DRAFT ENVIRONMENTAL IMPACT REPORT

AIDLIN HILLS PROJECT

LOS ANGELES COUNTY, CALIFORNIA

STATE CLEARINGHOUSE NO: 2014091027

COUNTY PROJECT NO. 00-136
VESTING TENTATIVE TRACT MAP 52796
CONDITIONAL USE PERMIT 00-136
OAK TREE PERMIT 00-136

VOLUME II OF III
(APPENDICES C THROUGH G)

December 2015

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County Project No. 00-136
Vesting Tentative Tract Map 52796
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Volume II of III
(Appendices C through G)

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Biological Resources

Biological Resources Assessment

Aidlin Hills Project
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1.0 INTRODUCTION

1.1 BACKGROUND AND PURPOSE

This report presents the updated findings of a biological resource assessment conducted by **PCR Services Corporation (PCR)** for the approximately 233.0 acres (230.5 acres on-site and 2.6 off-site) Project site (APNs 2826-020-020 through 024, 2826-020-030 through 033, and 2826-097-003) for Tentative Map No. 52796 ("study area") within the unincorporated Los Angeles County, California, west of the City of Santa Clarita. The Aidlin Hills Project ("Project") proposes to develop 102 single-family dwellings and associated supporting infrastructure including local roadways, water tanks and a pump station, water quality treatment basins, and a fire access road. The purpose of this study is to document the existing biological resources and assess the potential biological impacts and regulatory requirements associated with the proposed development of a residential community.

1.2 STUDY AREA LOCATION

The study area is located in the northern foothills of the Santa Susana Mountains in an unincorporated section of Los Angeles County ("County") known as Stevenson Ranch. Regional access to the study area is provided via Interstate 5 ("I-5") located approximately 1.6 miles east of the study area. Local access to the study area is provided via Pico Canyon Road, a County master-planned arterial road. The regional context and local setting of the study area are illustrated on **Figure 1**, *Regional Map*. The study area is located within two U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles, Oat Mountain and Newhall, within Section 6, Township 3 N., Range. 16 W., as shown in **Figure 2**, *Vicinity Map*. Elevation on-site ranges from approximately 1,460 feet above mean sea level (MSL) to 2,250 feet above MSL. Land uses in the area include residential developments to the east and undeveloped open space to the north, south, and west. The study area falls within the Los Angeles County designated Santa Susana Mountains/Simi Hills Significant Ecological Area (SEA) under the 2012 Santa Clarita Valley Area One Valley One Vision plan but for entitlement processing the 1990 Santa Clarita Valley Area plan applies (**Figure 3,** *Location in Relation to Los Angeles County SEA*).

1.3 SCOPE OF STUDY

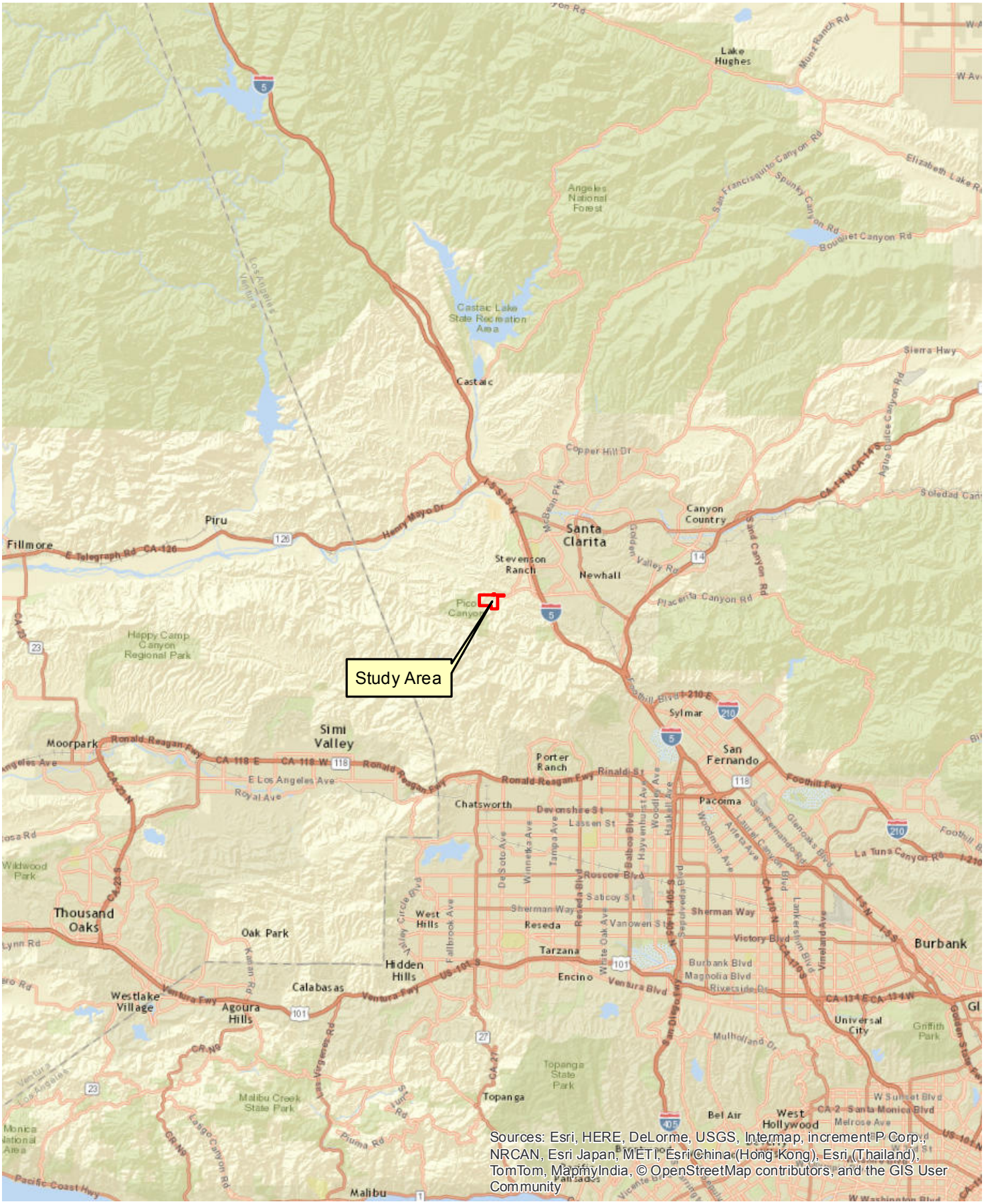
The scope of this assessment encompasses the comprehensive documentation of existing biological resources within the study area. A review of relevant literature initiated the study. The results of the literature review provided information on species and habitat occurrences within the vicinity, laws and regulations pertaining to these resources, and additional background information. A general biological assessment was conducted to assess the potential for the study area to support plant and wildlife species. The assessment also addressed the potential for the study area to support sensitive plant and wildlife species and/or habitats and regulated resources.

In addition to the existing conditions of the study area, this document also addresses project-related impacts as well as recommendations regarding measures to alleviate any resulting significant adverse impacts. This documentation is consistent with accepted scientific, technical, and professional standards pursuant to the California Environmental Quality Act (CEQA), the U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and U.S. Army Corps of Engineers (USACE) protocols and

standards, where appropriate. While general biological resources are discussed in a comprehensive manner, the focus of this assessment is on those resources considered to be sensitive.

1.4 PROJECT DESCRIPTION

The Aidlin Hills Project proposes to develop 102 single-family dwellings and associated supporting infrastructure including local roadways, water tanks and a pump station, water quality treatment basins, and a fire access road. The on-site Project permanent impact zone, including development footprint and areas of grading and/or fuel modification buffer zones, is approximately 66.4 acres of the 230.5 acre property. Off-site impacts consist exclusively of fuel modification zones and are approximately 2.6 acres in area (see **Figure 4**, *Proposed Site Plan*).



PCR

N

0 5 10 Miles

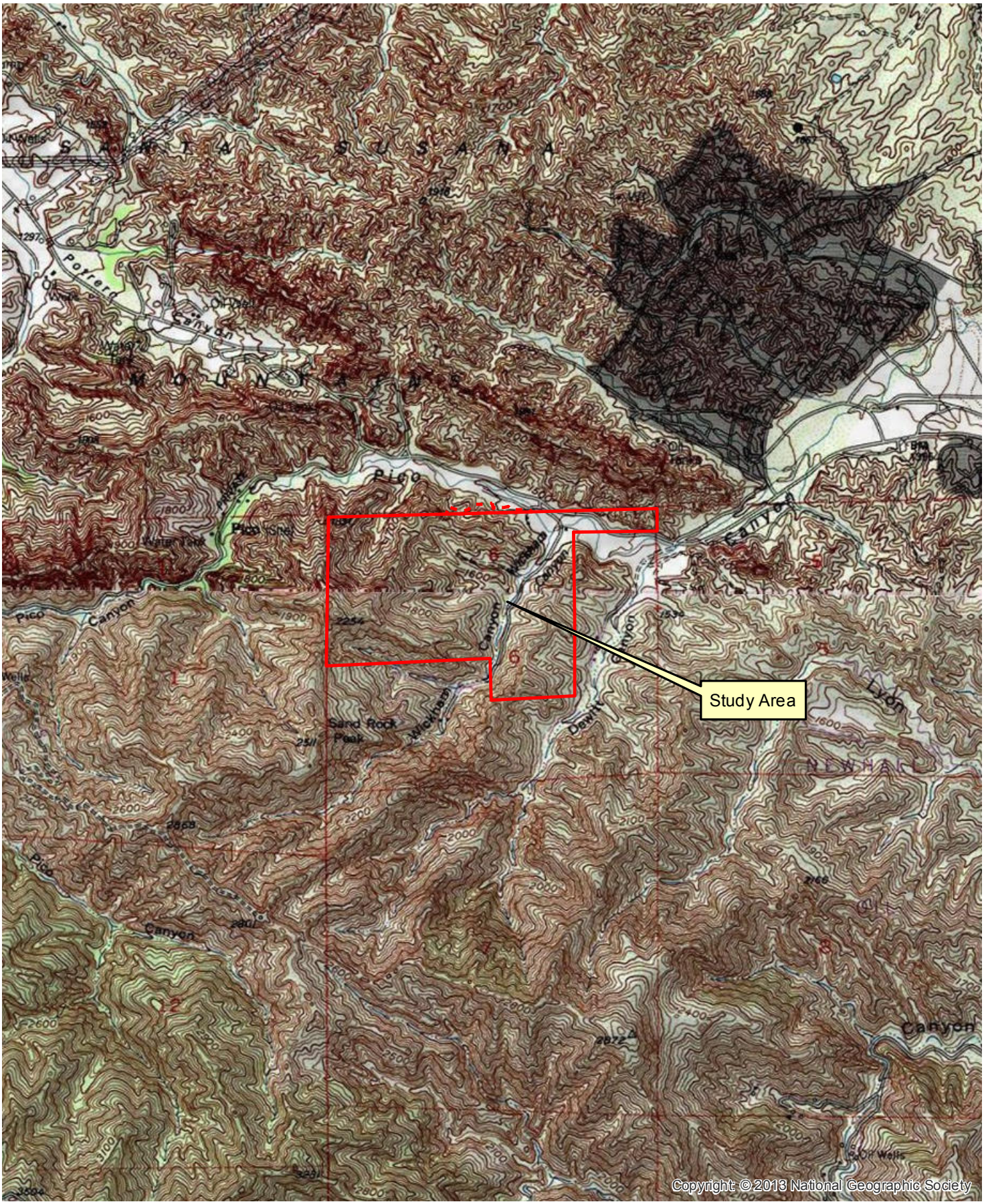
Regional Map

Aidlin Hills

Source: ESRI Street Map, 2009; PCR Services Corporation, 2014.

FIGURE

1



PCR

N

0 2,000 4,000 Feet

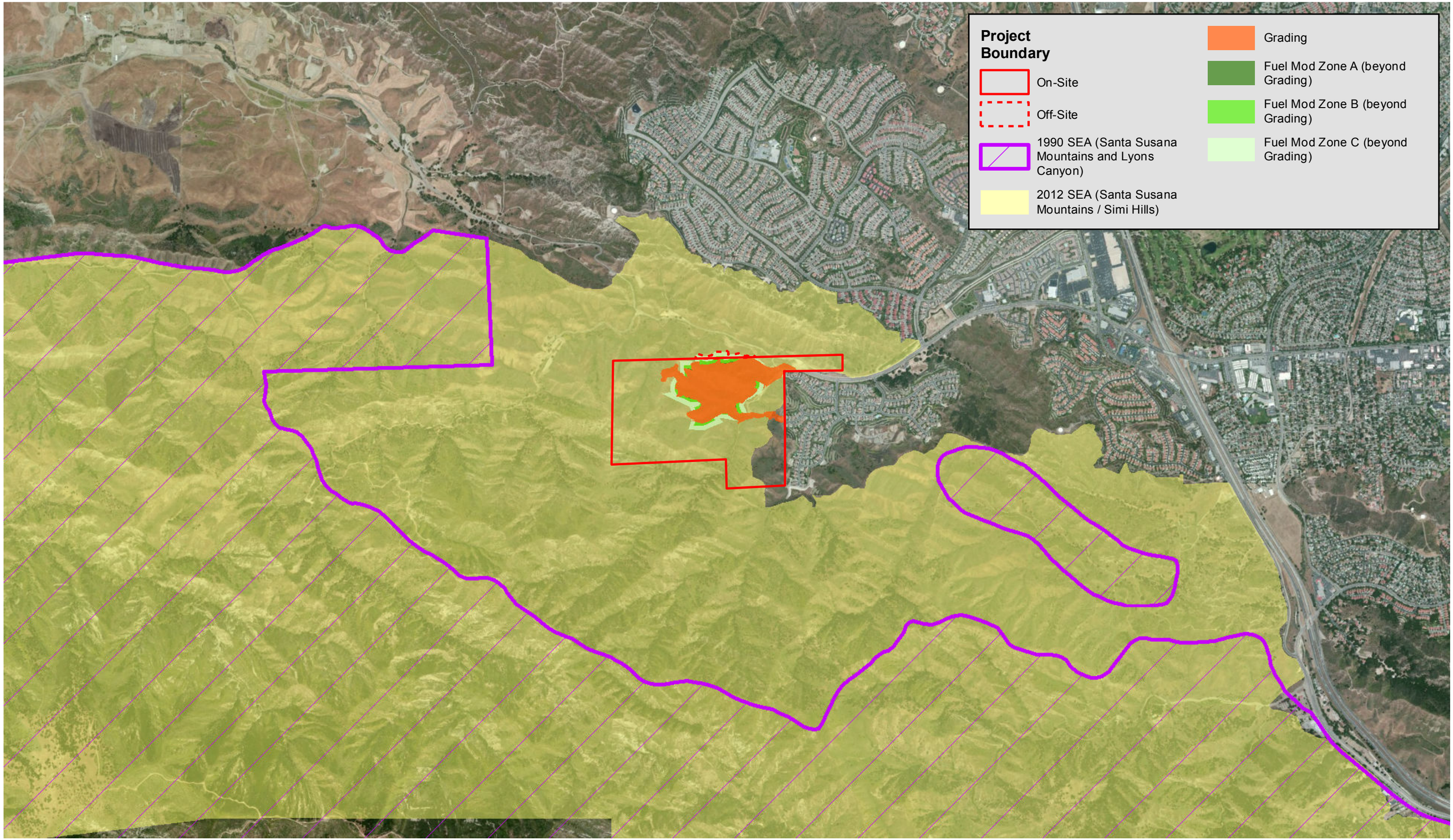
Vicinity Map

Aidlin Hills

Source: USGS Topographic Series (Newhall, Oat Mountain, CA); PCR Services Corporation, 2014.

FIGURE

2



PCR

N

0 2,000 4,000 Feet

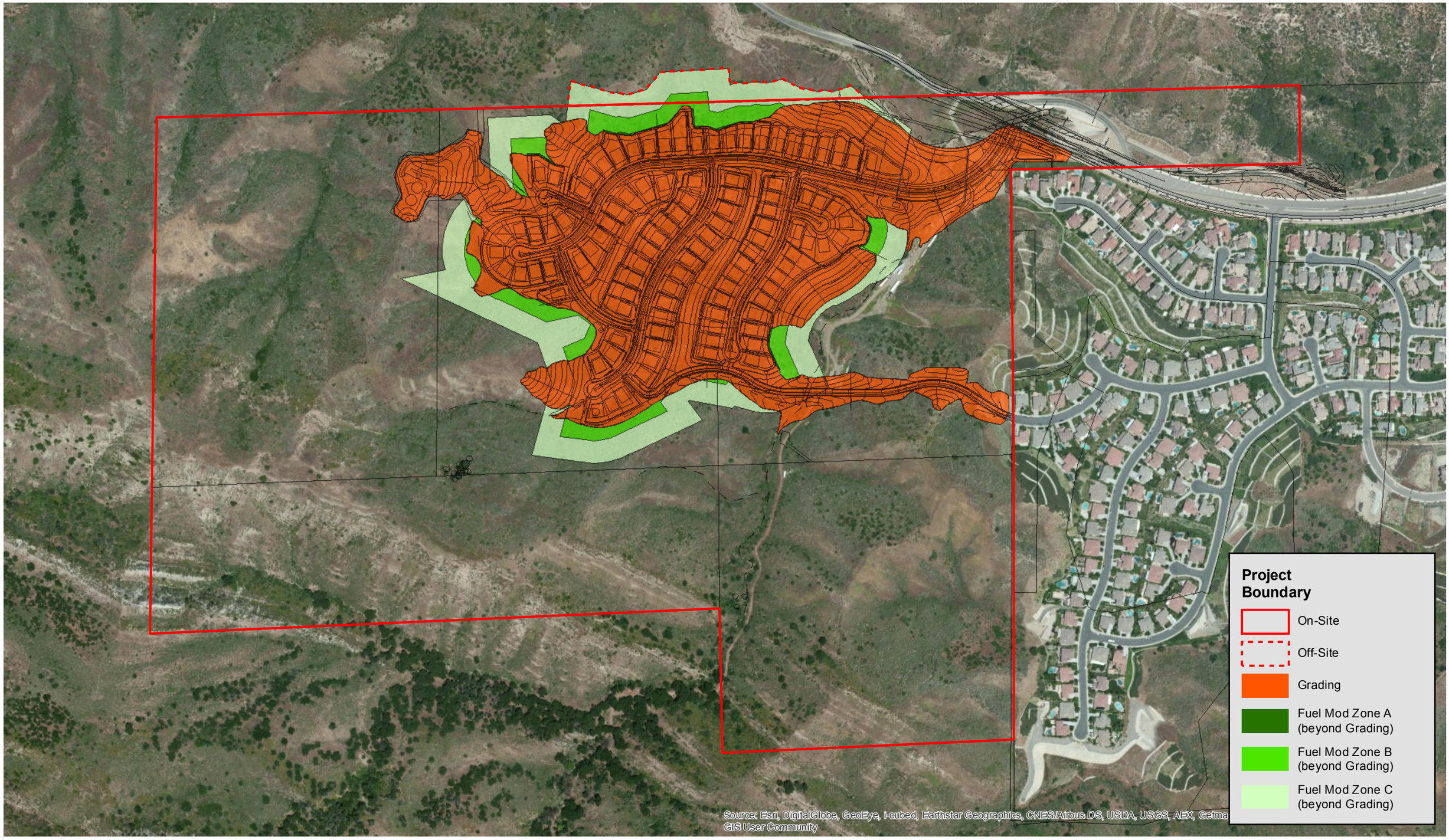
Location in Relation to Los Angeles County SEA

Aidlin Hills

Source: L.A. County, 2000; Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

3



PCR

N

0 400 800 Feet

Proposed Site Plan

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

4

2.0 METHODOLOGY

2.1 LITERATURE REVIEW

The study began with a review of relevant literature on the biological resources of the study area and surrounding vicinity. The current edition of California Natural Diversity Database (CNDDB), a CDFW sensitive species and habitats account database, and the California Native Plant Society (CNPS) Online Inventory were reviewed for all pertinent information regarding the localities of known observations of sensitive species in the vicinity of the study area. The area searched in these two databases included the two USGS 7.5-minute quadrangles in which the project is located—Newhall and Oat Mountain—and the ten surrounding quadrangles: Calabasas, Canoga Park, Val Verde, Green Valley, Mint Canyon, San Fernando, Santa Susana [Simi Valley East], Van Nuys, Warm Springs Mountain, and Whitaker Peak. The *Significant Ecological Areas Report* (England and Nelson 1976), *Los Angeles County Significant Ecological Area Update Study 2000* (PCR Services Corporation 2000), Federal Register listings, agency-approved protocols, as well as species data provided by the USFWS and CDFW were reviewed in conjunction with anticipated federal and state listed species and sensitive plant communities potentially occurring within the vicinity. Previous studies were available, including *Initial Study Assessment: Vegetation and Flora* (Verna Jigour Associates 1999), *Spring Plant List, The Aidlin Project* (Verna Jigour Associates 2000), *Wetland Delineation Report, The Aidlin Project* (Envicom 2000), *Wickham Property Botanical Inventory 2005* (Envicom 2005), *Oak Tree Survey Update for Tentative Map #52796* (PCR 2013). Regional flora and fauna field guides were utilized in the identification of species and suitable habitats, where needed. These sources and other references reviewed provided a baseline from which to inventory the biological resources potentially occurring in the study area, and are listed in Section 5.0, *References*.

2.2 FIELD INVESTIGATION

General biological field assessment and sensitive plant surveys were conducted by PCR biologists Maile Tanaka, Ezekiel Cooley, Bob Huttar, and intern Lauren Willey on March 27, 2014 and again by Maile Tanaka and Bob Huttar on June 15, 2014. While on-site during the March 27, 2014 survey, Mr. Cooley conducted an updated assessment to map the maximum extent of jurisdiction to reflect current site conditions.

2.2.1 Plant Community Mapping

Plant communities were mapped with the aid of a 1" = 75' scale aerial photograph and a topographic map. Plant community boundaries were delineated directly onto the aerial photograph while in the field. Plant community boundaries were then digitized using Geographic Information System (GIS) technology to calculate acreages. Plant community names and hierarchical structure follows the CDFW *List of Vegetation Alliances and Associations* (2010). Plant community descriptions were based on PCR findings and descriptions contained in Sawyer, Keeler-Wolf and Evens *A Manual of California Vegetation, second edition* (2011). Scientific names are employed upon initial mention of each species; common names are employed thereafter.

2.2.2 General Plant Inventory

All plant species observed within the study area were identified and recorded in field notes or collected and later identified using taxonomic keys. Plant taxonomy follows Baldwin, (2010). A complete list of plant species observed within the study area is provided in Appendix A, *Floral and Faunal Compendium*.

2.2.3 Sensitive Plant Surveys

Several sensitive plant species were reported in the CNDDB as occurring within the vicinity of the study area including Braunton's milk-vetch (*Astragalus brauntonii*), Nevin's barberry (*Berberis nevinii*), round-leaved filaree (*California macrophylla*), slender mariposa lily (*Calochortus clavatus* var. *gracilis*), late-flowered mariposa-lily (*Calochortus fimbriatus*), Plummer's mariposa lily (*Calochortus plummerae*), Peirson's morning glory (*Calystegia peirsonii*), southern tarplant (*Centromadia parryi* ssp. *australis*), San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), Santa Susana tarplant (*Deinandra minthornii*), slender-horned spineflower (*Dodecahema leptoceras*), Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*), Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*), many-stemmed dudleya (*Dudleya multicaulis*), San Gabriel bedstraw (*Galium grande*), Newhall sunflower (*Helianthus inexpectatus*), Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*), southern California black walnut (*Juglans californica* var. *californica*), Ross' pitcher sage (*Lepechinia rossii*), Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*), Davidson's bush-mallow (*Malacothamnus davidsonii*), white-veined monardella (*Monardella hypoleuca* ssp. *hypoleuca*), spreading navarretia (*Navarretia fossalis*), Ojai navarretia (*Navarretia ojaiensis*), Piute Mountains navarretia (*Navarretia setiloba*), short-joint beavertail (*Opuntia basilaris* var. *brachyclada*), chaparral nolina (*Nolina cismontana*), California Orcutt grass (*Orcuttia californica*), chaparral ragwort (*Senecio aphanactis*), and Greata's aster (*Symphyotrichum greatae*).

Sensitive plant species with the potential to occur within the study area, based solely on presence of suitable habitat, included Braunton's milk-vetch, Nevin's barberry, San Fernando Valley spineflower, slender mariposa lily, Plummer's mariposa lily, Peirson's morning glory, Ojai navarretia, and southern California black walnut.

Focused surveys for these species were conducted within the Project impact footprint by PCR biologists Maile Tanaka, Ezekiel Cooley, Bob Huttar and intern Lauren Willey on March 27, 2014 and again by Maile Tanaka and Bob Huttar on June 15, 2014. Previous studies recorded slender mariposa lily, an unidentified navarretia, Plummer's mariposa lily, southern California black walnut and Peirson's morning glory. The Jigour report (2000) provided three locations of Peirson's morning glory and the PCR tree report (2013) showed locations for southern California black walnut.

All plant species observed on-site were recorded during the focused survey. The locations, extent, and number of sensitive plant species within the study area were mapped with the aid of a 1" = 75' scale aerial photograph and Global Positioning System (GPS) device with down to a 3-meter accuracy.

2.2.4 General Wildlife Inventory

All wildlife species observed during the field investigation by sight, call, tracks, nests, scat (fecal droppings), remains, or other sign were recorded. Binoculars and taxonomic keys were utilized in the field for the identification of wildlife, as necessary. Wildlife taxonomy follows Stebbins (2003) for amphibians and

reptiles, Kaufman (2000) for birds, and Jameson and Peeters (1988) for mammals. A complete list of wildlife species observed within the study area is provided in Appendix A, *Floral and Faunal Compendium*.

2.2.5 Sensitive Wildlife Surveys

A habitat assessment for sensitive wildlife species was conducted during the site March survey. All wildlife species observed on-site, or the evidence of their presence, were recorded during the field investigation. Sensitive wildlife species reported in the CNDDB from the vicinity include Cooper's hawk (*Accipiter cooperii*), tricolored blackbird (*Agelaius tricolor*), southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), grasshopper sparrow (*Ammodramus savannarum*), arroyo toad (*Anaxyrus californicus*), silvery legless lizard (*Anniella pulchra pulchra*), pallid bat (*Antrozous pallidus*), golden eagle (*Aquila chrysaetos*), Bell's sage sparrow (*Artemisiospiza belli belli*), short-eared owl (*Asio flammeus*), long-eared owl (*Asio otus*), coastal whiptail (*Aspidoscelis tigris stejnegeri*), burrowing owl (*Athene cunicularia*), vernal pool fairy shrimp (*Branchinecta lynchi*), ferruginous hawk (*Buteo regalis*), Swainson's hawk (*Buteo swainsoni*), Swainson's thrush (*Catharus ustulatus*), Santa Ana sucker (*Catostomus santaanae*), lesser nighthawk (*Chordeiles acutipennis*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), Townsend's big-eared bat (*Corynorhinus townsendii*), monarch butterfly (*Danaus plexippus*), white-tailed kite (*Elanus leucurus*), western pond turtle (*Emys marmorata*), California horned lark (*Eremophila alpestris actia*), spotted bat (*Euderma maculatum*), western mastiff bat (*Eumops perotis californicus*), prairie falcon (*Falco mexicanus*), unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), arroyo chub (*Gila orcuttii*), California condor (*Gymnogyps californianus*), yellow-breasted chat (*Icteria virens*), loggerhead shrike (*Lanius ludovicianus*), hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), rosy boa (*Charina trivirgata*), California leaf-nosed bat (*Macrotus californicus*), lodgepole chipmunk (*Neotamias speciosus speciosus*), San Diego desert woodrat (*Neotoma lepida intermedia*), southern grasshopper mouse (*Onychomys torridus ramona*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), coast horned lizard (*Phrynosoma blainvillii*), hairy woodpecker *(Picoides villosus),* white-faced ibis (*Plegadis chihi*), coastal California gnatcatcher (*Polioptila californica californica*), California red-legged frog (*Rana draytonii*), southern mountain yellow-legged frog (*Rana mucosa*), bank swallow (*Riparia riparia*), yellow warbler (*Setophaga petechia*), mountain bluebird (*Sialia currucoides*), Gertsch's socalchemmis spider (*Socalchemmis gertschi*), western spadefoot (*Spea hammondii*), western meadowlark (*Sturnella neglecta*), American badger (*Taxidea taxus*), two-striped garter snake (*Thamnophis hammondii*), and least Bell's vireo (*Vireo bellii pusillus*).

Sensitive wildlife species with the potential to occur on-site include silvery legless lizard (SSC), coast horned lizard [California Species of Special Concern (SSC)], coastal whiptail [Special Animal (SA)], golden eagle [California Fully Protected (SFP)], Cooper's hawk [California Watch List (WL)], Swainson's hawk (WL), white-tailed kite (SFP), turkey vulture (*Cathartes aura*), loggerhead shrike, greater roadrunner (*Geococcyx californianus*), California horned lark (WL), southern California rufous-crowned sparrow (WL), grasshopper sparrow (California Special Animal List), Bell's sage sparrow (WL), spotted bat (SSC), pallid bat (SSC), and San Diego desert woodrat (SSC). These species are not federal or State listed species with the exception of the fully protected golden eagle and white-tailed kite, therefore, protocol surveys are not required and no focused wildlife surveys were conducted.

2.2.6 Regional Connectivity/Wildlife Movement Corridor Assessment

The analysis of wildlife movement corridors associated with the study area and its immediate vicinity is based on information compiled from the literature and analysis of aerial photographs and topographic maps.

A literature review was conducted that included documents on island biogeography (studies of fragmented and isolated habitat "islands"), reports on wildlife home range sizes and migration patterns, and studies on wildlife dispersal (MacArthur and Wilson 1967). Wildlife movement studies conducted in southern California (South Coast Wildlands 2008) were also reviewed. The relationship of the study area to large open space areas in the immediate vicinity was also evaluated in terms of connectivity and habitat linkages. Relative to corridor issues, the discussions in this report are intended to focus on wildlife movement associated with the study area and the immediate vicinity.

In addition, the focus of this study is to determine if the alteration of current land use within the study area due to implementation of the proposed Project will have significant impacts on the regional movement of wildlife. During the surveys, notations of the locations of any animal sign were made. In addition, topographic and resource maps of the vicinity were inspected to determine the potential for wildlife to utilize the study area and vicinity.

2.2.7 Cursory Jurisdictional Review

In 2000, Envicom performed a jurisdictional delineation on the study area, as detailed in the *Wetland Delineation Report* (Envicom 2000). Since 2000, there have been multiple court cases and new regulations issued to provide further guidance on delineation methodology, which have changed the regulatory requirements. In addition, site conditions are often subject to change over time (e.g. delineations are generally not accepted by the resource agencies over five years old) warranting reevaluation of jurisdictional field indicators. Thus while performing this biological assessment in 2014, PCR conducted a cursory review of the 2000 delineation report, focusing on the central portions of the main stem jurisdictional drainage features mapped on-site in 2000. Therefore, the 2014 cursory delineation review did not include a formal updated jurisdictional delineation of waters and wetlands.

Prior to PCR's 2014 site visit, Envicom's 2000 jurisdictional delineation report was reviewed and previous drainage locations and jurisdictional areas were noted and identified on field maps and recent aerial imagery. On March 27, 2014 portions of main stem drainages located within the study area were investigated focusing on CDFW jurisdiction within portions of the main stem drainage features mapped by the 2000 delineation report. CDFW jurisdiction is generally defined by the bank of the stream/channels to include the limits of the adjacent riparian vegetation, if any. The adjacent riparian vegetation often extends beyond the banks onto flood plains; therefore, in most cases CDFW jurisdiction encompasses or extends beyond USACE/RWQCB[1] jurisdiction as measured laterally across the streambed. Potential jurisdiction within portions of the main stem drainage features observed by PCR were mapped with the assistance of a 200-foot scale aerial photograph[2] and GPS equipment. Following data collection, the digital information was uploaded and incorporated within PCR's project-specific GIS database.

Because PCR's 2014 site visit focused primarily on conducting a general biological assessment and did not include a comprehensive formal jurisdictional delineation, PCR's jurisdictional assessment was therefore limited to a field comparison of Envicom's 2000 jurisdictional delineation map within portions of main stem drainage features on the property. Based on current conditions, any jurisdictional resources that had

[1] *The extent of RWQCB jurisdiction is presumed to be consistent with the extent USACE jurisdiction.*

[2] *Google Earth aerial photograph accessed March, 2014.*

appreciably changed since the 2000 jurisdictional delineation were updated on the map. It should be noted that the Envicom jurisdictional delineation was performed prior to the creation of the Pico Canyon Creek Channel and the Pico Canyon Road improvements. As stated in Envicom's 2000 jurisdictional delineation report, those improvements were authorized under permits associated with the Stevenson Ranch Laing Homes development. Therefore, current post-improvement jurisdictional conditions in association with these improved facilities have been updated and are included in the 2014 assessment by PCR. It should also be noted that several areas (e.g., large portions of Wickham Canyon) were mapped as jurisdictional features by Envicom (Envicom 2000). However, based on PCR's review, only a portion of the limits of CDFW jurisdictional drainage features depicted on the 2000 jurisdictional delineation map supported obvious indicators of jurisdiction based on current field conditions, and may not necessarily be subject to jurisdiction under current regulatory requirements. However, to provide a conservative analysis and include the maximum possible extent of jurisdiction on-site, the entirety of those areas previously delineated as jurisdictional in the 2000 Envicom delineation were presumed jurisdictional in the 2014 assessment by PCR for the purpose of this report.

It is PCR's recommendation that a formal jurisdictional delineation be performed within the study area and/or Project footprint prior to the regulatory permitting process.

