.104	OI	1.2
1135	15.8	14.3	0.107	O	1.2
1136	16.3	14.8	0.109	O	1.2
1137	17.1	15.4	0.112	OI	1.3
1138	17.7	15.9	0.115	OI	1.3
1139	18.3	16.5	0.117	O	1.3
1140	18.9	17.1	0.120	OI	1.3
1141	20.0	17.8	0.124	OI	1.4
1142	20.9	18.5	0.128	OI	1.4
1143	21.8	19.3	0.132	OI	1.4
1144	22.8	20.2	0.136	OI	1.5
1145	24.5	21.2	0.141	OI	1.5
1146	26.1	22.4	0.147	O I	1.6
1147	27.9	23.7	0.154	OI	1.6
1148	29.6	25.2	0.161	O I	1.7
1149	35.7	27.7	0.173	O I	1.8
1150	43.6	31.6	0.193	O I	1.9
1151	53.4	38.7	0.218	O I	2.1
1152	63.9	47.7	0.246	O I	2.2
1153	74.6	57.4	0.277	O I	2.4
1154	75.3	63.8	0.297	O I	2.5
1155	69.4	65.8	0.303	O I	2.5
1156	59.2	63.4	0.296	IO	2.5
1157	47.4	57.7	0.278	I O	2.4
1158	35.2	49.6	0.252	I O	2.3
1159	27.0	41.5	0.227	I O	2.1
1160	21.4	34.3	0.204	I O	2.0
1161	18.0	29.9	0.185	I O	1.9
1162	15.6	26.5	0.167	I O	1.7
1163	14.0	23.4	0.152	I O	1.6
1164	12.8	20.9	0.139	I O	1.5
1165	11.8	18.7	0.128	I O	1.4
1166	11.0	16.8	0.119	I O	1.3
1167	10.3	15.2	0.111	I O	1.3
1168	9.7	13.9	0.104	IO	1.2
1169	9.2	12.7	0.099	I O	1.2
1170	8.7	11.8	0.094	I O	1.1
1171	8.4	11.0	0.090	IO	1.1
1172	8.0	10.2	0.086	IO	1.1
1173	7.7	9.6	0.083	IO	1.0
1174	7.4	9.1	0.080	O	1.0
1175	7.1	8.8	0.078	O	1.0
1176	6.8	8.5	0.075	IO	0.9
1177	6.6	8.2	0.073	IO	0.9
1178	6.4	8.0	0.071	IO	0.9
1179	6.2	7.7	0.068	IO	0.9
1180	6.0	7.5	0.066	IO	0.8

1181	5.8	7.2	0.064	I O				0.8
1182	5.6	7.0	0.062	O				0.8
1183	5.5	6.8	0.060	O				0.8
1184	5.3	6.6	0.058	O				0.7
1185	5.2	6.4	0.057	O				0.7
1186	5.0	6.2	0.055	O				0.7
1187	4.9	6.0	0.053	O				0.7
1188	4.7	5.8	0.052	IO				0.6
1189	4.6	5.6	0.050	IO				0.6
1190	4.5	5.5	0.049	IO				0.6
1191	4.4	5.3	0.047	IO				0.6
1192	4.3	5.2	0.046	IO				0.6
1193	4.2	5.0	0.045	IO				0.6
1194	4.1	4.9	0.044	IO				0.5
1195	4.1	4.8	0.042	IO				0.5
1196	4.0	4.7	0.041	O				0.5
1197	3.9	4.6	0.041	O				0.5
1198	3.8	4.4	0.040	O				0.5
1199	3.7	4.3	0.039	O				0.5
1200	3.7	4.2	0.038	O				0.5
1201	3.6	4.2	0.037	O				0.5
1202	3.5	4.1	0.036	O				0.5
1203	3.5	4.0	0.035	O				0.4
1204	3.4	3.9	0.035	O				0.4
1205	3.3	3.8	0.034	O				0.4
1206	3.3	3.7	0.033	O				0.4
1207	3.3	3.7	0.033	O				0.4
1208	3.2	3.6	0.032	O				0.4
1209	3.1	3.5	0.031	O				0.4
1210	3.1	3.5	0.031	O				0.4
1211	3.0	3.4	0.030	O				0.4
1212	3.0	3.3	0.030	O				0.4
1213	3.0	3.3	0.029	O				0.4
1214	2.9	3.2	0.029	O				0.4
1215	2.8	3.2	0.028	O				0.4
1216	2.8	3.1	0.028	O				0.3
1217	2.7	3.1	0.027	O				0.3
1218	2.7	3.0	0.027	O				0.3
1219	2.7	3.0	0.026	O				0.3
1220	2.6	2.9	0.026	O				0.3
1221	2.6	2.9	0.025	O				0.3
1222	2.6	2.8	0.025	O				0.3
1223	2.6	2.8	0.025	O				0.3
1224	2.5	2.8	0.024	O				0.3
1225	2.5	2.7	0.024	O				0.3
1226	2.4	2.7	0.024	O				0.3
1227	2.4	2.6	0.023	O				0.3
1228	2.3	2.6	0.023	IO				0.3
1229	2.3	2.5	0.023	IO				0.3
1230	2.3	2.5	0.022	IO				0.3
1231	2.2	2.5	0.022	IO				0.3
1232	2.2	2.4	0.022	IO				0.3
1233	2.2	2.4	0.021	IO				0.3
1234	2.1	2.4	0.021	O				0.3
1235	2.1	2.3	0.021	O				0.3
1236	2.1	2.3	0.020	O				0.3
1237	2.1	2.3	0.020	O				0.3
1238	2.0	2.2	0.020	O				0.2
1239	2.0	2.2	0.019	O				0.2
1240	2.0	2.2	0.019	O				0.2
1241	2.0	2.1	0.019	O				0.2
1242	1.9	2.1	0.019	O				0.2
1243	1.9	2.1	0.018	O				0.2
1244	1.9	2.0	0.018	O				0.2
1245	1.9	2.0	0.018	O				0.2
1246	1.8	2.0	0.018	O				0.2
1247	1.8	2.0	0.017	O				0.2
1248	1.8	1.9	0.017	O				0.2
1249	1.8	1.9	0.017	O				0.2
1250	1.8	1.9	0.017	O				0.2
1251	1.7	1.9	0.017	O				0.2
1252	1.7	1.9	0.016	O				0.2
1253	1.6	1.8	0.016	O				0.2
1254	1.6	1.8	0.016	O				0.2
1255	1.6	1.8	0.016	O				0.2
1256	1.6	1.7	0.015	O				0.2

1257	1.6	1.7	0.015	O	|	|	|	| 0.2
1258	1.5	1.7	0.015	O	|	|	|	| 0.2
1259	1.5	1.7	0.015	O	|	|	|	| 0.2
1260	1.5	1.6	0.015	O	|	|	|	| 0.2
1261	1.5	1.6	0.014	O	|	|	|	| 0.2
1262	1.5	1.6	0.014	O	|	|	|	| 0.2
1263	1.5	1.6	0.014	O	|	|	|	| 0.2
1264	1.5	1.6	0.014	O	|	|	|	| 0.2
1265	1.4	1.5	0.014	O	|	|	|	| 0.2
1266	1.4	1.5	0.014	O	|	|	|	| 0.2
1267	1.4	1.5	0.013	O	|	|	|	| 0.2
1268	1.4	1.5	0.013	O	|	|	|	| 0.2
1269	1.4	1.5	0.013	O	|	|	|	| 0.2
1270	1.4	1.5	0.013	O	|	|	|	| 0.2
1271	1.4	1.5	0.013	O	|	|	|	| 0.2
1272	1.3	1.4	0.013	O	|	|	|	| 0.2
1273	1.3	1.4	0.013	O	|	|	|	| 0.2
1274	1.3	1.4	0.012	O	|	|	|	| 0.2
1275	1.3	1.4	0.012	O	|	|	|	| 0.2
1276	1.3	1.4	0.012	O	|	|	|	| 0.2
1277	1.3	1.4	0.012	O	|	|	|	| 0.2
1278	1.3	1.4	0.012	O	|	|	|	| 0.2
1279	1.3	1.3	0.012	O	|	|	|	| 0.1
1280	1.3	1.3	0.012	O	|	|	|	| 0.1
1281	1.3	1.3	0.012	O	|	|	|	| 0.1
1282	1.3	1.3	0.012	O	|	|	|	| 0.1
1283	1.3	1.3	0.012	O	|	|	|	| 0.1
1284	1.2	1.3	0.012	O	|	|	|	| 0.1
1285	1.3	1.3	0.012	O	|	|	|	| 0.1
1286	1.2	1.3	0.011	O	|	|	|	| 0.1
1287	1.2	1.3	0.011	O	|	|	|	| 0.1
1288	1.2	1.3	0.011	O	|	|	|	| 0.1
1289	1.2	1.3	0.011	O	|	|	|	| 0.1
1290	1.2	1.2	0.011	O	|	|	|	| 0.1
1291	1.2	1.2	0.011	O	|	|	|	| 0.1
1292	1.2	1.2	0.011	O	|	|	|	| 0.1
1293	1.2	1.2	0.011	O	|	|	|	| 0.1
1294	1.2	1.2	0.011	O	|	|	|	| 0.1
1295	1.2	1.2	0.011	O	|	|	|	| 0.1
1296	1.2	1.2	0.011	O	|	|	|	| 0.1
1297	1.2	1.2	0.011	O	|	|	|	| 0.1
1298	1.2	1.2	0.011	O	|	|	|	| 0.1
1299	1.2	1.2	0.011	O	|	|	|	| 0.1
1300	1.2	1.2	0.011	O	|	|	|	| 0.1
1310	1.1	1.1	0.010	O	|	|	|	| 0.1
1320	1.1	1.1	0.010	O	|	|	|	| 0.1
1330	1.1	1.1	0.010	O	|	|	|	| 0.1
1340	1.0	1.0	0.009	O	|	|	|	| 0.1
1350	1.0	1.0	0.009	O	|	|	|	| 0.1
1360	1.0	1.0	0.009	O	|	|	|	| 0.1
1370	1.0	1.0	0.009	O	|	|	|	| 0.1
1380	1.0	1.0	0.009	O	|	|	|	| 0.1
1390	1.0	1.0	0.009	O	|	|	|	| 0.1
1400	0.9	0.9	0.008	O	|	|	|	| 0.1
1420	0.9	0.9	0.008	O	|	|	|	| 0.1
1440	0.9	0.9	0.008	O	|	|	|	| 0.1
1460	0.6	0.7	0.006	O	|	|	|	| 0.1
1500	0.6	0.5	0.005	O	|	|	|	| 0.1

Remaining water in basin = 0.00 (Ac.Ft)
Peak flow out of basin = 65.80(CFS)
Peak flow time = 1155 Min., time interval # = 41
Maximum depth in basin = 2.52(Ft.)

Proposed Condition Outflow Routing in LAR04

A schematic of the proposed condition outflow routing in shown below, and the LAR04 output is shown on the immediately following pages.

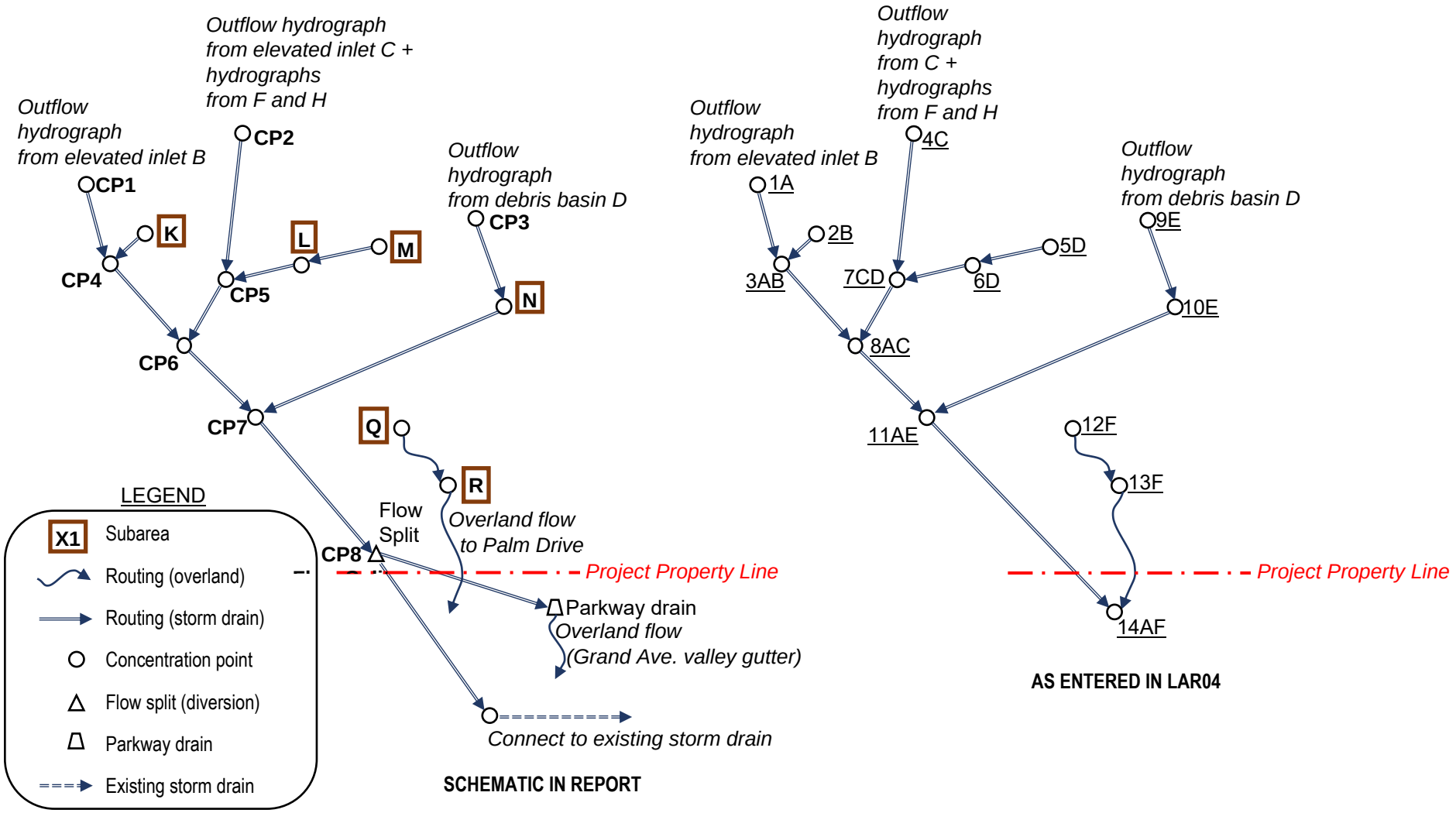


Figure C – 5. Proposed conditions outflow routing schematic for LAR04.