3.0 EXISTING CONDITIONS

3.1 CHARACTERISTICS OF THE STUDY AREA AND SURROUNDING AREA

The study area is primarily vacant and consists of undeveloped, open terrain. The topography consists of hills of gentle to steep slopes separating low-lying drainages. The hills are tallest in the southwestern portion of the site and lower in height as they trend northwards where they form the southern wall of Pico Canyon, which lies north of the site. In the eastern portion of the study area, east-west trending ridges are cut by north-south trending Wickham Canyon, which flows from the south and to the north of the property where it joins with Pico Canyon. The western portion of the site is dominated by a northward-facing canyon with moderate to steep slopes. The vegetation in the study area is in the process of transition as it recovers from a wildfire in 2010. The north-facing aspects of most slopes is covered by coastal sage scrub and chaparral while the south facing ones are primarily annual grasslands. Riparian vegetation is found in the major drainages and several of the minor ones. The majority of the site is covered by soils characterized as Castaic-Balcom silty loams. In the low-lying area where Wickham Canyon meets Pico Canyon in the north, the soils type is characterized as Yolo loam while the rocky exposures of the tallest ridgeline in the southern portion of the site are characterized as Gaviota rocky sandy loam. Various dirt access roads and trails traverse through the study area.

A single-family residential community abuts the study area on the east. The area to the west is mostly undeveloped within Pico Canyon, but this area includes the remaining historic buildings of Mentryville. Mentryville is a state historic landmark operated by the Santa Monica Mountains Conservancy ("SMMC"). The Pico Canyon Trail, a proposed 5.62-mile trail mostly adjacent to Pico Canyon Road, of which 0.6 mile exists from the trail head at Stevenson Ranch Parkway extending to the west to the current trail end at the Southern Oaks community, and eventually providing access to Mentryville, would meander through Pico Canyon to areas generally to the east and southeast of the study area. The areas directly to the north and south of the study area are mostly undeveloped with moderate to very steep variations in topography.

3.2 PLANT COMMUNITIES

Descriptions of the plant communities mapped within the study area are included below. Locations of each of the plant communities are shown in **Figure 5**, *Plant Communities*, and acreages are summarized in **Table 1**, *Plant Communities*.

3.2.1 Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)

This community is dominated by California buckwheat (*Eriogonum fasciculatum*) and is open and sparse in some areas with an understory of bare ground. Associated species observed within this community include California sagebrush (*Artemisia californica*), black sage (*Salvia mellifera*), thick leaf yerba santa (*Eriodictyon crassifolium*), California bush sunflower (*Encelia californica*), chaparral bushmallow (*Malacothamnus fasciculatus*), sugarbush (*Rhus ovata*), wishbone bush (*Mirabilis laevis*), arroyo lupine (*Lupinus succulentus*), red-stemmed filaree (*Erodium cicutarium*), blue dicks (*Dichelostemma capitatum*), giant wild rye (*Elymus condensatus*), wild cucumber (*Marah macrocarpus*), and virgin's bower (*Clematis ligusticifolia*). Approximately 24.0 acres (all on-site) of this shrubland alliance are found on many slopes throughout the study area.

Table 1

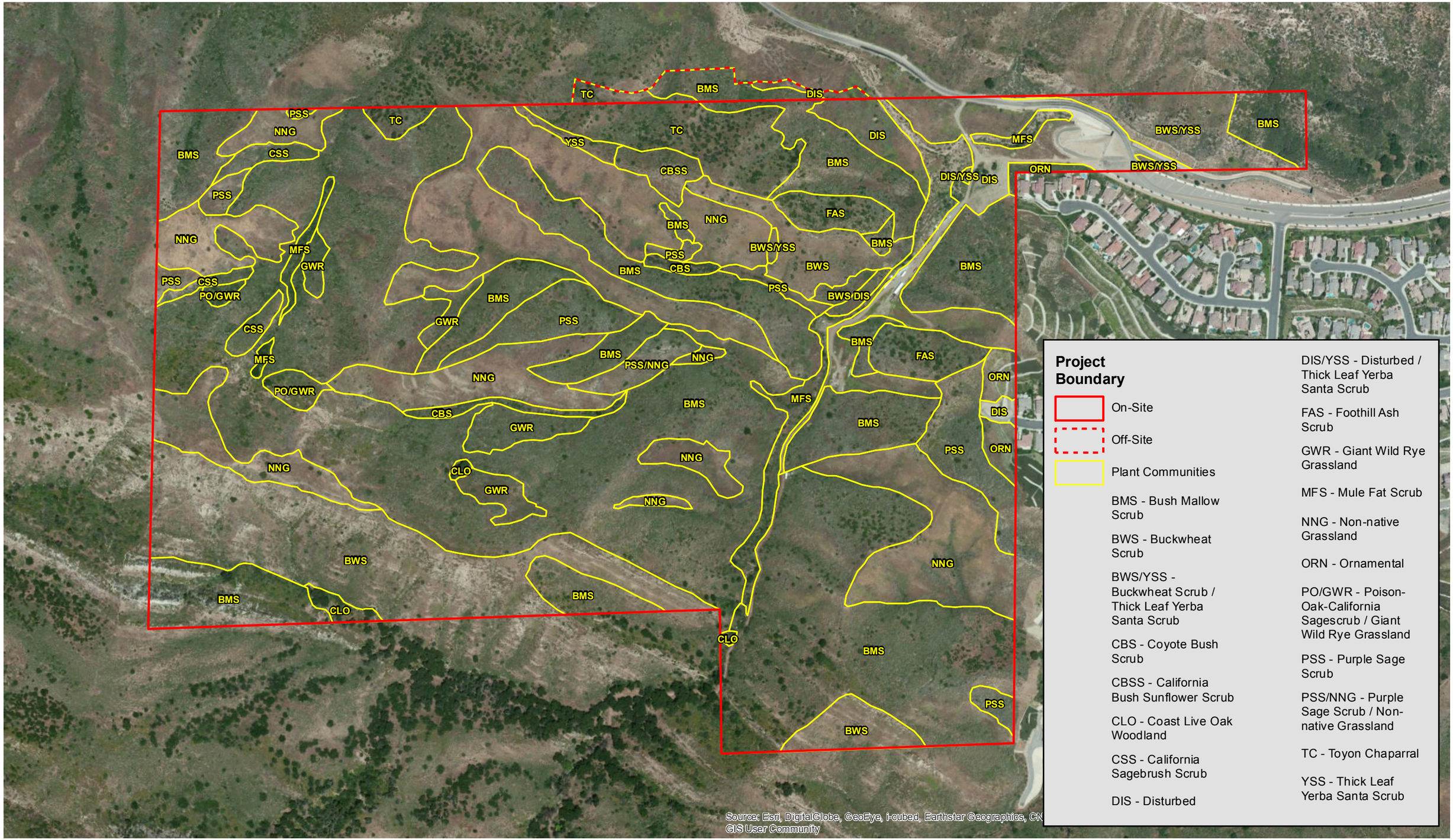
Plant Communities

Plant Communities	On-site (acres)	Off-site (acres)	Total (acres)
Bush Mallow Scrub	110.5	1.5	112.0
Buckwheat Scrub	24.0		24.0
Buckwheat Scrub/Thick Leaf Yerba Santa Scrub	4.6		4.6
Coyote Bush Scrub	1.2		1.2
California Bush Sunflower Scrub	1.3		1.3
Coast Live Oak Woodland	0.8		0.8
California Sagebrush Scrub	1.9		1.9
Disturbed	13.1	0.4	13.5
Disturbed/Thick Leaf Yerba Santa Scrub	0.1		0.1
Foothill Ash Scrub	3.8		3.8
Giant Wild Rye Grassland	4.0		4.0
Mule Fat Scrub	5.5		5.5
Annual Grassland	38.9		38.9
Ornamental	1.9		1.9
Poison Oak-California Sagebrush Scrub/Giant Wild Rye Grassland	1.1		1.1
Purple Sage Scrub	8.8		8.8
Purple Sage Scrub/Annual Grassland	1.5		1.5
Toyon Chaparral	6.8	0.7	7.5
Thick Leaf Yerba Santa Scrub	0.6		0.6
Total	**230.4**	**2.6**	**233.0**

Source: PCR Services Corporation, 2015.

3.2.2 Thick Leaf Yerba Santa Scrub (*Eriodictyon crassifolium* Provisional Shrubland Alliance)

This community is dominated by thick leaf yerba santa, which is a pioneer species. Associated species observed within this community include California sagebrush, purple sage (*Salvia leucophylla*), California buckwheat, California dodder (*Cuscuta californica*), red-stemmed filaree, arroyo lupine, rattlesnake weed (*Euphorbia albomarginata*), and shortpod mustard (*Hirschfeldia incana*). Approximately 0.6 acre (all on-site) of this shrubland alliance are found along the ridgelines in the northern portions of the study area.



PCR

N

0 400 800 Feet

Plant Communities

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

5

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3.2.3 Buckwheat Scrub/Thick Leaf Yerba Santa Scrub (*Eriogonum fasciculatum* Shrubland Alliance – *Eriodictyon crassifolium* Provisional Shrubland Alliance)

This community is dominated by California buckwheat; however, the subdominant species found within this community is thick leaf yerba santa, which is a pioneer species. Associated species observed within this community include chamise (*Adenostoma fasciculatum*), California sagebrush, pinebush (*Ericameria pinifolia*), mule fat (*Baccharis salicifolia*), California rose (*Rosa californica*), black sage, deerweed (*Acmispon glaber* var. *glaber*), California dodder, chaparral yucca (*Hesperoyucca whipplei*), Mediterranean tamarisk (*Tamarix ramosissima*), tocalote (*Centaurea melitensis*), and Bigelow's moss fern (*Selaginella bigelovii*). Approximately 4.6 acres (all on-site) of this shrubland alliance are found within the northeastern portion of the study area.

3.2.4 Coast Live Oak Woodland (*Quercus agrifolia* Woodland Alliance)

This woodland is dominated by coast live oak (*Quercus agrifolia*), an evergreen oak that reaches 30 to 75 feet in height. The shrub layer is underdeveloped and includes poison oak (*Toxicodendron diversilobum*), bush mallow, and giant wild rye. Approximately 0.8 acre (all on-site) of oak woodland were found on two north-facing slopes in the southwestern portion of the study area, and near Wickham Canyon in the south.

3.2.5 Disturbed/Thick Leaf Yerba Santa Scrub (Disturbed/*Eriodictyon crassifolium* Provisional Shrubland Alliance)

The habitat shows evidence of past anthropogenic disturbance and the community is dominated by non-native, weedy species, such as shortpod mustard, but has a subdominance of thick leaf yerba santa. Species observed within this community include coyote bush (*Baccharis pilularis*), mule fat, toyon (*Heteromeles arbutifolia*), southern California black walnut, and poison hemlock (*Conium maculatum*). Approximately 0.1 acre (all on-site) of this shrubland alliance occur near the northern entrance to the study area.

3.2.6 Bush Mallow Scrub (*Malacothamnus fasciculatus* Shrubland Alliance)

This community is characterized by a strong, almost monotypic, dominance of chaparral bushmallow, which is a pioneer species. Associated species observed within this community include California sagebrush, California buckwheat, toyon, giant wild rye, chaparral yucca, blue dicks, coyote bush, purple sage, shortpod mustard, blue elderberry (*Sambucus nigra* ssp. *caerulea*), common sandaster (*Corethrogyne filaginifolia*), skunkbush (*Rhus aromatica*), and Peirson's morning glory (*Calystegia peirsonii*). This shrubland alliance is found on many slopes throughout the study area and comprises approximately 112.0 acres (110.5 acres on-site and 1.5 acres off-site).

3.2.7 Foothill Ash Scrub (*Fraxinus dipetala* Alliance)

This community, which is dominated by California ash (*Fraxinus dipetala*) with a strong subdominance of purple sage, was identified by Mullally in 1997 in an early plant community classification effort of the Santa Susana Mountains; however, this community is not currently recognized by Sawyer, Keeler-Wolf, and Evens (2009). Associated species include toyon, coyote bush, California sagebrush, sugarbush, and giant wild rye. This shrubland alliance is found on several north-facing slopes within the study area and comprises approximately 3.8 acres (all on-site).

3.2.8 Toyon Chaparral (*Heteromeles arbutifolia* Shrubland Alliance)

This community is dominated by toyon with a subdominance of California ash. Associated species include purple sage, coyote bush, California sagebrush, and sugarbush. This shrubland alliance is found on slopes close to the northern boundary of the study area and comprises approximately 7.5 acres (6.8 acres on-site and 0.7 acre off-site).

3.2.9 Coyote Bush Scrub (*Baccharis pilularis* Shrubland Alliance)

This community is characterized by a dominance of coyote bush. Species observed within this community include black sage, purple sage, tocalote, chaparral bushmallow, and flatspine bur ragweed (*Ambrosia acanthicarpa*). Approximately 1.2 acres (all on-site) of this community are found several low-lying areas of the study area.

3.2.10 Purple Sage Scrub (*Salvia leucophylla* Shrubland Alliance)

This community is characterized by a dominance of purple sage with a subdominance of chaparral bushmallow and black sage and occurs on north-facing slopes throughout the study area. Associated species observed within this community include California buckwheat, chaparral yucca, arroyo lupine, red-stemmed filaree, shortpod mustard, blue dicks, rattlesnake weed, holly-leaved cherry (*Prunus ilicifolia*), chia sage (*Salvia columbariae*), and non-native annual grasses. Approximately 8.8 acres (all on-site) of this shrubland alliance are found on north-facing slopes throughout the study area.

3.2.11 California Bush Sunflower Scrub (*Encelia californica* Shrubland Alliance)

This shrubland alliance is dominated by a nearly monotypic community of California brittlebush. Associated species observed within this community include California sagebrush, California buckwheat, chaparral bushmallow, deerweed, and giant wild rye. Approximately 1.3 acres (all on-site) of this shrubland alliance are found on a south-facing slope in the northern portion of the study area.

3.2.12 Mule Fat Scrub (*Baccharis salicifolia* Riparian Shrubland Alliance)

This community is characterized by a dominance of mule fat that is found in association with the drainages on-site. Species observed within this community include thick leaf yerba santa, Mediterranean tamarisk, California sagebrush, black sage, sugarbush, blue elderberry, chaparral bushmallow, southern California black walnut, Fremont's cottonwood (*Populus fremontii*), red willow (*Salix laevigata*), giant wild rye, tree tobacco (*Nicotiana glauca*), mugwort (*Artemisia douglasiana*), virgin's bower, golden currant (*Ribes aureum*), and ornamental black locust (*Robinia pseudoacacia*). Approximately 5.5 acres (all on-site) of this community occur within the study area.

3.2.13 Poison Oak-California Sagebrush/Giant Wild Rye Scrub (*Toxicodendron diversilobum – Artemisia californica/Elymus condensatus* Shrubland Association)

This community is characterized by a mix of poison oak (*Toxicodendron diversilobum*), California sagebrush, and giant wild rye. Approximately 1.1 acres (all on-site) of this community occur in the western portion of the study area.

3.2.14 Giant Wild Rye Grassland (*Elymus condensatus* Herbaceous Alliance)

This community is characterized by a dominance of giant wild rye. Associated species observed within this community include purple sage, blue elderberry, California sagebrush, lupine (*Lupinus* sp.), Pacific sanicle (*Sanicula crassicaulis*), wishbone bush, wild cucumber, miner's lettuce (*Claytonia perfoliata*), and common eucrypta (*Eucrypta chrysanthemifolia*). Approximately 4.0 acres (all on-site) of this community occur on the moist lower portions of several north-facing slopes within the study area.

3.2.15 California Sagebrush Scrub (*Artemisia californica* Shrubland Alliance)

This community is characterized by a dominance of California sagebrush. Associated species observed within this community include poison oak, giant wild rye, and mugwort. Approximately 1.9 acres (all on-site) of this community on the moist lower portions of several north-facing slopes on the westernmost portion of the study area.

3.2.16 Disturbed

Disturbed habitat has been physically disturbed and is no longer recognizable as a native or naturalized vegetation association. Typical vegetation, if present, is nearly exclusively composed of non-native, ruderal weedy grasses and herbaceous species. Species observed within this community included Mediterranean tamarisk, shortpod mustard, California sagebrush, California buckwheat, thick leaf yerba santa, red-stemmed filaree, chaparral bushmallow, mule fat, needlegrass, tocalote, purple sage, arroyo lupine, lupine, turkish rugging (*Chorizanthe staticoides*), telegraphweed (*Heterotheca grandiflora*), tarragon (*Artemisia dracunculus*), Jimson weed (*Datura wrightii*), horehound (*Marrubium vulgare*), western verbena (*Verbena lasiostachys*), wild cucumber, blue elderberry, cheeseweed (*Malva parviflora*), milkthistle (*Silybum marianum*), poison hemlock, nettle-leaved goosefoot (*Chenopodium murale*), chaparral nightshade (*Solanum xanti*), saltgrass (*Distichlis spicata*), California suncup (*Eulobus californica*), tumbling pigweed (*Amaranthus albus*), Santa Barbara milkvetch (*Astragalus trichopodus* var. *phoxus*), flatspine bur ragweed, coastal bird's-foot trefoil (*Acmispon maritimus* var. *maritimus*), and common eucrypta. This community is found throughout the study area and comprises approximately 13.5 acres (13.1 acres on-site and 0.4 acre off-site).

3.2.17 Annual Grassland

Annual grassland is dominated by non-native annual grasses such as wild oat (*Avena* sp.) and brome grasses (*Bromus* spp.), as well as non-native broadleaved plants including tocalote, shortpod mustard, black mustard (*Brassica nigra*), and red-stemmed filaree. Native broadleaves are also frequent and include blue dicks and lupines. This community is found throughout the study area and comprises approximately 38.9 acres (all on-site).

3.2.18 Purple Sage Scrub/Annual Grassland (*Salvia leucophylla* Shrubland/ Annual Grassland Alliance)

This community is characterized by a mix of the purple sage scrub dominant and subdominant species of purple sage, chaparral bushmallow, and black sage intermixed with the annual grassland components of as wild oat, brome grass, tocalote, shortpod mustard, and red-stemmed filaree. The community occurs on one north-facing slope within the center of the study area. Associated species observed within this community

include California buckwheat, arroyo lupine, blue dicks, rattlesnake weed, chia sage, and non-native grasses. Approximately 1.5 acres (all on-site) of this alliance are found on the study area.

3.2.19 Ornamental

Ornamental vegetation consists of landscaping and introduced species associated with the adjacent development. Ornamental areas within the study area are dominated by non-native species including ice plant (*Carpobrotus* sp.), rosemary (*Rosemarinus officinalis*), Mediterranean tamarisk, purple sage, giant wild rye, mule fat, tocalote, shortpod mustard, and needlegrass (*Stipa* sp.). Approximately 1.9 acres (all on-site) of this community occur on the eastern portion of the study area in proximity with the off-site residential development.

3.3 GENERAL PLANT INVENTORY

The plant communities discussed above are composed of numerous plant species. Plant species observations and identifications were completed during the 2014 field visits to the study area. All plant species observed within the study area are indicated in Appendix A, *Floral and Faunal Compendium*. Sensitive plant species occurring or potentially occurring within the study area are discussed in Section 3.7.3, *Sensitive Plant Species*.

3.4 GENERAL WILDLIFE INVENTORY

The natural communities found within the study area provide habitat for a variety of wildlife species. Wildlife species observations and identifications were completed during the 2014 field visits to the study area. All wildlife species observed within the study area are indicated in Appendix A, *Floral and Faunal Compendium*. Sensitive wildlife species occurring or potentially occurring within the study area are discussed in Section 3.7.4, *Sensitive Wildlife Species*.

3.5 WILDLIFE MOVEMENT

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). Although the nature of each of these types of movement are species specific, large open spaces will generally support a diverse wildlife community representing all types of movement (Fahrig and Merriam 1985). Each type of movement may also be represented at a variety of scales from non-migratory movement of amphibians, reptiles, and some birds, on a "local" level to many square mile home ranges of large mammals moving at a "regional" level. The location of the study area supports all types of wildlife movement on some scale.

Movement on a smaller or "local" scale occurs throughout the surrounding vicinity as well as within the study area itself. Data gathered from biological surveys indicate that the study area contains habitat that supports a variety of species of reptiles, birds, and mammals. The home range and average dispersal distance of many of these species may be entirely contained within the study area and immediate vicinity. Populations of animals such as amphibians, reptiles, small mammals, and a few bird species may find all their resource requirements without moving far or outside of the study area at all. Occasionally, individuals

expanding their home range or dispersing from their parental range will attempt to move outside of the study area.

From a regional perspective, the study area is situated in an undeveloped area west of the City of Santa Clarita in unincorporated Los Angeles County (refer to **Figure 6**, *Regional Aerial Photograph*). Pico Canyon lies to the north of the study area, residential communities lie to the east, and dedicated open space lies to the south and west. The study area does not fall within any of the potential linkage areas described in the South Coast Missing Linkages (South Coast Wildlands 2008).

The study area is likely to provide live-in habitat and local-level movement habitat for a variety of insect, reptile, bird, and mammal species. The study area is immediately adjacent to residential development to the east with high levels of human activities, and Pico Canyon Road to the north serves as an existing barrier to wildlife movement but would not be expected to be a substantial barrier as most traffic occurs during daylight hours. Furthermore, the study area does not function as a regional wildlife movement corridor since it does not connect two or more habitat patches that would otherwise be fragmented or isolated from one another (i.e., due to surrounding development). Rather, the study area is contiguous to an area that may serve more widespread movement, and is a part of the broader Santa Susana Mountains area that provides habitat and relatively unrestricted movement for numerous wildlife species, particularly along the drainages and ridgelines due to the steep topography of the study area.

With regard to the South Coast Missing Linkages (SCML) design, it is important to note that the linkage design does not exist as a managed reserve and there is no guarantee that lands within the linkage will ever actually be protected. The SCML design described the minimum amount of land needed to provide connectivity between the core habitat areas of the Santa Monica Mountains and Los Padres National Forest given recent development patterns. Development decisions outside of this linkage could still adversely impact wildlife movement in the region, which is the reason the linkage is identified and its preservation becomes more important as additional development in the region is constructed. Avoidance of the SCML linkage does not equate to a less than significant effect on wildlife movement, but would not directly interfere with movement between core habitat areas of the Santa Monica, San Gabriel, and Santa Susanna Mountains, which would likely remain open.

3.6 JURISDICTIONAL FEATURES

Two USGS "blueline streams" are mapped within the study area, which correspond to the drainages occurring within Pico and Wickham Canyons. Pico Canyon Creek enters the northeast corner of the study area and exits along the eastern boundary. Its tributary initiates within the study area and exits in the northwest corner where it joins Pico Canyon Creek off-site. Wickham Canyon Creek, which is a named tributary to Pico Canyon Creek, enters in the southeastern corner of the study area and continues north until its confluence with Pico Canyon Creek in the northeastern corner of the study area. Wickham Canyon Creek and its tributaries are located throughout the central and eastern portion of the study area and drain the majority of the site.

A jurisdictional delineation was conducted by Envicom in 2000. As summarized in the 2000 Envicom report, the study area supports a total of 1.25 acres of USACE jurisdiction and 6.41 acres of CDFW jurisdictional streambed and associated riparian habitat (refer to Table 2 of the Envicom report). It should be noted, however, that shortly after the 2000 jurisdictional delineation was conducted, approximately 0.28 acre of wetlands and 0.47 acre of CDFW jurisdiction were removed as part of the Stevenson Ranch Laing Homes

Southern Oaks development associated Pico Canyon Road improvements and Pico Canyon Channel creation (refer to **Figure 7**, *CDFW Jurisdictional Limits*).

Given that PCR performed only a cursory review of jurisdictional drainage features on the property during the biological assessment for the purpose of this report, it is PCR's recommendation that a formal jurisdictional delineation be performed within the study area and/or Project footprint prior to the regulatory permitting process.

3.7 SENSITIVE BIOLOGICAL RESOURCES

Sensitive biological resources are habitats or individual species that have been classified by either federal or State resource management agencies, or both, as threatened, endangered, or rare under the provisions of the Federal and California Endangered Species Acts (FESA and CESA, respectively).

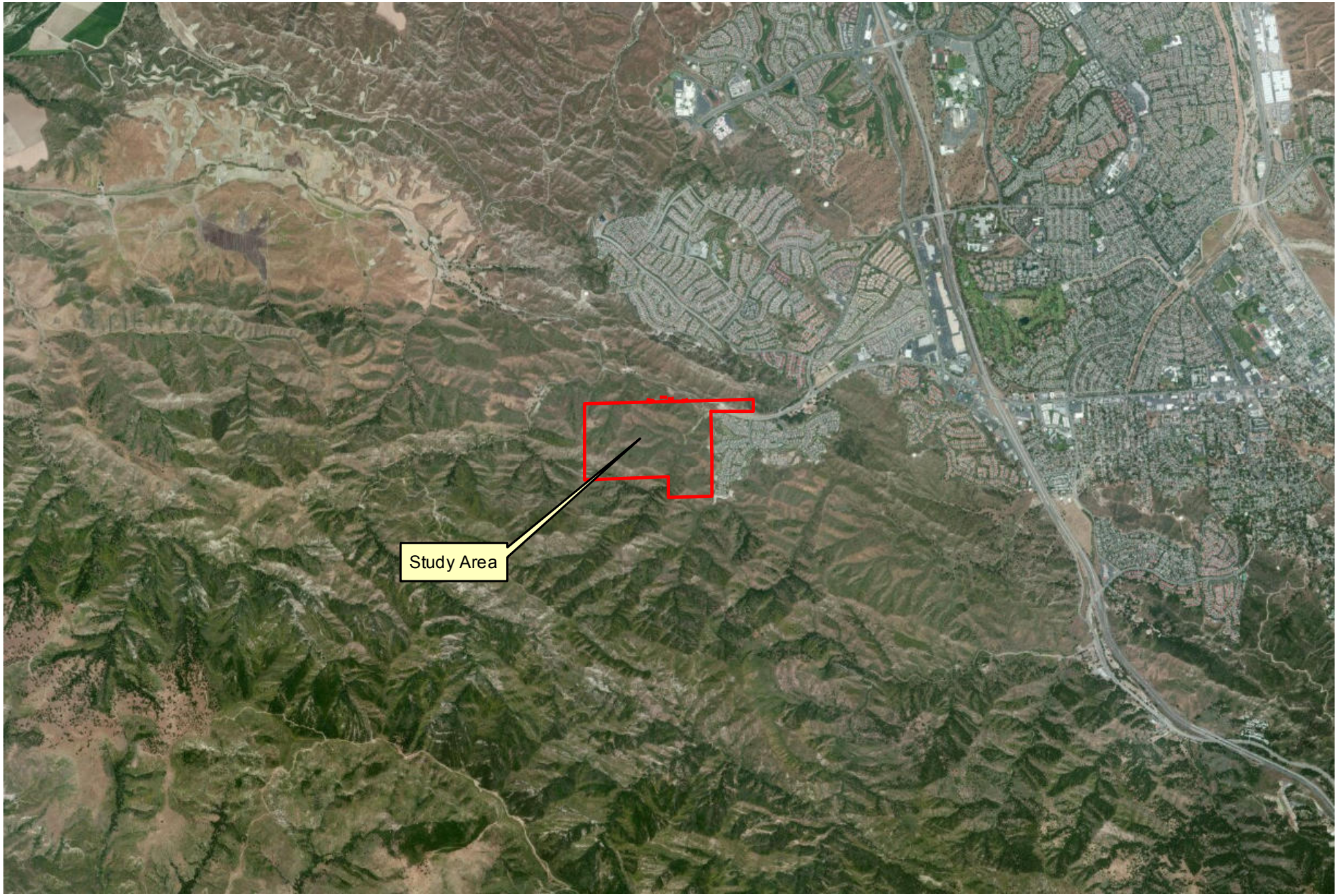
Determinations of sensitive species that occur or could potentially occur within the study area are based on one or more of the following: (1) the direct observation of the species on the property during the biological survey, (2) a record reported in the CNDDB, or (3) the study area location is within the known distribution of a species and appropriate on-site habitat.

3.7.1 Sensitive Resource Classification

Federal Protection and Classifications

The FESA defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined in Section 3(18) of FESA: "...harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification as forms of "take." These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action, which could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the FESA addresses the protections afforded to listed plants.

The USFWS instituted changes in the listing status of candidate species abandoning the C1/C2 model. Former C1 candidate species are now considered Federal Candidate species (FC). Some USFWS field offices (e.g., Sacramento) maintain lists of Federal Species of Concern (FSC). These species receive no legal protection and the use of the term does not mean that they will eventually be proposed for listing (http://www.fws.gov/sacramento/es_species/Accounts/Species-Concerns/es_species-concerns.htm). The Carlsbad Fish and Wildlife Office does not maintain such a list for their jurisdiction, which includes Los Angeles, Orange, Riverside, San Bernardino, Imperial, and San Diego Counties. All references to federally protected species in this report include the most current published status to which each species has been assigned by USFWS.



N

0 0.75 1.5 Miles

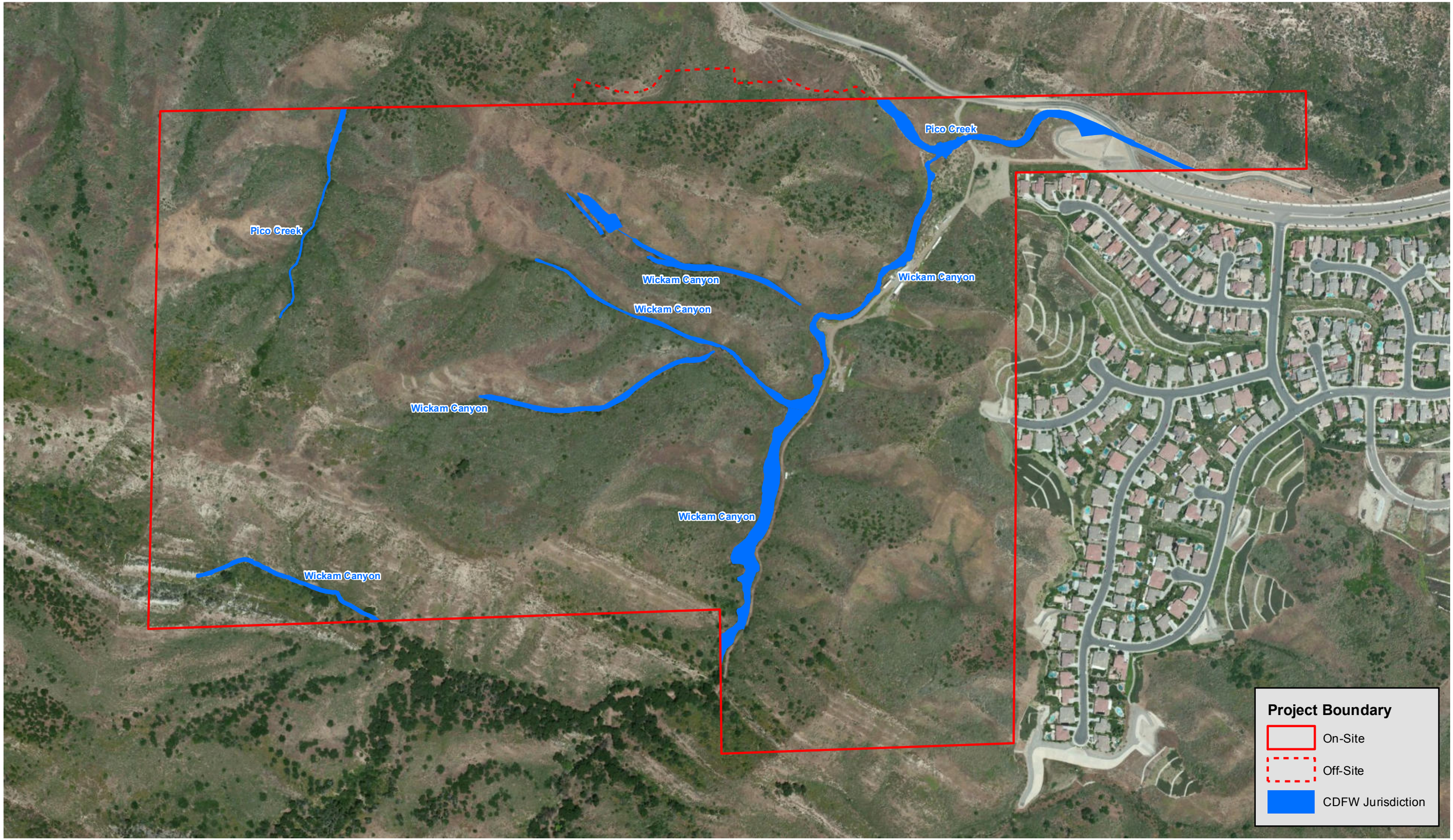
Regional Aerial Photograph

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

6



PCR

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CDFW Jurisdictional Limits

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

7

For purposes of this assessment, the following acronyms are used for Federal status species:

- FE Federally listed as Endangered
- FT Federally listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened
- FPD Federally proposed for delisting
- FC Federal candidate species (former Category 1 candidates)

State of California Protection and Classifications

California's Endangered Species Act defines an Endangered species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a Threatened species as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a Threatened species." Candidate species are defined as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of Endangered species or the list of Threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as Threatened or Endangered at the discretion of the Fish and Wildlife Commission. Unlike the FESA, CESA does not include listing provisions for invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of Threatened or Endangered species by stating "No person shall import into this state, export out of this state, or take, possess, purchase, or sell within this state, any species, or any part or product thereof, that the commission determines to be an endangered species or a threatened species, or attempt any of those acts, except as otherwise provided." Under the CESA, "take" is defined as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require permits or memoranda of understanding and can be authorized for "Endangered species, Threatened species, or candidate species for scientific, educational, or management purposes." Sections 1901 and 1913 of the California Fish and Wildlife Code provide that notification is required prior to disturbance.

Additionally, some sensitive mammals and birds are protected by the State as Fully Protected Mammals or Fully Protected Birds, as described in the California Fish and Wildlife Code, Sections 4700 and 3511, respectively. California Species of Special Concern are species designated as vulnerable to extinction due to declining population levels, limited ranges, or continuing threats. This list is primarily a working document for the CDFW's CNDDB project. Informally listed taxa are not protected per se, but warrant consideration in the preparation of biotic assessments. For some species, the CNDDB is only concerned with specific portions of the life history, such as roosts, rookeries, or nest sites.

For the purposes of this assessment, the following acronyms are used for state status species:

- SE State listed as Endangered
- ST State listed as Threatened
- SR State listed as Rare
- SCE State candidate for listing as Endangered
- SCT State candidate for listing as Threatened
- SFP State Fully Protected
- SSC California Species of Special Concern

California Native Plant Society

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of rare, threatened, or endangered plant species of California (CNPS 2014). The list often serves as the candidate list for listing as threatened and endangered by CDFW. CNPS has developed six categories of rarity:

- Rank 1A Presumed extinct in California
- Rank 1B Rare, threatened, or endangered in California and elsewhere
- Rank 2A Presumed extinct in California, more common elsewhere
- Rank 2B Rare, threatened, or endangered in California, more common elsewhere
- Rank 3 Plants for which we need more information – Review list
- Rank 4 Plants of limited distribution – Watch list

The CNPS recently added "threat ranks" which parallel the ranks used by the CNDDB. These ranks are added as a decimal code after the CNPS Rank (e.g., Rank 1B.1). The threat codes are as follows:

- .1 – Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- .2 – Moderately threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat)
- .3 – Not very threatened in California (<20% of occurrences threatened or low degree and immediacy of threat or no current threats known)

Los Angeles Audubon Society

The Los Angeles Audubon Society's Breeding Bird Atlas Project provided a conservation tool designed to highlight breeding bird species that may be at risk of extirpation in the county. The Los Angeles Audubon Society goals to examine the status of all bird species occurring in the county by including migrants and wintering birds, and to emphasize species at risk in the county that did not enjoy protection by either a formal listing (as under the state or Federal Endangered Species Acts) or by recognition as a California Bird

Species of Special Concern by CDFW. The result of this effort produced results of sensitive bird species comprising 32 taxa not formally protected under listed by a resources agency and another 38 taxa already provided some protection by formal listing by a governmental resource agency and routinely included in a CEQA environmental impact analysis. One objective of the list is to assist conservation planners to evaluate open-space areas in Los Angeles County in terms of their potential conservation value to the county's at-risk bird species with areas determined to have high conservation potential being prioritized, such as identifying unprotected lands for protection or identifying degraded park lands that could provide high conservation value through restoration.

3.7.2 Sensitive Plant Communities

A review of the most current edition of CDFW *List of Vegetation Alliances and Associations* developed for the CNDDB (CDFG 2010) and the *County of Los Angeles Oak Woodlands Conservation Management Plan* (County 2011) was conducted to determine if any of the plant communities mapped within the study area are considered "rare and worthy of consideration" by lead and trustee agencies when reviewing project-related impacts assessed in environmental documents.

The study area supports several plant communities that are considered sensitive by the CNDDB, including: 0.6 acre (all on-site) of Thick Leaf Yerba Santa Scrub (CDFW Code 37.090.00), 7.5 acres (6.8 acres on-site and 0.7 acre off-site) of Toyon Chaparral (CDFW Code 37.911.00), 1.3 acres (all on-site) of California Bush Sunflower Scrub (CDFW Code 32.050.00), and 4.0 acres (all on-site) of Giant Wild Rye Grassland (CDFW Code 41.265.00).

Furthermore, the Los Angeles County Oak Woodlands Conservation Management Plan, adopted by the Board of Supervisors August, 23, 2011, recognizes oak woodlands as a sensitive resource. A total of 0.8 acre of Coast Live Oak Woodland occurs on-site.

Additionally, although not recognized by the CNDDB as a sensitive plant community, Mullally (1997) noted that Foothill Ash Scrub is a community with limited distribution in north Los Angeles County; thus, it is a community of local interest. The study area supports 3.8 acres (all on-site) of Foothill Ash Scrub. It should also be noted that although patches of needlegrass were observed on-site, the needlegrass was interspersed within scrub communities and were not dense enough (e.g., comprising 10 percent or greater of the community composition) to be called out as a separate community. Similarly, southern California black walnut trees were observed on-site; however, these trees were not dominant species in the community and therefore did not constitute a southern California black walnut woodland community.

3.7.3 Sensitive Plant Species

As described in Section 2.2.3, a number of sensitive plant species were reported in the CNDDB as occurring within the general area of the study area. Many species are not expected to occur on-site due to lack of suitable habitat, lack of suitable soils, or because the fact that the study area was outside of the known range of the species.

Based on the CNDDB records and the presence of suitable habitat, sensitive plant species with the potential to occur on-site include Braunton's milk-vetch, Ojai navarretia, San Fernando Valley spineflower, slender mariposa lily, and Nevin's barberry. Three species not listed federally or by the state, and with a CRPR of 4 (values 1-3 are generally considered CEQA sensitive), had been found on-site previously: southern California

black walnut (CRPR 4.2), Plummer's mariposa lily (CRPR 4.2), and Peirson's morning glory (CRPR 4.2). Focused sensitive plant surveys were conducted due to the presence of suitable habitat for these species within the study area.

Up to three southern California black walnut trees and seven (7) Peirson's morning glory were observed within the study area. Fifteen (15) southern California black walnut trees were found outside of the development footprint, but still within the study area in Wickham Canyon and on the north-facing slopes in the southeastern corner of the study area. The distinctive dried seed pods of 6 individual mariposa lily flowers, which had bloomed and gone to seed, were found on a ridgetop (**Figure 8,** *Sensitive Plants Locations*). With few exceptions, identification of the species of mariposa lily without the flower (and with only a seed pod to examine) is not considered reliable by most botanists. While several common species of mariposa lilies are known to occur in the area, it is presumed that the species of mariposa lily found on-site was the slender mariposa lily due to previous identification of this species on-site, as referenced by the *Wickham Property Botanical Inventory 2005* (Envicom 2005). A discussion of each sensitive plant species is presented in **Table 2**, *Sensitive Plant Species*.

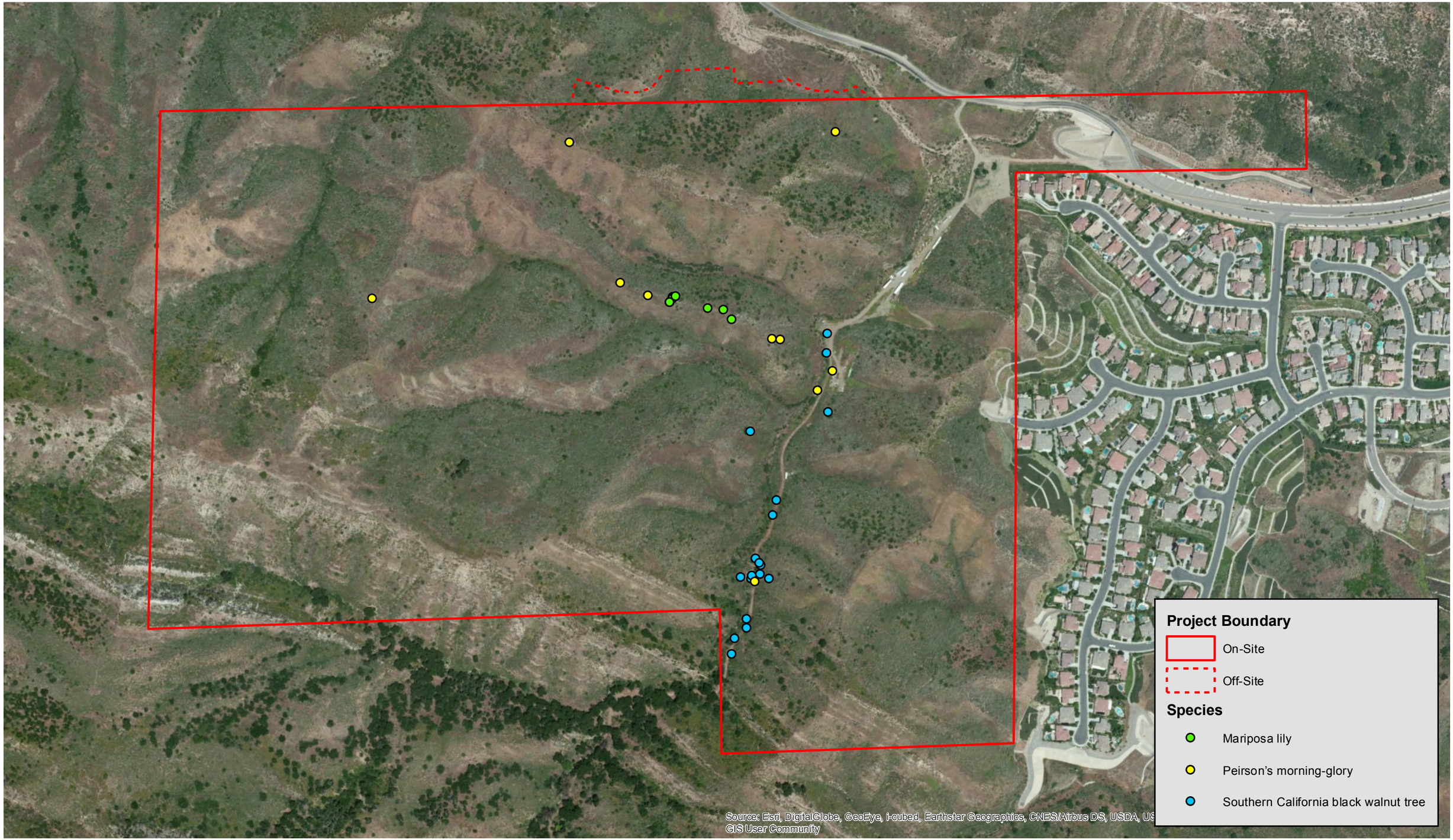
3.7.4 Sensitive Wildlife Species

As described in Section 2.2.4, a number of sensitive wildlife species were reported in the CNDDB as occurring within the general area of the study area. Many species are not expected to occur on-site due to lack of suitable habitat, lack of suitable soils, or because the fact that the study area was outside of the known range of the species.

Sensitive wildlife species with the potential to occur within the study area include: grasshopper sparrow (SSC), coast horned lizard (SSC), silvery legless lizard, pallid bat (SSC), coastal whiptail (SA), golden eagle (SFP), Cooper's hawk (WL), Swainson's hawk (WL), white-tailed kite (SSC), turkey vulture, loggerhead shrike, greater roadrunner, California horned lark (WL), southern California rufous-crowned sparrow (WL), Bell's sage sparrow (WL), spotted bat (SSC), and San Diego desert woodrat (SSC). These species are not federal or State listed species; therefore, protocol surveys are not required and no focused wildlife surveys were conducted. A discussion of each sensitive wildlife species is presented in **Table 3**, *Sensitive Wildlife Species*.

3.7.5 Protected Oak Trees

In accordance with the County of Los Angeles Oak Tree Ordinance (Ord. 88-0157 § 2, 1988: Ord. 82-0168 § 2 (part), 1982) as outlined in Chapter 22.56.2050 *et seq*. of the Los Angeles County Code (referred to in this report as "the Oak Tree Ordinance"), an oak tree survey was conducted within the study area in 2013. The Oak Tree Ordinance protects all tree species of the oak genus that measure 25 inches or more in circumference (eight inches in diameter) for trees with a single trunk and 38 inches of combined circumference (12 inches in diameter) for any two trunks of trees with multiple stems, as measured at breast height, or 4.5 feet above natural grade (diameter at breast height, or "DBH"). The Oak Tree Ordinance also covers the "protected zone" of the oak trees, which extends to five feet outside of the dripline of the oak tree, or 15 feet from the trunk(s) of a tree, whichever distance is greater. Additionally, the Oak Tree Ordinance protects all tree species of the oak genus (*Quercus*) that fall within 200-feet of Project construction. A total of 14 oak trees were identified within the study area. Locations of the oak trees within the Project footprint are shown in **Figure 9**, *Oak Tree Locations*. Details of the oak tree study can be found under separate cover by PCR, *Oak Tree Survey Update for Tentative Map #52796 in the Stevenson Ranch Area* (June 27, 2013).



PCR

N

0 400 800 Feet

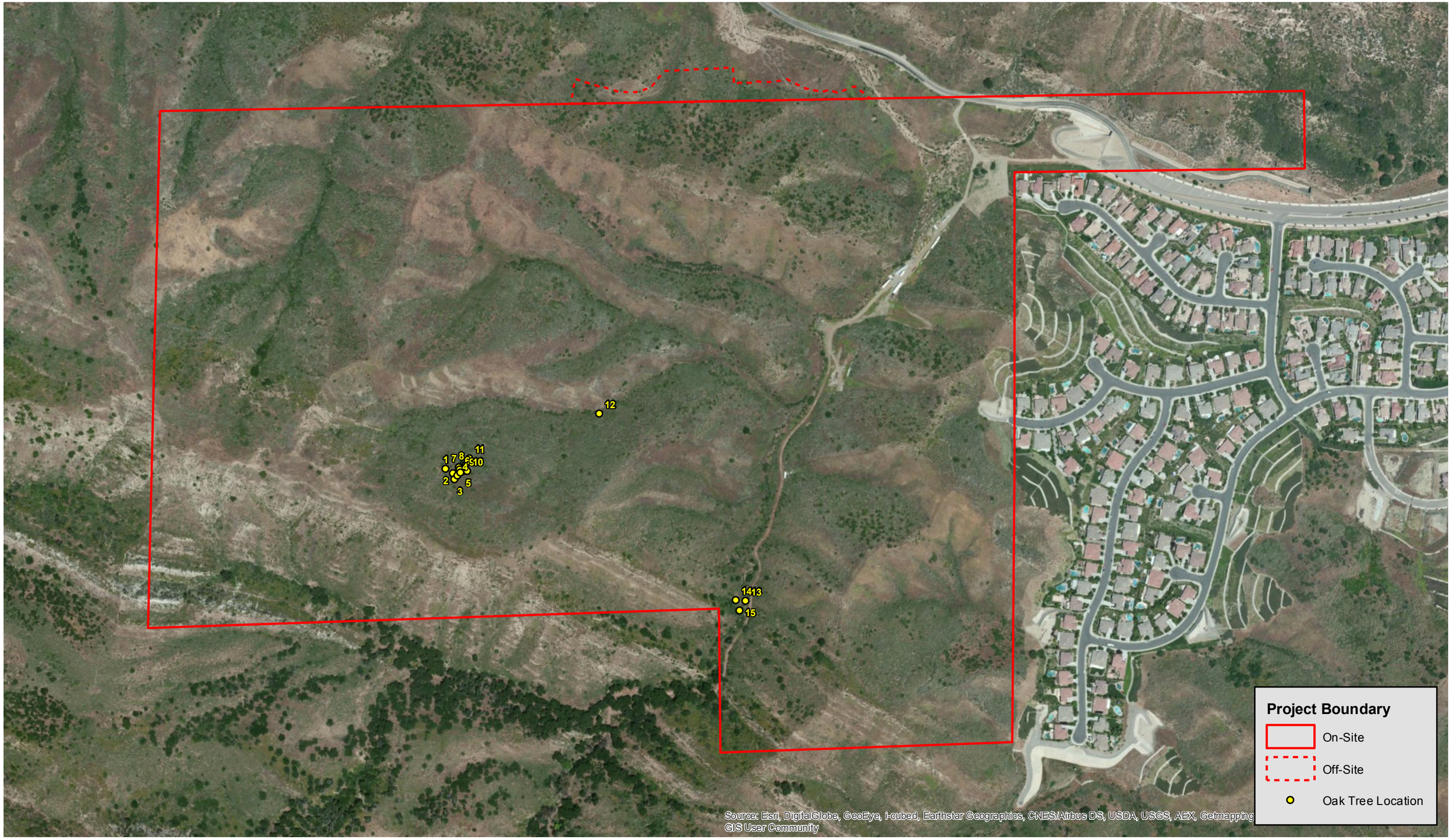
Sensitive Plant Locations

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

8



PCR

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0 400 800 Feet

Oak Tree Locations

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

9

Table 2

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
ANGIOSPERMS (DICOTYLEDONS)								
Asteraceae	**Aster Family**							
Centromadia parryi ssp. *australis*	southern tarplant	May - Nov	None	None	1B.1	Elevation 0 - 480 m; alkaline soils; marshes and swamps (margins), valley and foothill grassland (vernally mesic), vernal pools.	Los Angeles, Orange, Santa Barbara, San Diego, and Ventura Counties, Santa Catalina Isl., Baja CA.	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat and the site location is outside of the species known elevational range. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Deinandra minthornii	Santa Susana tarplant	Jul - Nov	None	Rare	1B.2	Elevation 280 -760 m; rocky soils; chaparral, coastal scrub.	Los Angeles and Ventura Counties.	NE
Comment: This species is known to occur within 6 miles of the site. Focused surveys were conducted for this species on the site. This species is not expected to occur on the site due to negative survey results.								
Deinandra paniculata	paniculate tarplant	Apr - Nov	None	None	4.2	Elevation 25 -940 m; usually vernally mesic soils; coastal scrub, valley and foothill grasslands and vernal pools.	Los Angeles, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara and Ventura Counties.	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. Sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Helianthus inexpectatus	Newhall sunflower	Aug – Oct	None	None	1B.1	Elevation 305 m; marshes and swamps, Riparian woodland/freshwater, seeps	Los Angeles County	NE

OB = Species observed on-site
P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
NE = Species not expected due to the lack of suitable habitat or not found during surveys

Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	May - Nov	None	None	1B.1	Elevation 10 - 1675 m; marshes and swamps, riparian woodland/freshwater, seeps	Los Angeles County	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Hulsea vestita ssp. *parryi*	Parry's sunflower	Apr – Aug	None	None	4.3	Elevation 1370 – 2895 m; rocky, granitic or carbonate openings within lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest	Kern, Los Angeles, Mono, San Bernardino, and Ventura Counties	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat and the site location is outside of the species known elevational range. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	Feb – Jun	None	None	1B.1	Elevation 1 – 1220 m; marshes and swamps, riparian woodland/freshwater, seeps	Los Angeles, Santa Barbara, and Orange Counties	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								

OB = Species observed on-site
P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
NE = Species not expected due to the lack of suitable habitat or not found during surveys

Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Senecio aphanactis	chaparral ragwort	Jan - Apr	None	None	2B.2	Elevation 15 - 800 m; sometimes alkaline soils; chaparral, cismontane woodland, coastal scrub.	Los Angeles, Orange, Riverside, Santa Barbara, San Luis Obispo, and Ventura Counties; Santa Catalina Isl., Santa Cruz Isl., and Santa Rosa Isl.; Baja California	NE
Comment: This species is not expected to occur on the site due to the lack of due to the lack of alkaline soils. In addition, sensitive plant surveys were conducted during the known blooming period for this species and it was not observed.								
Symphyotrichum greatae	Greata's aster	Jun – Oct	None	None	1B.3	Elevation 300 - 2010 m; chaparral, cismontane woodland, coastal scrub, riparian scrub/sandy or gravelly	Los Angeles, Riverside, San Bernardino, and San Diego Counties	NE
Comment: This species is not expected to occur on the site because the study area is at the margin of the species' distribution. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Berberidaceae	**Barberry Family**							
Berberis nevinii	Nevin's barberry	Mar – Jun	FE	SE	1B.1	Elevation 274 - 825 m; chaparral, cismontane woodland, coastal scrub, riparian scrub/sandy or gravelly	Los Angeles, Riverside, San Bernardino, and San Diego Counties	NE
Comment: This species is known to occur within 10 miles of the site. Focused surveys were conducted for this species on the site. This species is not expected to occur on the site due to negative survey results.								

OB = Species observed on-site
P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
NE = Species not expected due to the lack of suitable habitat or not found during surveys

Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Boraginaceae	**Borage Family**							
Harpagonella palmeri	Palmer's grapplinghook	Mar – May	None	None	4.2	Elevation 20 - 955 m; clay soils in chaparral, coastal scrub, and valley and foothill grassland	Los Angeles, Orange, Riverside, and San Diego Counties	NE
Comment: This species is not expected to occur on the site due to the lack of clay soils. This species is not expected to occur on the site due to negative survey results.								
Phacelia hubbyi	Hubby's phacelia	Apr – Jun	None	None	4.2	Elevation 0 - 1000 m; gravelly, rocky, talus habitats in chaparral, coastal scrub, and valley and foothill grassland	Kern, Los Angeles, Orange, Santa Barbara and Ventura Counties	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results. In addition, the potential for this species to occur on the site is minimal due to the lack of talus soils.								
Phacelia mohavensis	Mojave phacelia	Apr – Aug	None	None	4.3	Elevation 1400 - 2500 m; sandy or gravelly soils within cismontane woodland, lower montane coniferous forest, meadow, seep, and pinyon and juniper woodland	Inyo, Kern, Los Angeles, San Bernardino, Tulare Ventura Counties	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat and the site location is outside of the species known elevational range. This species is not expected to occur on the site due to negative survey results.								

OB = Species observed on-site
P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
NE = Species not expected due to the lack of suitable habitat or not found during surveys

Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Brassicaceae	**Mustard Family**							
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	Jan – Jul	None	None	1B.2	Elevation 1 - 835 m; chaparral and coastal scrub	Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura Counties	NE
Comment: This species is not expected to occur on the site due to site being at edge of distribution. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Cactaceae	**Cactus Family**							
Opuntia basilaris var. *brachyclada*	short-joint beavertail	Apr – Jun	None	None	1B.2	Elevation 425 - 1800 m; chaparral, Joshua tree "woodland", Mojavean desert scrub, pinyon and juniper woodland	Los Angeles and San Bernardino Counties	NE
Comment: This species is not expected to occur on the site due to the predominant lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Convolvulaceae	**Morning-glory family**							
Calystegia peirsonii	Peirson's morning-glory	Apr – Jun	None	None	4.2	Elevation 30 – 1500 m; chaparral, cismontane woodland, coastal scrub, valley and foothill grassland.	Los Angeles	OB
Comment: Focused surveys were conducted for this species during its known blooming period. This species was observed within the study area. Approximately 10 individuals were observed on-site.								

OB = Species observed on-site
P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
NE = Species not expected due to the lack of suitable habitat or not found during surveys

Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Convolvulus simulans	small-flowered morning-glory	Mar – Jul	None	None	4.2	Elevation 30 – 700 m; serpentinite clay soils in seeps and openings in chaparral, coastal scrub, and valley and foothill grassland.	Kern, Los Angeles, Riverside, San Bernardino, San Diego, San Luis Obispo, Santa Barbara and Ventura Counties	NE
Comment: This species is not expected to occur on the site due to the lack of serpentinite clay soils in seeps.								
Crassulaceae	**Stonecrop Family**							
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	Apr - Jun	None	None	1B.1	Elevation 5 - 450 m; rocky, often clay or serpentinite soils; coastal bluff scrub, chaparral, coastal scrub, valley and foothill grassland.	Los Angeles, Orange, Santa Barbara, San Diego, San Luis Obispo, and Ventura Counties and Baja California	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results.								
Dudleya cymosa ssp. *agourensis*	Agoura Hills dudleya	May - Jun	FT	None	1B.2	Elevation 200 - 500 m; rocky and volcanic soils; chaparral and cismontane woodland.	Los Angeles and Ventura Counties.	NE
Comment: This species is known to occur within 15 miles of the site. Focused surveys were conducted for this species on the site. This species is not expected to occur on the site due to negative survey results.								

OB = Species observed on-site
P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
NE = Species not expected due to the lack of suitable habitat or not found during surveys

Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Dudleya multicaulis	many-stemmed dudleya	Apr - July	None	None	1B.2	Elevation 15 – 790 m; clay soils; coastal scrub, chaparral, valley and foothill grassland.	Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results. In addition, the potential for this species to occur on the site is minimal due to the lack of clay soils.								
Fabaceae	**Pea Family**							
Astragalus brauntonii	Braunton's milk-vetch	Jan - Aug	FE	None	1B.1	Elevation 4 - 640 m; recent burns or disturbed areas, usually sandstone with carbonate layers; chaparral, coastal scrub, valley and foothill grassland.	Los Angeles, Riverside, Orange, and Ventura Counties.	NE
Comment: This species is known to occur within 10 miles of the site. Focused surveys were conducted for this species on the site. This species is not expected to occur on the site due to negative survey results.								
Geraniaceae	**Geranium Family**							
California macrophyllum	round-leaved filaree	Mar - May	None	None	1B.1	Elevation 15-1200 m; clay soils; cismontane woodland, valley and foothill grassland.	Los Angeles, Riverside, Santa Barbara, Santa Cruz Isl., San Luis Obispo, and Ventura Counties	NE
Comment: This species is not expected to occur on the site due to the lack of clay soils.								

OB = Species observed on-site
P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
NE = Species not expected due to the lack of suitable habitat or not found during surveys

Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Juglandaceae	**Walnut Family**							
Juglans californica var. *californica*	southern California black walnut	Mar – Aug	None	None	4.2	Elevation 50 – 900 m; chaparral, cismontane woodland, coastal scrub.	Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura Counties	OB
Comment: This species was found on site in the 2014 surveys.								
Lamiaceae	**Mint Family**							
Lepechinia fragrans	fragrant pitcher sage	Mar - Oct	None	None	4.2	Elevation 20 -1310 m; chaparral	Los Angeles, San Bernardino and Ventura Counties.	NE
Comment: Focused surveys were conducted during the known blooming period for this species. This species is not expected to occur on the site due to negative survey results.								
Lepechinia rossii	Ross' pitcher sage	May - Sep	None	None	1B.2	Elevation 305 -790 m; chaparral	Los Angeles and Ventura Counties.	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results.								
Monardella hypoleuca ssp. *hypoleuca*	white-veined monardella	(Apr),May-Aug (Sep-Dec); mos. in parentheses are uncommon	None	None	1B.3	Elevation 50 -1525 m; chaparral, cismontane woodland	Los Angeles and Ventura Counties.	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results.								

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Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Malvaceae	**Mallow Family**							
Malacothamnus davidsonii	Davidson's bush-mallow	Jun - Jan	None	None	1B.2	Elevation 185 - 855 m; chaparral, cismontane woodland, coastal scrub, riparian woodland	Los Angeles and Ventura Counties.	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results.								
Papaveraceae	**Poppy Family**							
Canbya candida	white pygmy-poppy	Mar – Jun	None	None	4.2	Elevation 0 - 300 m; Gravelly and sandy soils in Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland communities	Inyo, Kern, Los Angeles, and San Bernardino Counties	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Polemoniaceae	**Phlox Family**							
Navarretia fossalis	spreading navarretia	Apr – Jun	None	ST	1B.1	Elevation 30 - 655 m; chenopod scrub, marshes and swamps(assorted shallow freshwater), playas, vernal pools	Los Angeles, Riverside, San Diego, and San Luis Obispo Counties, Baja California	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								

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P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
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Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Navarretia ojaiensis	Ojai navarretia	May-Jul	None	None	1B.1	Elevation 275 - 620 m; chaparral (openings), coastal scrub (openings), valley and foothill grassland	Los Angeles and Ventura Counties.	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results.								
Navarretia setiloba	Piute Mountains navarretia	Apr – Jul	None	None	1B.1	Elevation 285 - 2100 m; cismontane woodland, pinyon and juniper woodland, Valley and foothill grassland/clay or gravelly loam	Kern, Los Angeles, and Tulare Counties	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results.								
Polygonaceae	**Buckwheat family**							
Chorizanthe parryi var. *fernandina*	San Fernando Valley spineflower	Apr - Jul	FC	SE	1B.1	Elevation 150 – 1220 m; coastal scrub (sandy), valley and foothill grassland	Los Angeles, Orange, and Ventura Counties.	NE
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results.								
Chorizanthe parryi var. *parryi*	Parry's spineflower	Apr-Jun	None	None	1B.1	Elevation 275 - 1220 m; sandy or rocky soil openings; chaparral, cismontane woodland, coastal scrub, valley and	Los Angeles, Riverside, and San Bernardino Counties.	NE

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Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
						foothill grassland.		
Comment: Focused surveys were conducted for this species during its known blooming period. This species is not expected to occur on the site due to negative survey results.								
Dodecahema leptoceras	slender-horned spineflower	Apr-Jun	FE	SE	1B.1	Elevation 200 - 760 m; chaparral, cismontane woodland, coastal scrub (alluvial fan)/sandy	Ventura County	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Ranunculaceae	**Ranunculus family**							
Delphinium parryi ssp. *purpureum*	Mt. Pinos larkspur	May – Jun	None	None	4.3	Elevation 1000 - 2600 m; Chaparral, Mojavean desert scrub, and pinyon-juniper woodland communities	Kern, Los Angeles, San Luis Obispo, Santa Barbara and Ventura Counties.	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Rosaceae	**Rose family**							
Cercocarpus betuloides var. *blancheae*	island mountain-mahogany	Feb – May	None	None	4.3	Elevation 30 - 600 m; closed-cone coniferous forest and chaparral communities	Los Angeles, San Luis Obispo, Santa Barbara and Ventura Counties.	NE
Comment: Focused surveys were conducted during its known blooming period for this species. This species is not expected to occur on the site due to negative survey results.								

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P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
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Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Rubiaceae	**Madder family**							
Galium grande	San Gabriel bedstraw	Jan – Jul	None	None	1B.2	Elevation 425 - 1500 m; broad-leafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest	Los Angeles, Orange, and Ventura Counties.	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
ANGIOSPERMS (MONOCOTYLEDONS)								
Alliaceae	**Onion family**							
Allium howellii var. *clokeyi*	Mt. Pinos onion	Mar - Jun	None	None	1B.3	Elevation 1300 - 1800 m; Great Basin scrub and pinyon and juniper woodland.	Kern, Los Angeles, Santa Barbara, and Ventura Counties	NE
Comment: This species is not expected to occur on the site due to the lack of suitable habitat and the site location is outside of the species known elevational range. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Liliaceae	**Lily family**							
Calochortus catalinae	Catalina mariposa lily	Mar - Jun	None	None	4.2	Elevation 15 - 700 m; chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland.	Los Angeles, Orange, Riverside, San Bernardino, Santa Barbara and Ventura Counties	P
Comment: Focused surveys were conducted for this species due to recorded occurrences on-site. Seed pods from a *Calochortus* species were found during the 2014 surveys and this species was previously documented on-site in the Wickham Property Botanical Inventory 2005 (Envicom 2005). It is presumed that the *Calochortus* seed pods observed were that of slender mariposa lily.								

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Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Calochortus clavatus var. *clavatus*	club-haired mariposa lily	May - Jun	None	None	4.3	Elevation 75 - 1300 m; usually serpentinite, clay, or rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland.	Los Angeles, San Luis Obispo, Santa Barbara, and Ventura Counties	P
Comment: Focused surveys were conducted for this species due to recorded occurrences on-site. Seed pods from a *Calochortus* species were found during the 2014 surveys and this species was previously documented on-site in the Wickham Property Botanical Inventory 2005 (Envicom 2005). It is presumed that the *Calochortus* seed pods observed were that of slender mariposa lily.								
Calochortus clavatus var. *gracilis*	slender mariposa lily	Mar - Jun	None	None	1B.2	Elevation 320 - 1000 m; chaparral, coastal scrub, valley and foothill grassland.	Los Angeles, Riverside, and San Bernardino Counties	OB
Comment: Focused surveys were conducted for this species due to recorded occurrences on-site. Seed pods from a *Calochortus* species were found during the 2014 surveys and this species was previously documented on-site in the Wickham Property Botanical Inventory 2005 (Envicom 2005). It is presumed that the *Calochortus* seed pods observed were that of slender mariposa lily.								
Calochortus fimbriatus	late-flowered mariposa lily	Jun - Aug	None	None	1B.2	Elevation 275 - 1905 m; chaparral, cismontane woodland and riparian woodland; often on serpentinite.	Kern, Los Angeles, Monterey, Santa Barbara, San Luis Obispo, and Ventura Counties	NE
Comment: Focused surveys were conducted for this species due to presence of suitable habitat. This species is not expected to occur on the site due to the lack of suitable substrate. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed. The species has a single record for Los Angeles County to the northwest of the study area on Newhall Ranch.								

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Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Calochortus plummerae	Plummer's mariposa-lily	May - Jul	None	None	4.2	Elevation 100 – 1700 m; granitic and rocky soils; chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, valley and foothill grassland.	Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties.	OB
Comment: This species was observed within the southern portion of the study area by Envicom (2005).								
Lilium humboldtii ssp. *ocellatum*	ocellated Humboldt lily	Mar - Jul	None	None	4.2	Elevation 30 – 1800 m; openings in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and riparian woodland.	Los Angeles, Orange, Riverside, San Bernardino, San Diego, Santa Barbara and Ventura Counties.	NE
Comment: This species is not expected to occur on the site due to the lack of seasonal moist habitats such as in Wickham Canyon. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Poaceae	**Grass family**							
Hordeum intercedens	vernal barley	Mar - Jun	None	None	3.2	Elevation 5-1000 m; saline flats and depressions in coastal dune, coastal scrub, valley and foothill grassland and vernal pool.	Kern, Los Angeles, Orange, Riverside, San Diego, and Ventura Counties	NE
Comment: This species is not expected to occur on the site due to the lack of seasonal pools. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								

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Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**
Orcuttia californica	California Orcutt grass	Apr - Aug	FE	SE	1B.1	Elevation 15-660 m; vernal pools.	Los Angeles, Riverside, San Diego, and Ventura Counties	NE
Comment: This species is not expected to occur on the site due to the lack of vernal pools. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								
Ruscaceae	**Nolina Family**							
Nolina cismontana	chaparral nolina	(Mar) May – Jun	None	None	1B.2	Elevation 140 - 1275 m; chaparral, coastal scrub/sandstone or gabbro	Orange, Riverside, San Diego, and Ventura Counties	NE
Comment: This species is not expected to occur on the site due to the marginal presence of suitable habitat. In addition, sensitive plant surveys were conducted during the known blooming period for this species. This species was not observed.								

Key to Species Listing Status Codes

FE Federally Listed as Endangered
FT Federally Listed as Threatened
FPE Federally Proposed as Endangered
FPT Federally Proposed as Threatened
FPD Federally Proposed for Delisting
FC Federal Candidate Species

SE State Listed as Endangered
ST State Listed as Threatened
SCE State Candidate for Endangered
SCT State Candidate for Threatened
SR State Rare
SFP State Fully Protected

SSC California Special Concern Species

California Native Plant Society (CNPS)

Rank 1A: Presumed extinct in California.
Rank 1B: Rare, threatened, or endangered in California and elsewhere.
Rank 2A: Presumed extinct in California, more common elsewhere.
Rank 2B: Rare, threatened, or endangered in California, more common elsewhere.