Table C – 5. Proposed condition cumulative areas at LAR04 concentration points

LAR04 Concentration Point	Cumulative drainage subareas as shown in report
1A	B1, B2, B3
2B	K
3AB	K, B1, B2, B3
4C	C, F, H
5D	M
6D	L, M
7CD	C, F, H, L, M
8AC	K, B1, B2, B3, C, F, H, L, M
9E	D1, D2, D3
10E	N, D1, D2, D3
11AE	K, B1, B2, B3, C, F, H, L, M, N, D1, D2, D3
12F	Q
13F	R, Q
14AF	K, B1, B2, B3, C, F, H, L, M, N, D1, D2, D3, R, Q

Proposed Condition Outflow Clear Water 25-Year Storm (Urban Flood)

```
 Program Package Serial Number:  2223
08/02/18   FILE: pr25     INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                          PROG F0601M

          Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 25  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
          Glendora                                                                                                STORM DAY 4
                       SUBAREA   SUBAREA     TOTAL   TOTAL  CONV    CONV      CONV     CONV   CONV  CONTROL SOIL       RAIN  PCT
          LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z     Q(CFS) NAME  TC   ZONE  IMPV
             5    1A     14.0     34.10      14.0    34.10   4      318.   .13000    3.00   .00       0.   81    0   A42   .00
             5    2B      .7       2.71       .7     2.71   4      103.   .23000    3.00   .00       0.   81    5   A42   .02
             5    3AB     .7       2.66     14.7     35.38  4      225.   .18000    3.00   .00       0.   81    0   A42   .00
             5    4C     9.0      26.90      9.0     26.90  4      145.   .28000    3.00   .00       0.   81    0   A42   .00
             5    5D      .7       2.71       .7     2.71   4      185.   .01000    1.50   .00       0.   81    5   A42   .02
             5    6D      .7       2.71      1.4     5.10   4       41.   .01000    1.50   .00       0.   81    5   A42   .02
             5    7CD    1.4       5.00     10.4     31.81  4      187.   .11000    3.00   .00       0.   81    0   A42   .00
             5    8AC   10.4      31.59     25.1     64.73  4      277.   .11000    3.00   .00       0.   81    0   A42   .00
             5    9E    18.0      53.30     18.0     53.30  4      191.   .26000    3.00   .00       0.   81    0   A42   .00
             5   10E     .5       1.94     18.5     54.41  4      532.   .14000    3.00   .00       0.   81    5   A42   .02
             5   11AE  18.5      53.77     43.6    118.09  3      625.   .10000    3.00   .00       0.   81    0   A42   .00
             5   12F    5.5      19.20      5.5     19.20  3      679.   .09000     .00   .00       0.   81    6   A42   .21
             5   13F    4.0      12.43      9.5     29.41  0        0.   .00000     .00   .00       0.    7    6   A42   .21
             5   14AF   9.5      29.41     53.1    142.02  0        0.   .00000     .00   .00       0.   81    0   A42   .00
```

Proposed Condition Outflow Clear Water 50-Year Storm (Capital Flood)

```
   Program Package Serial Number:  2223
08/09/18   FILE: pr50.i   INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                  LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                        PROG F0601M

        Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
        Glendora                                                                                                STORM DAY 4
                     SUBAREA   SUBAREA     TOTAL   TOTAL  CONV    CONV      CONV     CONV   CONV  CONTROL SOIL        RAIN  PCT
        LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z     Q(CFS) NAME  TC  ZONE  IMPV
           5    1A    14.0      39.60      14.0    39.60   4     318.   .13000     3.00   .00       0.   81   0  A42   .00
           5    2B     .7        3.14       .7     3.14   4     103.   .23000     3.00   .00       0.   81   5  A42   .02
           5    3AB    .7        3.07     14.7    41.10   4     225.   .18000     3.00   .00       0.   81   0  A42   .00
           5    4C    9.0       31.40      9.0    31.40   4     145.   .28000     3.00   .00       0.   81   0  A42   .00
           5    5D     .7        3.14       .7     3.14   4     185.   .01000     1.50   .00       0.   81   5  A42   .02
           5    6D     .7        3.14      1.4     5.93   4      41.   .01000     1.50   .00       0.   81   5  A42   .02
           5    7CD   1.4        5.80     10.4    37.11   4     187.   .11000     3.00   .00       0.   81   0  A42   .00
           5    8AC  10.4       36.81     25.1    75.40   4     277.   .11000     3.00   .00       0.   81   0  A42   .00
           5    9E   18.0       62.80     18.0    62.80   4     191.   .26000     3.00   .00       0.   81   0  A42   .00
           5   10E    .5        2.24      18.5    64.30   4     532.   .14000     3.00   .00       0.   81   5  A42   .02
           5   11AE 18.5       63.32     43.6   138.27   3     625.   .10000     3.00   .00       0.   81   0  A42   .00
           5   12F   5.5       22.19      5.5    22.19   3     679.   .09000      .00   .00       0.   81   6  A42   .21
           5   13F   4.0       14.65      9.5    34.48   0       0.   .00000      .00   .00       0.    7   6  A42   .21
           5   14AF  9.5       34.48     53.1   166.95   0       0.   .00000      .00   .00       0.   81   0  A42   .00
```

Proposed Condition Outflow Burned 50-Year Storm (Capital Flood)

```
 Program Package Serial Number:  2223
08/02/18   FILE: bu50     INPUT DATA: English Units  RAINFALL SOIL FILE: English (In) OUTPUT DATA: English Units     PAGE     1
                                      LOS ANGELES COUNTY FLOOD CONTROL DISTRICT                          PROG F0601M

          Version 11.3, MODIFIED RATIONAL METHOD HYDROLOGY - STORM YEAR = 50  SOIL DATA FILE: C:\LAR04\sgr_soilx_71.dat
          Glendora                                                                                                STORM DAY 4
                       SUBAREA   SUBAREA     TOTAL   TOTAL  CONV   CONV      CONV     CONV   CONV  CONTROL SOIL       RAIN  PCT
          LOCATION     AREA(Ac)  Q(CFS)    AREA(Ac) Q(CFS) TYPE  LNGTH(Ft) SLOPE  SIZE(Ft)  Z     Q(CFS) NAME  TC   ZONE  IMPV
             5    1A    14.0      42.00      14.0    42.00   4     318.   .13000     3.00   .00        0.  281   0    A42   .00
             5    2B     .7        3.25       .7     3.25   4     103.   .23000     3.00   .00        0.  281   5    A42   .02
             5    3AB    .7        3.18     14.7     43.49  4     225.   .18000     3.00   .00        0.  281   0    A42   .00
             5    4C    9.0       32.80      9.0     32.80  4     145.   .28000     3.00   .00        0.  281   0    A42   .00
             5    5D     .7        3.25       .7     3.25   4     185.   .01000     1.50   .00        0.  281   5    A42   .02
             5    6D     .7        3.25      1.4      6.15   4      41.   .01000     1.50   .00        0.  281   5    A42   .02
             5    7CD   1.4        6.02     10.4     38.72  4     187.   .11000     3.00   .00        0.  281   0    A42   .00
             5    8AC  10.4       38.44     25.1     79.01  4     277.   .11000     3.00   .00        0.  281   0    A42   .00
             5    9E   18.0       65.40     18.0     65.40  4     191.   .26000     3.00   .00        0.  281   0    A42   .00
             5   10E    .5        2.32      18.5     66.89  4     532.   .14000     3.00   .00        0.  281   5    A42   .02
             5   11AE  18.5       65.99     43.6    144.52  3     625.   .10000     3.00   .00        0.  281   0    A42   .00
             5   12F    5.5       22.88      5.5     22.88  3     679.   .09000      .00   .00        0.  281   6    A42   .21
             5   13F    4.0       15.59      9.5     36.14  0       0.   .00000      .00   .00        0.  207   6    A42   .21
             5   14AF   9.5       36.14     53.1    174.89  0       0.   .00000      .00   .00        0.  281   0    A42   .00
```

Appendix D. Hydraulic Calculations

Onsite flows will be conveyed through the proposed subdivision and into Palm Drive near the location of historic outflows from the site. In order to prevent flooding in the lots, the proposed private drives have sufficient hydraulic carrying capacity to convey the 50-year clear water flow without overtopping the curb.

Although the project has not yet moved into the detailed design phase, a typical street cross-section has been developed (Figure D – 1). As shown in Table 25, the maximum flow within the proposed subdivision under the 50 year condition is 34.5 cfs. And although the design street cross-section is not expected to change, carrying capacity in the street will be most limited just north of the entrance to the proposed subdivision at Palm Drive, since the longitudinal slope of 7% in that area a minimum within the subdivision extents.

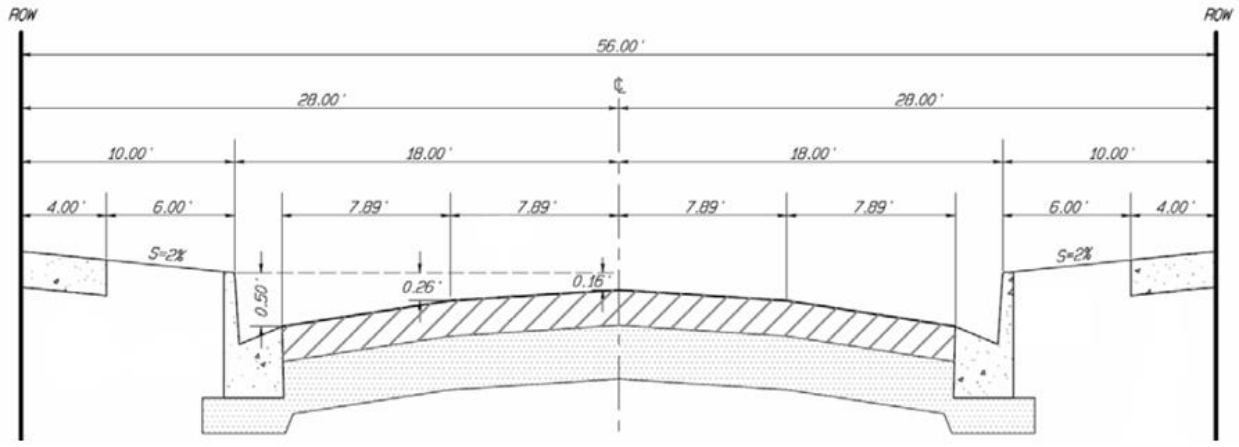
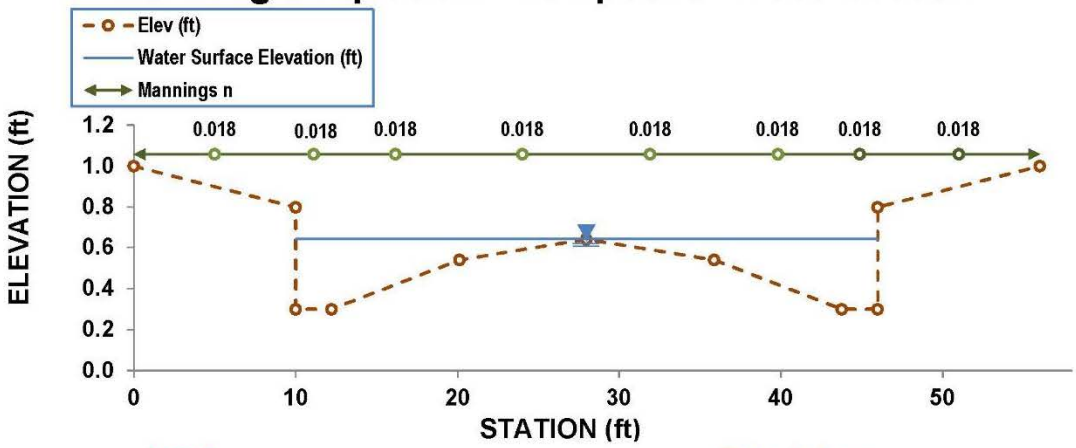


Figure D – 1. Typical private drive road cross-section

Analysis of the street hydraulic capacity can therefore proceed by means of uniform flow analysis (e.g. Manning's) assuming the typical cross-section given above and the mildest slope on the site of about 6%. Assuming a Manning's roughness coefficient of 0.018 (corresponding to aged asphalt or rough concrete), the depth of flow at 34.5 cfs is 0.34 feet (see calculations next page). Since this is below 6" (the height of the curb), the calculation indicates that the proposed streets have sufficient hydraulic capacity to convey the 50-year design storm.