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Table 2 (Continued)

Sensitive Plant Species

VASCULAR PLANTS								
Scientific Name	**Common Name**	**Flowering Period**	**Federal**	**State**	**CNPS List**	**Preferred Habitat**	**Distribution**	**Occurrence On-site**

Rank 3: Plants for which more information is needed – Review list.
Rank 4: Plants of limited distribution – Watch list.

CNPS Threat Codes
List .1: Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat).
List .2: Fairly threatened in California (20-80% occurrences threatened/moderate degree and immediacy of threat).
List .3: Not very threatened in California (<20% of occurrences threatened or low degree and immediacy of threat or no current threats known).

Source: PCR Services Corporation, 2014.

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P = Species has potential to occur on-site; unable to rule out presence due to finding the genus but unidentifiable to species
NE = Species not expected due to the lack of suitable habitat or not found during surveys

Table 3

Sensitive Wildlife Species

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
INVERTEBRATES						
Streptocephalidae	**Fairy Shrimp**					
Branchinecta lynchi	vernal pool fairy shrimp	FT	NONE	Astatic rain-filled pools in grasslands. Inhabit small, clear-water sandstone depression pools and grassed swale, earth slump, or basalt flow depression pools filled by winter/spring rains.	Endemic to the central valley, central coast mountains, and south coast mountains in Alameda, Butte, Calaveras, Contra Costa, Fresno, Glenn, Kings, Los Angeles, Madera, Merced, Monterey, Placer, Sacramento, San Joaquin, San Luis Obispo, Shasta, Solano, Stanislaus, Tehama, Tulare, Ventura, Yolo, and Yuba Counties	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Nymphalidae	**Brush-footed Butterflies**					
Danaus plexippus (winter roosting sites)	Monarch butterfly	NONE	USFSS	Roosts located in wind-protected tree groves (especially eucalyptus and Monterey cypress), with nectar and water sources nearby.	Winter Roost sites extend along the coast from northern Mendocino County to Baja California, Mexico	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Tengellidae	**Tengellid Spiders**					
Socalchemmis gertschi	Gertsch's socalchemmis spider	NONE	SA	Known only from Brentwood and Topanga Canyon.	Endemic to Los Angeles County	NE
Comments: This species is not expected to occur within the study area due to the lack of locations recorded outside of the Santa Monica Mountains.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
VERTEBRATES						
FISH						
Gasterosteidae	**Stickleback Family**					
Gasterosteus aculeatus williamsoni	unarmored three-spine stickleback	FE	SE, FP	Coastal waters or freshwater bodies well connected (or once well connected) to the coasts	Southern California.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Cyprinidae	**Minnows and Carp**					
Catostomus santaanae	Santa Ana sucker	FT	SSC	Habitat generalist, but prefers sand, rubble, or boulder bottoms, in cool, clear water with algae to graze.	Larger rivers of southern California.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Gila orcuttii	arroyo chub	NONE	SSC	Slow water sections of streams with mud or sand substrates, spawns in pools.	Larger rivers of southern California. Currently known from four locations within their native range: upper Santa Margarita River, De Luz Creek; Trabuco Creek; Malibu Creek; and the San Gabriel River. The Santa Clara River population is introduced.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
AMPHIBIANS						
Bufonidae	**True Toads**					
Anaxyrus californicus	arroyo toad	FE	SSC	Rivers, washes or intermittent streams with sandy banks, willows, cottonwoods and sycamores within valley-foothill, desert riparian and desert wash communities in semi-arid regions; loose gravelly areas of streams in drier parts of range..	Southern part of the Coast Range from n San Luis Obispo Co. south to Baja, California.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Spea hammondii	western spadefoot	NONE	SSC	Vernal pools and other areas of seasonally ponded water free of fish, crayfish or bullfrogs, primarily in grasslands habitats, but can be found in valley-foothill hardwood woodlands.	Southern California.	P
Comments: This species could within the study area if on-site seasonal pools form to make suitable habitat.						
Ranidae	**True Frog Family**					
Rana draytonii	California red-legged frog	FT	SSC	Occurs in lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development; must have access to aestivation habitat.	Canyons within Alameda, Butte, Calaveras, Contra Costa, El Dorado, Fresno, Los Angeles, Marin, Mendocino, Merced, Monterey, Napa, Placer, Riverside, San Benito, San Bernardino, San Francisco, San Joaquin, San Luis Obispo, San Mateo, Santa Barbara, Santa Clara, Santa Cruz, Solano, Sonoma,	NE

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Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
					Stanislaus, Tuolumne, Ventura, and Yuba Counties.	
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Rana mucosa	southern mountain yellow-legged frog	FE	SE, SSC	Meadow streams, isolated pools, lake borders, rocky stream courses within ponderosa pine, montane hardwood-conifer and montane riparian habitat	Rocky streams in mountains of southern California in narrow canyons and in the chaparral belt.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
REPTILES						
Anniellidae	**Legless Lizards**					
Anniella pulchra pulchra	silvery legless lizard	None	ssc	Several habitats but especially in coastal dune, valley-foothill, chaparral, and coastal scrub habitats.	Coastal ranges from San Francisco Bay into Baja CA.	P
Comments: This species has the potential to occur within the study area due to suitable habitat.						
Colubridae	**Colubrid Snakes**					
Thamnophis hammondii	two-striped garter snake	NONE	SSC	Riparian and freshwater marshes with perennial water.	Ranges throughout much of CA and is absent only from the desert areas of southern CA, the southern San Joaquin Valley, and northwestern CA.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Boidae	**Boas and Pythons**					
Charina trivirgata	rosy boa	NONE	USFSS	Mix of brushy cover and rocky soil such as coastal canyons and hillsides, desert canyons, washes and mountains in desert and chaparral from the coast to the Mojave and Colorado Deserts.	Imperial, Inyo, Kern, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties.	P
Comments: This species could occur within the study area although suitable habitat is marginally present since the study area is at the limit of the western distribution.						
Emydidae	**Box and Water Turtles**					
Emys marmorata	western pond turtle	NONE	SSC	Ponds, marshes, rivers, streams, and irrigation ditches.	West of the Sierra-Cascade crest and absent from desert regions, except in the Mojave Desert along the Mojave River and its tributaries. Elevation range extends from near sea level to 1430 m.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Phrynosomatidae	**Horned Lizards and Allies**					
Aspidoscelis tigris stejnegeri	coastal whiptail	NONE	SA	Various habitats in firm, sandy or rocky soils within sparse vegetation, open areas, woodlands and riparian communities of deserts and semi-arid areas	Coastal ranges and foothills from San Francisco Bay Area and northern Central Valley south to San Diego and Baja California.	P
Comments: This species may occur within the study area due to the presence of suitable habitat.						
Phrynosoma blainvillii	coast horned lizard	NONE	SSC	Valley-foothill hardwood, conifer, and riparian habitats, pine-cypress, juniper and annual grassland habitats below 2,438 m; open country, especially sandy areas, washes, flood plains, and windblown deposits.	Coastal ranges and foothills of Sierra Nevada from San Francisco Bay Area and northern Central Valley south to San Diego and Baja California.	P
Comments: This species may occur within the study area due to the presence of suitable habitat.						

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Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
BIRDS						
Accipitridae	**Hawks, Eagles, Kites**					
Aquila chrysaetos	golden eagle	NONE	SFP	Mountains, deserts, and open country; prefer to forage over grasslands, deserts, savannahs and early successional stages of forest and shrub habitats. Nesting sites are usually located in secluded cliffs with overhanging ledges or in large trees. Ranges from sea level up to 3833 m	Throughout California with the exception of the center of the central valley.	P, F
Comments: This species is known from the area and may be seen flying over the site; however, this species is not expected to breed within the study area due to the lack of suitable nesting habitat.						
Accipiter cooperii	Cooper's hawk	NONE	WL	Nests in open forests, groves, or trees along rivers, or low scrub of treeless areas. The wooded area is often near the edge of a field or water opening.	Throughout California	P, F
Comments: This species may be seen flying over the site; however, this species is not expected to breed within the study area due to the lack of suitable nesting habitat.						
Buteo regalis	ferruginous hawk	NONE	WL, LAA	Forages in agricultural and urban habitats, as well as creosote bush and saltbush scrub. Breeds in isolated trees, small groves of trees, on rocky ledges, or occasionally on the ground. Nests are adjacent to open areas such as grasslands or shrublands. Prefers open country, where it often hunts from low perches on fence posts, utility poles, or small trees.	Occurs in Los Angeles County only as a winter visitor	NE

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Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Buteo swainsoni	Swainson's hawk	NONE	WL, LAA	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannas and agricultural or ranch fields. Requires adjacent suitable foraging areas such as grasslands or agricultural fields supporting rodent populations.	Occasionally migrates through but does not nest in the vicinity	P, F
Comments: This species may be seen flying over the site; however, this species is not expected to breed within the study area due to the lack of suitable nesting habitat.						
Elanus leucurus	white-tailed kite	NONE	SFP	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Throughout California	P, F
Comments: This species may be seen flying over the site; however, this species is not expected to breed within the study area due to the lack of suitable nesting habitat.						
Falconidae	**Falcons, Kestrels**					
Falco mexicanus	prairie falcon	BCC	WL, LAA	Breeds on cliffs in dry, open terrain and forages far afield, even to marshlands and ocean shores. Forages widely over desert scrub and arid grasslands, but nesting is generally confined to sheltered cliff ledges, potholes, and caves in rugged terrain.	Apparently no longer occupying certain locations from which historical records exist. Fewer than 10 pairs remaining in Los Angeles County. [a]	P
Comments: This species could occur within the study area although suitable habitat is marginally present.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Cathartidae	**New World Vultures**					
Cathartes aura	turkey vulture	NONE	LAA	Needs a large area for foraging, but the foraging areas do not necessarily need to be suitable for nesting. For western populations, nesting birds require remote, rocky locations with caves, cliff ledges, and piles of large boulders. Breeding birds are highly sensitive to disturbance.	California	P
Comments: This species is known from the area and may utilize the site for forage and breeding in the cliffs						
Gymnogyps californianus	California condor	FE	SE	Nests in deep canyons containing clefts in rocky walls of mountain ranges of moderate altitude. Forages up to 100 miles from nest sites over vast expanses of open savanna, grasslands and foothill habitats.	California and Arizona	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat of sufficient area.						
Threskiornithidae	**Ibises and Spoonbills**					
Plegadis chihi	white-faced ibis	NONE	WL, LAA	Prefers to feed in fresh emergent wetland, shallow lacustrine waters, muddy ground of wet meadows, and irrigated or flooded pastures and croplands. Nests in dense, fresh emergent wetland. Roosts amidst dense, freshwater emergent vegetation such as bulrushes, cattails, reeds or low shrubs over water. Extensive marshes are required for nesting.	No longer breeds at three historic locations on the coastal slope of Los Angeles County, but since 1988 a few dozen pairs have nested at Piute Ponds, and foraged there or in nearby agricultural fields. [a]	NE

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Strigidae	**True Owl Family**					
Athene cunicularia	burrowing owl	NONE	SSC	Dry grasslands, desert habitats, open pinyon-juniper and ponderosa pine woodlands. Prefers berms, ditches, and grasslands adjacent to rivers, agricultural, and scrub areas. Below 5,300 feet elevation.	Local resident throughout CA excluding the central valley. Some seasonal movement away from nesting areas. Year-round resident of the lowlands of southern CA	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Asio flammeus	short-eared owl	NONE	SSC, LAA	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation. Historically, common in wet meadow lands and fresh water marshes in coastal Los Angeles County. Wintering birds favor expanses of open country: freshwater and saltwater marshes, wet meadows, weedy fields, agricultural stubble, etc.	Although Los Angeles County is well within this owl's wintering range, the bird is no longer found within Los Angeles County with the exception of infrequent reports from the Ballona area (during migration) and the Antelope Valley (generally in winter at Piute Ponds, but including also three summertime records). [a]	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Asio otus	long-eared owl	NONE	SSC, LAA	Found in woodlands and conifer groves, breeding in dense trees for nesting and roosting, open country for hunting. Inhabits forest with extensive meadows, groves of conifers or deciduous trees in prairie country, streamside groves in desert.	Although this species no longer breeds in Los Angeles County, suitable habitat is now confined to the Antelope Valley. It requires dense stands of vegetation adjacent to large tracts of open habitat for wintering.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Caprimulgidae	**Nightjars and Nighthawks**					
Chordeiles acutipennis	Lesser nighthawk	NONE	LAA	Found arid and semiarid habitat ranging from creosote/desert scrub to xerophytic low trees. Usually nests on bare ground.	Breeds (or summers) along the Santa Clara River and tributaries (e.g., Bouquet Canyon), Big Tujunga Wash (upstream of Hansen Dam), San Gabriel River (upstream of Santa Fe Dam), and San Antonio Wash (upstream of Arrow Highway)	P
Comments: This species is known to occur in the area and could forage within the study area.						
Hirundinidae	**Swallows**					
Riparia riparia	bank swallow	NONE	ST	Riparian scrub, riparian woodland; requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting holes. Colonial nester; nests primarily in riparian and	A spring and fall migrant in the interior, less common on coast; an uncommon and very local summer resident. Casual in southern California in winter.	NE

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
				other lowland habitats west of the desert.		
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Picidae	**Woodpeckers**					
Picoides villosus	hairy woodpecker	NONE	LAA	Found in mature forests and open woodlands of oak and pine, but also occur in woodlots, suburbs, parks, and cemeteries.	Widespread resident in coniferous and mixed oak-conifer forest of the San Gabriel Mountains, occurring at lower elevations along deep, shady canyons (e.g., Arroyo Seco near Pasadena), true lowland populations of this species have been virtually eliminated.	P
Comments: This species is known to occur in the area and could forage within the study area.						
Laniidae	**Shrikes**					
Lanius ludovicianus	loggerhead shrike	NONE	SSC, LAA	Found in broken woodlands, savanna, pinyon-juniper woodland, Joshua tree woodland, riparian woodland, desert oases, scrub, and washes. Prefers open country for hunting, with perches for scanning, and fairly dense shrubs and brush for nesting.	Largely avoids urban areas and facing declines due to the development and conversion of scrubland, grassland, and agricultural areas. Wintering birds have declined severely on the coastal slope and valleys along with the habitat they depended upon.	P
Comments: This species is known to occur in the area and could forage within the study area.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Icteridae	**Blackbirds**					
Agelaius tricolor	tricolored blackbird	NONE	SE	Highly colonial species, requiring open water, protected nesting substrate and foraging areas with insect prey within a few km of the colony.	Rare bird, migrants observed in Santa Clara River	NE
Comments: This species is not expected to utilize the study area due to the lack of suitable nesting and foraging habitat.						
Sturnella neglecta	western meadowlark	NONE	LAA	Prefers grasslands, prairies, pastures, and abandoned fields. As grasslands and agriculture fields continue to be developed, populations are expected to face declines	Once abundant in Los Angeles County's lowlands but now only commonly found in agricultural land and other open habitats in the Antelope Valley.	P
Comments: This species could utilize the study area although suitable nesting and foraging habitat is marginally present.						
Cuculidae	**Cuckoos**					
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Proposed FT	SE	Dense, wide riparian woodlands and forest with well-developed understories	Rare bird, migrants observed in Santa Clara River	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Geococcyx californianus	greater roadrunner	NONE	LAA	Year-round resident of steep foothill canyons, desert woodland, and coastal sage scrub, largely intolerant of urbanization.	Now most readily observed in the Antelope Valley, the base of the San Gabriel Mountains, the Santa Monica Mountains, and the Puente Hills. [a]	P
Comments: This species is known from the area and may utilize the site as marginally suitable habitat is present.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Alaudidae	**Larks**					
Eremophila alpestris actia	California horned lark	NONE	WL, LAA	Requires open areas with short vegetation, sparse brush, and a preponderance of bare ground. Inhabitant of short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, and alkali flats.	Populations in the southeastern portions of Los Angeles County appear to belong to the coastal subspecies *actia*, whereas the few birds breeding in the San Fernando Valley may belong to the widespread Mojave Desert subspecies *ammophila*.[a]	P
Comments: This species has been historically recorded in the area and could make use of suitable habitat for foraging.						
Emberizidae	**Sparrows**					
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	NONE	WL, LAA	Frequents relatively steep, often rocky hillsides with grass and forb patches. Resident in southern California coastal sage scrub and mixed chaparral.	Cismontane southern California	P
Comments: This species has the potential to occur within the study area due to the presence of suitable habitat.						
Ammodramus savannarum	grasshopper sparrow	NONE	SSC	Occurs in dry, dense grasslands, especially those with a variety of grasses and tall forbs and scattered shrubs for singing perches. Apparently a thick cover of grasses and forbs is essential for concealment	Cismontane southern California	P
Comments: This species has the potential to occur within the study area due to the presence of suitable habitat.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Artemisiospiza belli belli	Bell's sage sparrow	NONE	WL, LAA	Nests on the ground beneath shrubs or in shrubs 6 to 18 inches above the ground within chaparral communities dominated by fairly dense stands of chamise or in coastal scrub.	Cismontane southern California	P
Comments: This species has the potential to occur within the study area due to the presence of suitable habitat.						
Turdidae	**Thrushes**					
Catharus ustulatus	Swainson's thrush	NONE	LAA	Riparian woodlands, and historically concentrated in willow-alder riparian thickets.	Lowlands in Los Angeles County	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Sialia currucoides	mountain bluebird	NONE	LAA	Cavity-nesters typically perching in mountain meadows.	Almost exclusively as a wintering bird in Los Angeles County; confined to remote expanses of grassland and irrigated pastureland on the floor in the Antelope Valley, approaching the northern slope of the Transverse Range (Sierra Pelona) near Gorman.	P
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Parulidae	**Warblers**					
Setophaga petechia	Yellow warbler	NONE	SSC, LAA	Riparian plant associations, preferably of willow, cottonwood, aspen, sycamore and alder for nesting and foraging. Also nests in montane shrubbery of open conifer forests.	cismontane southern California	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Icteria virens	Yellow breasted chat	NONE	SSC, LAA	Summer resident in riparian thickets of willow and other brushy tangles such as blackberry and wild grape near water courses.	cismontane southern California	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						
Vireonidae	**Vireos**					
Vireo bellii pusillus	Least Bell's vireo	FE	SE	Perennial and intermittent streams with low, dense riparian scrub and riparian woodland habitats below 2,000 feet elevation; nests primarily in willows and forages in the riparian and occasionally in adjoining upland habitats. Associated with willow, cottonwood, and mule fat.	Summer resident below about 600 m southern California from Santa Barbara Co. south	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Sylviidae	**Old World Warblers, Gnatcatchers**					
Polioptila californica californica	coastal California gnatcatcher	FT	SSC	Coastal sage scrub vegetation below 2,500 feet elevation in Riverside County and generally below 1,000 feet elevation along the coastal slope; generally avoids steep slopes and dense vegetation for nesting.	Southern Ventura County, southward through Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties.	P
Comments: This species could occur within the study area although suitable coastal sage scrub habitat is marginally present.						
MAMMALS						
Vespertilionidae	**Evening Bats**					
Antrozous pallidus	pallid bat	NONE	SSC	Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging.	Low elevations in California. It occurs throughout California except for the high Sierra Nevada from Shasta to Kern Counties and the northwestern corner of the state from Del Norte and western Siskiyou Counties to northern Mendocino County.	P
Comments: This species could roost within the study area because the study area possesses suitable habitat.						
Euderma maculatum	spotted bat	NONE	SSC	Elevational range extends from below sea level in California to above 3000 m in New Mexico. Arid deserts and grasslands through mixed conifer forests; feeds over water and along washes, feeds almost entirely on moths. Needs rock crevices in cliffs or caves for roosting.	Foothill, mountain, and desert regions of southern California.	P

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Comments: This species could roost within the study area because the study area possesses suitable habitat.						
Corynorhinus townsendii	Townsend's big-eared bat	NONE	SCT	Mesic habitats characterized by coniferous and deciduous forests and riparian habitat, but also xeric areas; roosts in limestone caves and lava	Cismontane southern California	P
Comments: This species is not expected to occur within the study area as there are no recent records of this species for Los Angeles County. However, suitable foraging habitat is present although the species is not expected to roost on-site						
Lasionycteris noctivagans	silver-haired bat	NONE	SA	Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark. Females may form nursery colonies or occur as solitary individuals in dense foliage or hollow trees. Needs drinking water.	Primarily a coastal and montane forest dweller, feeding over streams, pond and open brushy areas. It occurs from Butte, Del Norte, El Dorado, Humboldt, Inyo, Lake, Lassen, Los Angeles, Madera, Marin, Mariposa, Modoc, Plumas, Sacramento, San Bernardino, San Diego, Santa Barbara, Shasta, Sierra, Siskiyou, Tehama, Trinity, Tuolumne, and Yolo Counties.	NE
Comments: This species is not expected to roost within the study area and not expected to forage within the marginally suitable habitat. The species is not recorded north of the coast range mountains in Los Angeles County.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Lasiurus cinereus	hoary bat	NONE	SA	Habitats suitable for bearing young include all woodlands and forests with medium to large-size trees and dense foliage. Generally roosts in dense foliage of medium to large trees and requires water.	Prefers open habitats. It occurs from Butte, Del Norte, El Dorado, Humboldt, Inyo, Lake, Lassen, Los Angeles, Madera, Marin, Mariposa, Modoc, Plumas, Sacramento, San Bernardino, San Diego, Santa Barbara, Shasta, Sierra, Siskiyou, Tehama, Trinity, Tuolumne, and Yolo Counties.	P
Comments: This species is not expected to roost but could forage within the study area.						
Molossidae	**Free-tailed Bats**					
Eumops perotis californicus	western mastiff bat	NONE	SSC	Primarily arid lowlands, especially deserts. Open, semiarid to arid habitats including conifer and deciduous woodlands, coastal scrub, annual and perennial grasslands, palm oases, chaparral, desert scrub, and urban. Roosts in crevices in cliff faces, high building, trees, and tunnels.	Uncommon resident of lower elevations in southeastern San Joaquin Valley and Coastal Ranges from Monterey County southward through southern California from the coast eastward to the Colorado desert.	P
Comments: This species could occur within the study area because of the broad range of suitable habitat.						
Phyllostomidae	**Leaf-nosed bats**					
Macrotus californicus	California leaf-nosed bat	NONE	SSC	Day roosts usually are in deep mine tunnels or caves, occasionally in buildings or bridges.	Riverside, Imperial, San Diego, and San Bernardino Counties, Baja California and south to the Mexican border.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Heteromyidae	**Mice, Rats, and Voles**					
Perognathus longimembris brevinasus	Los Angeles pocket mouse	NONE	USFSS, SSC	Lower elevation grasslands and coastal sage communities. Inhabits open ground with soils composed of fine sands.	Southern California, ranging from Los Angeles, San Bernardino, Riverside and San Diego Counties.	NE
Comments: This species is no expected occur within the study area due to the lack of suitable habitat and the limit of the species' distribution.						
Muridae	**Mice, Rats, and Voles**					
Neotoma lepida intermedia	San Diego desert woodrat	NONE	SSC	Chaparral, coastal sage scrub, and pinyon and juniper woodland.	Southern California, with range extending northward along the coast to Monterey Co., and along the Coast Range to San Francisco Bay.	P
Comments: This species may occur within the study area due to the presence of suitable habitat.						
Onychomys torridus ramona	southern grasshopper mouse	NONE	SSC	Desert areas, especially scrub habitats with friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropod prey, especially scorpions and orthopterans.	Cismontane southern California.	P
Comments: This species could occur within the study area although suitable habitat is marginal.						
Sciuridae	**Squirrel Family**					
Neotamias speciosus speciosus	lodgepole chipmunk	NONE	SA	Usually found in open canopy forests, lodgepole pine forests in the San Bernardino Mountains and chinquapin slopes on the San Jacinto Mountains	Isolated in Piute, San Bernardino, San Gabriel and San Jacinto Mountain ranges. It occurs within Kern, Los Angeles, Riverside, and San Bernardino Counties.	NE
Comments: This species is not expected to occur within the study area due to the lack of suitable habitat and out of elevation range.						

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

Table 3 (Continued)

Sensitive Wildlife Species.

Scientific Name	Common Name	Federal	State	Preferred Habitat	Distribution	Occurrence On-site
Leporidae	**Hares and Rabbits Family**					
Lepus californicus bennettii	San Diego black-tailed jackrabbit	NONE	SSC	Open areas or semi-open country, typically in grasslands, agricultural fields or sparse coastal scrub	Cismontane southern California.	P
Comments: This species could occur within the study area although suitable habitat is marginal.						

[a] *Allen, LW, et al. 2009. Los Angeles County's Sensitive Bird Species. Western Tanager. 75(3)*

FE	*Federally Listed as Endangered*	SE	*State Listed as Endangered*	SCD	*State Candidate for Delisting*
FT	*Federally Listed as Threatened*	ST	*State Listed as Threatened*	SFP	*State Fully Protected*
FPE	*Federally Proposed as Endangered*	SR	*State Rare*	SSC	*California Species of Special Concern*
FPT	*Federally Proposed as Threatened*	SCE	*State Candidate for Endangered*	WL	*CDFW Watch List, Previously listed by California or Federal government, or State Fully Protected*
FPD	*Federally Proposed for Delisting*	SCT	*State Candidate for Threatened*		
BCC	*USFWS Birds of Conservation Concern*	SA	*California Special Animal List*	LAA	*Los Angeles Audubon Society Sensitive*
USFSS	*US Forest Service Sensitive*				

OB = Observed; P = Species has potential to occur on-site; NE = Species not expected to occur on-site

4.0 PROJECT RELATED IMPACTS

4.1 APPROACH TO THE ANALYSIS

The following discussion examines the potential impacts to plant and wildlife resources that may occur as a result of implementation of the proposed Project. For the purpose of this assessment project-related impacts take two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification or disturbance of natural habitats (i.e., vegetation or plant communities), which in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts also include the destruction of individual plants or wildlife, which is typically the case in species of low mobility (i.e., plants, amphibians, reptiles, and small mammals). The collective loss of individuals in these manners may also directly affect regional population numbers of a species or result in the physical isolation of populations thereby reducing genetic diversity and, hence, population stability.

Indirect impacts are considered to be those that involve the effects of increases in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., domestic cats and other non-native animals), and competitors (e.g., exotic plants, non-native animals). Indirect impacts may be associated with the construction and/or eventual habitation/operation of a project; therefore, these impacts may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to study areas.

The determination of impacts in this analysis is based on both the features of the proposed Project and the biological values of the habitat and/or sensitivity of plant and wildlife species to be affected. Based on the Project development footprint provided, impacts were calculated using GIS technology in order to maximize the accuracy of the assessment. Project design features that avoid, preserve, or restore biological resources are taken into consideration and specifically described below prior to the assessment of potential adverse impacts.

The biological values of resources within, adjacent to, and outside the area to be affected by the proposed Project were determined by consideration of several factors. These included the overall size of habitats to be affected, the study area's previous land uses and disturbance history, the study areas surrounding environment and regional context, the on-site biological diversity and abundance, the presence of sensitive and special-status plant and wildlife species, the study area's importance to regional populations of these species, and the degree to which on-site habitats are limited or restricted in distribution on a regional basis and, therefore, are considered sensitive in themselves. Whereas this assessment is comprehensive, the focus is on sensitive plant communities/habitats, resources that play an important role in the regional biological systems, and special-status species.

4.2 THRESHOLDS OF SIGNIFICANCE

The environmental impacts relative to biological resources are assessed using impact significance threshold criteria which mirror the policy statement contained in the California Environmental Quality Act (CEQA),

Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State to:

> "Prevent the elimination of fish or wildlife species due to man's activities, ensure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities..."

Determining whether a project may have a significant effect, or impact, plays a critical role in the CEQA process. According to State CEQA Guidelines, Section 15064.7, Thresholds of Significance, each public agency is encouraged to develop and adopt (by ordinance, resolution, rule, or regulation) thresholds of significance that the agency uses in the determination of the significance of environmental effects. A threshold of significance is an identifiable quantitative, qualitative or performance level of a particular environmental effect, non-compliance with which means the effect will normally be determined to be significant by the agency and compliance with which means the effect normally will be determined to be less than significant. In the development of thresholds of significance for impacts to biological resources CEQA provides guidance primarily in Section 15065, Mandatory Findings of Significance, and the State CEQA Guidelines, Appendix G, *Environmental Checklist Form*. Section 15065(a) states that a project may have a significant effect where:

> "The project has 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 wildlife community, reduce the number or restrict the range of an endangered, rare, or threatened species..."

Appendix G of the State CEQA Guidelines is more specific in addressing biological resources and encompasses a broader range of resources to be considered, including: candidate, sensitive, or special status species; riparian habitat or other sensitive natural communities; Federally protected wetlands; fish and wildlife movement corridors; local policies or ordinances protecting biological resources; and, adopted HCPs. This is done in the form of a checklist of questions to be answered during the Initial Study leading to the preparation of the appropriate environmental documentation for a project [i.e., Negative Declaration, Mitigated Negative Declaration, or Environmental Impacts Report (EIR)]. Because these questions are derived from standards in other laws, regulations, and other commonly used thresholds, it is reasonable to use these standards as a basis for defining significance thresholds in an EIR. Therefore, for the purpose of this analysis, impacts to biological resources are considered potentially significant (before considering offsetting mitigation measures) if one or more of the following conditions would result from implementation of the proposed Project.

1. 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 Wildlife or U.S. Wildlife Service.

2. 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 Wildlife or U. S. Fish and Wildlife Service.

3. 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.

4. 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.

5. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

6. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

For the purposes of this impact analysis the following definitions apply:

- "Substantial adverse effect" means loss or harm of a magnitude which, based on current scientific data and knowledge would: (1) substantially reduce population numbers of a listed, candidate, sensitive, rare, or otherwise special status species; (2) substantially reduce the distribution of a sensitive natural community/habitat type; or (3) eliminate or substantially impair the functions and values of a biological resource (e.g., streams, wetlands, or woodlands) in a geographical area defined by interrelated biological components and systems. In the case of this analysis the prescribed geographical area is considered to be the region including the Chino Hills and the Peralta Hills to the north, northern Orange County to the west, the San Joaquin Hills to the south, and the extent of the Santa Ana Mountains to the east.
- "Conflict" means contradiction of a magnitude, which based on foreseeable circumstances would preclude or prevent substantial compliance.
- "Rare" means: (1) that the species exists in such small numbers throughout all, or a significant portion of, its range that it may become endangered if its environment worsens; or (2) the 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 FESA.

4.3 STANDARD CONDITIONS

As part of the proposed Project's review and approval, there are a number of performance criteria and standard conditions that must be met. These include compliance with all of the terms, provisions, and requirements with applicable laws that relate to Federal, State, and local regulating agencies for impacts to sensitive plant and wildlife species, wetlands, riparian habitats, and stream courses.

4.3.1 State of California Fish and Wildlife Code, Section 1602

Section 1602 of the California Fish and Wildlife Code requires any entity (e.g., person, state or local government agency, or public utility) who proposes a project that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, it must first notify the CDFW of the proposed Project. In the course of this notification process, the CDFW will review the proposed Project as it affects streambed habitats within the Project area. The CDFW may then place conditions on the Section 1602 clearance to avoid, minimize, and mitigate the potentially significant adverse effects within CDFW jurisdictional limits.

4.3.2 Federal Clean Water Act (CWA), Section 404

Section 404 of the CWA regulates the discharge of dredged material, placement of fill material, or excavation within "waters of the U.S." and authorizes the Secretary of the Army, through the Chief of Engineers, to issue permits for such actions. "Waters of the U.S." are defined by the CWA as "rivers, creeks, streams, and lakes extending to their headwaters and any associated wetlands." Wetlands are defined by the CWA as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions." Over the years, the USACE has adopted several revisions to their regulations in order to more clearly define "waters of the U.S." In January 2001, as a result of the SWANCC case ruling, the U.S. Supreme Court held that the CWA does not give the federal government regulatory authority over non-navigable, isolated, intrastate waters. Prior to the SWANCC ruling, "waters of the U.S." included, among other things, isolated wetlands and lakes, intermittent streams, prairie potholes, and other waters that are not part of a tributary system to interstate waters or to navigable "waters of the U.S." However, as a result of the court ruling, some of the previously regulated depressional areas which are not hydrologically connected to other intrastate or interstate "waters of the U.S." are no longer regulated by the USACE. This has been further refined in the recent *CWA Guidance to Implement the U.S. Supreme Court Decision for the Rapanos and Carabell Cases* circulated by the USACE on June 5, 2007.

The permit review process entails an assessment of potential adverse effects to USACE jurisdictional "waters of the U.S." and wetlands. In response to the permit application, the USACE will also require conditions amounting to mitigation measures. Where a Federally-listed species may be affected, they will also require Section 7 consultation with the USFWS under the FESA. Through this process, potentially significant adverse effects within the Federal jurisdictional limits could be mitigated to a level that is less than significant.

4.3.3 Federal Clean Water Act (CWA), Section 401

The mission of the California RWQCB is to develop and enforce water quality objectives and implement plans that will best protect the beneficial uses of the State's waters, recognizing local differences in climate, topography, geology, and hydrology. Section 401 of the CWA requires that:

> "any applicant for a Federal permit for activities that involve a discharge to waters of the State, shall provide the Federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the Federal Clean Water Act."

Therefore, before the USACE will issue a Section 404 permit, applicants must apply for and receive a Section 401 water quality certification from the RWQCB. A complete application for 401 Certification will include a detailed Water Quality Management Plan that will address the key water quality features of the Project to ensure the integrity of water quality in the area during and post-construction.

Under separate authorities granted by State law (i.e., the Porter-Cologne Water Quality Control Act), a RWQCB may choose to regulate discharges of dredge or fill materials by issuing or waiving (with or without conditions) Waste Discharge Requirements (WDRs), a type of State discharge permit, instead of taking a water quality certification action. Processing of a WDR is similar to that of a Section 401 certification; however, the RWQCB has slightly more discretion to add conditions to a project under the Porter-Cologne Act than under the Federal CWA.

4.3.4 Migratory Nesting Songbirds and Raptors

The Project applicant shall be responsible for the implementation of mitigation to reduce impacts to migratory nesting songbird and raptor species to below a level of significance through one of two ways: 1) vegetation removal activities shall be scheduled outside the nesting season (September 1 to February 14 for songbirds; September 1 to January 14 for raptors and hummingbirds) to avoid potential impacts to nesting songbirds and raptors. This will ensure that no active nests will be disturbed and that habitat removal could proceed. Any construction activities that occur during the nesting season (February 15 to August 31 for songbirds; January 15 to August 31 for raptors and hummingbirds) shall require that all suitable habitat be thoroughly surveyed for the presence of nesting songbirds and raptors by a qualified biologist before commencement of clearing. If any active nests are detected, a buffer of at least 300 feet (500 feet for raptors) will be delineated, flagged, and avoided until the nesting cycle is complete, as determined by the biological monitor to minimize impacts.

4.3.5 Protected Oak Trees

Under the current Project design, one coast live oak will be removed and therefore the Project shall comply with the following conditions in order to qualify for an oak tree permit:

- Affidavit filed with the Department of Regional Planning stating that they are aware of and agree to accept all conditions of the grant.
- Prior to commencement of the use authorized by the grant, a deposit with the County of Los Angeles Fire Department in the sum of $300 shall be filed to be used to compensate the County Forester, $100 per inspection, to cover expenses incurred while inspecting the Project to determine the Permittee's compliance with the conditions of approval.
- The Permittee shall install temporary chain link fencing, not less than four (4) feet in height, to secure the protected zone of all remaining oak trees on site within 100 feet of construction boundary, as necessary. The fencing shall be installed prior to grading or tree removal, and shall not be removed without approval of the County Forester. The term "protected zone" refers to the area extending five (5) feet beyond the dripline of the Oak tree (before pruning), or fifteen (15) feet from the trunk, whichever is greater.
- Copies of the Oak Tree Report, oak tree map, mitigation planting plan, and conditions of approval shall be kept on the study area and available for review. All individuals associated with the Project as it relates to the oak resources shall be familiar with the Oak Tree Report, oak tree map, mitigation planting plan and Conditions of Approval.
- Trenching, excavation, or clearance of vegetation within the protected zone of an oak tree shall be accomplished by the use of hand tools or small hand-held power tools. Any major roots encountered shall be conserved to the extent possible and treated as recommended by the consulting arborist.
- Remedial pruning intended to ensure the continued health of a protected oak tree or to improve its appearance or structure may be performed. Such pruning shall include the removal of deadwood and stubs and medium pruning of branches two-inches in diameter or less in accordance with the guidelines published by the National Arborist Association. In no case shall more than 20% of the tree canopy of any one tree be removed.

- Except as otherwise expressly authorized by the grant, the remaining oak trees shall be maintained in accordance with the principles set forth in the publication, "Oak Trees: Care and Maintenance," prepared by the County of Los Angeles Fire Department, Forestry Division.
- The Permittee shall provide mitigation trees of the oak genus at a rate of two to one (2:1) for any tree specified above that dies as a result of the approved encroachments.
- Each mitigation tree shall be at least a 15-gallon specimen in size and measure one (1) inch or more in diameter one (1) foot above the base. Free form trees with multiple stems are permissible provided the combined diameter of the two (2) largest stems of such trees measure a minimum of one (1) inch in diameter one (1) foot above the base.
- Mitigation trees shall consist of indigenous varieties of *Quercus agrifolia* grown from a local seed source.
- Additional mitigation trees shall be planted within one (1) year of the death of any tree, which results from its permitted encroachment. Mitigation trees shall be planted either on site or at an off-site location approved by the County Forester. Alternatively, a contribution to the County of Los Angeles Oak Forest Special Fund may be made in the amount equivalent to the Oak resource loss. The contribution shall be calculated by the consulting arborist and approved by the County Forester according to the most current edition of the International Society of Arboriculture's "Guide for Plant Appraisal."
- The Permittee shall properly maintain each mitigation tree and shall replace any tree failing to survive due to a lack of proper care and maintenance with a tree meeting the specifications set forth above. The two-year maintenance period will begin upon receipt of a letter from the Permittee or consulting arborist to the Director of Regional Planning and the County Forester indicating that the mitigation trees have been planted. The maintenance period of the trees failing to survive two (2) years will start anew with the new replacement trees. Subsequently, additional monitoring fees shall be required.
- All mitigation oak trees planted as a condition of the permit shall be protected in perpetuity by the Los Angeles County Oak Tree Ordinance once they have survived the required maintenance period.
- Encroachment within the protected zone of any additional tree of the oak genus on the study area is prohibited.
- Should encroachment within the protected zone of any additional tree of the oak genus on the study area not permitted by this grant result in its injury or death within two (2) years, the Permittee shall be required to make a contribution to the Los Angeles County Oak Forest Special Fund in the amount equivalent to the oak resource damage/loss. Said contribution shall be calculated by the consulting arborist and approved by the County Forester according to the most current edition of the International Society of Arboriculture's "Guide for Plant Appraisal."
- No planting or irrigation system shall be installed within the dripline of any oak tree that will be retained.
- Utility trenches shall not be routed within the protected zone of an oak tree unless the serving utility requires such locations.
- Equipment, materials and vehicles shall not be stored, parked, or operated within the protected zone of any oak tree. No temporary structures shall be placed within the protected zone of any oak tree.

- Violations of the conditions of the grant shall result in immediate work stoppage or in a notice of correction depending on the nature of the violation. A time frame within which deficiencies must be corrected will be indicated on the notice of correction.
- Should any future inspection disclose that the subject property is being used in violation of anyone of the conditions of this grant, the permittee shall be held financially responsible and shall reimburse the County of Los Angeles Fire Department, Forestry Division for all enforcement efforts necessary to bring the subject property into compliance.

4.4 IMPACTS

4.4.1 Sensitive Species

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 Wildlife or U.S. Wildlife Service.

Less than Significant with Mitigation Incorporated

4.4.1.1 Sensitive Plant Species

Many of the sensitive plant species discussed above may occur within the region, but are not expected to occur within the study area due to the lack of suitable habitat, the fact that the study area is outside of the known range or elevation for these species, or negative survey results.

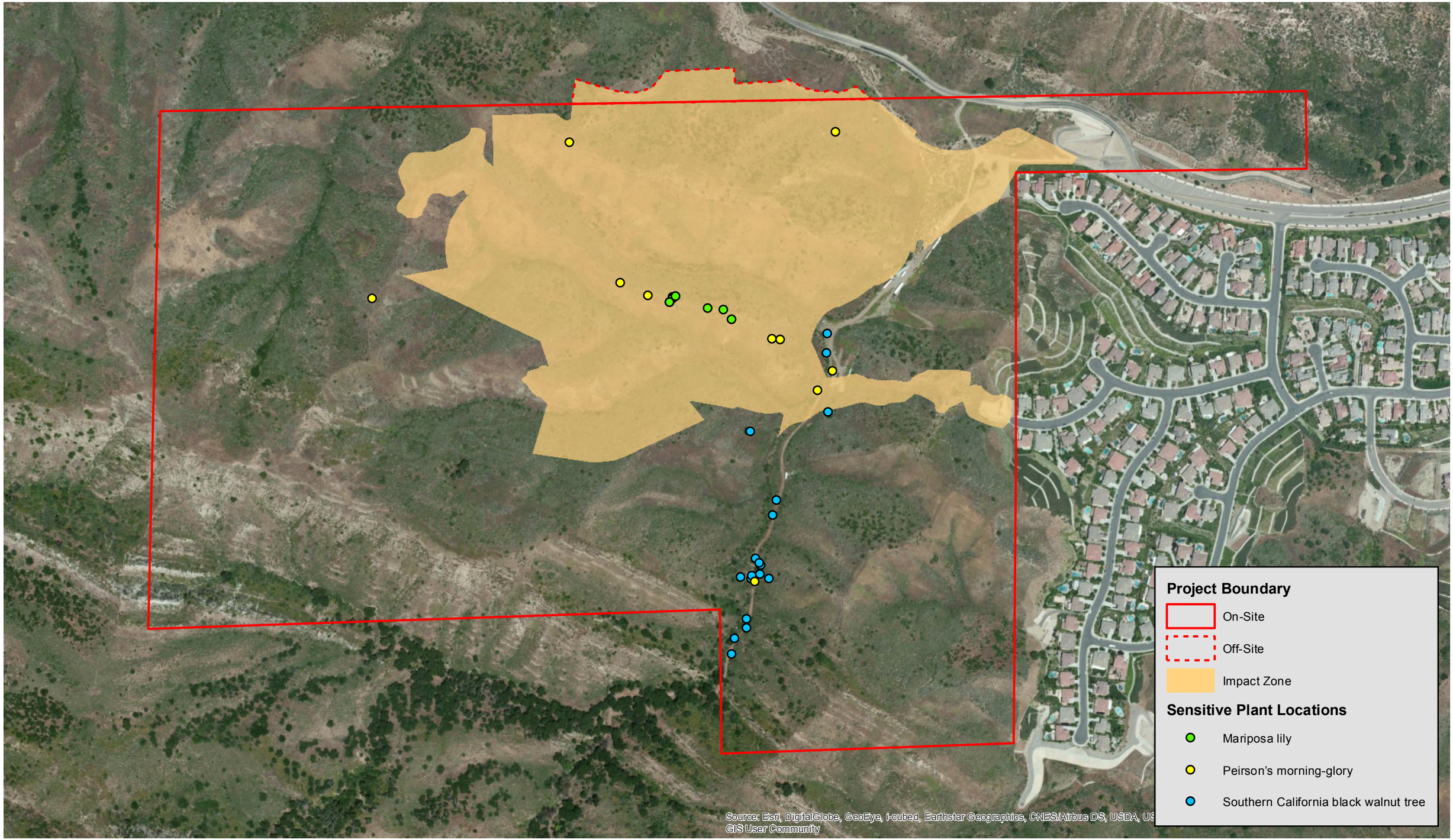
A sensitive plant survey was conducted of the Project development footprint only. Two sensitive mariposa lily species, the slender mariposa lily (CRPR 1B.1) and Plummer's mariposa lily (CRPR 4.2), have been found on the study area at multiple locations during previous surveys (Envicom 2005, Verna Jigour Associates 1999). The seed pods of six individual mariposa lily plants were found within the development footprint during the 2014 sensitive plant surveys (**Figure 10,** *Impacts to Sensitive Plants*). While several species of mariposa lily occur in the area, it is suspected that the mariposa lilies observed on-site in 2014 were slender mariposa lily due to the previous observation of this species on-site (Envicom 2005) and because the fruit shape was more characteristic of slender mariposa lily than Plummer's mariposa lily. The latter species is more commonly associated with granitic substrates, as opposed to the apparent sand/siltstone-derived soils on-site (Verna Jigour Associates 1999). Plants classified as CRPR of 1B.1 are defined by the 1B as 'Rare, Threatened, or Endangered in California and elsewhere', and further defined by the decimal .1 as 'Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat)'. Plants classified as CRPR 4.2 are defined by the 4 as 'Plants of limited distribution – a watch list', and a threat rank of .2 is classified as 'Fairly threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat)'. Neither mariposa lily species is listed as federal or State threatened or endangered. Based on a review of the CNDDB, approximately 30,000 slender mariposa lilies occur within 70 locations throughout the region. However, the removal of approximately six slender mariposa lily individuals, while limited, is a potentially significant impact. It can be anticipated that mitigation in the form of transplantation or restoration within the Project open space would be implemented. Implementation of Mitigation Measure MM BIO-1, as detailed in Section 5.2.1 below, would reduce this impact to a less than significant level.

Three southern California black walnut trees (CRPR 4.2) occur within the development footprint and will be removed, as shown in Figure 10. Although exact numbers and locations of southern California black walnut outside of the Project development footprint were not recorded during the sensitive plant survey, there were many more on the slopes of Wickham Canyon in the southern portion of the study area than within the development footprint; however, these will not be impacted by the Project. Because southern California black walnut is a low sensitivity status CRPR 4.2 Watch List species and only three or fewer individuals would be impacted by the proposed Project, impacts to these three trees are less than significant and no mitigation measures would be required. However, it is recommended that southern California black walnut be included in the plant palette for the replanting of manufactured slopes outside of the fuel modification zone.

Approximately seven (7) individual and small clusters of Peirson's morning glory (CRPR 4.2) were found during the 2014 surveys as well as being reported in the 1999 and 2005 surveys (Envicom 2005, Verna Jigour Associates 1999). Only one individual was recorded outside the development impact area. This species was found within open spaces between shrubs sparsely scattered throughout the study area, both within and outside the impact areas, as well as on the surrounding slopes. Peirson's morning glory is a CRPR 4.2 Watch List species and up to seven individuals or clusters would be impacted by the proposed Project. The species is widespread on ridges and slopes, weakly climbing over chaparral, coastal scrub, and grasslands throughout the Newhall Ranch Specific Plan (USACE and CDFG 2009), Therefore the impact to the species is considered less than significant and no mitigation measures would be required. It recommended that Peirson's morning glory be included in the plant palette for the revegetation of manufactured slopes outside of the fuel modification zone.

4.4.1.2 Sensitive Wildlife Species

Many of the sensitive wildlife species discussed above may occur within the region, but are not expected to occur within the study area due to the lack of suitable habitat; however, western spadefoot (SSC), silvery legless lizard (SSC), coastal whiptail (SA), coast horned lizard (SSC), rosy boa (USFSS), golden eagle (SFP), Cooper's hawk (WL), Swainson's hawk (WL), white-tailed kite (SFP), turkey vulture (LAA), lesser nighthawk (LAA), prairie falcon (WL, LAA), greater roadrunner (LAA), loggerhead shrike (LAA), hairy woodpecker (LAA), mountain bluebird (LAA), California horned lark (WL), coastal California gnatcatcher (FT), western meadowlark (LAA), southern California rufous-crowned sparrow (WL, LAA), grasshopper sparrow (SSC), Bell's sage sparrow (WL, LAA), spotted bat (SSC), pallid bat (SSC), Townsend's bat (SCT), western mastiff bat (SSC), hoary bat (SA), San Diego black-tailed jackrabbit (SSC), southern grasshopper mouse (SSC) and San Diego desert woodrat (SSC) have the potential to occur on the site due to the presence of suitable habitat. Golden eagle, Cooper's hawk, Swainson's hawk, white-tailed kite and loggerhead shrike could forage within the study area but are not expected to breed because suitable habitat is not present. However, marginal nesting habitat in rocky habitats (outside grading footprint) is possible for golden eagle and prairie falcon. None of these species carry federal or state listings as threatened or endangered and the extent and amount of habitat impacted is minimal and would not jeopardize regional population numbers. Therefore, any impacts to these species, if present, represent an adverse but potentially significant impact, and mitigation is warranted. The Project design would preserve approximately 165 acres of undeveloped, natural area within the southern and western portions of the Project site. Implementation of Mitigation Measures MM BIO-2, as detailed in Section 5.2.2 below, and MM BIO-5 in Section 5.2.5 would reduce this impact to a less than significant level.



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Impacts to Sensitive Plants

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

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4.4.2 Sensitive Communities

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 Wildlife or U. S. Fish and Wildlife Service.

Less than Significant with Mitigation Incorporated

Impacts to the plant communities by the development of the proposed Project, including the fuel modification zone, are shown in **Figure 11**, *Impacts to Plant Communities* and impact acreages are summarized in **Table 4**, *Impacts to Plant Communities*. As stated in Section 3.7.2, five of the plant communities that occur within the study area are considered sensitive.

Table 4

Impacts to Plant Communities

Plant Communities	On-site (acres)	Grading Impacts (acres)	Fuel Mod Impacts (acres)	Total Impacted (acres)	Total Remaining (acres)
Bush Mallow Scrub	110.5	16.4	5.9 (1.5)	22.3	88.2
Buckwheat Scrub	24.0	3.6	0.4	4.0	20.0
Buckwheat Scrub/Thick Leaf Yerba Santa Scrub	4.6	0.1	0.0	0.1	4.4
Coyote Bush Scrub	1.2	0.6	0.0	0.7	0.6
California Bush Sunflower Scrub	1.3	1.3	0.0	1.3	0.0
Coast Live Oak Woodland	0.8	0.0	0.0	0.0	0.8
California Sagebrush Scrub	1.9	0.0	0.0	0.0	1.9
Disturbed	13.1	4.8	0.4 (0.4)	5.2	8.0
Disturbed/Thick Leaf Yerba Santa Scrub	0.1	0.1	0.0	0.1	0.0
Foothill Ash Scrub	3.8	1.8	0.1	1.8	2.0
Giant Wild Rye Grassland	4.0	0.1	0.6	0.7	3.3
Mule Fat Scrub	5.5	2.3	0.2	2.6	3.0
Annual Grassland	38.9	13.1	2.5	15.6	23.3
Ornamental	1.9	0.2	0.0	0.2	1.7
Poison Oak-California Sagebrush Scrub/ Giant Wild Rye Grassland	1.1	0.0	0.0	0.0	1.1
Purple Sage Scrub	8.8	2.6	1.2	3.8	5.0
Purple Sage Scrub/Annual Grassland	1.5	1.5	0.0	1.5	0.0
Toyon Chaparral	6.8	4.1	1.9 (0.7)	6.0	0.9
Thick Leaf Yerba Santa Scrub	0.6	0.4	0.1	0.5	0.0
Total	**230.4**	**53.2**	**13.2**	**66.4**	**164.0**

Source: PCR Services Corporation, 2014. Acreages in parentheses are off-site impacts.

Implementation of the Project would impact 0.5 acre (inclusive of 0.1 acre from fuel modification) of the 0.6 acre of Thick-leaved Yerba Santa Scrub, 0.7 acre (inclusive of 0.6 acre from fuel modification) of the 4.0 acres of Giant Wild Rye Grassland, all of the 1.3 acres of California Bush Sunflower Scrub, and 6.0 acres (inclusive

of 1.9 acres from fuel modification) of 7.5 acres (including 0.7 acre off-site) of Toyon Chaparral. Impacts to sensitive plant communities are potentially significant. Implementation of Mitigation Measure MM BIO-3, as detailed in Section 5.2.3 below, would reduce this impact to a less than significant level.

Although CDFW does not consider coast live oak woodland to be a sensitive plant community, Los Angeles County requires an evaluation for the potential for significant impacts to oak woodlands as required under CEQA Section 21083.4. The two coast live oak woodlands in the study area are south of the development footprint and would not be affected by the Project and consequently there would be no impact. Therefore, impacts to oak woodland would remain less than significant and no further mitigation would be required.

4.4.3 Impacts to Protected Wetlands

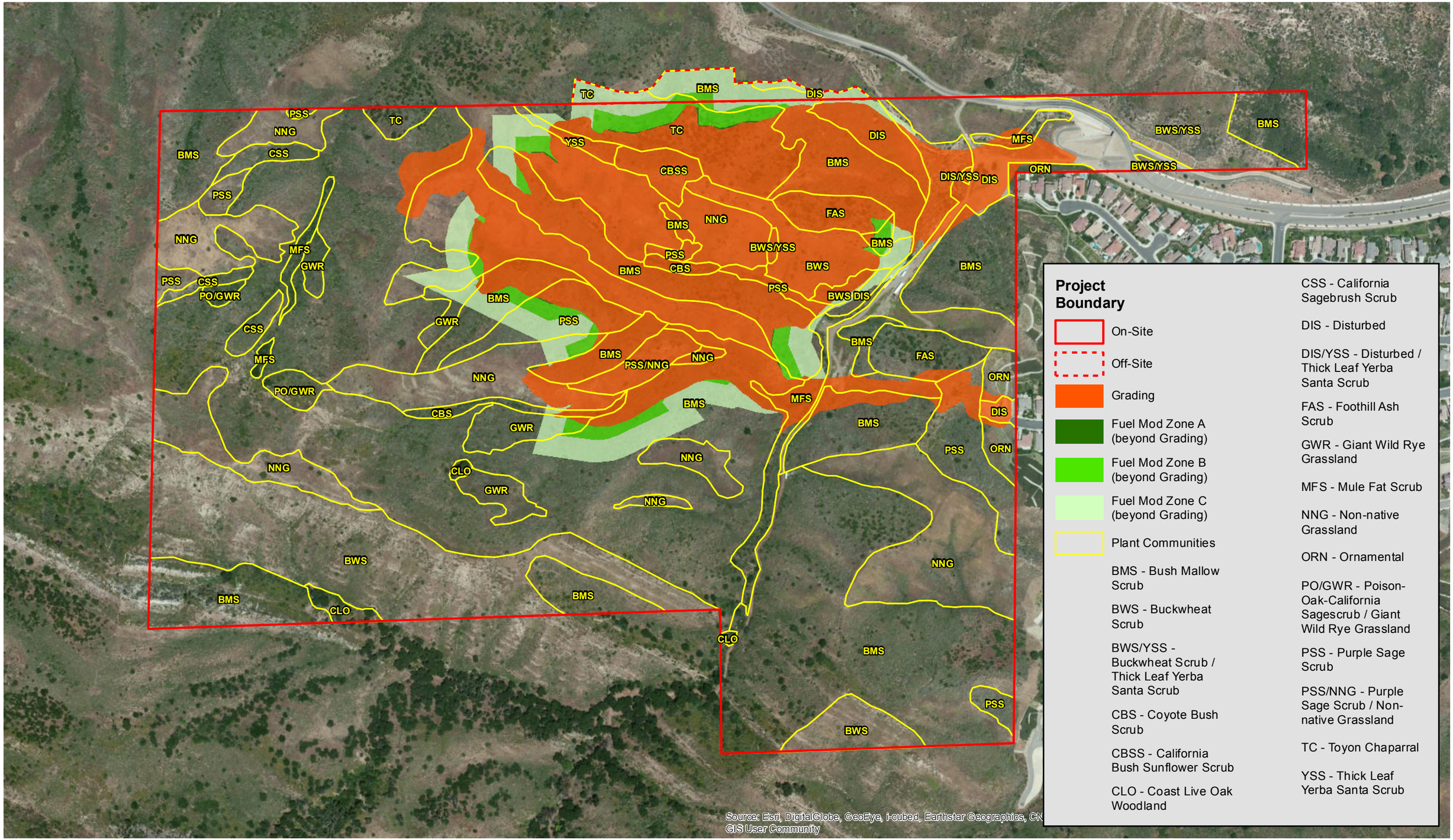
Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Less than Significant with Mitigation Incorporated

In 2000, Envicom performed a jurisdictional delineation on the study area. In 2014, PCR conducted a cursory review and update to CDFW jurisdiction mapped on-site which included current site conditions (including the Pico Canyon Creek Channel and the Pico Canyon Road improvements). To provide a conservative analysis consistent with the 2000 jurisdictional delineation, some areas were mapped during PCR's 2014 site visit that did not show obvious jurisdictional indicators (e.g., large portions of the Wickham Canyon tributaries). It should be noted that the 2014 site visit did not include a formal jurisdictional delineation; it is recommended that a formal jurisdictional delineation be performed within the study area and/or Project footprint prior to the regulatory permitting process.

The 2000 jurisdictional delineation identified 0.98 acre of wetlands within the study area in both Pico Creek and Wickham Canyon. The proposed Project would result in impacts to a maximum[3] of 1.22 acre of USACE/RWQCB "waters of the U.S.," 6.23 acres of CDFW jurisdictional streambed and associated riparian habitat, and 0.70 acre of USACE/RWQCB and CDFW jurisdictional wetland (**Figure 12** *Impacts to Jurisdictional Features*). Impacts to jurisdictional waters and wetlands are considered potentially significant. Mitigation Measure MM BIO-4, described in Section 5.2.4 below, would reduce these impacts to a less than significant level.

[3] *It should be noted that PCR's 2014 site visit did not include a formal updated jurisdictional delineation. Based on current regulatory requirements and PCR's observations during the 2014 assessment, it is anticipated that once an updated jurisdictional delineation is performed for the regulatory permitting process, the total wetland/waters acreage mapped within the study area, and associated impacts to jurisdictional areas, may be reduced.*



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Impacts to Plant Communities

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

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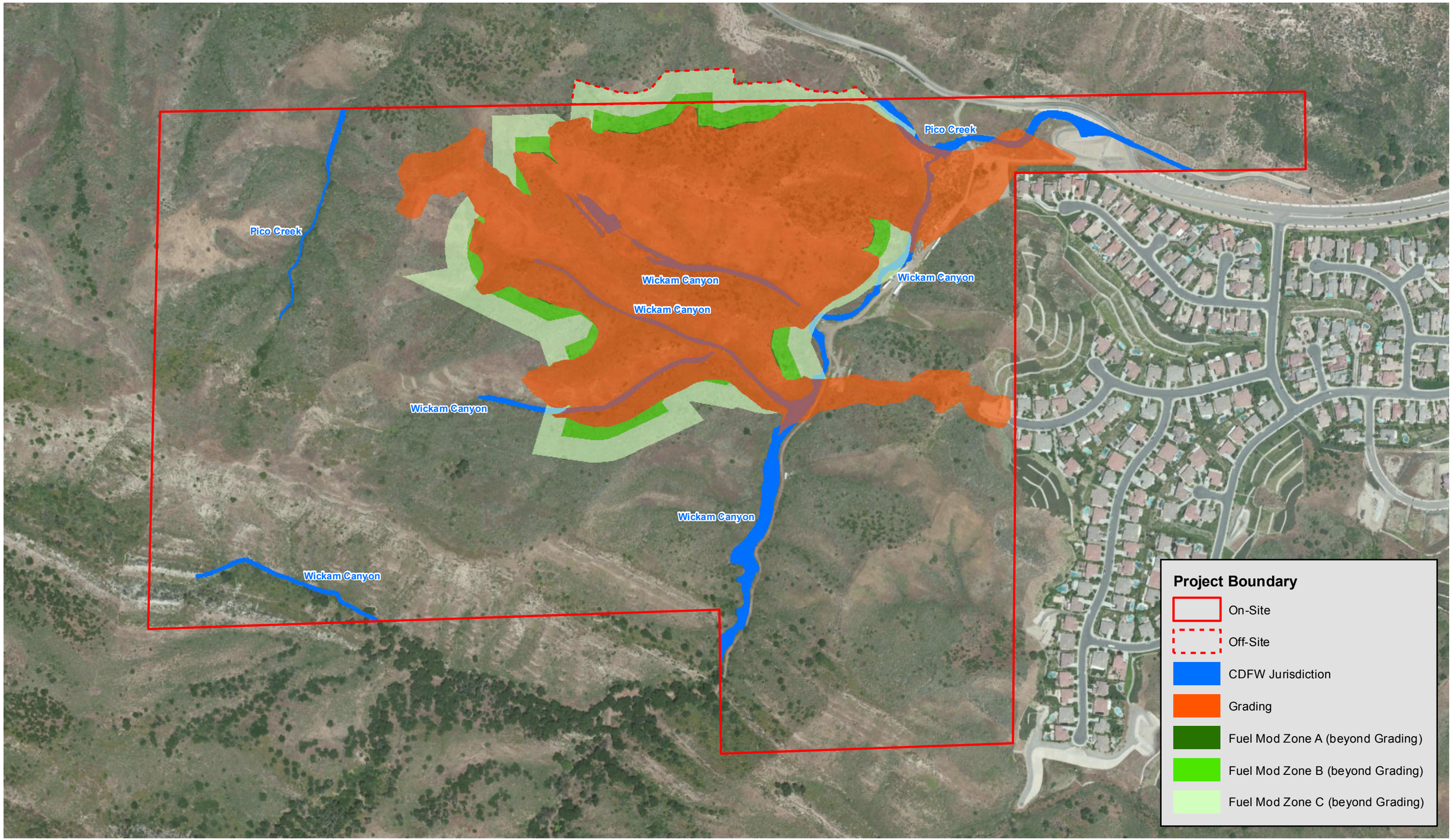

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Impacts to Jurisdictional Features

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

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4.4.4 Wildlife Movement

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 with Mitigation Incorporated

The study area is likely to provide live-in habitat and local-level movement habitat for a variety of insect, reptile, bird, and mammal species. The study area is contiguous to an area that may serve more widespread movement, and is a peripheral part of the broader Santa Susana Mountains area that provides habitat and relatively unrestricted movement for numerous wildlife species, particularly along the drainages and ridgelines due to the steep topography of the study area. However, the study area does not function as a regional wildlife movement corridor since it does not connect two or more habitat patches that would otherwise be fragmented or isolated from one another (i.e., due to surrounding development). Disturbances from human activities (e.g., nearby residences to the east and visitors to the historic site of Mentryville to the west), and existing barriers to wildlife movement (e.g., Pico Canyon Road to the north) may impede some local and regional wildlife movement through the study.

Potential short-term construction-related impacts include hydrologic and water quality alterations; erosion and chemical and toxic compound pollution in uplands; dust; construction noise; vibration; lighting; increased human activity; temporary fencing; accidental clearing, trampling, and grading; oak tree root impacts; and trash and other debris. Secondary impacts include traffic noise, night lighting; altered hydrology; watershed-level water quality impacts; downstream effects of drainage facilities; downstream effects of water quality control facilities; stream restoration and enhancement activities; habitat fragmentation; altered natural wildfire regimes; increased human activity; and increased invasive plants.

Indirect impacts are considered to be those that involve the effects of increases in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., domestic cats and other non-native animals), and competitors (e.g., exotic plants, non-native animals). Indirect impacts may be associated with the construction and/or eventual habitation/operation of a project; therefore, these impacts may be both short-term and long-term in their duration. Indirect impacts to nesting birds, such as noise impacts during construction or line-of-sight impacts disrupting nesting behavior, are not anticipated to be significant.

These impacts are commonly referred to as “edge effects” and may result in changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to study areas. Pets and stray and feral animals may affect wildlife through increased predation and by outcompeting smaller native species (e.g., woodrats) for available resources. Project development would cause local effects on resident wildlife species, may also cause regional impacts on wildlife corridors. This could result for habitat fragmentation and altering wildlife behavior. Any increase in distance between wildlife habitats as a result of development could decrease the number of species in the Project vicinity. While impacts caused by “edge effects” would not be avoided by the Project, these impacts would be minimized by the new residential development footprint being an incremental extension of the existing Southern Oaks residential community. The Project design open space areas on the western and southern Project boundaries would buffer the new development from the existing preserved areas in the vicinity.

The effects of the proposed Project on the chain of conserved open space parcels lying to the south of the project site that connect a portion of the SCML linkage of the Santa Susana Mountains north through the Newhall Ranch Specific Plan open space areas would be incremental to that caused by other residential development in the region. However, the Project design would not cause a barrier to movement but would cause interference of existing patterns.

The Project development footprint is clustered adjacent to existing development (e.g., Pico Canyon Road to the north and nearby residences to the east) and the Project avoids impacts to the southern and western portions of the study area. The emergency secondary fire access road crossing of Wickham Canyon would be designed with a soft bottom with sufficient height and width to allow local wildlife movement to continue along the channel. Thus, wildlife movement through these portions of the study area would still continue. However, because a small area of Wickham Canyon wil be constrained by the construction of the emergency secondary fire access road and the confluence of Wickham Canyon and Pico Canyon would be replaced by the Project entry access road, local wildlife movement would be impeded and new travel routes would be required by these animals. Therefore, implementation of the proposed Project is not expected to significantly alter movement through the study area but would change existing movement patterns. Impacts to wildlife movement are considered less than significant, and no mitigation is required.

The study area has the potential to support both raptor and songbird nests due to the presence of trees, shrubs, and ground cover. Nesting activity typically occurs from February 15 to August 31 for songbirds and January 15 to August 31 for raptors. Disturbing or destroying active nests is a violation of the Migratory Bird Treaty Act (16 U.S.C. 703 *et seq*.). In addition, nests and eggs are protected under Fish and Wildlife Code Section 3503. The removal of vegetation during the breeding season is considered a potentially significant impact absent mitigation. Mitigation Measure MM BIO-5, provided in Section 5.2.5 below, would reduce this impact to a less than significant level.