The City of Glendora has approved this approach to conveying onsite drainage (Appendix B).

Manning's Equation: Compound Cross-section



Input

φ:	1.49	m/sec²
s_0:	0.06	ft/ft
Q:	34.5	cfs
Max iterations:	1000	
Convergence:	0.01	
Obstruction width:		feet

Station (ft)	Elev (ft)	Manning's n
0.0	1.00	0.018
10.0	0.80	0.018
10.0	0.30	0.018
12.2	0.30	0.018
20.1	0.54	0.018
28.0	0.64	0.018
35.9	0.54	0.018
43.8	0.30	0.018
46.0	0.30	0.018
46.0	0.80	0.018
56.0	1.00	0.018

Calculations

Number of ground points:	11
Lower Bound WSE (ft):	0.30
Upper Bound WSE (ft):	2.00
Computed WSE (ft):	**0.64**
Computed Normal Depth (ft):	**0.34**
Left Bank Station (ft):	10.00
Midpoint (ft):	28.00
Right Bank Station (ft):	46.00
Composite n:	0.018
Wetted Area (sq ft):	5.81
Wetted Perimeter (ft):	36.69
Hydrualic Radius (ft):	0.16
Average Velocity (ft/sec):	5.94
Computed Q (cfs):	**34.5**
Convergence:	100.0%

Appendix E. LACDPW Allowance for Construction of West Basin as an Elevated Inlet

Brent Travis

From: Andrew Ross <AROSS@dpw.lacounty.gov>
Sent: Thursday, June 11, 2015 3:49 PM
To: Brent Travis
Cc: Michele Chimienti
Subject: RE: Glendora Development

Hi Brent, I apologize for the delay. I had been waiting for a call back from our maintenance staff to clarify a few things.

In short, they are ok with allowing the western most basin to be designed as an elevated inlet (though we may have some additional requirements like inclined tower). The turnaround mid basin is acceptable with some slight design modifications (1) the roadway must be designed for H20 loading and have adequate drainage, 2) if the slopes of the access road exceed 10% they will need to be rough broom finish concrete, slopes cannot exceed 15%, 3) the developer/HOA must provide the county with the right to stage equipment/trucks on the private street during clean-out operations and 4) we would like the access road in front of the mid basin to be widened to provide a passing lane for haul trucks). And finally an alternative spillway will be considered but a design must be provided for review. However rip rap will not be acceptable for the spillway design.

I know it took a while but it seems like the answers will definitely help the project move forward. Please let me know if you have more questions as you continue with your design.

Andrew C.T. Ross, PE
626.458.4921

@LACoDevServices @LAPublicWorks
http://dpw.lacounty.gov/

Please take a moment to let us know how we are doing by going to the link below:
http://dpw.lacounty.gov/go/ddsurvey

All new and resubmittals for projects should be made through the Land Development Web Portal at the link below:
http://dpw.lacounty.gov/ldd/formportal/forms/plansubmittal.aspx

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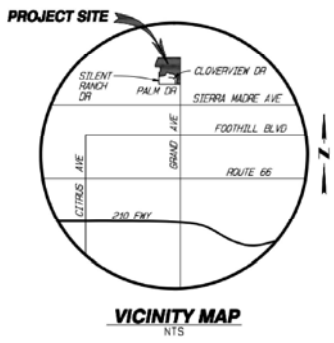
Appendix F. Maps

Hydrology Study for TR 72413
Watershed Map Existing Conditions

1" = 100'

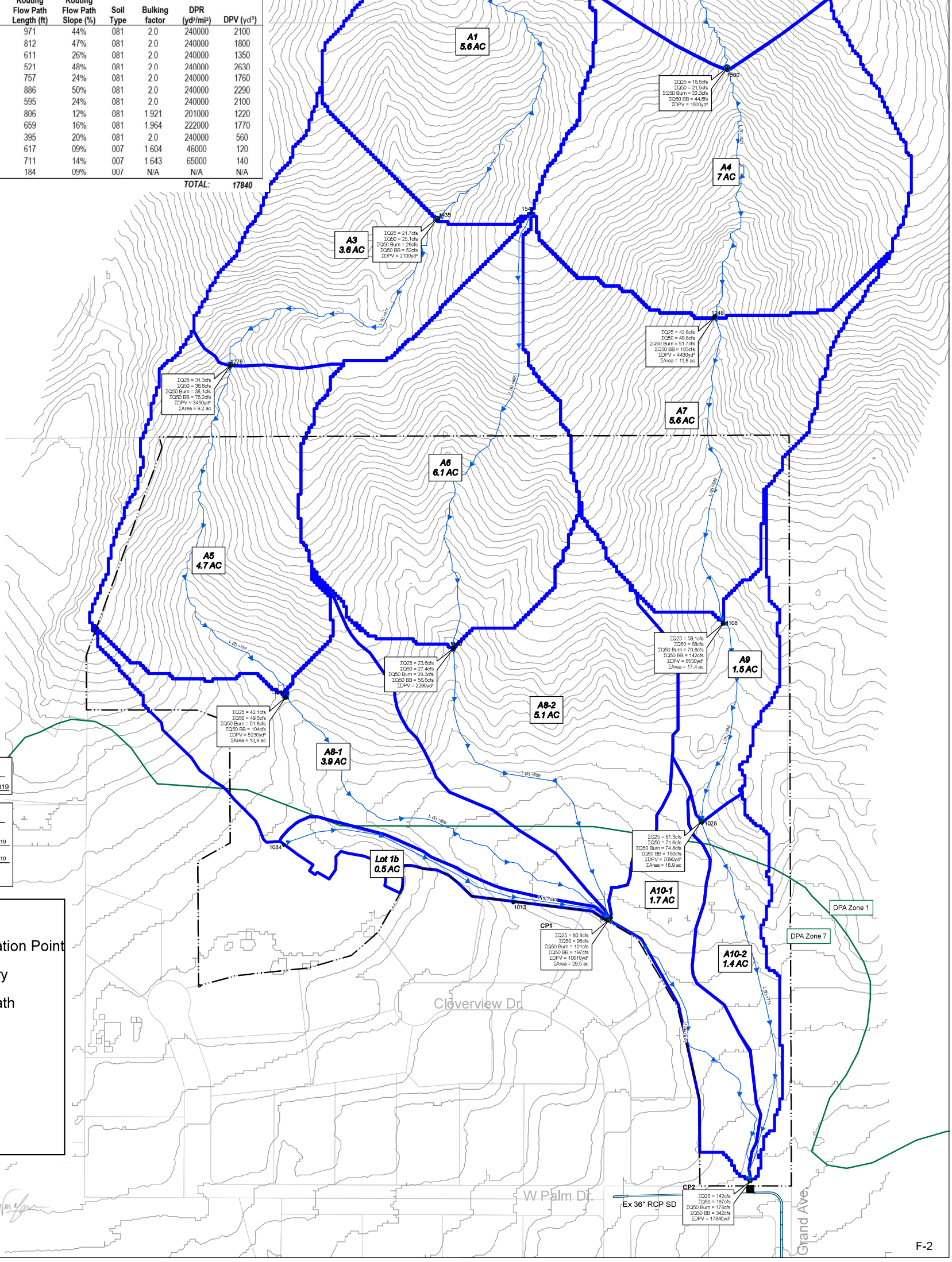
0 50 100 200 300 400 Feet

N



Existing condition hydrologic design data and debris production

Subarea	Total Area (ac)	Percent Impervious	Longest Flow Path Length (ft)	Longest Flow Path Slope (%)	Routing Flow Path Length (ft)	Routing Flow Path Slope (%)	Soil Type	Bulking factor	DPR (yd^3/mi^2)	DPV (yd^3)
A1	5.6	1.0%	971	44%	971	44%	081	2.0	240000	2100
A2	4.8	1.0%	812	47%	812	47%	081	2.0	240000	1800
A3	3.6	1.0%	926	38%	611	26%	081	2.0	240000	1350
A4	7.0	1.0%	749	58%	521	48%	081	2.0	240000	2630
A5	4.7	1.0%	835	32%	757	24%	081	2.0	240000	1760
A6	6.1	1.0%	886	50%	886	50%	081	2.0	240000	2290
A7	5.6	1.0%	983	44%	595	24%	081	2.0	240000	2100
A8-1	3.9	3.0%	1166	23%	806	12%	081	1.921	201000	1220
A8-2	5.1	1.0%	766	38%	659	16%	081	1.964	222000	1770
A9	1.5	1.0%	655	28%	395	20%	081	2.0	240000	560
A10-1	1.7	1.0%	882	13%	617	09%	007	1.604	46000	120
A10-2	1.4	1.0%	768	15%	711	14%	007	1.643	65000	140
Lot1b	0.5	21%	451	24%	184	09%	007	N/A	N/A	N/A
TOTAL:	*51.5*								*TOTAL:*	*17840*



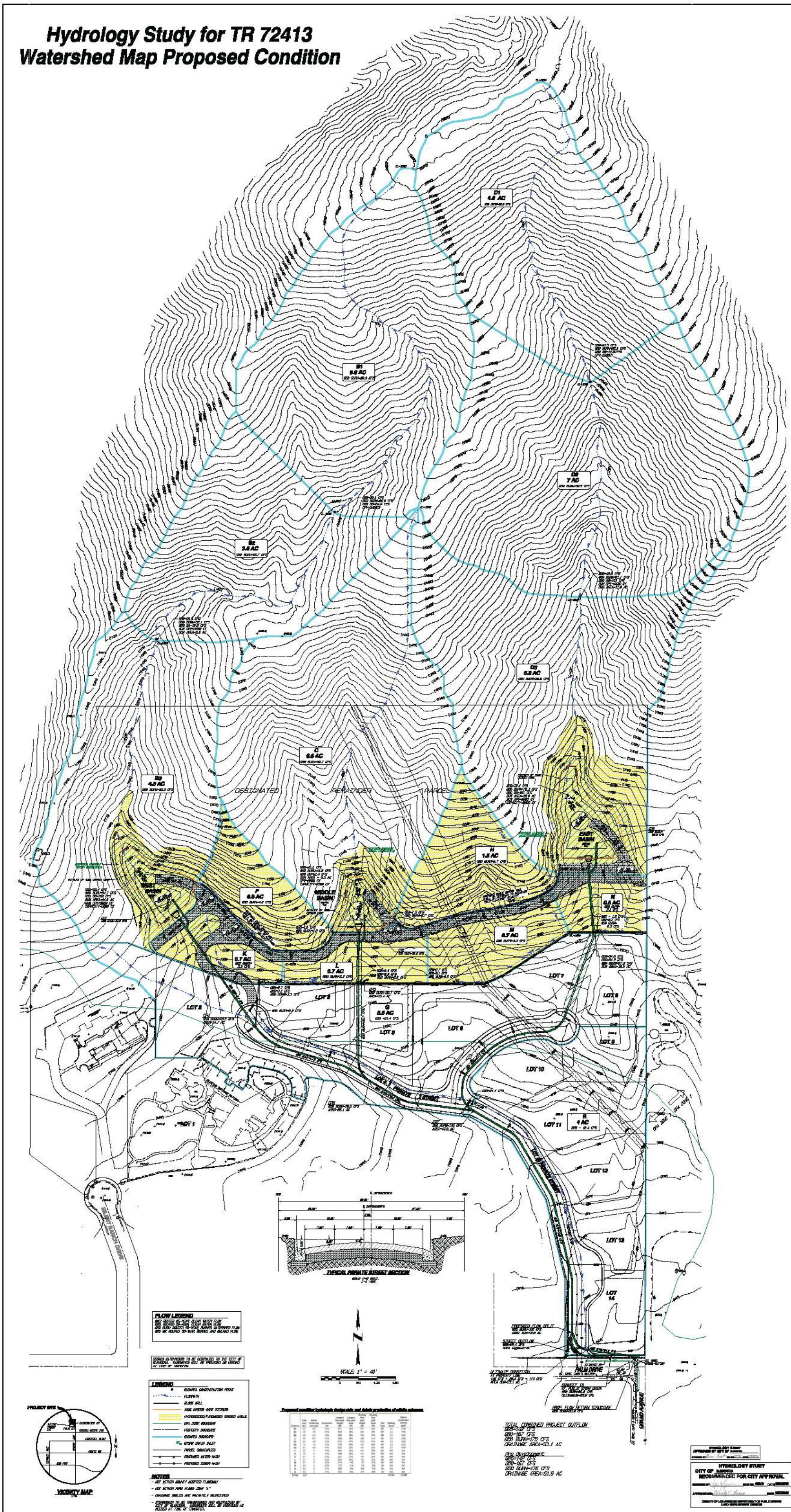
HYDROLOGY STUDY
APPROVED BY CITY OF GLENDORA
APPROVED BY: Alison Sweet RCE NO. 51197 DATE 4/4/2019

HYDROLOGY STUDY
CITY OF GLENDORA
RECOMMENDED FOR CITY APPROVAL
CHECKED BY: RCE NO. 88200 DATE 2/27/2019
APPROVED BY: DATE 2/27/2019
COUNTY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
LAND DEVELOPMENT DIVISION