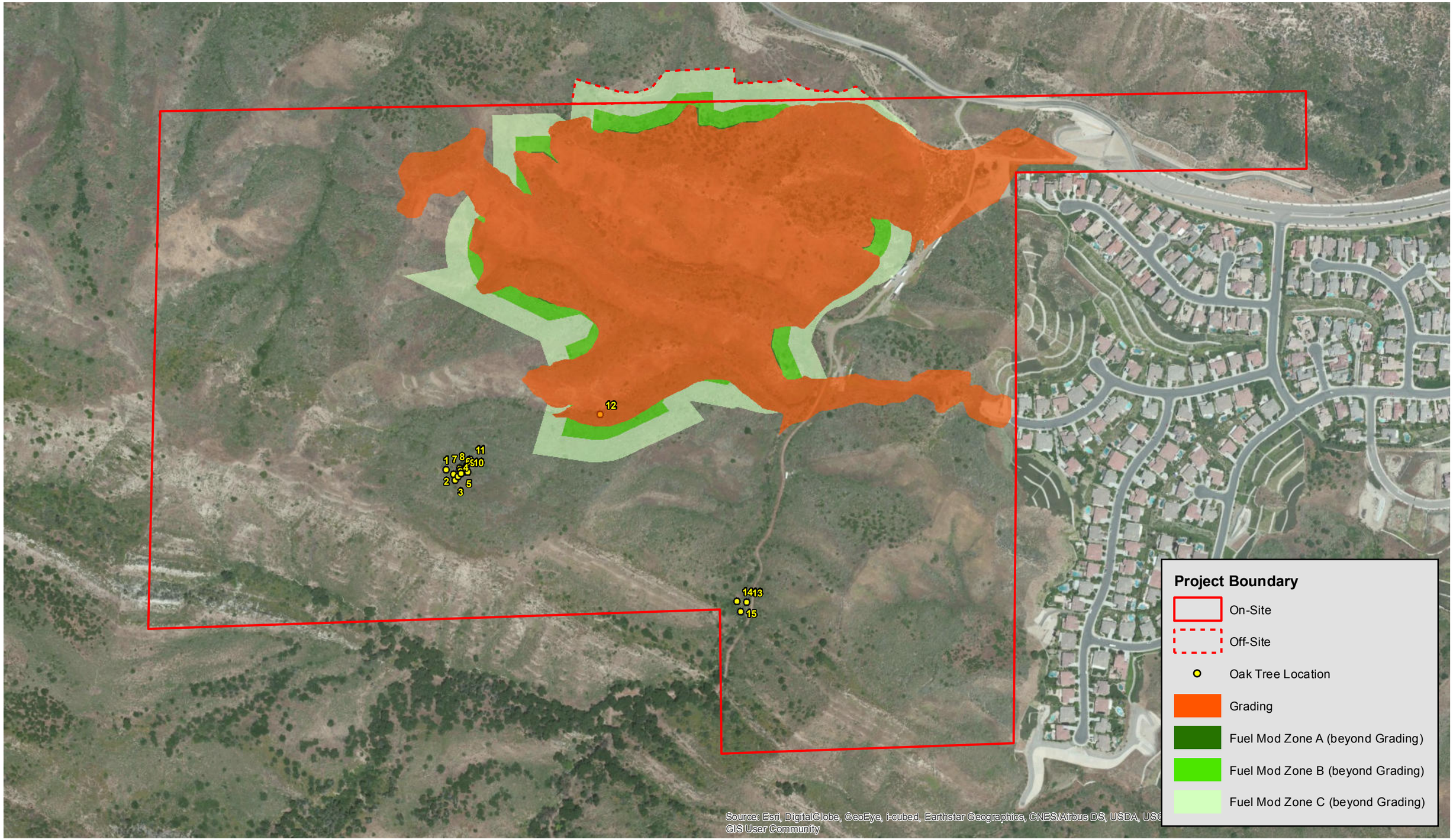
4.4.5 Local Policy Conflicts

Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Less than Significant with Mitigation Incorporated

Oak Tree Ordinance

Oak trees are protected under the County of Los Angeles Oak Tree Ordinance [(Ord. 88-0157 § 2, 1988: Ord. 82-0168 § 2 (part), 1982) as outlined in Chapter 22.56.2050 *et seq*. of the Los Angeles County Code]. The County of Los Angeles Oak Tree Ordinance requires a permit to remove oak trees with a diameter at breast height (DBH) of 8 inches or more. A technical report must be prepared by a certified arborist providing an inventory of trees on a site, as well as a Tree Protection, Replacement and Mitigation Plan. The proposed Project will remove one coast live oak tree with DBH of 14.5 inches, as shown in **Figure 12**, *Impacts to Oak Trees*. The technical report was prepared on June 13, 2013 by PCR, which recommends at least two replacement trees be planted in "open space" within the study area. Any impacts to protected oaks without incorporation of appropriate mitigation measures would be considered significant. Implementation of Mitigation Measure MM BIO-6, as detailed in Section 5.2.6 below, would reduce this impact to a less than significant level.



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Impacts to Oak Trees

Aidlin Hills

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

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Oak Woodlands Conservation Management Plan

In 2011, the County of Los Angeles adopted the Los Angeles County Oak Woodlands Conservation Management Plan to encourage the preservation of oak woodlands through the County. It is the intent of the County to maintain and expand the oak woodland habitat by requiring development designs to avoid impacts to oak woodlands and require appropriate compensatory mitigation where oak woodland impacts remove such habitat. The proposed Project would be consistent with the goals and policies of the Oak Woodlands Conservation Management Plan because the Project design retains the coast live oak woodland on-site. Impacts to oak woodlands would be less than significant and no mitigation would be required.

Santa Susana Mountains Significant Ecological Area (SEA No. 20)

The Project was originally submitted prior to the 2012 adoption of the Santa Clarita Valley Area One Valley One Vision plan, consequently the Project site is subject to the policies of the 1990 Santa Clarita Valley Area Plan. Although the Project site is designated within the Santa Susana Mountains/Simi Hills Significant Ecological Area (SEA) in the 2012 One Valley One Vision area plan, the SEA 20 in the 1990 Santa Clarita Valley Area Plan did not include the Project site (see **Figure 3,** *Location in Relation to Los Angeles County SEA*). The Project would provide approximately 165 acres of natural open space (approximately 71 percent of the Project site), which would buffer natural areas to the south and west of the Project site from grading and development associated with the Project. The Project would not impact SEA 20 and would not conflict with local policies or ordinances protecting biological resources because the Project is not subject to the provisions of any local policies or ordinances pertaining to SEAs.

4.4.6 Habitat Conservation Plan Conflicts

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 does not occur within the boundaries of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. The U.S. Fish and Wildlife Service has designated critical habitat for the coastal California gnatcatcher approximately one mile south and southeast of the Project site. Critical habitat for arroyo toad, southwestern willow flycatcher and least Bell's vireo is designated approximately three miles to the north of the Project site. The Project site is not located within any designated critical habitat for any Federal endangered or threatened species. As such, no impacts will occur.

5.0 MITIGATION

5.1 APPROACH

Mitigation measures are recommended for those impacts determined to be significant to sensitive biological resources. Mitigation measures for impacts considered to be "significant" were developed in an effort to reduce such impacts to a level of "insignificance," while at the same time allowing an opportunity to realize development of the Project. As stated in *State CEQA Guidelines* Section 15370 mitigation includes:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the impacted environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

Where compliance with existing regulations and the issuance of permits by regulatory agencies would reduce impacts to a less than significant level, those measures are proposed as conditions of approval.

5.2 MITIGATION MEASURES FOR POTENTIALLY SIGNIFICANT IMPACTS

The following mitigation measures (MM) and conditions of approval (COA) are proposed to address potentially significant impacts from the proposed Project identified in Section 4.0 above.

5.2.1 Measures to Mitigate Potentially Significant Impacts to Sensitive Plant Species

MM BIO-1 The loss of slender and Plummer's mariposa lily individuals from developed areas of the Project site shall be mitigated by the salvage and transplantation of bulbs to appropriate habitat areas in undeveloped portions of the Project site.

A pre-construction survey during the peak flowering period for the lender mariposa lily and Plummer's mariposa lily (March to June) shall be conducted by a qualified biologist in the spring prior to construction. The location of each plant observed within the impact area shall be clearly delineated with brightly colored flagging as well as GPS coordinates recorded. Plants within the proposed development footprint and likely to be impacted shall be mitigated by bulb collection (during summer) and subsequent out-planting and propagation. A portion of the bulbs (no greater than 50%) shall then be placed into a suitable mitigation site in the undeveloped portion of the study area or at an approved off-site location. A qualified biologist shall be selected by the Project Applicant to prepare and implement the mitigation plan. The detailed mariposa lily mitigation and monitoring plan shall include, at a minimum, the following requirements, and be approved by the County of Los Angeles prior to issuance of a grading permit:

- The seeds must shall be collected from existing plants and cultivated in nursery until they are ready for transplant into mitigation area at the appropriate time of year or stored for direct seeding in the approved mitigation areas.
- The salvaged bulbs can be immediately transplanted at appropriate time of year to appropriate receptor sites within the Project Area that support suitable habitat matching the habitat characteristics from which the bulbs were collected.
- Mitigation area shall be as dedicated open space location and the baseline for habitat suitability based on previous surveys shall categorized.
- Mitigation shall be at a minimum of a 2:1 mitigation-to-impact ratio per individual plant.
- Monitoring of the mitigation areas shall be conducted for five years or until performance standards are achieved, whichever is longer. Monitoring shall be conducted quarterly through the first year and annually thereafter for a total period of at least five years. Monitoring shall address issues of plant establishment and vigor, herbivory, and competition by non-native weedy plants.
- Performance standards shall be described to measure mitigation success by the end of the five-year monitoring program and contingency measures shall be incorporated to be pursued in the event that performance standards prove to be untenable.

5.2.2 Measures to Mitigate Potentially Significant Impacts to Sensitive Wildlife Species

MM BIO-2 The Project design shall dedicate 165 acres as natural open space to provide habitat for western spadefoot, silvery legless lizard, coastal whiptail, coast horned lizard, rosy boa, golden eagle, Cooper's hawk (foraging only), Swainson's hawk (foraging only), white-tailed kite (foraging only), prairie falcon, turkey vulture, lesser nighthawk, greater roadrunner, hairy woodpecker, mountain bluebird (foraging only), loggerhead shrike (foraging only), California horned lark, coastal California gnatcatcher, western meadowlark, southern California rufous-crowned sparrow, grasshopper sparrow, Bell's sage sparrow, spotted bat, pallid bat, Townsend's bat, western mastiff bat, hoary bat, San Diego black-tailed jackrabbit, southern grasshopper mouse and San Diego desert woodrat.

Prior to the issuance of a grading permit for ground disturbance, construction, or site preparation activities, the applicant shall retain the services of a qualified biologist to conduct pre construction surveys for western spadefoot toad within all portions of the Project site containing suitable breeding habitat. Surveys shall be conducted during a time of year when the species could be detected (e.g., the presence of rain pools). If western spadefoot toad is identified on the Project site, western spadefoot toad habitat shall be created within suitable natural sites on the Project site outside the proposed development envelope under the direct supervision of the qualified biologist. The amount of occupied breeding habitat to be impacted by the Project shall be replaced at a 2:1 ratio. The actual relocation site design and location shall be approved by CDFG. The location shall be in suitable habitat as far away as feasible from any of the homes and roads to be built. The relocation ponds shall be designed such that they only support standing water for several weeks following seasonal rains. The biologist shall conduct pre-construction surveys in all appropriate vegetation communities within the development envelope. All western spadefoot adults, tadpoles, and egg masses encountered shall be collected and released in the identified/created relocation ponds described above.

Prior to ground disturbance or grading activities, the applicant shall develop a relocation plan for rosy boa, coast horned lizard, silvery legless lizard, and coastal whiptail. The Plan shall include the timing and location of the surveys that would be conducted for each species; identify the locations where more intensive efforts should be conducted; identify the more appropriate habitats within the dedicated open space are most appropriate for each species; the methods that would be utilized for trapping and relocating the individual species; and provide for the documentation/recordation of the species and number of the animals relocated. The Plan shall be submitted to the County for approval 60 days prior to any ground disturbing activities within potentially occupied habitat.

Thirty days prior to construction activities, qualified biologists shall conduct surveys to capture and relocate individual rosy boa, coast horned lizard, silvery legless lizard, and coastal whiptail in order to avoid or minimize take of these special status species. The plan shall require a minimum of three (3) surveys conducted during the time of year/day when each species is most likely to be observed. Individuals shall be relocated to nearby undisturbed areas with suitable habitat. If construction is scheduled to occur during the low activity period (generally December through February) the surveys shall be conducted prior to this period if possible and exclusion fencing shall be placed to limit the potential for re-colonization of the site prior to construction. The qualified biologist will be present during ground-disturbing activities immediately adjacent to or within habitat that supports populations of these species. Clearance surveys for special-status reptiles shall be conducted by a qualified biologist prior to the initiation of construction each day.

Results of the surveys and relocation efforts shall be provided to the County. Collection and relocation of animals shall only occur with the proper scientific collection and handling permits.

Thirty days prior to construction activities, a qualified biologist shall conduct a survey within the proposed construction disturbance zone and within 200 feet of the disturbance zone for San Diego black-tailed jackrabbit and San Diego desert woodrat. If San Diego black-tailed jackrabbits are present, non-breeding rabbits shall be flushed from areas to be disturbed. Dens, depressions, nests, or burrows occupied by pups shall be flagged and ground-disturbing activities avoided within a minimum of 200 feet during the offspring-rearing season (February 15 through July 1). If active San Diego desert woodrat nests (stick houses) are identified within the disturbance zone, a construction fence shall be erected around the nest site adequate to provide the woodrat sufficient foraging habitat at the discretion of the qualified biologist. Clearing and construction within the fenced area shall be postponed or halted until young have left the nest. The biologist shall be present during those periods when disturbance activities will occur near active nest areas to avoid inadvertent impacts to these nests.

Where nest avoidance is not possible, the project biologist shall clear vegetation from immediately surrounding active nests followed by a night without further disturbance to allow woodrats to vacate the nest. Each occupied nest shall subsequently be gently disturbed by a qualified wildlife biologist in possession of a scientific collecting permit to entice any remaining woodrats to leave the nest and seek refuge outside the Project construction area. The stick nests shall be carefully removed from the Project construction area and be placed near a suitable tree or large shrub. The project biologist shall document all woodrat nests moved and provide a written report to the County.

The project applicant shall be responsible to avoid the direct loss of non-game animals including bats during construction activities. Activities that could result in ground disturbance that could impact non-game wildlife shall, to the extent feasible, cause ground disturbance between October 1 and February 28, outside of the bat maternity roosting season and the active animal foraging period. Where structures must be removed during the bat maternity season or active animal foraging period (March 1 to September 30), a qualified biologist should conduct a pre-construction survey to identify those structures and habitats proposed for disturbance that could provide bat hibernacula, nursery colony roosting habitat for bats or subterranean burrows for wildlife. For each structure or suitable habitat area identified as potentially supporting an active bat maternity roost or burrow should be closely inspected by the biologist no greater than seven (7) days prior to disturbance to more precisely determine the presence or absence of roosting bats or present of non-game wildlife.

To avoid the potential direct loss of special-status bat species that could result from disturbance to rocky cliff crevices that may provide maternity roost habitat, the following steps shall be taken:

- To the extent feasible, disturbance to suitable bat roosting habitat shall be scheduled between October 1 and February 28, outside of the maternity roosting season. The most suitable bat roosting habitat on the Project site are the rocky outcrops at the southern boundary where no direct impacts are proposed and more than 800 feet distant from the proposed construction area. A bat specialist shall conduct a pre-construction survey the development footprint for possible bat roosting habitat. If the bat specialist determines that no roosting bats are present within the development footprint, no further action shall be necessary in regard to special-status bat species.
- Maternity season for bats lasts from March 1 to September 30. Rock crevices determined to be maternity roosts within the development footprint and a 200-foot buffer shall be left in place until the end of the maternity season. A rock crevice containing a hibernating colony within the development footprint and a 200-foot buffer shall be left in place until a qualified bat specialist determines that the bats are no longer hibernating.
- The bat specialist shall document all survey results and prepare a summary report to the County. If Townsend's big-eared bat is detected during pre-construction surveys, all construction-related activity shall be halted immediately and CDFW shall be notified. Work may only resume subsequent to CDFW approval.

5.2.3 Measures to Mitigate Potentially Significant Impacts to Sensitive Plant Communities

MM BIO-3 Impacts to sensitive plant communities (i.e., Thick-leaved Yerba Santa Scrub, Giant Wild Rye Grassland, California Bush Sunflower Scrub, and Toyon Chaparral) shall be mitigated using one or more of the following:

- On-site restoration and/or enhancement of sensitive plant communities (e.g., transplantation, seeding, and/or planting of representative plant community species; salvage/dispersal of duff and seed bank) at a ratio no less than 1:1 for permanent impacts, subject to the approval of the County of Los Angeles.

- Purchase of mitigation credits at an agency-approved off-site mitigation bank (e.g., Santa Paula Creek Mitigation Bank) or in-lieu fee program at a ratio no less than 1:1, subject to the approval of the County of Los Angeles.

If mitigation is to occur on-site and/or off-site, a habitat mitigation and monitoring plan shall be prepared and approved by the County Biologist prior to the issuance of a grading permit. The plan shall focus on the creation of equivalent habitats within disturbed habitat areas of the project site and/or off-site. In addition, the plan shall provide details as to the implementation of the plan, maintenance, and future monitoring including the following components:

- Description of existing sensitive habitats on the Project site;
- Summary of permanent impacts to sensitive communities based on approved Project design;
- Proposed location for mitigation areas, either on-site or off-site, with description of existing conditions prior to mitigation implementation;
- Detailed description of restoration and/or enhancement goals;
- Description of implementation schedule, site preparation, erosion control measures, planting plans, and plant materials;
- Provisions for mitigation site maintenance and control on non-native invasive plants; and
- Monitoring plan, including performance standards, adaptive management measures, and monitoring reporting to the County of Los Angeles.

5.2.4 Measures to Mitigate Potentially Significant Impacts to Protected Wetlands

MM BIO-4 Prior to the issuance of any grading permit for permanent impacts in the areas designated as jurisdictional features, the Project applicant shall obtain a CWA Section 404 permit from the USACE, a CWA Section 401 permit from the RWQCB, and Streambed Alteration Agreement permit under Section 1602 of the California Fish and Game Code from the CDFW, where the project warrants. The following would be incorporated into the permitting, subject to approval by the regulatory agencies:

- On- and/or off-site restoration and/or enhancement of USACE/RWQCB jurisdictional "waters of the U.S."/"waters of the State" and wetlands at a ratio no less than 2:1 for permanent impacts, and for temporary impacts, restore impact area to pre-project conditions (i.e., revegetate with native species, where appropriate). Off-site restoration and/or enhancement at a ratio no less than 2:1 may include the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program (e.g., Santa Paula Creek Mitigation Bank).
- On- and/or off-site restoration and/or enhancement of CDFW jurisdictional streambed and associated riparian habitat at a ratio no less than 2:1 for permanent impacts, and for temporary impacts, restore impact area to pre-project conditions (i.e., revegetate with native species, where appropriate). Off-site restoration and/or enhancement at a ratio no less than 2:1 may include the purchase of mitigation credits at an agency-approved off-site mitigation bank or in-lieu fee program (e.g., Santa Paula Creek Mitigation Bank).

5.2.5 Measures to Mitigate Potentially Significant Impacts to Nesting and Migratory Birds

MM BIO-5 Prior to the issuance of any grading permit that would require removal of potential habitat for raptor and songbird nests, the Project applicant shall demonstrate to the satisfaction of the County of Los Angeles that either of the following have been or will be accomplished:

- Vegetation removal activities shall be scheduled outside the nesting season (September 1 to February 14 for songbirds; September 1 to January 14 for raptors) to the greatest extent feasible, to avoid potential impacts to nesting birds.
- It is recommended that if activities associated with construction or grading are planned during the bird nesting/breeding season, generally starting in mid-January for early nesting birds (e.g., hawks or hummingbirds) and from mid-February for most bird species, the applicant shall have a qualified biologist conduct surveys for any and all active nests. Pre-construction nesting bird surveys should be conducted weekly, within 30 days prior to initiation of ground-disturbing activities to determine the presence of active nests. The surveys should continue on a weekly basis with the last survey being conducted no more than three days before the start of clearance/construction work. Surveys should include examination of trees, shrubs, and the ground, within grasslands, for nesting birds, as several bird species known to the area are shrub or ground nesters, including mourning doves. If ground-disturbing activities are delayed, additional pre-construction surveys are recommended so that no more than three days will have elapsed between the survey and ground-disturbing activities.

It is recommended that, if active nests are located during pre-construction surveys, clearing and construction activities within 300 feet of the nest (500 feet for raptors) be postponed or halted until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. Limits of construction to avoid an active nest should be established in the field with flagging, fencing, or other appropriate barriers and construction personnel should be instructed on the sensitivity of nest areas. The biologist should 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 will occur. It is recommended that the results of the survey, and any avoidance measures taken, be submitted to the County within 30 days of completion of the pre-construction surveys and/or construction monitoring to document compliance with applicable state and federal laws pertaining to the protection of native birds.

5.2.6 Measures to Mitigate Potentially Significant Impacts to Protected Oak Trees

MM BIO-6 The Project applicant shall mitigate through a two to one mitigation to impact ratio for the removal of one coast live oak trees. Each replacement tree shall be at least a 15-gallon size specimen and measure at least one inch in diameter one foot above the base. The Project applicant shall coordinate with the County Forester and Department of Regional Planning (DRP) prior to removing of the oak tree on the acceptable location for the replacement planting location. The location of mitigation tree planting shall not conflict with any other preservation or mitigation efforts and the location shall be

approved by DRP and the Forester prior to the issuance of a grading permit. The Project applicant shall comply with the conditions of the approved Oak Tree Permit 00-136.

6.0 IMPACTS AFTER MITIGATION

6.1 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed Project, inclusive of mitigation measures, would result in less than significant impacts to sensitive plant species, sensitive wildlife species, sensitive plant communities, migratory and/or nesting birds, jurisdictional features, and protected trees.

6.2 CUMULATIVE IMPACTS

Cumulative impacts are defined as the direct and indirect effects of a proposed Project that, when considered alone, would not be deemed a substantial impact, but when considered in addition to the impacts of related projects in the area, would be considered significant. "Related projects" refers to past, present, and reasonably foreseeable probable future projects, which would have similar impacts to the proposed Project. CEQA deems a cumulative impact analysis to be adequate if a list of "related projects" is included in the EIR or the proposed Project is consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(b)(1)(B)]. CEQA also states that no further cumulative impact analysis is necessary for impacts of a proposed Project consistent with an adopted general, specific, master, or comparable programmatic plan [Section 15130(d)].

With the implementation of Project design features, mitigation measures, and compliance with existing regulations, there will be no cumulatively considerable impacts to sensitive plant species, sensitive plant communities, migratory and/or nesting birds, jurisdictional features, and protected trees. Furthermore, the project is clustered adjacent to existing development and due to the expansive open space areas to the west and east of the study area, the loss of approximately 68 acres (inclusive of fuel modification) of foraging habitat is not expected to substantially affect raptor species to a point where their survival in the region is threatened. These species are relatively mobile and are expected to locate additional foraging habitat remaining in the region.

There are 13 related projects that contain natural areas within which biological resources comparable to the Project site are present, including some areas that are currently used for agriculture. Six of the related projects are components of the Newhall Ranch Specific Plan, which is discussed below as a single large project.

The Valencia Commerce Center development projects could cause potentially significant cumulative impacts to riparian habitat loss, riparian wildlife disturbance, least Bell's vireo habitat temporary and permanent disturbance, and slender and Plummer's mariposa lilies, and San Fernando Valley spineflower impacts. Construction and development of the Entrada North and Entrada South projects could cause potentially significant cumulative impacts to valley oak savannah habitat, slender and Plummer's mariposa lilies, and San Fernando Valley spineflower.

Several large development projects are proposed within Los Angeles County region, including the Newhall Ranch Specific Plan, which will permanently convert approximately 5,132 acres of land from a largely natural habitat to suburban/urban development, and dedicate 6,170 acres (51 percent of the total Specific Plan area) in the Santa Clara River Corridor and the Santa Susana Mountains as open space. Although each of the projects mitigate potential project-specific significant impacts (e.g., through habitat replacement

programs and regulatory requirements), implementation of large-scale projects, such as the Newhall Ranch Specific Plan or any other similar proposed large-scale project, will result in the permanent conversion of large blocks of open space areas. Thus, cumulative impacts to wildlife habitat are considered an unavoidable impact. The Aidlin Hills Project contributes less than 2% of the combined acreage of the related projects.

Cumulative impacts to the biological resources listed below for the Project site are considered to be less than significant based on implementation of the mitigation measures and conditions of approval outlined above in **Section 5.0**, *Mitigation*. Because the Project site was determined not to function as a regional wildlife movement corridor, and no conflicts with approved or adopted habitat conservation plans were determined as significant, these biological impact thresholds are not included below.

- Sensitive plant and wildlife species (i.e., sensitive reptiles, San Diego desert woodrat, and roosting bats, if found);
- Sensitive plant communities (i.e., thick-leaved yerba santa scrub, giant wild rye grassland, California bush sunflower scrub, foothill ash; and toyon chaparral);
- Jurisdictional drainages;
- Wildlife movement;
- Nesting and migratory birds; and
- Protected oak trees.

The proposed mitigation measures would result in less than significant impacts to these biological resources, and the conditions of approval would ensure compliance with existing regulations (such as regulations for jurisdictional drainages, MBTA, and the County of Los Angeles oak tree ordinance). Therefore, with the proposed mitigation and conditions of approval, impacts would not be considered cumulatively significant. A summary is provided below.

<u>Sensitive Plant Species:</u> The loss of slender and Plummer's mariposa lily individual plants would be potentially significant absent mitigation. Based on a review of the CNDDB, approximately 30,000 slender mariposa lilies occur within 70 occurrences within the region. However, the removal of approximately six slender mariposa lily individuals from the Project site would be mitigated at a ratio of 2:1, yielding a net increase in the regional population, Related projects in the region would also be required to mitigate impacts to sensitive mariposa lily species, as discussed above for the Newhall Ranch Specific Plan, Valencia Commerce Center and the Entrada North and Entrada South projects. Consequently, impacts to sensitive plant species would not be considered cumulatively significant.

<u>Sensitive Wildlife Species:</u> The loss of potential foraging or nesting/roosting habitat for avian species, bats, and other state species of species concern identified in **Section 4.0**, *Project Related Impacts* is not expected to substantially affect these species to a point where their survival in the region is threatened. These species are relatively mobile and are expected to locate additional foraging habitat remaining in the region. The less mobile amphibian, reptile species and mammal would be relocated to open space areas of the Project site. The Project proposes that greater than 70 percent of habitat on-site would remain in open space areas and be available for wildlife use. Impacts to roosting bats would be avoided through Project development footprint staying out of rocky areas. As such, impacts would not be considered cumulatively significant.

Sensitive Plant Communities: Mitigation is proposed at a minimum 2:1 ratio that would compensate for the loss of the sensitive thick-leaved yerba santa scrub, giant wild rye grassland, California bush sunflower scrub, flowering ash, and toyon chaparral plant communities, through on-site restoration or enhancement within the contiguous dedicated open space. With this mitigation measure, there would be no net loss to sensitive plant communities, and any impacts would not be considered cumulatively significant.

Jurisdictional Drainages: Impacts to jurisdictional features would be subject to permitting with the regulatory agencies, including USACE, RWQCB or CDFG. With the proposed mitigation and compliance with existing regulations through the permitting process, there would be no net loss of drainages because permits typically require a minimum of 2:1 mitigation to impact ratio, and impacts would not be considered cumulatively significant.

Wildlife movement: Although the Project site is not considered to be a major component of regional wildlife corridor, the Project design would interfere with existing wildlife movement on a local basis and animals currently moving in the area would be required to establish new travel routes. The Project design would consequently not impede wildlife movement would be change existing movement patterns. However, impacts would not be cumulatively considerable.

Nesting and Migratory Birds: Mitigation is proposed to require pre-construction nesting bird surveys in order to avoid disturbance to any active nest. With this mitigation measure, there would be no net loss to active bird nests, and any impacts would not be considered cumulatively significant.

Protected Oak Trees: The Project will be required to complete a tree inventory and provide replacement oak trees at a ratio of 2:1, which would result in no net loss of oak trees. Through compliance with the County of Los Angeles ordinance, impacts would not be considered cumulatively significant.

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Appendix A: Floral and Faunal Compendium

ANGIOSPERMS (DICOTYLEDONS)

Scientific Name	Common Name
Adoxaceae	**Muskroot Family**
Sambucus nigra ssp. *caerulea*	blue elderberry
Aizoaceae	**Ice Plant Family**
* *Carpobrotus* sp.	ice plant
Amaranthaceae	**Amaranth Family**
* *Amaranthus albus*	tumbling pigweed
Anacardiaceae	**Sumac Family**
Rhus aromatica	Skunkbush (squawbush)
Rhus integrifolia	lemonade berry
Rhus ovata	sugar sumac
Toxicodendron diversilobum	Pacific poison oak
Apiaceae	**Carrot Family**
* *Conium maculatum*	poison hemlock
Sanicula crassicaulis	Pacific sanicle
Asteraceae	**Aster Family**
Acourtia microcephala	sacapellote
Ambrosia acanthicarpa	flatspine bur ragweed
Ambrosia psilostachya	western ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Artemisia dracunculus	tarragon
Baccharis pilularis	coyotebrush
Baccharis salicifolia	mule fat
* *Centaurea melitensis*	tocalote/ Maltese star-thistle
Corethrogyne filaginifolia	common sandaster
Encelia californica	California bush sunflower
Ericameria palmeri	Palmer's goldenbush
Ericameria pinifolia	pinebush
Heterotheca grandiflora	telegraphweed
Malacothrix saxatilis	twiggy wreath plant
* *Silybum marianum*	milk thistle
Stephanomeria virgata	rod wirelettuce
Boraginaceae	**Borage Family**
Amsinckia sp.	fiddleneck
Cryptantha microstachys	Tejon cryptantha
Eriodictyon crassifolium	thick-leaved yerba santa
Eucrypta chrysanthemifolia	common eucrypta
Heliotropium curassavicum	salt heliotrope

** Non-native species*

ANGIOSPERMS (DICOTYLEDONS)

Scientific Name	Common Name
Brassicaceae	**Mustard Family**
* *Brassica nigra*	black mustard
* *Hirschfeldia incana*	shortpod mustard
* *Sisymbrium irio*	London rocket
Chenopodiaceae	**Goosefoot Family**
* *Chenopodium album*	lamb's quarters
* *Chenopodium murale*	nettle-leaved goosefoot
* *Salsola tragus*	prickly Russian thistle/tumbleweed
Convolvulaceae	**Morning-Glory Family**
Calystegia peirsonii	Peirson's false bindweed
Cuscuta californica	California dodder
Cucurbitaceae	**Gourd Family**
Marah macrocarpus	wild cucumber
Euphorbiaceae	**Spurge Family**
Croton setigerus	dove weed
Euphorbia albomarginata	rattlesnake weed
Fabaceae	**Legume Family**
Acmispon glaber var. *glaber*	deerweed
Acmispon maritimus	coastal lotus
Astragalus trichopodus var. *phoxus*	Santa Barbara milkvetch
* *Gleditsia triacanthos*	honey locust
Lupinus sp	lupine
Lupinus succulentus	arroyo lupine
* *Robinia pseudoacacia*	ornamental black locust
Fagaceae	**Oak Family**
Quercus agrifolia	coast live oak
Gentianaceae	**Gentian Family**
Centaurium muehlenbergii	Muhlenberg's centaury
Geraniaceae	**Geranium Family**
* *Erodium cicutarium*	redstem stork's bill
Grossulariaceae	**Gooseberry Family**
Ribes aureum	golden currant
Juglandaceae	**Walnut Family**
Juglans californica var. *californica*	Southern California black walnut
Lamiaceae	**Mint Family**
* *Marrubium vulgare*	horehound
* *Rosmarinus officinalis*	rosemary
Salvia columbariae	chia
Salvia leucophylla	purple sage

** Non-native species*

ANGIOSPERMS (DICOTYLEDONS)

SCIENTIFIC NAME	COMMON NAME
Salvia mellifera	black sage
Trichostema lanatum	woolly bluecurls
Malvaceae	**Mallow Family**
Malacothamnus fasciculatus	chaparrel bushmallow
* *Malva parviflora*	cheeseweed
Montiaceae	**Montia Family**
Claytonia perfoliata	miner's lettuce
Nyctaginaceae	**Four O'Clock Family**
Mirabilis laevis	wishbone bush
Oleaceae	**Olive Family**
Fraxinus dipetala	California ash
Onagraceae	**Evening Primrose Family**
Chylismia claviformis	clavate fruited primrose
Clarkia bottae	punchbowl godetia
Clarkia unguiculata	elegant clarkia
Eulobus californicus	California suncup
Orobanchaceae	**Broom-rape Family**
Castilleja affinis	coast paintbrush
Papaveraceae	**Poppy Family**
Eschscholzia californica	California poppy
Plantaginaceae	**Plantago Family**
Keckiella cordifolia	heart-leaved penstemon
Polygonaceae	**Buckwheat Family**
Chorizanthe staticoides	turkish rugging
Eriogonum fasciculatum	California buckwheat
Eriogonum gracile	slender woolly buckwheat
Ranunculaceae	**Buttercup Family**
Clematis ligusticifolia	virgin's bower
Rhamnaceae	**Buckthorn Family**
Rhamnus ilicifolia	holly-leaf redberry
Rosaceae	**Rose Family**
Adenostoma fasciculatum	chamise
Heteromeles arbutifolia	toyon
Prunus ilicifolia	holly-leaved cherry
Rosa californica	California wild rose
Rubiaceae	**Madder Family**
Galium angustifolium	narrow leaved bedstraw

** Non-native species*

ANGIOSPERMS (DICOTYLEDONS)

Scientific Name	Common Name
Salicaceae	**Willow Family**
Populus fremontii	Fremont's cottonwood
Salix laevigata	red willow
Solanaceae	**Nightshade Family**
Datura wrightii	jimson weed
* *Nicotiana glauca*	tree tobacco
Solanum xanti	chaparral nightshade
Tamaricaceae	**Tamarix Family**
* *Tamarix ramosissima*	Mediterranean tamarisk
Ulmaceae	**Birch Family**
* *Ulmus* sp.	elm
Verbenaceae	**Verbain Family**
Verbena lasiostachys	western verbena

ANGIOSPERMS (MONOCOTYLEDONS)

Scientific Name	Common Name
Agavaceae	**Agave Family**
Hesperoyucca whipplei	chaparral yucca
Liliaceae	**Lily Family**
Calochortus clavatus ssp. *gracilis*	slender marisposa lily
Poaceae	**Grass Family**
* *Avena* sp.	oat
* *Bromus diandrus*	ripgut grass
* *Bromus madritensis* ssp. *rubens*	foxtail chess
Distichlis spicata	saltgrass
Elymus condensatus	giant wild rye
Stipa sp.	needlegrass
Themidaceae	**Brodiaea Family**
Dichelostemma capitatum	blue dicks

FILICOPSIDA (FERNS)

Scientific Name	Common Name
Selaginellaceae	**Spikemoss Family**
Selaginella bigelovii	Bigelow's moss fern

** Non-native species*

INVERTEBRATES

Scientific Name	Common Name
Insecta (Order Lepidoptera)	**Butterflies and Moths**
Euphydryas chalcedona	varible checkerspot butterfly
Pontia protodice	checkered white butterfly
Coleoptera	**Beetles**
Eleodes sp.	darkling beetle
Hymenoptera	**Wasps, Bees and Ants**
Daysmutilla sp.	red velvet ant

REPTILES

Scientific Name	Common Name
Colubridae	**Colubrid snakes**
Lampropeltis getula californiae	California kingsnake

BIRDS

Scientific Name	Common Name
Odontophoridae	**Quails**
Callipepla californica	California quail
Accipitridae	**Hawks**
Buteo jamaicensis	red-tailed hawk
Columbidae	**Pigeons and Doves**
Zenaida macroura	mourning dove
Trochilidae	**Hummingbirds**
Calypte anna	Anna's hummingbird
Corvidae	**Jays and Crows**
Corvus corax	common raven
Polioptilidae	**Gnatcatchers**
Polioptila melanura	black-tailed gnatcatcher
Emberizidae	**Emberizine Sparrows and Allies**
Melozone crissalis	California towhee
Fringillidae	**Finches**
Spinus psaltria	lesser goldfinch

** Non-native species*

MAMMALS

SCIENTIFIC NAME	COMMON NAME
Cervidae	**Deer**
Odocoileus hemionus	mule deer
Canidae	**Canines**
Canis latrans	coyote
Geomyidae	**Pocket Gophers**
Thomomys bottae	Botta's pocket gopher
Leporidae	**Hares and Rabbits**
Sylvilagus audubonii sanctidiegi	Audubon's cottontail
Sciuridae	**Squirrels and Chipmunks**
Spermophilus beecheyi	California ground squirrel

** Non-native species*

WICKHAM PROPERTY
BOTANICAL INVENTORY 2005

Prepared for:

HUMMER CONSTRUCTION
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Attn: Mr. Nick Eftekhari

Prepared by:

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November, 2005

INTRODUCTION

This report presents the results of a 2005 botanical inventory of the Wickham project site, in Pico Canyon area of the Santa Susana Mountains of unincorporated Los Angeles County. The site has been surveyed extensively over recent years, particularly by Ms. Verna Jigour (1999, 2000, 2001, 2003), occasionally accompanied by the present investigator, and separately. Ms. Jigour surveyed the site most recently in late May, 2003, however, because the site was entirely involved in the extensive fire in these mountains in November 2003, a post-fire survey was warranted.

The project site occupies an area on the north slope of the Santa Susana Mountains, in the Pico Canyon drainage. An intermittent stream traverses the site that is tributary to Pico Canyon, and subsequently to the South Fork of the Santa Clara River. Also, a portion of Pico Canyon Creek crosses the northeast quadrant of the site. The map location occurs on both the Newhall and Oat Mountain USGS quadrangles, within Township 3N, Range 16W, Section 6. The site is generally northeast of the placename Sand Rock Peak shown on **Figure 1**. Elevations on the site range from approximately 1,400 to 2,200 feet msl.

METHODS

Mr. Carl Wishner, Principal Biologist of Envicom Corporation, conducted the surveys on foot, on May 17 and July 8, 2005. During the course of the survey, all major canyons and ridgelines were traversed, and all species, subspecies and varieties of vascular plants were recorded and compiled on a list, presented herein as **Table 1**. Records from previous years are not included in the present compilation.

The California Natural Diversity Database was also queried using the application Rarefind 3. An assessment of the potential for the occurrence of additional sensitive species that were not observed, but that are known to occur in the Santa Susana Mountains and surrounding ranges is provided in **Appendix 1**.

RESULTS

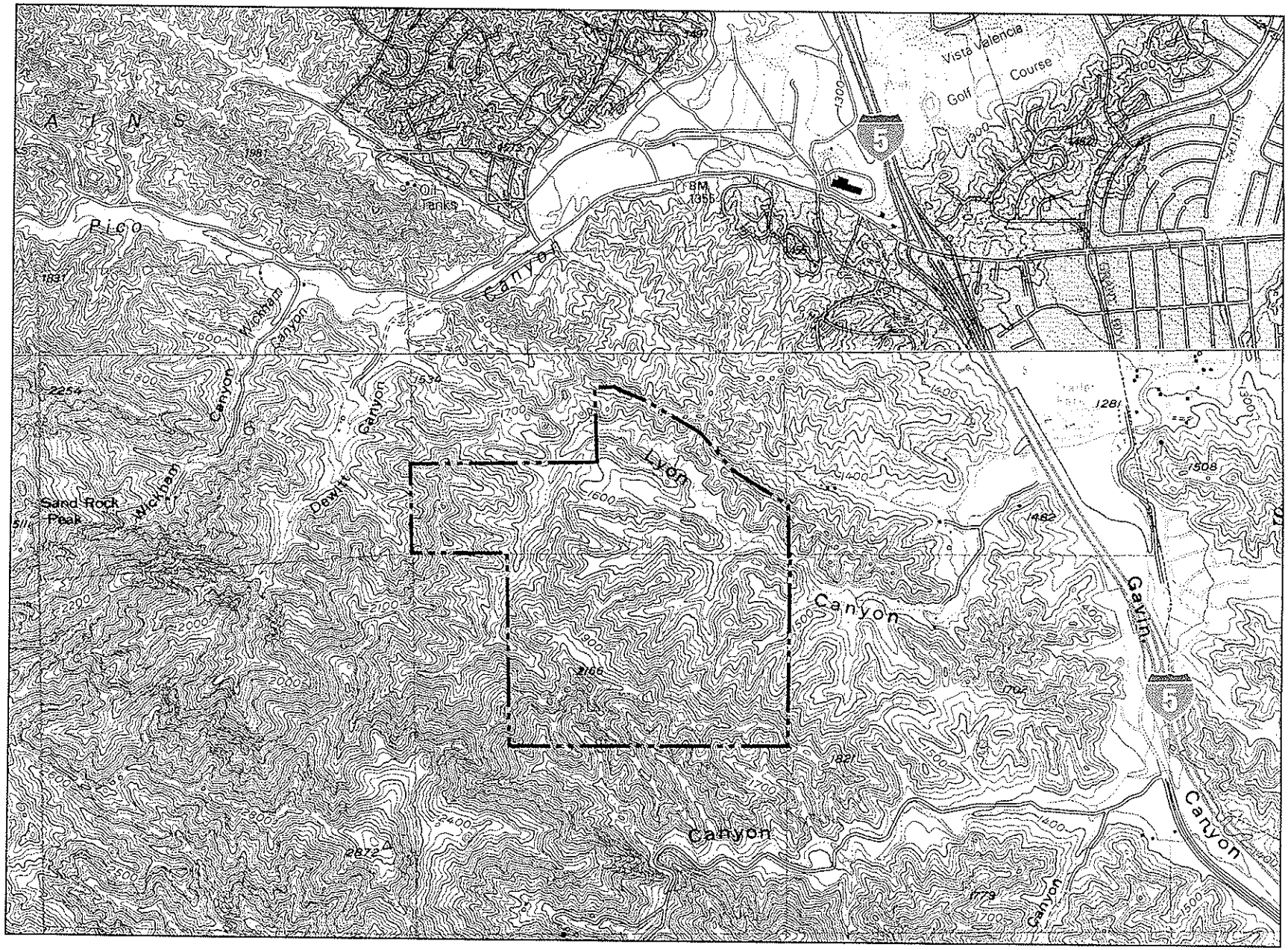
During the course of the surveys, a total of 169 vascular plant taxa were observed. This included two native ferns, 145 dicot flowering plants (22 alien), and 22 monocot flowering plants (13 alien). The complete compilation is presented in **Table 1**.

The composition of the flora of the site is primarily native species, with approximately 21 percent of alien species. The largest families represented are sunflowers (Asteraceae), peas (Fabaceae), figworts (Scrophulariaceae), and grasses (Poaceae). Most of the grasses are alien, whereas, most of the other largest families are comprised of native species. The overall botanical diversity of the site is judged to be moderately high, representing perhaps as much as 1/4 of the entire flora of these mountains.

Sensitive species, as enumerated by the California Department of Fish and Game's listing of Special Vascular Plants (July 2005), are present on the site as follows:

Slender mariposa lily (*Calochortus clavatus* ssp. *gracilis*) CNPS List 1B. The locations of occurrences of this species were mapped extensively by Verna Jigour in years prior to the fire. Several additional locations were noted during recent surveys.

Plummer's mariposa lily (*Calochortus plummerae*) CNPS List 1B. This species was not reported on the site previous to the fire. Two locations were noted in the recent survey, along a ridgeline at the southern boundary of the property. The species is evidently restricted to rocky habitats that are not prevalent except at these locations on the property, and they do not occur in areas that support slender mariposa lily.



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AYRES-RIEDEL

ENVICOM CORPORATION

Project Location Map

FEET 0 1,000 2,000

FIGURE 1

California walnut (*Juglans californica*) CNPS List 4. These walnuts were burned completely to the ground during the fire. However, they quickly recover from the basal crowns, and are presently found at the same locations as they have been previously mapped by Verna Jigour. They are generally located on slopes along Wickham Canyon in the southern quadrant of the property.

Peirson's morning glory (*Calystegia peirsonii*) CNPS List 4. These plants were mapped previous to the fire by Verna Jigour. Following the fire, they are common and abundant throughout the site. It is of interest that not all morning glories found on the site are Peirson's. Some are, in fact, purple morning glory (*C. purpurata purpurata*), discussed below.

Other noteworthy, however non-sensitive plants observed include:

Purple morning-glory (*Calystegia purpurata* ssp. *purpurata*). Despite the common and scientific name, this plant is *not* purple. This climbing perennial occurs widely in chaparral and coastal scrub below 300m elevation from the North Coast of California and Central Valley southward through the western Transverse and northern South Coastal ranges. In the local region, its occurrence has generally been overlooked, perhaps because of its gross similarity to chaparral morning glory (*Calystegia macrostegia* sspp.). It was only recently discovered in the Santa Monica Mountains. Its occurrence here is previously unreported. It is easily distinguished from Peirson's morning glory by the color and shape of the leaves, and from chaparral morning glory by the position and shape of the bracts subtending the flowers. Voucher specimens have been collected by Mr. Wishner. A few occurrences were noted along the banks of Wickham Canyon Creek, in the central-eastern portion of the property.

Dyed clover (*Trifolium fucatum*). This annual is widespread in many habitats from Oregon through the North Coast and Cascade ranges of California, to the South Coast and Channel Islands. At the local level, it is reported only from historic collections in the Santa Monica Mountains (Munz 1935), and few other collections. Its occurrence here indicates that it may be more common in the region than previously thought. No voucher specimens were collected due to the poor condition of the material observed. It is distinguised in the field by its relatively large yellow flowers that at conspicuously inflated in fruit. On the property, it was observed only on a ridgeline in the northwest quadrant.

Analysis of the potential for additional sensitive species to occur, but were not seen, as presented in **Appendix 2** gave the following result:

Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*) [Status: CNPS 2] **Absent.**

Malibu baccharis (*Baccharis malibuensis*) [CNPS 1B] **Absent.**

Greata's Aster (*Aster greatae*) [CNPS 1B] **Absent.**

Lyon's Pentachaeta (*Pentachaeta lyonii*) (FE, CE] **Absent.**

Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*) [CNPS 1A] **Absent.**

Santa Susana tarplant (*Deinandra minthornii*) [CR, CNPS 1B] **Absent.**

Rayless ragwort (*Senecio aphanactis*) [CNPS 2] **Probably absent.**

Southern tarplant (*Centromadia parryi* ssp. *australis*) [CNPS 1B] **Absent.**

Nevin's barberry (*Berberis nevinii*) [FE, CE] **Absent.**

Short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) [CNPS 1B] **Absent.**

Coulter's saltbush (*Atriplex coulteri*) [CNPS 1B] **Absent.**

Blochman's Dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) [CNPS 1B] **Absent.**

Many-stemmed Dudleya (*Dudleya multicaulis*) [CNPS 1B] **Absent.**

Marcescent Dudleya (*Dudleya cymosa* ssp. *marcescens*) [FT, CNPS 1B] **Absent.**

Agoura Hills Dudleya (*Dudleya cymosa* ssp. *agourensis*) [FT, CNPS 1B] **Absent.**

Santa Monica Mountains Dudleya (*Dudleya cymosa* ssp. *ovatifolia*) [FT, CNPS 1B] **Absent.**

Conejo dudleya (*Dudleya parva*) [FT] **Absent.**

Braunton's milkvetch (*Astragalus brauntonii*) [FE/CNPS 1B] **Probably absent.**

Round-leaved filaree (*California macrophylla <=Erodium macrophyllum*) [CNPS 2] **Probably absent.**

Davidson's bush mallow (*Malacothamnus davidsonii*) [CNPS 1B] **Absent.**

Salt spring checkerbloom (*Sidalcea neomexicana*) [CNPS 2] **Absent.**

Spreading Navarretia (*Navarretia fossalis*) [FT, CNPS 1B] **Absent.**

Conejo buckwheat (*Eriogonum crocatum*) [CR] **Absent.**

Slender-horned spineflower (*Dodecahema leptoceras*) [FE, CE, CNPS 1B] **Absent.**

Parry's spineflower (*Chorizanthe parryi* var. *parryi*) [CNPS 3] **Probably absent.**

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) [FC, CE, CNPS 1B] **Probably absent.**

Dune larkspur (*Delphinium parryi* ssp. *blochmaniae*) [CNPS 1B] **Probably absent.**

San Gabriel bedstraw (*Galium grande*) [CNPS 1B] **Absent.**

Chaparral Nolina (*Nolina cismontana*) [CNPS 1B] **Absent.**

California Orcutt grass (*Orcuttia californica*) [FE, CE] **Absent.**

Table 1
Vascular Plants Observed at Wickham Property, 2005

GROUP Family *Scientific Name*	Common Name
FERNS AND ALLIES	
Pteridaceae	
Adiantum jordanii	maiden-hair fern
Pellaea andromedifolia	coffee fern
FLOWERING PLANTS-DICOTS	
Anacardiaceae	
Rhus ovata	sugar bush
Rhus trilobata pilosissima	squaw bush
Toxicodendron diversilobum	poison-oak
Apiaceae	
Apiastrum angustifolium	wild-celery
Sanicula crassicaulis	Pacific sanicle
Apocynaceae	
Vinca major	greater periwinkle
Asclepiadaceae	
Asclepias fascicularis	narrow-leaf milkweed
Asteraceae	
Acourtia microcephala	sacapellote
Ambrosia acanthicarpa	sand-bur
Ambrosia psilostachya	western ragweed
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Baccharis pilularis consanguinea	coyote brush
Baccharis salicifolia	mulefat
Brickellia californica	California brickellbush
Brickellia nevinii	Nevin's brickellbush
Centauria melitensis	tocalote
Chaenactis artemisiifolia	white pincushion
Chamomilla suaveolens	pineapple weed
Cirsium californicum	California thistle
Cirsium vulgare	bull thistle
Conyza bonariensis	Buenos Aires horseweed
Conyza canadensis	horseweed
Corethrogyne filaginifolia filaginifolia	California-aster
Deinandra fasciculata	fascicled tarweed
Ericameria palmeri pachylepis	Palmer's goldenbush
Erigeron foliosus stenophyllus	fleabane-aster
Eriophyllum confertiflorum confertiflorum	golden-yarrow
Filago gallica	French filago
Gnaphalium californicum	California everlasting
Helianthus gracilentus	slender sunflower

GROUP Family *Scientific Name*	Common Name
Heterotheca grandiflora	telegraph weed
Isocoma menziesii vernonioides	coastal isocoma
Lactuca serriola	prickly lettuce
Madia gracile	slender tarweed
Malacothrix saxatilis --	cliff-aster
Micropus californicus	California cottonweed
Rafinesquia californica	California chicory
Senecio flaccidus douglasii	bush senecio
Senecio vulgaris	common groundsel
Silybum marianum	milk thistle
Sonchus oleraceus	common sow-thistle
Stephanomeria exigua	chicory
Stephanomeria virgata	wand chicory
Uropappus lindleyi	silver-puffs
Brassicaceae	
Brassica nigra	black mustard
Capsella bursa-pastoris	shepherd's-purse
Hirschfeldia incana	hoary mustard
Sisymbrium irio	London rocket
Sisymbrium orientale	Oriental mustard
Boraginaceae	
Amsinckia menziesii intermedia	rancher's fireweed
Cryptantha clevelandii	Cleveland's popcorn flower
Cryptantha intermedia	intermediate popcorn flower
Cryptantha microstachys	small-spiked popcorn flower
Cryptantha muricata	muricate popcorn flower
Plagiobothrys nothofulvus	valley popcorn flower
Caprifoliaceae	
Sambucus mexicanus	Mexican elderberry
Caryophyllaceae	
Stellaria media	common chickweed
Chenopodiaceae	
Chenopodium berlandieri	pitseed goosefoot
Chenopodium californicum	soapplant
Convolvulaceae	
Calystegia peirsonii	Peirson's morning-glory
Calystegia purpurata purpurata	--
Cucurbitaceae	
Marah macrocarpus	wild cucumber
Euphorbiaceae	
Chamaesyce albomarginata	rattlesnake weed
Croton setigerus	doveweed

GROUP Family *Scientific Name*	Common Name
Fabaceae	
Astragalus trichopodus phoxus	locoweed
Lathyrus vestitus	chaparral pea
Lotus purshianus	Pursh's lotus
Lotus salsuginosus	succulent lotus
Lotus scoparius scoparius	deerweed
Lotus strigosus	strigose lotus
Lupinus bicolor	miniature lupine
Lupinus hirsutissimus	stinging lupine
Lupinus succulentus	arroyo lupine
Lupinus sparsiflorus	few-flowered lupine
Medicago polymorpha	bur-clover
Melilotus indicus	yellow sweet-clover
Trifolium fucatum	--
Trifolium gracilentum	slender clover
Trifolium hirtum	rose clover
Trifolium willdenovii	tomcat clover
Fagaceae	
Quercus agrifolia agrifolia	coast live oak
Geraniaceae	
Erodium cicutarium	red-stem filaree
Hydrophyllaceae	
Emmenanthe penduliflora	whispering-bells
Eriodictyon crassifolium	thick-leaf yerba santa
Eucrypta chrysanthemifolia chrysanthemifolia	common eucrypta
Phacelia cicutaria	caterpillar phacelia
Phacelia distans	wild heliotrope
Phacelia ramosissima suffrutescens	branching phacelia
Phacelia viscida	sticky phacelia
Juglandaceae	
Juglans californica	California walnut
Lamiaceae	
Marrubium vulgare	horehound
Salvia apiana	white sage
Salvia columbariae	chia
Salvia mellifera	black sage
Trichostema lanata	woolly blue-curls
Trichostema lanceolata	vinegar weed
Loasaceae	

GROUP **Family** ***Scientific Name***	**Common Name**
Mentzelia micrantha	stickleaf
Malvaceae	
Malacothamnus fasciculatus	bush mallow
Malva parviflora	cheeseweed
Nyctaginaceae	
Mirabilis laevis crassifolius	wishbone bush
Oleaceae	
Fraxinus dipetala	chaparral flowering ash
Onagraceae	
Camissonia boothii decorticans	shredding evening-primrose
Camissonia californica	mustard evening-primrose
Camissonia intermedia/micrantha?	small-flowered evening-primrose
Clarkia bottae	deflexed clarkia
Clarkia purpurea quadrivulnera	four-spotted godetia
Clarkia unguiculata	elegant clarkia
Epilobium canum	hoary California-Fuchsia
Paeoniaceae	
Paeonia californica	California peony
Papaveraceae	
Dendromecan rigidus	bush poppy
Eschscholzia californica	California poppy
Plantaginaceae	
Plantago lanceolata	English plantain
Polemoniaceae	
Allophyllum glutinosum	skunk gilia
Gilia capitata abrotanifolia	globe gilia
Polygonaceae	
Chorizanthe staticoides	Turkish-rugging
Eriogonum elongatum	wand buckwheat
Eriogonum fasciculatum foliolosum	California buckwheat
Pterostegia drymarioides	thread-stem
Portulacaceae	
Calandrinia ciliata menziesii	red maids
Claytonia perfoliata perfoliata	miner's-lettuce
Ranunculaceae	
Clematis ligusticifolia	virgin's-bower
Delphinium parryi parryi	Parry's delphinium
Rhamnaceae	
Ceanothus crassifolius	hoary-leaf ceanothus
Rhamnus ilicifolia	holly-leaf redberry
Rosaceae	
Adenostoma fasciculatum	chamise
Heteromeles arbutifolia	toyon

GROUP **Family** ***Scientific Name***	**Common Name**
Rubiaceae	
Galium angustifolium angustifolium	narrow-leaf bedstraw
Galium aparine	annual bedstraw
Galium nuttallii	climbing bedstraw
Salicaceae	
Salix exigua	narrow-leaf willow
Salix laevigata	red willow
Salix lasiolepis	arroyo willow
Scrophulariaceae	
Antirrhinum coulterianum	Coulter's snapdragon
Antirrhinum multiflorum	many-flowered snapdragon
Castilleja affinis	Indian paintbrush
Castilleja exserta exserta	red owl's-clover
Collinsia heterophylla	Chinese-houses
Cordylanthus rigidus setigerus	bird's-beak
Keckiella cordifolia	heart-leaf penstemon
Mimulus aurantiacus	orange bush monkeyflower
Mimulus cardinalis	cardinal monkeyflower
Solanaceae	
Nicotiana glauca	tree tobacco
Solanum xanti	chaparral nightshade
Verbenaceae	
Verbena lasiostachys scabrida	western verbena
FLOWERING PLANTS-MONOCOTS	
Liliaceae	
Bloomeria crocea	golden-stars
Calochortus clavatus gracilis	slender mariposa lily
Chlorogalum pomeridianum pomeridianum	wavy-leaf soapplant
Dichelostemma capitata capitata	blue dicks
Yucca whipplei intermedia	Whipple's yucca
Poaceae	
Arundo donax	giant reed
Avena barbata	slender wild oat
Bromus diandrus	ripgut grass
Bromus hordeaceus	soft-chess
Bromus madritensis rubens	red brome
Bromus tectorum	cheat grass
Cynodon dactylon	Bermuda grass
Gastridium ventricosum	nit grass
Elymus glaucus glaucus	blue wildrye
Hordeum murinum	foxtail barley
Leymus condensatus	giant wildrye
Lolium multiflorum	Italian ryegrass

GROUP Family *Scientific Name*	Common Name
Melica imperfecta	coast melic
Nassella lepida	foothill needlegrass
Phalaris aquatica	Harding grass
Schismus barbatus	Mediterranean grass
Vulpia myuros	rattail fescue

Appendix 1

Special Plants of the Santa Susana Mountains and Surrounding Region, and Assessment of Potential to Occur at Wickham Parcel

An evaluation of the potential for occurrence of sensitive species on the property was undertaken through research of the California Department of Fish and Game's Natural Diversity Data Base (CDFG 2005), using the Rarefind application for sensitive "elements" on the Newhall quadrangle, and eight others that surround it, namely, Whitaker Peak, Warm Springs Mountain, Green Valley, Mint Canyon, San Fernando, Val Verde, Santa Susana, and Oat Mountain. A number of elements not reported on these quadrangles are also anticipated to occur in the region and vicinity of the property, and these have been included in this analysis as well. All species considered are included on the list of Special Vascular Plants, Bryophytes and Lichens (CDFG 2005a).

Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*) [CNPS 2] Meadows and seeps. Along streams, seepage areas. 50-550m. Nearest reported location: Santa Monica Mountains -- Encinal Canyon (two locations); Rustic Canyon (Carl Wishner, personal observation). **Absent.**

Malibu baccharis (*Baccharis malibuensis*) [CNPS 1B] Coastal scrub, cismontane woodland. In Conejo volcanic substrates, often in exposed roadcuts. Sometimes occupies oak woodland habitat. 150-260m. Nearest reported location: Santa Monica Mountains -- Malibu Creek, Salvation Army Camp; Soka University Campus; Stokes Canyon; north of Monte Nido; vic. Malibou Lake. **Absent.**

Greata's Aster (*Aster greatae*) [CNPS 1B] Chaparral, cismontane woodland, mesic canyons. 800-1500m. Nearest locations: San Gabriel Mountains – Pacoima Canyon; Liebre Mountains – Cienaga Campground; Topatopa Mountains – Hopper Mountain (CDFG 2005).

Lyon's Pentachaeta (*Pentachaeta lyonii*) (FE, CE] Chaparral, valley and foothill grassland. Edges of clearings in chaparral, usually at the ecotone between grassland and chaparral or edges or firebreaks. 30-630m. Nearest reported locations: Stunt Ranch, Cold Creek Preserve (extirpated, Carl Wishner personal observation); Malibu Creek State Park; Saddle Rock Ranch; Westlake Blvd (south [several locations]); upper Carlisle Canyon; Eagle's Nest (Frank Lloyd Wright homesite); Rocky Oaks NPS unit; Simi Hills—Reagan library; SR 23 at Tierra Rejada Rd (Carlsberg development, and Clover Cast development); ese of SR 23 and New Los Angeles Ave. **Absent.**

Los Angeles sunflower (*Helianthus nuttallii* ssp. *parishii*) [CNPS 1A] Marshes and swamps (coastal and freshwater). Historical from southern California. 5-1675m. Nearest reported location: Santa Clara River (CDFG 2005). **Absent.**

Santa Susana tarplant (*Deinandra minthornii*) [CR, CNPS 1B] Chaparral, coastal scrub. On sandstone outcrops and crevices, in shrubland. 280-760m. Nearest reported location: Santa Monica Mountains—Calabasas Peak; SW of Cornell Rd, NW of Latigo Canyon; Castro Crest (upper Corral Canyon); Santa Susana Mountains, south slopes (several locations) (CDFG 2005). **Absent.**

Rayless ragwort (*Senecio aphanactis*) [CNPS 2] Cismontane woodland, coastal scrub. Drying alkaline flats. 20-575m. Nearest reported location: Saugus (CDFG 2005); Montclef Ridge, Thousand Oaks (Wishner & Burgess, personal obs 2004). **Probably absent.**

Southern tarplant (*Centromadia parryi* ssp. *australis*) [CNPS 1B] Marshes and swamps (margins), valley and foothill grassland, vernal pools. Often in disturbed sites near the coast; also in alkaline soils, sometimes with saltgrass; also vernal pools. 0-425m. Nearest location: Santa Monica; Thousand Oaks. **Absent.**

Nevin's barberry (*Berberis nevinii*) [FE, CE] Chaparral, cismontane woodland, coastal scrub, riparian scrub. On steep, north-facing sloeps or in low grade sandy washes. 290-1575m. Nearest reported location: San Francisquito Canyon, near confluence with Santa Clara River (CDFG 2005). **Absent.**

Short-joint beavertail (*Opuntia basilaris* var. *brachyclada*) [CNPS 1B] Chaparral, Joshua tree woodland, Mohavean Desert scrub, Pinyon Juniper woodland, riparian woodland. Sandy soil or coarse, granitic loam. 425-1800m. Nearest reported location: Orofino and Quigley Canyons; Mint Canyon (CDFG 2005). **Absent.**

Coulter's saltbush (*Atriplex coulteri*) [CNPS 1B] Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland. Ocean bluffs, ridgetops, as well as alkaline low places. 10-440m. Nearest reported locations: Point Dume; Malibu Bluffs (Carl Wishner, personal observation). **Absent.**

Peirson's morning glory (*Calystegia peirsonii*) [CNPS 4] No records in database (CDFG 2005). **Present.**

Blochman's Dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) [CNPS 1B] Coastal scrub, coastal bluff scrub, valley and foothill grassland. Open rocky slopes, often in shallow clays over serpentine or in rocky areas with little soil. 5-450m. Nearest location: Near the Chatsworth Reservoir, western San Fernando Valley (CDFG 2005); Santa Monica Mountains, Mouth of Winter Canyon, Malibu Beach (extirpated, Carl Wishner, personal observation); Point Dume. **Absent.**

Many-stemmed Dudleya (*Dudleya multicaulis*) [CNPS 1B] Chaparral, coastal scrub, valley and foothill grassland. In heavy, often clay soils or grassy slopes. 0-790m. Nearest location: Chatsworth Reservoir, western San Fernando Valley, on rocky outcrop. **Absent.**

Marcescent Dudleya (*Dudleya cymosa* ssp. *marcescens*) [FT, CNPS 1B] Chaparral. On sheer rock surfaces and rocky volcanic cliffs. 180-520m. Nearest reported location: Malibu Creek, Salvation Army Camp; Udell Gorge and Rock Pool, Malibu Creek State Park; Seminole Hot Springs. **Absent.**

Agoura Hills Dudleya (*Dudleya cymosa* ssp. *agourensis*) [FT, CNPS 1B] Chaparral, cismontane woodland. Rocky volcanic breccia. 200-500m. Nearest reported location: Triunfo Canyon; Lake Eleanor (several locations); Westlake Village (Las Virgenes Reservoir vicinity); Decker Canyon Rd at Potrero Rd; Cornell Way and Ladyface Mountain, and Agoura Rd at Reyes Adobe Rd (Wishner, personal observation). **Absent.**

Santa Monica Mountains Dudleya (*Dudleya cymosa* ssp. *ovatifolia*) [FT, CNPS 1B] Chaparral. In canyons on sedimentary conglomerates, primarily north-facing slopes. 210-500m. Nearest reported location: Malibu Canyon, 1.9mi north of PCH. **Absent.**

Conejo dudleya (*Dudleya parva*) [FT] Coastal scrub, valley and foothill woodland. In clayey or volcanic soil on rocky slopes and grassy hillsides. 60-450m. Nearest reported locations: Simi Hills—Norwegian Grade; Montclef Ridge. **Absent.**

Braunton's milkvetch (*Astragalus brauntonii*) [FE/CNPS 1B] Closed-cone coniferous forest, chaparral, coastal scrub, valley and foothill grassland. Recent burns or disturbed areas, in stiff gravelly clay soils overlying granitte or limestone. 4-640m. Nearest reported location: Simi Hills--Palo Comado Canyon; ridge between upper Cheeseboro and Las Virgenes Canyons; Dayton Canyon; Silvernale Ranch [Burro Flats]; Laskey Mesa; ridge between Bus Canyon and Runkel Canyon; Oak Park (several locations); Lang Ranch (2 locations); Santa Monica Mountains—Topanga Canyon; Los Liones Canyon; Trailer Canyon; Temescal Canyon; Temescal Ridge; Malibu

Lagoon, in gravel by creek; north of Sunset Blvd, vic. Will Rogers SP.; Zuma Ridge; Zuma Canyon. **Probably absent.**

Round-leaved filaree (*California macrophylla <=Erodium macrophyllum*) [CNPS 2] Cismontane woodland, valley and foothill grassland. Clay soils, 15-1200m. Nearest location: Malibu Creek State Park; Simi Hills—vicinity of Reagan Library; south of Cal Lutheran College (Carl Wishner and Rick Burgess, personal observation). **Probably absent.**

California walnut (*Juglans californica*) [CNPS 4] No records in database, except for habitats (CDFG 2005). **Present.**

Davidson's bush mallow (*Malacothamnus davidsonii*) [CNPS 1B] Coastal scrub, riparian woodland, chaparral. Sandy washes. 180-885m. Nearest locations: Santa Susana Mountains – Limekiln Canyon; San Gabriel Mountains – Lopez Canyon; San Fernando. **Absent.**

Salt spring checkerbloom (*Sidalcea neomexicana*) [CNPS 2] Alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub. Alkali springs and marshes. 0-1500m. **Absent.**

Spreading Navarretia (*Navarretia fossalis*) [FT, CNPS 1B] Vernal pools, chenopod scrub, marshes and swamps, playas. San Diego hardpan and San Diego claypan vernal pools; in swales and vernal pools. 30-1300m. **Absent.**

Conejo buckwheat (*Eriogonum crocatum*) [CR] Chaparral, coastal scrub, valley and foothill grassland. Conejo volcanic outcrops, rocky sites. 50-580m. Nearest reported locations: Lake Eleanor; Lake Sherwood, ridge to southwest (Carl Wishner, personal observation). **Absent.**

Slender-horned spineflower (*Dodecahema leptoceras*) [FE, CE, CNPS 1B] Chaparral, coastal scrub (Alluvial fan sage scrub). Flood-deposited terraces and washes; associatiates include *Encelia, Dalea, Lepidospartum*, etc. 200-760m. Nearest reported location: Newhall (1893 collection by Davidson); Mint Canyon; Pacoima Canyon Wash (CDFG 2005). **Absent.**

Parry's spineflower (*Chorizanthe parryi* var. *parryi*) [CNPS 3] Coastal scrub, chaparral. Dry slopes and flats, sometimes at interface of two vegetation types, such as chaparral and oak woodland. Dry, sandy soils. 40-1705m. Nearest reported location: Mouth of Latigo Canyon. **Probably absent.**

San Fernando Valley spineflower (*Chorizanthe parryi* var. *fernandina*) [FC, CE, CNPS 1B] Coastal scrub. Sandy soils. 3-1035m. Nearest reported location: Simi Hills—Ahmanson Ranch, south side of Laskey Mesa; Airport Mesa, Newhall Ranch; Magic Mountain Amusement Park; Chatsworth Park; Valencia Commerce Center site; near Castaic (CDFG 2005). **Probably absent.**

Dune larkspur (*Delphinium parryi* ssp. *blochmaniae*) [CNPS 1B] Chaparral, coastal dunes (maritime). On rocky areas and dunes. 30-375m. Nearest location: Lake Eleanor ridge. **Probably absent.**

San Gabriel bedstraw (*Galium grande*) [CNPS 1B] Cismontane woodland, chaparral, broadleafed upland forest, lower montane coniferous forest. Open chaparral, and low, open oak forest, on rocky slopes, probably undercollected due to inaccessible habitat. 425-1200m. Neares location: Liebre Mountains—south of Elizabeth Lake Guard Station. **Absent.**

Chaparral Nolina (*Nolina cismontana*) [CNPS 1B] Chaparral, coastal scrub. Primarily on sandstone and shale substrates, also known from gabbro. 140-1275m.Nearest reported location: Simi Hills—Palo Comado Canyon; North Ranch; Oak Park. **Absent.**

Slender mariposa lily (*Calochortus clavatus* var. *gracilis*) [CNPS 1B] Chaparral, coastal scrub. Shaded foothill canyons; often on grassy slopes within other habitat. 420-760m. Nearest reported location: Santa Susana Mountains-- Mouth of Pico Canyon; I5/SR14 junction; Sunshine Canyon; Deerlake Highlands (Carl Wishner, personal observation) (CDFG 2005). **Present.**