Legend

- Subarea Concentration Point
- DPA Zone Boundary
- Travel Time Flowpath
- 10 ft Contour
- Property Boundary
- Subarea Boundary
- Parcel Boundaries

Hydrology Study for TR 72413
Watershed Map Proposed Condition



Appendix F

Noise Modeling Data

APPENDIX F-1

Noise Field Data

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: GLENDORA HILLS HILLSIDE SUB. MND — PROJECT #: 8375
SITE ID:
SITE ADDRESS:
OBSERVER(S): PETE VITAN
START DATE: 7/31/18 — END DATE: 7/31/18
START TIME: — END TIME:

METEOROLOGICAL CONDITIONS

TEMP: 83 F — HUMIDITY: 40 % R.H. — WIND: (CALM) LIGHT MODERATE
WINDSPD: MPH — DIR. N NE S SE S SW W NW — VARIABLE STEADY GUSTY
SKY: (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: PICCOLO SLM-P3 — TYPE 1 (2) — SERIAL # 130927046
CALIBRATOR: B&SWA CA 114 — SERIAL # 480157
CALIBRATION CHECK — PRE-TEST ____ dBA SPL — POST-TEST ____ dBA SPL — WINDSCRN YES

SETTINGS: A-WTD (SLOW) FAST FRONTAL RANDOM ANSI OTHER:

(ST-1)

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				
2	10:51	10:56	72.9	82.5	53.3				
3	10:56	11:01	73.3	84	54.3				
4	11:01	11:06	73.3	84.2	52				

COMMENTS
READING TAKEN ON W. SIERRA MADRE AVE ALONGSIDE 702 WESTRIDGE AVE. (SINGLE FAMILY RESIDENTIAL)

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT — DIST. TO (RDWY C/L) OR EOP: 30'
TRAFFIC COUNT DURATION: 15 MIN — SPEED ____ MIN — SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED
AUTOS	79			
MED TRKS	1			
HVY TRKS	0			
BUSES	0			
MOTRCLS	0			

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ✓

COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 45 MPH

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS (BIRDS) DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING DIST. TRAFFIC (LIST RDWYS BELOW) DISTD GARDENERS/LANDSCAPING NOISE
(OTHER:) DISTANT HVAC UNIT

DESCRIPTION / SKETCH

TERRAIN (HARD) SOFT MIXED FLAT OTHER:
PHOTOS 1793; 1794; 1795; 1796
OTHER COMMENTS / SKETCH




426

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT GLENDORA HILLS HILLSIDE SUB. MND — PROJECT # 8375
SITE ID
SITE ADDRESS — OBSERVER(S) PETE VITAR
START DATE 7/31/18 — END DATE 7/31/18
START TIME — END TIME

METEOROLOGICAL CONDITIONS

TEMP 86 F — HUMIDITY 40 % R.H. — WIND (CALM) (LIGHT) MODERATE
WINDSPD 5-10 MPH — DIR. N NE S SE S SW W NW — (VARIABLE) STEADY GUSTY
SKY (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT PICCOLO SLM-P3 — TYPE 1 (2) — SERIAL # 130927046
CALIBRATOR BSWA CA 114 — SERIAL # 480151
CALIBRATION CHECK — PRE-TEST ____ dBA SPL — POST-TEST ____ dBA SPL — WINDSCRN YES

SETTINGS — A-WTD (SLOW) FAST FRONTAL RANDOM ANSI — OTHER:

(ST-2)

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
6	11:15	11:20	65.1	85.5	46				
7	11:20	11:25	58.7	77.9	46				
8	11:25	11:30	62.6	79.5	46.9				
9	11:30	11:35	61	78.9	47.5				

COMMENTS
READING TAKEN ON GRAND AVE, IN FRONT OF 754 GRAND AVE (SINGLE FAMILY RESIDENTIAL)

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL OTHER:
ROADWAY TYPE: ASPHALT — DIST. TO RDWY C/L OR EOP: 20'6"
TRAFFIC COUNT DURATION: 20 MIN — SPEED ____ MIN — SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB	SB/WB
AUTOS	7			
MED TRKS	0			
HVY TRKS	0			
BUSES	0			
MOTRCLS	0			

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ✓

COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB	SB/WB

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 25 MPH

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT RUSTLING LEAVES DIST. BARKING DOGS (BIRDS) DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING (DIST. TRAFFIC (LIST RDWYS BELOW)) DISTD GARDENERS/LANDSCAPING NOISE
OTHER: TRAFFIC ON W. SIERRA MADRE AVE (MINOR MEXAN)
(X) LOCATION APX 653' FROM SIERRA MADRE AVE CENTER LINE)

DESCRIPTION / SKETCH

TERRAIN (HARD) SOFT MIXED FLAT OTHER:
PHOTOS 1797; 1798; 1799; 1800
OTHER COMMENTS / SKETCH




Piccolo
7046

DUDEK

FIELD NOISE MEASUREMENT DATA

PROJECT: GLENDORA HILLS HILLSIDE SUB. MND — PROJECT #: 8375
SITE ID:
SITE ADDRESS: — OBSERVER(S): PETE VITAR
START DATE: 7/31/18 — END DATE: 7/31/18
START TIME: — END TIME:

METEOROLOGICAL CONDITIONS

TEMP: 91 F — HUMIDITY: 30 % R.H. — WIND: CALM (LIGHT) MODERATE
WINDSPD: 5-10 MPH — DIR. N NE S SE S SW W NW — (VARIABLE) STEADY GUSTY
SKY: (SUNNY) (CLEAR) OVRCAST PRTLY CLDY FOG RAIN

ACOUSTIC MEASUREMENTS

MEAS. INSTRUMENT: PICCOLO SLM-P3 — TYPE 1 (2) — SERIAL # 130927046
CALIBRATOR: BSWA CA 114 — SERIAL # 480151
CALIBRATION CHECK — PRE-TEST _____ dBA SPL — POST-TEST _____ dBA SPL — WINDSCRN YES

SETTINGS: A-WTD (SLOW) FAST FRONTAL RANDOM ANSI OTHER:

(ST-3)

REC. #	BEGIN	END	Leq	Lmax	Lmin	L90	L50	L10	OTHER (SPECIFY METRIC
11	11:39	11:44	56.2	73	46.3				
12	11:44	11:49	52.8	65.5	46.1				
13	11:49	11:54	62.7	82.1	48.2				
14	11:54	11:59	50	58.2	46.9				

COMMENTS: READING TAKEN ON W. PALM DR., ALONGSIDE 910 CLOVERVIEW DR (SINGLE FAMILY RESIDENTIAL)

SOURCE INFO AND TRAFFIC COUNTS

PRIMARY NOISE SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL OTHER: BIRDS
ROADWAY TYPE: ASPHALT — DIST. TO RDWY CL OR EOP: 20'
TRAFFIC COUNT DURATION: 20 MIN — SPEED

COUNT 1 (OR RDWY 1) DIRECTION	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED
AUTOS	4			
MED TRKS	0			
HVY TRKS	0			
BUSES	0			
MOTRCLS	0			

IF COUNTING BOTH DIRECTIONS AS ONE, CHECK HERE ✓

COUNT 2 (OR RDWY 2)	NB/EB	SB/WB	NB/EB SPEED	SB/WB SPEED

SPEEDS ESTIMATED BY: RADAR / DRIVING THE PACE
POSTED SPEED LIMIT SIGNS SAY: 25 MPH

OTHER NOISE SOURCES (BACKGROUND): DIST. AIRCRAFT (RUSTLING LEAVES) DIST. BARKING DOGS (BIRDS) DIST. INDUSTRIAL
DIST. KIDS PLAYING DIST. CONVRSTNS / YELLING (DIST. TRAFFIC (LIST RDWYS BELOW)) DISTD GARDENERS/LANDSCAPING NOISE
OTHER: VERY LIGHT TRAFFIC ON GRAND AVE & ON CLOVERVIEW DR.

DESCRIPTION / SKETCH

TERRAIN (HARD) SOFT MIXED FLAT OTHER:
PHOTOS 1801; 1802; 1803; 1804; 1805; 1806
OTHER COMMENTS / SKETCH




Piccolo
7046

APPENDIX F-2

Construction Noise Modelling Data

Glendora Hills Construction Equipment List

PhaseName	OffRoadEquipmentType	OffRoadEquipmentUnitAmount
Site Preparation	Rubber Tired Dozers	3
Site Preparation	Tractors/Loaders/Backhoes	4
Grading	Excavators	2
Grading	Graders	1
Grading	Rubber Tired Dozers	1
Grading	Scrapers	2
Grading	Tractors/Loaders/Backhoes	2
Building Construction	Cranes	1
Building Construction	Forklifts	3
Building Construction	Generator Sets	1
Building Construction	Tractors/Loaders/Backhoes	3
Building Construction	Welders	1
Paving	Pavers	2
Paving	Paving Equipment	2
Paving	Rollers	2
Architectural Coating	Air Compressors	1

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/20/2018
Case Description: Silent Ranch - Site Preparation

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	20	0
Dozer	No	40		81.7	20	0
Dozer	No	40		81.7	20	0
Front End Loader	No	40		79.1	20	0
Front End Loader	No	40		79.1	20	0
Front End Loader	No	40		79.1	20	0
Front End Loader	No	40		79.1	20	0
Dump Truck	No	40		76.5	20	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		89.6	85.6
Dozer		89.6	85.6
Dozer		89.6	85.6
Front End Loader		87.1	83.1
Front End Loader		87.1	83.1
Front End Loader		87.1	83.1
Front End Loader		87.1	83.1
Dump Truck		84.4	80.4
	Total	89.6	93.1

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Accoustc Center - Closest Res.	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	65	0
Dozer	No	40		81.7	65	0
Dozer	No	40		81.7	65	0
Front End Loader	No	40		79.1	65	0
Front End Loader	No	40		79.1	65	0
Front End Loader	No	40		79.1	65	0
Front End Loader	No	40		79.1	65	0
Dump Truck	No	40		76.5	65	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		79.4	75.4
Dozer		79.4	75.4
Dozer		79.4	75.4
Front End Loader		76.8	72.9
Front End Loader		76.8	72.9
Front End Loader		76.8	72.9
Front End Loader		76.8	72.9
Dump Truck		74.2	70.2
	Total	79.4	82.8

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/20/2018
Case Description: Silent Ranch - Grading

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	20	0
Excavator	No	40		80.7	20	0
Grader	No	40	85		20	0
Dozer	No	40		81.7	20	0
Scraper	No	40		83.6	20	0
Scraper	No	40		83.6	20	0
Front End Loader	No	40		79.1	20	0
Front End Loader	No	40		79.1	20	0
Dump Truck	No	40		76.5	20	0

Results

	Calculated (dBA)	
Equipment	*Lmax	Leq
Excavator	88.7	84.7
Excavator	88.7	84.7
Grader	93	89
Dozer	89.6	85.6
Scraper	91.5	87.6
Scraper	91.5	87.6
Front End Loader	87.1	83.1
Front End Loader	87.1	83.1
Dump Truck	84.4	80.4
Total	93	95.3

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Accoustc Center - Closest Res.	Residential	55	50	45

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	65	0
Excavator	No	40		80.7	65	0
Grader	No	40	85		65	0
Dozer	No	40		81.7	65	0
Scraper	No	40		83.6	65	0
Scraper	No	40		83.6	65	0
Front End Loader	No	40		79.1	65	0
Front End Loader	No	40		79.1	65	0
Dump Truck	No	40		76.5	65	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Excavator		78.4	74.5
Excavator		78.4	74.5
Grader		82.7	78.7
Dozer		79.4	75.4
Scraper		81.3	77.3
Scraper		81.3	77.3
Front End Loader		76.8	72.9
Front End Loader		76.8	72.9
Dump Truck		74.2	70.2
	Total	82.7	85.1

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/20/2018
Case Description: Silent Ranch - Bld Construct

		Baselines (dBA)		---- Receptor #1 ----
Description	Land Use	Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	20	0
Man Lift	No	20		74.7	20	0
Man Lift	No	20		74.7	20	0
Man Lift	No	20		74.7	20	0
Generator	No	50		80.6	20	0
Backhoe	No	40		77.6	20	0
Backhoe	No	40		77.6	20	0
Backhoe	No	40		77.6	20	0
Welder / Torch	No	40		74	20	0

Results

		Calculated (dBA)	
Equipment		*Lmax	Leq
Crane		88.5	80.6
Man Lift		82.7	75.7
Man Lift		82.7	75.7
Man Lift		82.7	75.7
Generator		88.6	85.6
Backhoe		85.5	81.5
Backhoe		85.5	81.5
Backhoe		85.5	81.5
Welder / Torch		82	78
	Total	88.6	90.3

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Accoustc Center - Closest Res.	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Crane	No	16		80.6	65	0
Man Lift	No	20		74.7	65	0
Man Lift	No	20		74.7	65	0
Man Lift	No	20		74.7	65	0
Generator	No	50		80.6	65	0
Backhoe	No	40		77.6	65	0
Backhoe	No	40		77.6	65	0
Backhoe	No	40		77.6	65	0
Welder / Torch	No	40		74	65	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Crane		78.3	70.3
Man Lift		72.4	65.4
Man Lift		72.4	65.4
Man Lift		72.4	65.4
Generator		78.4	75.3
Backhoe		75.3	71.3
Backhoe		75.3	71.3
Backhoe		75.3	71.3
Welder / Torch		71.7	67.7
	Total	78.4	80.1

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 8/20/2018
Case Description: Silent Ranch - Paving

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Closest Residence	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	20	0
Paver	No	50		77.2	20	0
Grader	No	40	85		20	0
Grader	No	40	85		20	0
Roller	No	20		80	20	0
Roller	No	20		80	20	0

Results

Equipment		Calculated (dBA) *Lmax	Leq
Paver		88.5	80.6
Paver		82.7	75.7
Grader		82.7	75.7
Grader		82.7	75.7
Roller		88.6	85.6
Roller		85.5	81.5
	Total	88.6	90.3

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

		Baselines (dBA)		
Description	Land Use	Daytime	Evening	Night
Accoustc Center - Closest Res.	Residential	55	50	45

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Paver	No	50		77.2	65	0
Paver	No	50		77.2	65	0
Grader	No	40	85		65	0
Grader	No	40	85		65	0
Roller	No	20		80	65	0
Roller	No	20		80	65	0

Results

Calculated (dBA)

Equipment		*Lmax	Leq
Paver		74.9	71.9
Paver		74.9	71.9
Grader		82.7	78.7
Grader		82.7	78.7
Roller		77.7	70.7
Roller		77.7	70.7
	Total	82.7	83.1

*Calculated Lmax is the Loudest value.

Appendix G

Utility Studies and Will Serve Letters

STETSON
ENGINEERS INC.

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Phone: (626) 967-6202 • FAX: (626) 331-7065 • Web site: www.stetsonengineers.com

Northern California • Southern California • Arizona • Colorado

TECHNICAL MEMORANDUM

TO: **Steve Patton, City of Glendora**
Alan Chou, DreamLand Investments, LLC

FROM: **Stetson Engineers Inc.**

SUBJECT: **Water System Improvements**
New Development – Tract 72413

JOB NO.: **2716**

DATE: **October 17, 2019**

The City of Glendora (City) and DreamLand Investments, LLC (DreamLand), have jointly requested that Stetson Engineers Inc. (Stetson) review and determine the water system improvements necessary for the City to serve DreamLand's proposed new development in Tract 72413. This Technical Memorandum provides a summary of Stetson's review and recommendations for Tract 72413. Stetson's review does not include potential future water supplies for any nearby future developments.

Project Background

The Tract 72431 development will be located on approximately 12 acres of largely undeveloped land north of Palm Drive near Grand Avenue and will consist of 12 new lots for single-family homes and one existing home with an expected home area of up to 6,000 square feet each. Figure 1 provides an overview of the proposed new development and the City's existing storage reservoirs and hydro-pneumatic system for water supply. Figure 2 is a Preliminary Site Development Plan showing lot numbers and proposed grading for the new development. The pad elevations of the proposed lots in the new development range from 950 feet to 1090 feet above mean sea level (amsl).

Existing Water System

In the vicinity of the new development, the City has two existing pressure zones (Zone 5 and Zone 11) that serve the existing community.

Zone 5

The City's existing Zone 5 covers approximately 87 acres north of Sierra Madre Avenue. Zone 5 operates off of the Hook Canyon Tanks located at an elevation of 1,174.5 feet amsl with a high water elevation of 1196.5 feet amsl. The Hook Canyon Tanks have a total storage capacity of 660,000 gallons.

Zone 11

Zone 11 is located along the northern boundary of Zone 5 at the end of Silent Ranch Drive and covers approximately 3 acres of single family estate land use that require higher pressures than can be supplied by Zone 5. Zone 11 is served by a hydro-pneumatic system that is over 30 years old. Water from Zone 5 is pumped using two booster pumps (one duty pump and one standby pump) at the Silent Ranch Pump Station to the hydro-pneumatic tank to serve Zone 11. The hydro-pneumatic tank is located at an elevation of approximately 1,115 feet amsl. Each booster pump has a capacity of 180 gallons per minute (gpm) and the hydro-pneumatic tank is set to provide water system pressures between 65 and 90 pounds per square inch (psi).

Zone 11 serves the following five existing properties (see Figure 1):

- 935 N. Silent Ranch Drive (existing home)
- 940 N. Silent Ranch Drive (existing home)
- 945 N. Silent Ranch Drive (empty lot)
- 950 N. Silent Ranch Drive (existing home – Lot 1 of Tract 72431)
- 960 N. Silent Ranch Drive (existing home)

Water System Requirements

Three key components of water supply are quantity, pressure, and quality. In addition, the requirements for domestic water supply differ from requirements for fire flows. The water system requirements for domestic supply and fire flows are summarized below.

Domestic Supply

The City's 2015 Urban Water Management Plan (UWMP) details the 2015 Interim Urban Water Use Target of 245 gallons per capita per day (GPCD). This is considered the average domestic water use which is multiplied by a factor of 1.76 to obtain the maximum day demand and the maximum day demand is multiplied by a factor of 1.41 to obtain the peak hour demand. Based on these factors and assuming on average that 4 people live in each home, the calculated peak hour demand for a home is estimated to be 100 gallons per hour (=245 x 4 x 1.76 x 1.41 / 24). In addition, the City's goal is to supply homes with a minimum pressure of 50 psi at the street meter.

Fire Flows

With regards to fire flows, the 2016 California Building Code (CBC) requires a minimum fire flow residual pressure of 20 psi and fire flow rate of 2,000 gpm for 2 hours (assuming flammable construction materials, i.e. wood framed homes – CBC B.102 and Table B105.1(2)). In addition, since the new development is in a Very High Fire Hazard Severity Zone, an additional fire flow of 500 gpm is required (per LA County Code 20.16.060). Therefore, a total fire flow of 2,500 gpm is necessary. The fire flow requirements and required locations of fire hydrants should be verified with local fire authorities.

Water Quality

Water quality for the City's water distribution system is monitored and maintained by the City. Good circulation and turnover of water in the system are key for maintaining good

water quality throughout the distribution system. Areas of concern are typically found where there are “dead ends” that have low circulation and large storage tanks with little circulation or turnover. Distribution systems that promote good circulation are preferred.

Proposed Water Supply Configuration for New Development

Water supply for the new development is largely dictated by the topography and elevations of each proposed new home. Zone 5 is able to provided static pressures at or above the City’s minimum house pressure (50 psi) for all the proposed new lots except lots 1, 2, and 3. However, Zone 11 is able to provide over 50 psi to lots 1, 2, and 3. Table 1 provides a summary of the elevations of each proposed new home along with the estimated domestic static water pressures that could be provided from extensions of either Zone 5 or Zone 11. Static pressures are not shown for Zone 11 where Zone 5 is able to meet the minimum required static pressure (50 psi). Since domestic flow rates are relatively low and the new development is close to Zones 5 and 11, the pressure losses from pipe friction losses is considered to be negligible.

Table 1 – Estimated Static Water Pressures.

Lot #	Elev (ft amsl)	Zone 5 Minimum Static Pressure (psi)	Zone 11 Minimum Static Pressure (psi)
1	1,080	41.4	75.2
2	1,090	37.1	70.8
3	1,070	45.7	79.5
4	Private Street		
5	1,040	58.7	**
6	1,020	67.4	**
7	1,050	54.4	**
8	1,050	54.4	**
9	1,030	63.1	**
10	1,010	71.7	**
11	990	80.4	**
12	980	84.7	**
13	960	93.4	**
14	950	97.7	**

** Static pressures are not shown for Zone 11 where Zone 5 is able to meet the minimum required static pressure (50 psi).

Depending on the configuration of existing Zone 11 piping (which should be confirmed during design), it is anticipated that a 1.5-inch diameter pipe will be necessary to convey the domestic water supply for Zone 11 to Lots 1, 2, and 3.

Fire flows and pressures for the new development need to be evaluated differently than domestic flows since pressure losses are significant during the high fire flow rates (2,500 gpm). Zone 11 does not have the flow capacity to meet the required fire flows, however, Zone 5 has sufficient flow capacity and the Hook Canyon reservoirs have sufficient storage capacity to provide the volume of fire flow required (i.e. 300,000 gal = 2,500 gpm x 120 min). Using the City’s existing hydraulic model for the City’s water distribution system, Stetson ran several

scenarios to determine if Zone 5 is able to provide the maximum day demand and minimum fire flow rate (2,500 gpm) at the minimum pressure (20 psi) through fire hydrants at the new development. Based on the hydraulic modeling, Stetson determined that a 10-inch diameter pipeline looped system feeding the new development from the existing 10-inch pipeline in Palm Drive and from the existing 12-inch pipeline adjacent to the existing hydro pneumatic tank would be able to provide maximum day demand and 2,500 gpm fire flow at 39 psi at the top of the cul-de-sac in the new development (elev. 1070). As shown in Table 1, the proposed 10-inch diameter pipeline will have sufficient pressure to also serve the domestic water demands of lots 5 through 14. The looped piping configuration also provides good circulation which promotes good water quality through the new development. Figure 3 shows a proposed alignment for this new 10-inch water main. The proposed alignment will require coordination between the City and DreamLand to provide easements for the new water supply piping for the new development.

The proposed 10-inch diameter pipeline will not provide the desired 50 psi for domestic water service to lots 1, 2, and 3. The existing hydro-pneumatic tank system can provide the desired pressure to lots 1, 2, and 3, however, the system is over 30 years old and should be replaced to provide reliable domestic water service to the existing homes and the proposed new homes on lots 2 and 3.

Alternatively, domestic water supply for lots 1, 2, and 3 could be served from a new gravity-fed system consisting of a storage tank constructed at an elevation of 1,210 feet along with booster pumps to convey flows from Zone 5 to the new storage tank. This gravity-fed system was not evaluated further due to the much higher cost of planning, design, and construction of a new tank and access road in the vicinity immediately north of the new development.

Estimated Costs for Water Supply for New Development

Based on the proposed water supply configuration discussed above, Stetson prepared an estimated cost for design and construction of the new pipelines and replacement of the existing hydro-pneumatic tank system (tank, pumps, foundation, electrical, controls, fencing, etc.) since it is over 30 years old and was originally designed and constructed by others. The estimated cost for design and construction of the Zone 5, new 10-inch pipeline is approximately $825,000. The estimated cost for design and construction of the Zone 11, new hydro-pneumatic system and piping is approximately $191,000. The total estimated design and construction costs for providing water supply to Tract 72413 is approximately $1,016,000. Table 2 provides a breakdown of the estimated costs.

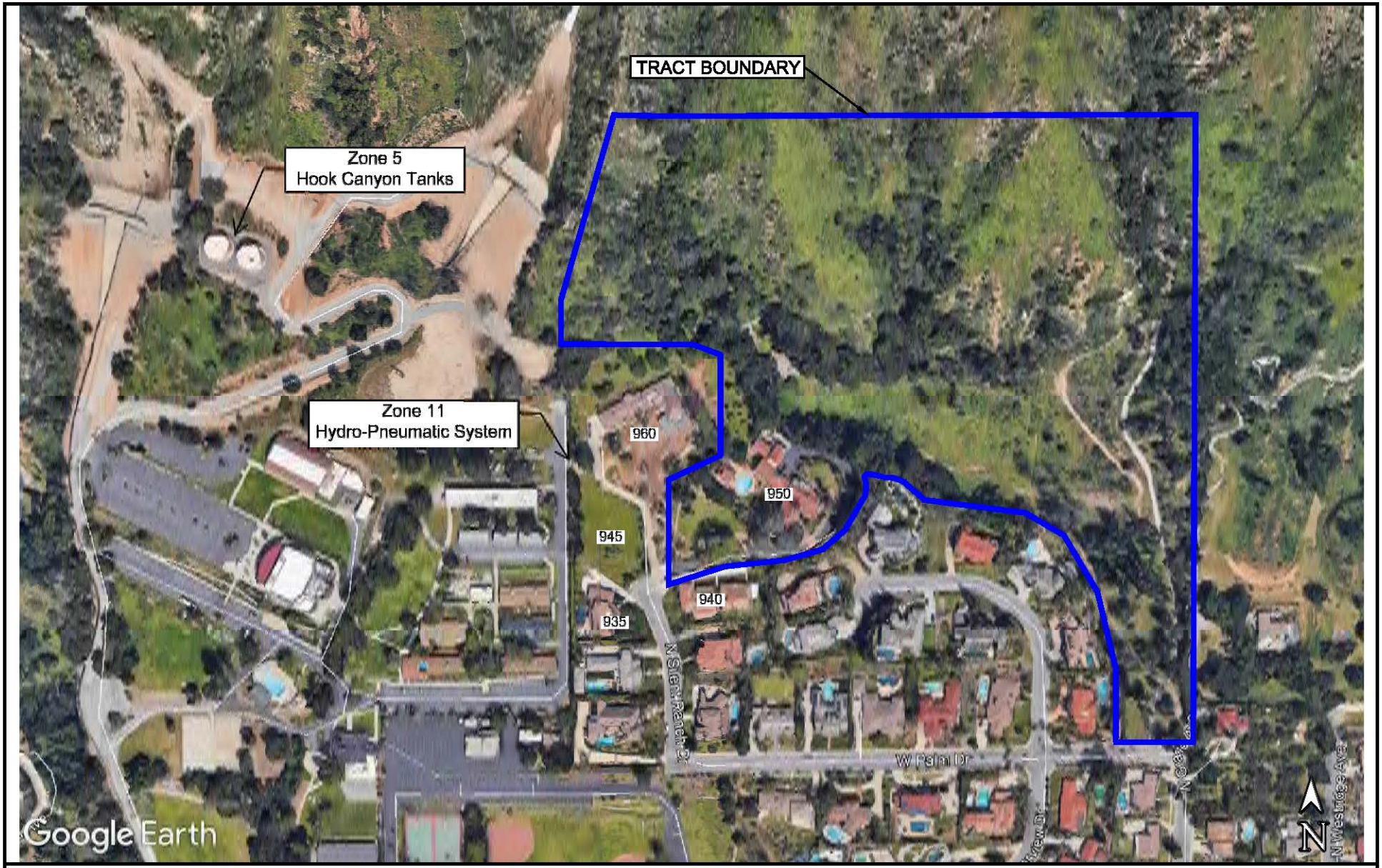
Conclusions and Recommendations

The following conclusions have been reached regarding the new development's domestic and fire flow water supplies:

1. Adequate flow and pressure for domestic water supply for lots 5 through 14 can be supplied from Zone 5.
2. Adequate flow and pressure for domestic water supply for lots 1, 2, and 3 can be supplied from Zone 11.
3. Adequate flow and pressure for fire flows for all lots in Tract 72413 can be supplied from Zone 5 to new fire hydrants.
4. The estimated cost for design and construction to provide domestic and fire flow water supplies to Tract 72413 is approximately $1,016,000.

The following are Stetson's recommendations for the new development's domestic and fire flow water supplies:

1. Confirm new development's fire flow requirements and locations of new fire hydrants with local fire authorities.
2. Design and construct a 10-inch diameter looped pipeline connected to Zone 5 as shown in Figure 3 to supply domestic water supply for lots 5 through 14 and fire flow for the new development's fire hydrants.
3. Replace the Zone 11 hydro-pneumatic system (pumps, tank, and controls) to provide a reliable water delivery system for Zone 11 homes.
4. Design and construct piping (confirm 1.5 inch) from the Zone 11 hydro-pneumatic system to the new development's lots 2 and 3.



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San Rafael, California 94901

785 Grand Ave., Suite 202
Carlsbad, California 92008

APPROXIMATE SCALE:
150' 0 150'

CITY OF GLENDORA - TRACT 72413

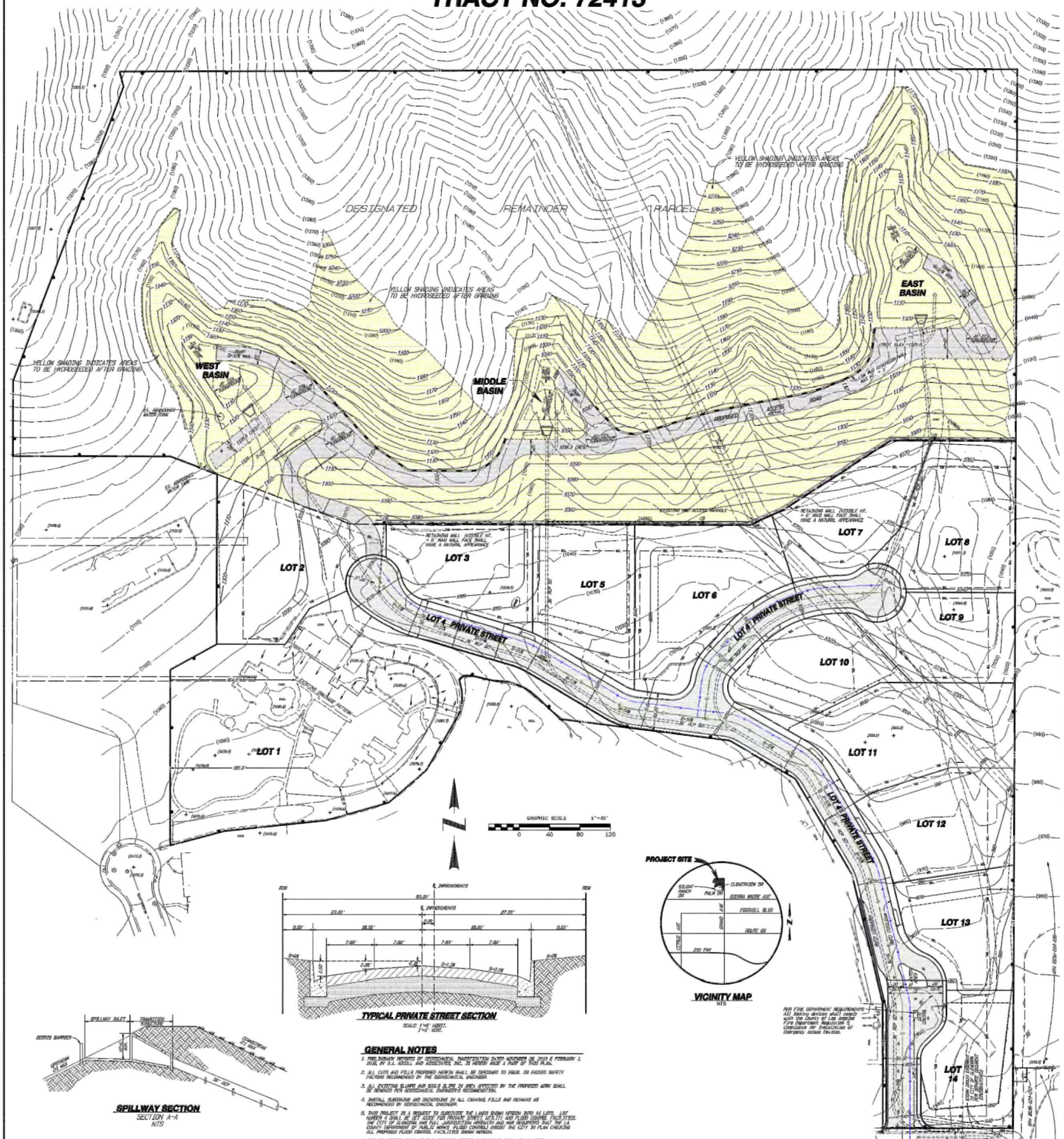
VICINITY MAP

FIGURE 1

J:\Jobs\2716 Glendora 72413\Figure 1.dwg
NONE

PRELIMINARY SITE DEVELOPMENT PLAN

TRACT NO. 72413



GENERAL NOTES

1. PRELIMINARY REPORTS OF GEOTECHNICAL INVESTIGATION DATED NOVEMBER 06, 2013 & FEBRUARY 3, 2014, BY S.L. NASSIF AND ASSOCIATES INC. IS HEREBY MADE A PART OF THIS PLAN.
2. ALL CUTS AND FILLS PROPOSED HEREIN SHALL BE DESIGNED TO EQUAL OR EXCEED SAFETY FACTORS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
3. ALL EXISTING SLOPES AND SOILS IN AREA AFFECTED BY THE PROPOSED WORK SHALL BE GRADED PER GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
4. INSTALL SUBDRAINS AND BACKDRAINS IN ALL CANYONS, FILLS AND REPAIRS AS RECOMMENDED BY GEOTECHNICAL ENGINEER.
5. THIS PROJECT IS A REQUEST TO SUBDIVIDE THE LANDS SHOWN HEREIN INTO 14 LOTS. LOT NUMBER 4 SHALL BE SET ASIDE FOR PRIVATE STREET, UTILITY, AND FLOOD CONTROL FACILITIES. THE CITY OF GLENDORA HAS FULL JURISDICTION HEREWITH AND HAS REQUESTED THAT THE L.A. COUNTY DEPARTMENT OF PUBLIC WORKS, FLOOD CONTROL ASSIST THE CITY IN PLAN CHECKING ALL PROPOSED FLOOD CONTROL FACILITIES SHOWN HEREON.
6. THE DOWNSTREAM FACE OF THE PROPOSED DEBRIS BASIN DAMS SHALL BE PLANTED, HYDROSEED AFTER CONSTRUCTION PER L.A. CO. FLOOD CONTROL DISTRICT REQUIREMENTS.

SITE DATA

- GROSS AREA = 97.08 AC
  GLOBAL RESTRICTION AREA (GRADE) = 36.35 AC
- EXISTING ZONE: R7-24000
- PROPOSED ZONE: R7-24000
- NUMBER OF LOTS PROPOSED = 14
- LOT NUMBER 1 WILL ENCOMPASS THE EXISTING HOME WITH FRONTAGE ON THE NEW PRIVATE STREET.
- DEVELOPMENT SITE AVERAGE SLOPE = 23.5%
- SITE DRAINAGE (EARTH SHALL CONSIST OF CATCH BASINS, BURIED STORM DRAIN PIPES, ETC. AS DETERMINED BY A DETAILED HYDROLOGY, HYDRAULIC STUDY PREPARED IN ACCORDANCE WITH L.A.C.F.C.D. STANDARDS AND SPECIFICATIONS.
- ALL ONSITE STREETS SHALL BE PRIVATELY OWNED/MAINTAINED BY THE H.O.A.
- EARTHWORK ESTIMATE:
  DEBRIS BASIN GRADING: CUT = 75,000 CY FILL = 72,000 CY
  SUBDIVISION GRADING: CUT = 21,000 CY FILL = 24,000 CY
  TOTALS: CUT = 96,000 CY FILL = 96,000 CY

UPON ACCEPTANCE EXPRESSLY RESERVES THE COMMON LAW COPYRIGHT & OTHER PROPERTY RIGHTS IN THESE PLANS. THESE PLANS ARE NOT TO BE ALTERED, CHANGED, OR COPIED IN ANY FORM OR MANNER WHATSOEVER, NOR ARE THEY TO BE ASSIGNED TO A THIRD PARTY, WITHOUT FIRST OBTAINING THE WRITTEN PERMISSION AND CONSENT OF EITON ENGINEERS. EITON ENGINEERS SHALL BE HELD HARMLESS FROM THE UNAUTHORIZED USE OF THESE PLANS.

CITY OF GLENDORA — ENGINEERING DIVISION

PRELIMINARY SITE DEVELOPMENT PLAN
TRACT NO. 72413

Prepared For:
Greenland Investments, LLC
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Prepared By:
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Scale: AS SHOWN
Drawn By: ALB
Sheet 1 of 2 Sheets

Job No.: 2564 PLOTTED: 2/6/2014

STETSON ENGINEERS INC.
861 VILLAGE OAKS DRIVE, SUITE 100
COVINA, CALIFORNIA 91724
TEL: (626) 967-6202
FAX: (626) 331-7065

2171 E Francisco Blvd., Suite K
San Rafael California 94901

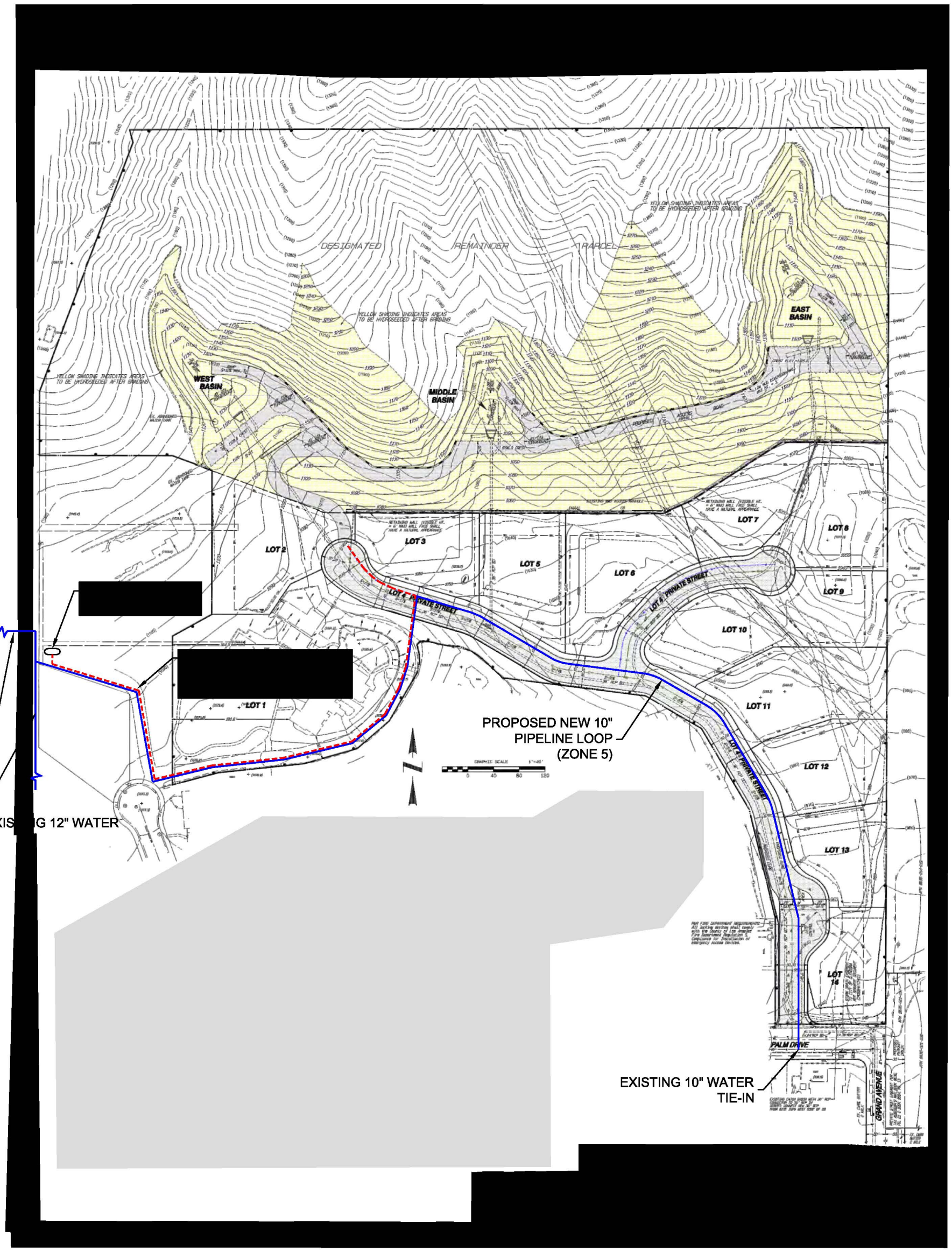
2651 W Guadalupe Rd., Suite A209
Mesa Arizona 85202

SCALE AS NOTED

CITY OF GLENDORA - TRACT 72413

PRELIMINARY SITE DEVELOPMENT PLAN

J:\Jobs\2716 Glendora 72413\Figure 1.dwg



Source: Basemap by Giron Engineers Inc.

STETSON ENGINEERS INC.
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COVINA, CALIFORNIA 91724
TEL: (626) 967-6202
FAX: (626) 331-7065

2171 E Francisco Blvd., Suite K
San Rafael, California 94901

785 Grand Ave., Suite 202
Carlsbad, California 92008

SCALE AS NOTED

CITY OF GLENDORA - TRACT 72413

PROPOSED PIPELINE ALIGNMENTS

J:\Jobs\2716 Glendora 72413\Figure 1.dwg

Table 2. Conceptual Level Cost Estimate *10/17/2019*
Glendora Tract 72413 Water Supply

Item	Description	Units	Quantity	Unit Cost	Total Cost
1.100	**Zone 5 Pipeline**				
1.101	Mobilization	LS	1	$ 25,000	$ 25,000
1.102	Furnish and Install 10-inch DIP	LF	2,000	$ 148	$ 296,000
1.103	Furnish and Install Fire Hydrant	EA	2	$ 3,300	$ 6,600
1.104	Furnish and Install Service Laterals	EA	10	$ 6,825	$ 68,300
1.105	Furnish and Install Air/Vac Valve	EA	1	$ 2,599	$ 2,600
1.106	Tie-in to Existing	EA	2	$ 10,000	$ 20,000
1.107	Sawcut Asphalt	LF	1,160	$ 2	$ 2,100
1.108	Demo Concrete Driveway	SY	444	$ 16	$ 7,000
1.109	Disposal of Asphalt, Concrete, etc.	CY	90	$ 13	$ 1,200
1.110	Restore Asphalt Driveway	LF	580	$ 115	$ 66,700
1.111	Replace Concrete Driveway	SF	4,000	$ 6	$ 24,600
1.112	Restore Landscaping	SF	1,600	$ 5	$ 8,000
1.113	**Subtotal Zone 5 Pipeline**				**$ 528,000**
1.114	Contingency			25%	$ 132,000
1.115	**Subtotal with Contingency**				**$ 660,000**
1.116	Admin and Permitting			5%	$ 33,000
1.117	Design			10%	$ 66,000
1.118	Construction Management			10%	$ 66,000
1.119	**Total Zone 5 Pipeline**				**$ 825,000**
1.200	**Zone 11 Hydro-Pneumatic System Replacement and Pipeline**				
1.201	Mobilization	LS	1	$ 6,000	$ 6,000
1.202	Furnish and Install 1.5-inch Galv. Steel (installed with 10" pipe)	LF	1,150	$ 25	$ 28,800
1.203	Furnish and Install Service Laterals	EA	2	$ 6,825	$ 13,700
1.204	Furnish and Install 3000 gal Hydro-Pneumatic Tank	EA	1	$ 29,500	$ 29,500
1.205	Furnish and Install Booster Pumps (180 gpm)	EA	2	$ 4,132	$ 8,300
1.206	Furnish and Install Concrete Foundation	LS	1	$ 2,950	$ 3,000
1.207	Furnish and Install Electrical/Controls	LS	1	$ 25,000	$ 25,000
1.208	Furnish and Install Site Piping, Valves, Appurtenances	LS	1	$ 5,000	$ 5,000
1.209	Furnish and Install Fencing/Security	LS	1	$ 3,000	$ 3,000
1.210	**Subtotal Zone 11 Hydro-Pneumatic System Replacement and Pipeline**				**$ 122,000**
1.211	Contingency			25%	$ 31,000
1.212	**Subtotal with Contingency**				**$ 153,000**
1.213	Admin and Permitting			5%	$ 8,000
1.214	Design			10%	$ 15,000
1.215	Construction Management			10%	$ 15,000
1.216	**Total Zone 11 Hydro-Pneumatic System Replacement and Pipeline**				**$ 191,000**
	GRAND TOTAL				**$ 1,016,000**

Giron Engineers, Inc.

Memo

To: CITY OF GLENDORA
Attn.: Thomas Lambertson
Date: 3/26/18 – updated 11-19-2019
Re: brief on sanitary sewer service for Tentative Tract Map No. 72413, City of Glendora, County of Los Angeles

---

Tentative Tract No. 72413 proposes to create 13 single family residential lots at the northerly terminus of Grand Ave., City of Glendora, CA. This is a custom lot subdivision, hence there are no building plans available at this time. It is expected that the home plans will average 5 bedrooms and 4 baths.

The proposed development is located within the jurisdictional boundaries of LA Co. Sanitation District No. 22. The wastewater flow originating from 13 of the proposed lots will discharge into an existing local sewer line in Palm Drive for conveyance down Grand Ave. To the District's Baseline Trunk Sewer. Lot No. 1 of this development has an existing home which is connected to the local sewer line in Silent Ranch Drive.

It should be noted that in 2015, a sewer capacity study was prepared for Tract No. 70622, which is located on the west side of Grand Ave., just south of Sierra Madre Ave., or about 800 ft. south of the proposed development. The line analyzed in that study is the same local line that the proposed subdivision is connecting to. Flow tests for that study were conducted at Grand Ave. And Richardson Lane. That study concluded the Post-Development Q_{peak} flow to be 0.48 cfs. The available capacity for that local line, at that point, is 1.93 cfs.

Based upon the above mentioned study, the local line in Grand Ave. is currently flowing at about 25% of peak flow capacity (half-full). A copy of said Study is available upon request.

The addition of 13 new homes will increase the flows within the existing system by 0.02 cfs to a total of 0.50cfs which is only 26% of the capacity of the pipe. Please refer to the attached calculations demonstrating this increase.

Submitted with this brief is a copy of the tentative tract map and a copy of the preliminary site development plan. The site plan depicts the future 8 in. Sewer main extension that will service the future 13 single family homes. This proposed line will connect to the existing 8-inch local line in Palm Drive.

Flow Capacity Analysis:

References:

A. Approved Sewer Capacity Study for Tract No. 70622 (on file at City of Glendora, copy available upon request)

B. L.A. Co. DPW Table of Estimated Average Daily Sewage Flows for Various Occupancies (attached)

Note: per City & County requirements, the sewer pipe is considered at full capacity when it is flowing half full.

- Available sewer pipe capacity (ref. A): 1.93 cfs
- Existing current condition (ref. A): 0.48 cfs
- Estimated Additional flow from proposed development:
    - Number of new homes = 13
    - Estimated average daily sewage flow for 3 bedroom or more dwelling unit (ref. B) = 300 gal/D.U.
    - Peak flow multiplier (ref. B) = 2.5
    - Total estimated additional sewer flow = 13 x 300 x 2.5 = 9750 gal/day = 0.02 cfs
- $Q_{PEAK\ AFTER\ DEVELOPMENT}$ = 0.48 + 0.02 = **0.50 CFS**

0.50 cfs << 1.93 cfs

Peak flow will be 26% of full capacity ✓

Estimated Average Daily Sewage Flows for Various Occupancies

Occupancy	Abbreviation	*Average daily flow	
Apartment Buildings:			
Bachelor or Single dwelling units	Apt	150	gal/D.U.
1 bedroom dwelling units	Apt	200	gal/D.U.
2 bedroom dwelling units	Apt	250	gal/D.U.
3 bedroom or more dwelling units	Apt	300	gal/D.U.
Auditoriums, churches, etc.	Aud	5	gal/seat
Automobile parking	P	25	gal/1000 sq ft gross floor area
Bars, cocktails lounges, etc.	Bar	20	gal/seat
Commercial Shops & Stores	CS	100	gal/1000 sq ft gross floor area
Hospitals (surgical)	HS	500	gal/bed
Hospitals (convalescent)	HC	85	gal/bed
Hotels	H	150	gal/room
Medical Buildings	MB	300	gal/1000 sq ft gross floor area
Motels	MB	150	gal/unit
Office Buildings	Off	200	gal/1000 sq ft gross floor area
Restaurants, cafeterias, etc.	R	50	gal/seat
Schools:			
Elementary or Jr. High	S	10	gal/student
High Schools	HS	15	gal/student
Universities or Colleges	U	20	gal/student
College Dormitories	CD	85	gal/student

*Multiply the average daily flow by 2.5 to obtain the peak flow

Zoning Coefficients

Zone	Coefficient (cfs/Acre)
Agriculture ----------	0.001
Residential*:	
R-1 ----------	0.004
R-2 ----------	0.008
R-3 ----------	0.012
R-4 ----------	0.016*
Commercial:	
C-1 through C-4 ----------	0.015*
Heavy Industrial:	
M-1 through M-4 ----------	0.021*

* Individual building, commercial or industrial plant capacities shall be the determining factor when they exceed the coefficients shown

* Use 0.001 (cfs/unit) for condominiums only

WATER RECLAMATION
SOLID WASTE MANAGEMENT

COUNTY SANITATION DISTRICTS
OF LOS ANGELES COUNTY

1955 Workman Mill Road, Whittier, CA 90601-1400
Mailing Address: P.O. Box 4998, Whittier, CA 90607-4998
Telephone: (562) 699-7411, FAX: (562) 699-5422
www.lacsd.org

GRACE ROBINSON HYDE
Chief Engineer and General Manager

April 6, 2018

Ref. Doc. No.: 4520419

Ms. Amy L. Bledsoe
Civil Engineer
Giron Engineers, Inc.
654 South Glendora Avenue
Glendora, CA 91740

Dear Ms. Bledsoe:

Will Serve Letter for Tract Map No. 72413

The Sanitation Districts of Los Angeles County (Districts) received your will serve letter request for the subject project on March 22, 2018. The proposed project is located within the jurisdictional boundaries of District No. 22. We offer the following comments regarding sewerage service:

1. The wastewater flow originating from the proposed project will discharge to a local sewer line, which is not maintained by the Districts, for conveyance to the Districts' Baseline Trunk Sewer Section 3, located in Grand Avenue south of Whitecomb Avenue. The Districts' 15-inch diameter trunk sewer has a capacity of 2.9 million gallons per day (mgd) and conveyed a peak flow of 0.4 mgd when last measured in 2015.

2. The wastewater generated by the proposed project will be treated at the San Jose Creek Water Reclamation Plant (WRP) located adjacent to the City of Industry, which has a capacity of 100 mgd and currently processes an average flow of 64.1 mgd, or the Whittier Narrows WRP located near the City of South El Monte, which has a capacity of 15 mgd and currently produces an average recycled water flow of 7.2 mgd.

3. The expected increase in average wastewater flow from the project, described in the application as 12 new custom residential lots, is 3,120 gallons per day, based on the estimated flow from 12 single family homes. For a copy of the District's average wastewater generation factors, go to www.lacsd.org, Wastewater & Sewer Systems, click on Will Serve Program, and click on the Table 1, Loadings for Each Class of Land Use link.

4. The Districts are empowered by the California Health and Safety Code to charge a fee for the privilege of connecting (directly or indirectly) to the Districts' Sewerage System for increasing the strength or quantity of wastewater discharged from connected facilities. This connection fee is a capital facilities fee that is imposed in an amount sufficient to construct an incremental expansion of the Sewerage System to accommodate the proposed project. Payment of a connection fee will be required before a permit to connect to the sewer is issued. For more information and a copy of the Connection Fee Information Sheet, go to www.lacsd.org,

Wastewater & Sewer Systems, click on Will Serve Program, and search for the appropriate link. In determining the impact to the Sewerage System and applicable connection fees, the Districts' Chief Engineer and General Manager will determine the user category (e.g. Condominium, Single Family home, etc.) that best represents the actual or anticipated use of the parcel or facilities on the parcel. For more specific information regarding the connection fee application procedure and fees, please contact the Connection Fee Counter at (562) 908-4288, extension 2727.

5. In order for the Districts to conform to the requirements of the Federal Clean Air Act (CAA), the capacities of the Districts' wastewater treatment facilities are based on the regional growth forecast adopted by the Southern California Association of Governments (SCAG). Specific policies included in the development of the SCAG regional growth forecast are incorporated into clean air plans, which are prepared by the South Coast and Antelope Valley Air Quality Management Districts in order to improve air quality in the South Coast and Mojave Desert Air Basins as mandated by the CCA. All expansions of Districts' facilities must be sized and service phased in a manner that will be consistent with the SCAG regional growth forecast for the counties of Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial. The available capacity of the Districts' treatment facilities will, therefore, be limited to levels associated with the approved growth identified by SCAG. As such, this letter does not constitute a guarantee of wastewater service, but is to advise you that the Districts intend to provide this service up to the levels that are legally permitted and to inform you of the currently existing capacity and any proposed expansion of the Districts' facilities.

If you have any questions, please contact the undersigned at (562) 908-4288, extension 2717.

Very truly yours,

Adriana Raza
Customer Service Specialist
Facilities Planning Department

AR:dc

DOC: #4520620.D22

Appendix H

Intersection Safety Assessment

INTERSECTON SAFETY ASSESSMENT

Intersection of Grand Avenue and Palm Avenue

Tentative Tract No. 72413
Glendora, CA
PLN14-0014

PREPARED FOR:

Alison Sweet, PE
Director of Public Works/City Engineer
Department of Public Works
CITY OF GLENDORA
116 East Foothill Blvd.
Glendora, CA 91740

PREPARED BY:

STEVEN ITAGAKI, PE, TE, PTOE
City of Glendora Traffic Engineering Consultant

JMD
PLANNING | ENGINEERING | MANAGEMENT

18645 East Gale Avenue, Suite 212
City of Industry, CA 91748-1363

June 20, 2020

Grand Ave / Palm Dr Intersection Safety Assessment

Site Improvement Suggestions (see attached exhibit):

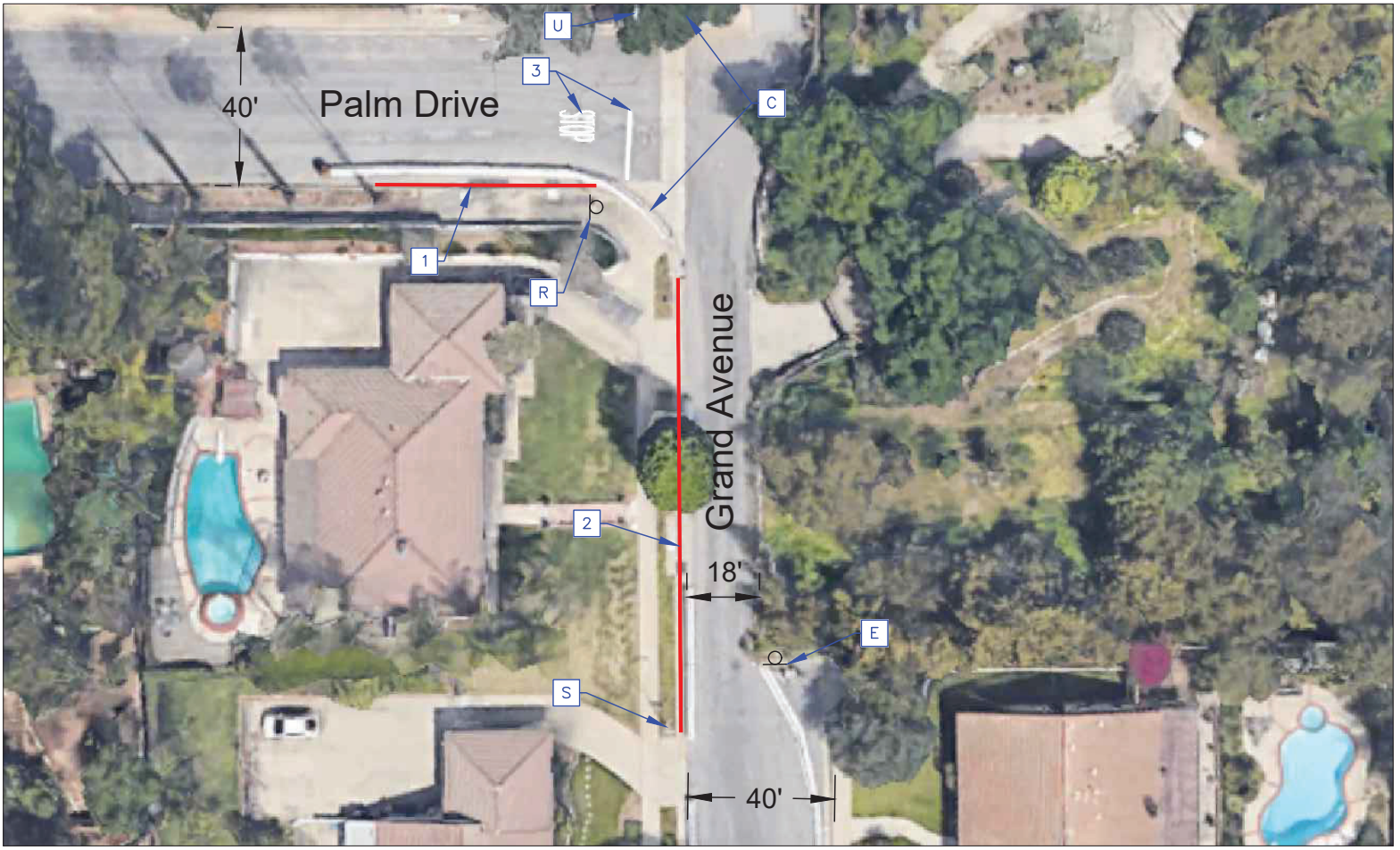
- Relocate existing stop sign and street name sign onto a new taller post. The bottom section of the stop sign is currently 5.5' above sidewalk grade. The vertical clearance of all signs (per CA MUTCD) should be 7' minimum.
- Repaint red curb on the west side of Grand Avenue where the street narrows to 18' in width.
- Upgrade the existing street light on wood pole at the intersection to LED.
- Relocate Speed Limit (25) sign onto the existing street light. Currently, the speed limit sign is obscured behind the street light pole. Remove sign post.
- After reviewing the site plans from the developer, ensure sidewalk fronting the development are cleared from trees/debris. Include curb ramps on the north and south sides of the intersection.
- Add 50' red curb on the south side of Palm Drive starting at the BCR.
- Repaint Stop Legend and Stop Bar.

Sight Distance Assessment (see attached exhibits):

- Per Chapter 200 of the Highway Design Manual (HDM), the recommended stopping sight distance for 25 mph is 150 feet.
- The intersection approach sight distance for both northbound Grand Avenue and eastbound Palm Drive meet the sight distance requirements.
- Eastbound Palm Drive onto southbound Grand Avenue has an existing tree partially obscuring the sight lines at the stop bar. However, as a vehicle creeps forward, sight distance is clear.

Accident History:

- There are a total of two collisions within this vicinity in the past five years. However, only one accident at the intersection.
- Thus, based on accidents, there are no safety issues requiring mitigation.



STRIPING NOTES:

- 1 INSTALL 50' OF NEW RED CURB
- 2 REPAINT EXISTING RED CURB
- 3 REPAINT "STOP" LEGEND & LIMIT LINE

SIGNING NOTES:

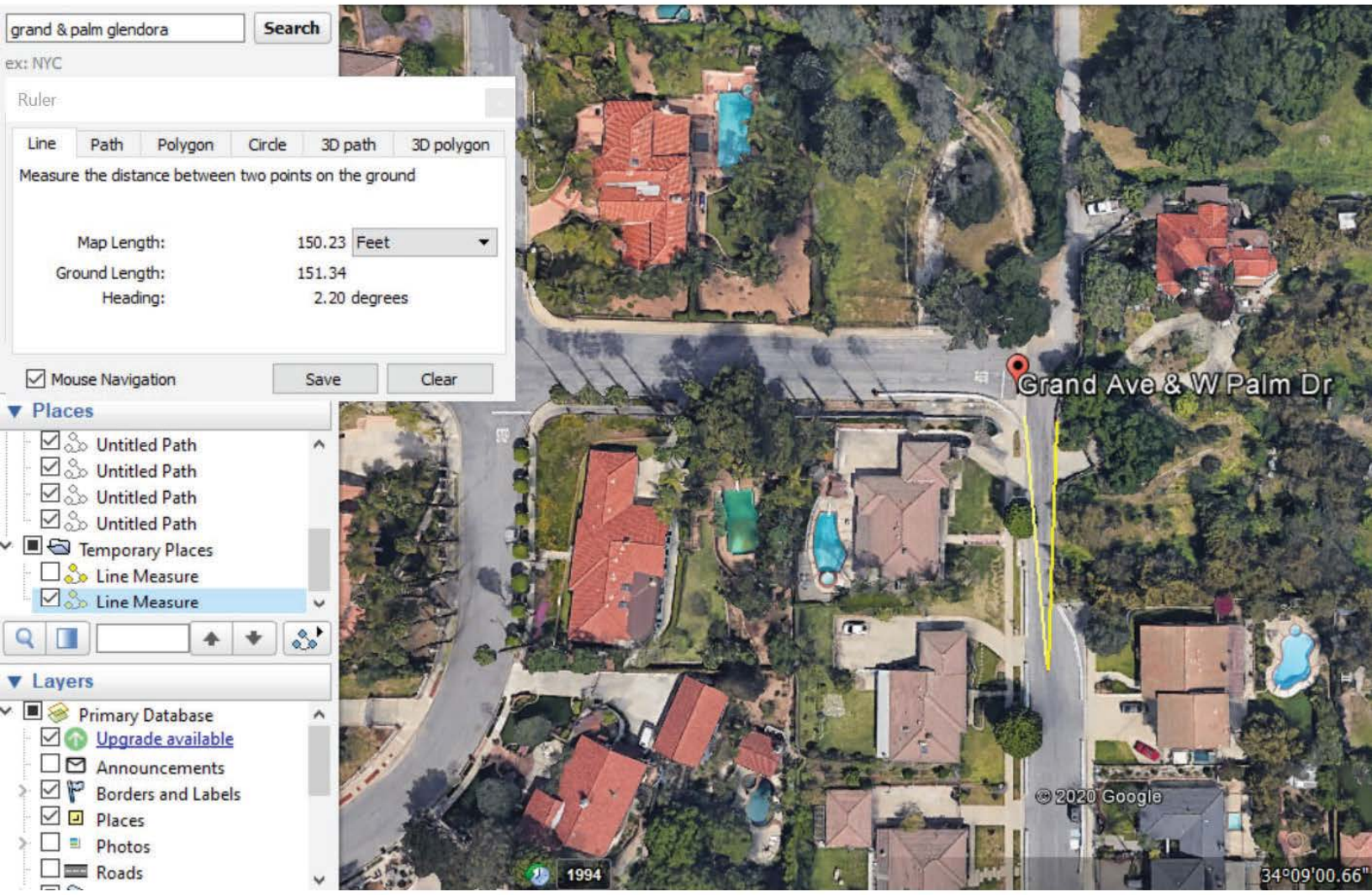
- R RELOCATE EXISTING R1-1 & STREET NAME SIGN ONTO NEW POST THAT WILL PROVIDE 7' VERTICAL CLEARANCE TO BOTTOM OF SIGN
- S RELOCATE EXISTING R2-1(25) SIGN ONTO STREET LIGHT POLE
- E EXISTING R28(S)(CA) SIGN

STREET IMPROVEMENT NOTES:

- C ADD CURB RAMPS FOLLOWING CITY STANDARDS
- U UPGRADE STREET LIGHT TO LED

N


Grand Ave & W Palm Dr
Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance between two points on the ground
Map Length:
150.78
Feet
Ground Length:
151.71
Heading:
169.07 degrees
Mouse Navigation
Save
Clear
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
1994


grand & palm glendora
Search
ex: NYC
Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance between two points on the ground
Map Length:
150.23
Feet
Ground Length:
151.34
Heading:
2.20 degrees
Mouse Navigation
Save
Clear
Places
Untitled Path
Untitled Path
Untitled Path
Untitled Path
Temporary Places
Line Measure
Line Measure
Layers
Primary Database
Upgrade available
Announcements
Borders and Labels
Places
Photos
Roads
Grand Ave & W Palm Dr
© 2020 Google
1994
34°09'00.66"

Ruler
Line
Path
Polygon
Circle
3D path
3D polygon
Measure the distance between two points on the ground
Map Length:
150.08
Feet
Ground Length:
150.08
Heading:
96.70 degrees
Mouse Navigation
Save
Clear
Grand Ave & W Palm Dr

Appendix I

City VMT Calculator

CEQA Transportation Analysis Screening Tool for Development Projects

This tool is to estimate the potential of a land use development project, where the City of Glendora is the CEQA lead agency

Legend	
User Input	xxxx
Calculated Value	xxxx

1 Project Information

Applicant Name

Project Name 950 Silent Ranch Drive

	Number	Street (no street suffix, e.g. Ave., Blvd.)
Address	950	SILENT RANCH

2 Project Description

Type	Unit	Existing	Project	Change
Emplomen - Office Building	1000s Sq Feet			-
Employment - Hospital	1000s Sq Feet			-
Employment - Medical/Dental Office	1000s Sq Feet			-
Employment - Movie Theater	1000s Sq Feet			-
Hotel	Rooms			-
Industrial - Heavy	1000s Sq Feet			-
Industrial - Light	1000s Sq Feet			-
Industrial - Warehouse	1000s Sq Feet			-
Retail - Store	1000s Sq Feet			-
Retail - Restaurant	1000s Sq Feet			-
Residential - Apartment	Units			-
Residential - Assisted Living	Beds			-
Residential - Single Family	Units	1	12	11
Residential - Townhouse	Units			-
Number of Affordable Housing Units	Units			-

Is this project a:	
Library	No
School	No
Park	No
Community Center	No
Other locally servinc	No

3 Checklist Screening

Screened to be Presumed as Less Than Significant? **Yes** ***Project Below Size Threshold***

5