Plummer's mariposa lily (*Calochortus plummerae*) [CNPS 1B] Coastal scrub, chaparral, valley and foothill grassland, cismontane woodland, lower montane coniferous forest. Occurs on rock and sandy siites, usually granitic or alluvial material. Can be very common after fire. 90-1610m. Nearest reported location: Santa Monica Mountains—Stokes Canyon; Mulholland Dr at Encino Hills Dr?; Topanga Canyon; Mandeville Canyon; Mulholland Hwy, 1.2 mi east of Kanan-Dume Rd.; Vicinity Lake Sherwood; Decker Canyon Rd/Los Alisos Canyon; Simi Hills—Ahmanson Ranch, south of Bell Canyon, along trail on top of ridge; Wood Ranch Reservoir; Santa Susana Pass and hills north of Chatsworth; Santa Susana Mountains—Simi Valley landfill; Newhall (CDFG 2005). **Present.**

California Orcutt grass (*Orcuttia californica*) [FE, CE] Vernal pools. 15-660m. Nearest reported location: Liebre Mountains – Cruzan Mesa; Simi Hills -- NW corner of SR 23 and Tierra Rejada Rd; Newhall (CDFG 2005). **Absent.**

NATURAL HABITATS

Mainland Cherry Forest [G1 S1.1] Nearest reported location: Castaic Valley (CDFG 2005). **Absent.**

California Walnut Woodland [G2 S2.1] Nearest reported location: Simi Hills--From slope just west of Las Virgenes Creek, west almost to Cheeseboro Road; Santa Monica Mountains—Woodland Hills, Natoma Ave at Mulholland Dr.; Topanga Canyon Blvd at Mulholland Dr.; Old Topanga Rd at Mulholland Dr.; Santa Susana Mountains-- Mouth of Towsley Canyon (2 locations); Leaming & East Canyons; Bee Canyon (2 locations) Limekiln/Aliso Canyon; west, north and east of Mission Point; upper Gavin Canyon; unnamed tributary to Lyon Canyon, east of Dewitt Canyon; Dewitt Canyon; Oat Mountain (2 locations) (CDFG 2005). **Present.**

Riversidean Alluvial Fan Sage Scrub [G1 S1.1] Nearest reported location: Castaic Valley (CDFG 2005). **Absent.**

Southern Coast Live Oak Riparian Forest [G4 S4] Nearest reported location: Simi Hills -- Cheeseb oro Canyon; Bell Canyon; Laskey Mesa; Santa Monica Mountains—Liberty Canyon; Santa Susana Mountains—Alamos Canyon; near Moorpark College; Tripas Canyon; Wiley Canyon; Torrey Canyon; Happy Camp;Quigley and Orofino Canyon (CDFG 2005). **Absent.**

Southern Cottonwood Willow Riparian Forest [G3 S3.2] Nearest reported location: Castaic Valley; upper Ybarra Canyon, Santa Susana Mountains (CDFG 2005). **Absent.**

Southern Mixed Riparian Forest [G2 S2.1] Nearest reported location: Blind, Devil, and Ybarra Canyons, Santa Susana Mountains (CDFG 2005). **Absent.**

Southern Riparian Scrub [G3 S3.2] Nearest reported location: Santa Susana Mountains—Brea Canyon; Santa Clara River; Placerita Canyon (CDFG 2005). **Absent.**

Southern Willow Scrub [G3 S2.1] Nearest reported location: Santa Susana Mountains—Arroyo Simi/Oak Park Towsley Canyon; Santa Clara River, at Pico Canyon confluence (CDFG 2005). **Absent.**

Southern Sycamore Alder Riparian Woodland [G4 S4] Nearest reported location: Santa Monica Mountains--Tuna Canyon; Topanga Canyon; Santa Ynez Canyon; Rustic Canyon; Sullivan Canyon; Temescal Canyon; Garapito Cr (Topanga Canyon tributary); Triunfo Canyon; Carlisle Canyon; Haskell Canyon; Aliso Canyon, Santa Susana Mountains (CDFG 2005). **Absent.**

Valley Oak Woodland [G3 S2.1] Nearest reported location: Liberty Canyon, Malibu Creek State Park; Saugus; Oat Mountain; Oak Ridge west of Tapo Canyon (CDFG 2005). **Absent.**

Southern California Threespine Stickleback Stream [G? S?] Nearest reported location: Santa Clara River (CDFG 2005). **Absent.**

Southern California Steelhead Stream [G? S?] Nearest reported location: Malibu Creek; Santa Clara River (CDFG 2005). **Absent.**

Excluded:

Ventura Marsh milkvetch (*Astragalus pycnostachyus* var. *lanosissimus*)
Coastal dunes milkvetch (*Astragalus tener* var. *titi*)
Parish's brittlescale (*Atriplex parishii*)
Salt marsh bird's-beak (*Cordylanthus maritimus* ssp. *maritimus*)
Beach spectaclepod (*Dithyrea maritima*)
Mud nama (*Nama stenocarpum*)

WETLAND DELINEATION REPORT

The Aidlin Project

Prepared for:

Mr. Gary M. Baker/Plan II
1180 Avenue 66
Pasadena, California 91105

Representative of:
Joseph W. Aidlin,
Trustee of Aidlin General Trust;
Mildred S. Blinn,
Trustee of Cecil and Mildred Blinn Trusts;
Stephanie J. Dausek and Dianne S. Morris, Owners

Prepared by:

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June 9, 2000

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1.0 INTRODUCTION

The purpose of this report is to document the extent of jurisdictional Waters of the US, wetlands, and riparian habitat located within The Aidlin Project site state, and federal. This technical report delineates existing onsite conditions; potential future project impacts and mitigation are not included herein. However, based on an initial review of the site plans, the project would result in the fill of jurisdictional habitats, therefore the applicant will be required to obtain the following permits and agreements:

- Section 404 Permit pursuant to the Clean Water Act of 1977 - US Army Corps of Engineers;
- Section 1603 Agreement pursuant to the California Fish and Game Code - California Department of Fish and Game; and
- Section 401 Water Quality Certification -Regional Water Quality Control Board.

1.1 Location

The project site is located west of the Golden State Freeway (I-5) and south of Pico Canyon Road in an unincorporated area of Los Angeles County within the Santa Clarita Valley (**Figure 1**). Pico Canyon Road provides site access (**Figure 2**). Past the I-5 Golden State Freeway, Pico Canyon Road continues east as Lyons Avenue.

1.2 Project Applicant

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Representative of:
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1.3 Project Representative

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1.4 Setting

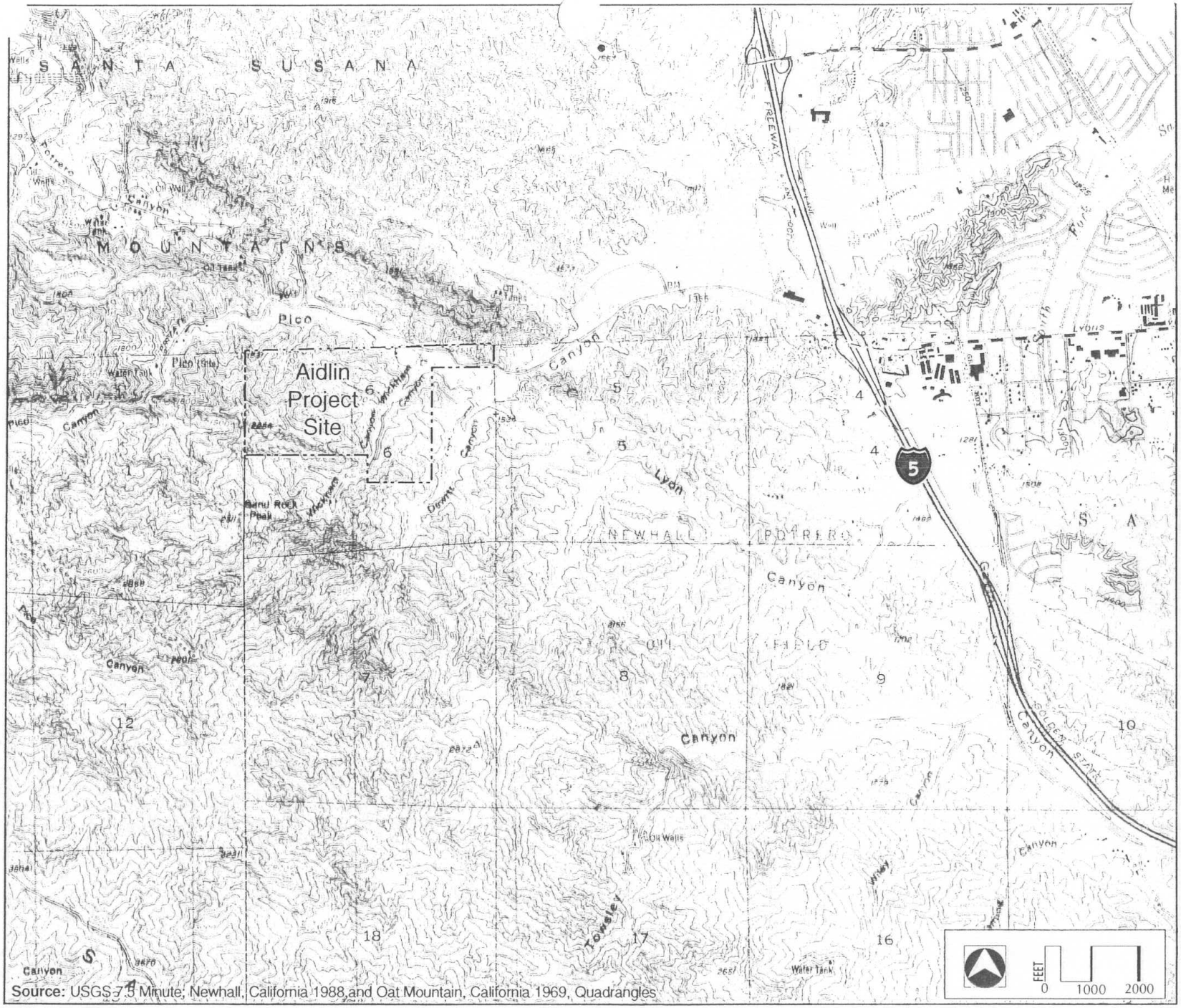
The site consists of approximately 230 acres of primarily vacant land. To the north and east of the site is the Stevenson Ranch residential development, to the west and south is undeveloped land. Existing structures on the project site include an unoccupied residence and associated ranch buildings, and a struture used for a bee-keeping operation. A segment of Pico Canyon Creek is located in the northeast portion of the site and Wickham Canyon Creek, a north-south trending drainage, is located in the eastern portion of the site. The project site sits among the sand- and siltstone foothills on the northern flanks of the Santa Susana Mountains near Sand Rock Peak (USGS Oat Mountain and Newhall quadrangles). Elevations within the property boundaries range from approximately 1,480 to 2,240 feet above sea level.

Aidlin Project

Regional Location

ENVICOM CORPORATION

FIGURE 1



Source: USGS 7.5 Minute; Newhall, California 1988 and Oat Mountain, California 1969, Quadrangles

The Aidlin Project

Project Site Location

ENVICOM CORPORATION

FIGURE 2

The local climate arises from both coastal and desert influences and is intermediate between these extremes. Wickham Canyon, along with two unnamed tributary canyons form the primary drainage for most of the property, discharging into Pico Canyon Creek. The northerly slopes, however drain directly into Pico Canyon Creek. While evidence of past oil development and cattle grazing exists on the site, the degree of vegetation disturbance is relatively limited. The most pronounced changes in native vegetation is seen near the on-site structures, along the unpaved ranch roads and Pico Canyon Road, and on the most exposed south-to-west-facing slopes.

2.0 PLANT COMMUNITIES AND SENSITIVE HABITATS

In describing vegetation, two systems prevail in California. The California Natural Diversity Database (CNDDB) employs the plant community descriptions delineated by Holland (1986), while the California Native Plant Society (CNPS) is promoting a newer system that recognizes finer divisions of plant association series (Sawyer and Keeler-Wolf 1995). Plant community descriptions herein correlate the two systems respectively, as expressed by the existing vegetation. The data presented in this section is summarized from the following report: *Initial Study Assessment: Vegetation and Flora- Aidlin and Lennar Properties: Tentative Tract No. 52796, Los Angeles County* (Verna Jigour Associates July 3, 1999). **Figure 3** illustrates the plant communities located on the project site.

2.1 Plant Communities

Riversidean Upland Sage Scrub: California Sagebrush-Black Sage Series

Much of the northern ridgeline on the site is covered with a mix dominated by black sage (*Salvia mellifera*). In addition, species are found such as with sugar bush (*Rhus ovata*), toyon (*Heteromeles arbutifolia*), hollyleaf redberry (*Rhamnus ilicifolia*), California sagebrush, California buckwheat (*Eriogonum fasciculatum* ssp. *foliosum*), and thick-leaved yerba santa (*Eriodictyon crassifolium*). These plants are typical of the California sagebrush-black sage series. Squawbush (*Rhus trilobata*) is also common along this ridge, but not mentioned in the series description.

Riversidean Upland Sage Scrub: California Sagebrush/California Buckwheat Series

At the northeastern "panhandle" of the property, as well as the south corner, steep sandstone cliffs ascend sharply from the canyons below, described under Sandstone Outcrops, following. At lower, more gentle inclines these south-facing xeric slopes become clothed with a mix dominated by California buckwheat, California sagebrush, chamise (*Adenostoma fasciculatum*), black sage and red brome (*Bromus madritensis rubens*).

Northern Mixed Chaparral (no applicable series equivalent)

On several ridgelines, the matrix of purple sage and bush mallow intermix with toyon, sugar bush, and hollyleaf redberry. Downslope on northern exposures this association is represented by denser patches where blue elderberry is a common dominant species. Foothill ash (*Faxinus dipetala*) joins the assemblage on the northernmost slopes on the property. While their closed-canopy structure while in leaf resembles a tall chaparral, the deciduous character of these latter two predominant species differs from the typical evergreen, sclerophyllous (thick, leathery or "hard-leaved) nature of true chaparral.

California Walnut Woodland: California Walnut Series

The California walnut woodland/series occupies the steeply incised slopes rising above Wickham Canyon at the southern end of the property. This association is characterized by dispersed specimens of California walnut (*Juglans californica*), mostly of large shrub stature, along with blue elderberry (*Sambucus mexicana*), sugar bush, toyon, hollyleaf redberry, and three coast live oak specimens (*Quercus agrifolia*) in Wickham Canyon. On the north-facing slopes, within the northern mixed chaparral are re-sprouted California walnuts.

Coast Live Oak Woodland: Coast Live Oak Series

Three coast live oak specimens are associated with the California walnut and mixed willow series in Wickman Canyon. Additional woodland is located in a steep canyon, framed by sandstone escarpments near the south boundary, and twelve coast live oaks, two of them saplings, occupy the slopes of a tributary drainage of Wickham Canyon. These oaks are closely associated with several blue elderberries on their side, helping to shelter the oaks from desiccation on hot summer afternoons. The understory is primarily deep, oak leaf duff with patches of wild cucumber (*Marah macrocarpus* var. *macrocarpus*), woodland star (*Lithophragma* sp.), *Bowlesia incana* (no common name), and goose grass (*Galium aparine*). With no California walnuts nearby, this cluster most closely represents the coast live oak woodland series. Of biological importance in this woodland is a melica grassland meadow located to the east.

Southern Willow Scrub: Mixed Willow Series

Specimens of red willow (*Salix laevigata*) and arroyo willow (*Salix lasiolepis*) line the southern portion of Wickham Canyon. The willows, along with blue elderberry, are interspersed with mulefat (*Baccharis salicifolia*), and form a transition zone between the coast live oak woodland/series lining the drainage off the property, and the mulefat scrub lining lower reaches of the drainage. A California thrasher (*Toxostoma redivivum*) was observed among the leafless branches of a Wickham Canyon willow during a February 1999 visit. Along with occasional clumps of arroyo willow and elderberry, discontinuous specimens of Fremont cottonwood (*Populus fremontii*) occur amid the mulefat scrub in lower portions of the Wickham Canyon drainage, as well as along Pico Canyon. Not dense enough to be considered representative of the Fremont cottonwood series, these trees may be considered part of the southern willow scrub community, but not well expressed in series descriptions to date. It may be that the historic density of cottonwoods on-site was thinned during the occupancy of the former landowners, which dates well back into the nineteenth century.

Mulefat Scrub: Mulefat Series

The majority of vegetation lining on-site drainages is the mulefat series. This is a riparian scrub association that consists primarily of its namesake species. In addition, there are occasional clumps of giant ryegrass, Douglas mugwort (*Artemisia douglasiana*), vervain (*Verbena lasiostachys* var. *scabrida*) and punctuated in some locations by elderberry, cottonwood, and along Pico Canyon, arroyo willow and hairy yerba santa. Giant reed (*Arundo donax*), an exotic pest plant that threatens riparian habitats around the state, occurs infrequently within the mulefat scrub, but precautions should be taken to prevent its spread during the land disturbance process. A rhizomatous species, it can resprout from very small pieces of stem and is well adapted to disturbance. Another exotic pest plant that is found in small numbers in the uppermost branch canyon off Wickham is tamarisk (*Tamarix* sp.). This pest plant threatens riparian and other seasonally moist areas from the California deserts to inland northern California, spreading by wind-blown seeds. Mulefat is considered a facultative wetland species – that is, it occurs in both wetland and non-wetland situations.

Needlegrass Grassland: Needlegrass Series

Isolated stands of native perennial bunchgrass exist in several locations across the property, typically occupying artificially created semi-compacted openings in the adjacent scrub series. Several of these locations have north or northeastern exposures. Melic grass (*Melica imperfecta*) was just beginning to bloom at the time of an April 1999 site reconnaissance.

Non-native Grassland: California Annual Grassland Series

This association typified by Cheat Grass (*Bromus tectorum*), wild oats (*Avena* sp.), and black mustard (*Brassica nigra*) represents the vegetation type most altered from its native structure

and composition. Occupying the most xeric south- to west-facing slopes, the placement suggests that this non-native grassland replaced a native coastal scrub association following disturbance, as opposed to replacing native grassland (Keeley 1993). This series also lines the roads and other surface disturbances on the property.

Sandstone Outcrops

Near the south property boundary are nearly vertical sandstone escarpments that rise from a tributary to Wickham Canyon. Formed of cemented sandstone and conglomerate, these "strike" ridges are more resistant to erosive forces than other substrates, such as the siltstone which, along with the other two bedrock types, comprise the Pico Formation (The J. Byer Group 1998).

The value of the canyon in offering niches for cliff-dwelling bird species was confirmed by the presence of cliff swallows (*Petrochelidon pyrrhonata*) swooping over the tributary canyon between the escarpments and Bush Poppy Peak. Turkey vultures (*Cathartes aura*), along with other bird species observed in the area, may also occupy niches in these rock faces. As an example, Bullock's oriole (*Icterus bullockii*) was among the species frequently observed flying between the escarpment north of the property and vegetation along Pico Canyon, within the northern property boundary. Refer to the report on vertebrate species (including butterflies) prepared by Robb Hamilton, Consulting Biologist, for further detail on animals species observed on the site.

Horticultural Elements

Since people have used the property from at least the mid-nineteenth century, vegetation surrounding the on-site structures, in particular, has been disturbed. The most obvious examples of introduced vegetation are the black locust trees (*Robinia pseudoacacia*) adjacent to the bee house. This species is considered an exotic pest plant that can invade riparian habitats. An expanding population of black locust exists in nearby Lyon Canyon. Cottonwoods sheltering the other on-site structures were probably planted, but could have been retained from a previous natural grove.

2.2 Sensitive Habitats

Table 1 lists sensitive plant species and elements that occur within one or more of the Oat Mountain, Newhall, and Simi Valley East USGS quads, and thus could potentially occur within The Aidlin Project site. The table indicates the likely presence or absence of each species listed. Among the plant species observed, none are threatened or endangered, although sensitive floral elements may be present.

TABLE 1
THE AIDLIN PROJECT
Sensitive Plant Species and Communities[1]

Observed Presence (p)/ Scientific/Common Name	Federal/State/CNPS Status	Absence (a)
Berberis nevenii Nevin's Barberry	Proposed Endangered/ Endangered/ 1B	a
California Walnut Woodland	None/None	p
Calochortus clavatus var. gracilis Slender Mariposa Lily	Species of Concern/ None/ 1B	(p?)
Calochortus plummerae Plummer's Mariposa Lily	Species of Concern/ None/ 1B	(a?)
Calystegia peirsonii Peirson's Morning-Glory	Species of Concern/ None/ 4	(p?)
Cismontane Alkali Marsh	None/None	a
Hemizonia minthornii Santa Susana Tarplant	Species of Concern/ Rare/ 1B	(a?)
Mainland Cherry Forest	None/None	a
Opuntia basilaris var. brachyclada Short-joint Beavertail	Species of Concern/ None/ 1B	a
Riversidian Alluvial Fan Sage Scrub	None/None	a
Southern Coast Live Oak Riparian Forest	None/None	a
Southern Cottonwood Willow Riparian Forest	None/None	a
Southern Mixed Riparian Forest	None/None	a
Southern Riparian Scrub	None/None	p
Southern Sycamore Alder Riparian Woodland	None/None	a
Southern Willow Scrub	None/None	p
Valley Oak Woodland	None/None	a

[1] At the time of the April reconnaissance, one mariposa lily plant was observed on April 19 was in bud. It is likely the slender mariposa lily, as Plummer's mariposa lily (*Calochortus plummerae*) is more commonly associated with granitic substrates, in contrast to the apparent sand/siltstone-derived soils on the site. East of the property a population of slender mariposa lily (*Calochortus clavatus* var. *gracilis*) was identified. There is a slight potential that the Santa Susana tarplant (*Hemizonia minthornii*) could occur on the sandstone outcrops near the south property boundary. The typical chaparral habitat of Braunton's milkvetch does not occur on the site, and the species was neither observed, nor expected to occur here. Additionally of note is the absence of the plantain (*Plantago erecta*), host plant for the Quino checkerspot butterfly, which was neither observed nor expected to occur on the property.

3.0 JURISDICTIONAL DELINEATION

3.1 Department of the Army Permits

Regulatory authority for protection and utilization of the nation's water resources lies with the U.S. Army Corps of Engineers. Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into waters of the United States without a permit from the Corps. The 404 permit generally covers activities which would disturb waters of the U.S. or their tributaries, streams, lakes, or wetland areas.

Strictly defined, waters of the United States include intermittent streams that are tributary to navigable waters or waters that could be used for interstate or foreign commerce. Wetlands are areas within the boundaries of jurisdictional waters that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support a prevalence of vegetation typically adapted for life in saturated soil conditions (U.S. Office of the Federal Register, 1987). The mandatory criteria for wetland identification include: 1) hydrophytic vegetation, 2) hydric soils, and 3) wetland hydrology. Areas must possess all three of these criteria to be considered wetland. Department of the Army authorizations for discharge of fill material into waters of the United States or wetlands may either be "general" or "individual." General permits are pre-existing authorizations for categories of activities which are similar in nature and cause only minimal individual or cumulative impacts. A "nationwide permit" is a form of general permit that may authorize specific and limited fill activities. Currently, in the State of California, Section 404 Nationwide permits are not valid without 401 Certification from the California Regional Water Quality Control Board.

3.2 California Department of Fish and Game Section 1603 Agreement

The proposed action requires a Streambed Alteration Agreement pursuant to Section 1603 of the California Fish and Game Code. The Department of Fish and Game (CDFG) mission is conserve fish and wildlife; therefore, an agreement is required on any project that...

> *"will divert, obstruct or change the natural flow or bed, channel or bank of any river, stream or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefits."*

Any person substantially diverting or obstructing the natural flow or using any material from a streambed must notify the CDFG and complete the proper environmental documents as required by the California Environmental Quality Act. The CDFG within 30 days of receipt of such notice, or within any other mutually agreed upon time, shall submit to the person proposals (i.e., mitigating measures) as to measures necessary to protect fish and wildlife. The CDFG will consult with a project applicant to obtain a mutually agreed upon development proposal, if agreement can not be met a panel of arbitrators shall be established to resolve outstanding issues.

3.3 Methodology

Drainages within The Aidlin Project site were investigated by Mr. Carl Wishner, Principal Biologist of Envicom Corporation on April 9, 14, 15, 22, 23, July 15, 1999, and in February 2000. Mr. Wishner was accompanied on April 15-16 by Dr. Garn Wallace; soil scientist and Principal of Wallace Laboratories, El Segundo, and on April 22-23 by Mr. Jeff Potts, a specialist in field mapping using Global Positioning Satellite (GPS) equipment. Pico Canyon Creek was mapped in the field with the aid of GPS equipment. Tributaries of Pico Canyon Creek and Wickham Canyon were measured in the field and mapped by interpretation of stereo-pair aerial photography, at a scale of 1:5520 (1 inch=460 feet), dated September 17, 1998. These data were transferred xerographically to a 1"=200' scale topographic map.

The delineation of areas subject to Army Corps of Engineers' jurisdiction pursuant to Section 404 of the Clean Water Act followed the procedures in the field specified in the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands*. The combination of observed characteristics pertaining to the vegetation, hydrology, and soils were used to determine the extent of wetlands as a subset of "Waters of the United States."

For a wetland to be present, as defined by the California Department of Fish and Game, only one of the criteria of vegetation, hydrology, and soils is required. The area of CDFG jurisdiction was determined in the field on Pico Canyon Creek main drainage with the aid of GPS mapping. Points and walking lines were plotted along the outer perimeter of riparian vegetation associated with the stream. This included, at a minimum, the extent of the mule fat, willow, and cottonwood dominated active channel from bank-to-bank. This area frequently extends beyond the banks of the active channel onto the overflow terraces, hence, the areas of CDFG jurisdiction are typically in excess of those of Army Corps. Army Corps jurisdiction in the tributaries were calculated on the basis of length times average width of stream segments (based on field measurements), and CDFG areas were determined planimetrically on 1 inch=200 feet maps. The acreage of waters/wetlands under the jurisdiction Army Corps is *included* within the CDFG acreage.

3.4 Results

Figure 4 illustrates the location of onsite jurisdictional habitats. **Table 2** indicates the location, jurisdictional type, and acreage of all onsite waters/wetlands. Plant species observed in jurisdictional habitats are listed in **Table 3**.

Pico Canyon Creek

Wetlands encompass all areas within the Ordinary High Water Mark (OHWM) of the mainstem of Pico Canyon Creek (exclusive of the Stevenson Ranch easement area) and riparian vegetation lines the slopes (**Plate 1**). The total Army Corps jurisdiction within Pico Canyon Creek is 0.71 acres of wetlands. Under CDFG jurisdiction, there is 1.48 acres of wetlands riparin habitat, which includes the Corps jurisdictional acreage. Flows in Pico Canyon Creek are substantial in winter, and frequently overtop the roadway that parallels the stream. Vegetation consists mainly of riparian scrub dominated mainly by mule fat (*Baccharis salicifolia*), and occasional individuals of arroyo willow (*Salix lasiolepis* and *S. laevigata*), and blue elderberry (*Sambucus mexicana*). In addition, there are scattered larger, tree-sized individuals of Fremont cottonwood (*Populus fremontii*), willow, and coast live oak (*Quercus agrifolia*).

Wickham Canyon Creek

Wetlands exist along Wickham Canyon Creek, a named tributary of Pico Canyon Creek starting 550 feet south of its confluence with Pico Canyon Creek, and extending to the southern boundary of the property. Near the southern boundary of the parcel, riparian forest canopy of coast live oak dominates the Creek. The uppermost segment of Wickham Canyon Creek, however, did not meet wetland criteria, nor are any of the west-trending tributaries of the latter. Vegetation in non-wetland areas is mule fat, with an occasional willow, and a couple of cottonwood trees. The main stem then goes off the property, but another tributary upstream traverses the southwest corner of the parcel, and vegetation in that segment is chaparral. Mule fat scrub dominates two additional tributaries of Wickham Canyon. Army Corps jurisdiction is 0.54 acres within Wickham Canyon and its tributaries; CDFG is 4.93 acres.

SUMMARY

In total, the project site contains 1.25 acres of Army Corps and 6.41 acres of CDFG jurisdictional habitat. Of this amount, 0.28 acres of Army Corps and 0.47 acres of CDFG jurisdictional vegetation and habitat were removed to facilitate the Stevenson Ranch (Laing Homes) development (grading to construct Pico Canyon Creek Channel and Pico Canyon Road). This action was authorized under permits granted to Stevenson Ranch, which also obtained a construction easement from the owner of the Aidlin Project property.

Table 2

The Aidlin Project
Existing ACOE and CDFG Jurisdictional Areas

DRAINAGE NAME AND SEGMENTS	EXISTING ACOE	EXISTING CDFG
PICO CREEK MAIN	30,325 sq. ft. (0.70 acres)[2]	57,980 sq. ft. (1.33 acres)
PICO CREEK TRIBUTARY 2		
P2-P2 end	520 sq. ft. (0.01 acres)	6,310 sq. ft. (0.15 acres)
Pico Canyon Creek Subtotal	0.71 acres	1.48 acres
WICKHAM CANYON		
W-1:W-2	2,180	14,840
W-2:W-3	3,070[3]	23,320
W-3:W-4	2,670[4]	21,050
W-4:W-5	6,530[5]	73,700
W-5:end	1,800	1,800
Subtotal	16,250 sq. ft.	134,710 sq. ft.
WICKHAM CANYON TRIB 1		
W1-1:W1-end	2,590	38,200
Subtotal	2,590 sq. ft.	38,200 sq. ft.
WICKHAM CANYON TRIB 2		
W2-1:W2R-1	1,550	11,200
W2R-1:end	1,010	10,170
W2L-1:end	2,040	20,700
Subtotal	4,600 sq. ft.	42,070 sq. ft.
Wickham Canyon Subtotal	23,440 sq. ft. (0.54 acres)	214,980 sq. ft. (4.93 acres)
GRAND TOTAL ACRES	**1.25**	**6.41**

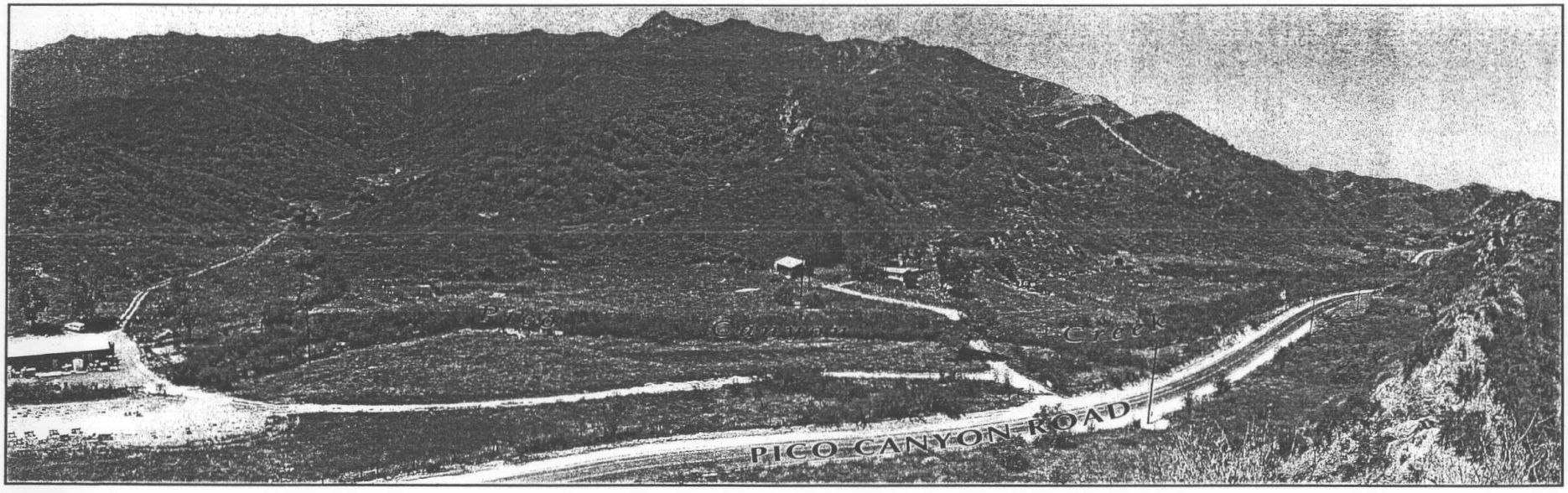
[2] Meets the criteria of wetland as defined by the Army Corps of Engineers.
[3] ibid.
[4] ibid.
[5] ibid.

TABLE 3

Plant Species Observed in Jurisdictional Areas
Aidlin Project Site

Name	Indicator Status[b]
Artemisia douglasiana	FACW
Baccharis pilularis consanguinea	--
Baccharis salicifolia	FACW
Brassica nigra	--
Bromus spp.	--
Centaurea melitensis	--
Distichlis spicata	FACW*
Eriodictyon crassifolium	--
Eriogonum fasciculatum	--
Heteromeles arbutifolia	--
Leymus condensatus	FACU
Populus fremontii	FACW
Quercus agrifolia a.	--
Rhus trilobata	NI
Ribes aureum gracillimum	FACW
Rosa californica	FAC+
Salix laevigata	--
Salix lasiolepis	FACW
Salvia leucophylla	--
Sambucus mexicana	FAC
Tamarix sp.	FACW
Verbena lasiostachys scabrida	FACW

[b] As given in Reed (1988).



THE AIDLIN PROJECT

Pico Canyon Creek

ENVICOM CORPORATION

PLATE 1

4.0 WATER QUALITY

4.1 Water Quality Objectives

The California Water Code (section 132411) defines water quality objectives as "the allowable limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses or the prevention of nuisance within a specific area." Therefore, water quality objectives are intended to protect public health and welfare and to maintain or enhance water quality in relation to the designated existing and potential beneficial uses of the water. In light of the state's mandate, it will be important to ensure designated beneficial uses are maintained or not degraded. The Antigradation Policy of the State Board (Resolution No. 68-16) restricts degradation of surface and ground waters. As described in the Regional Plan, there are a number of regional objectives for surface inland waters in terms of narrative and numerical water quality values including ammonia, chlorine, color, dissolved oxygen, oil and grease, nitrogen, pesticides, pH, suspended sediments, and exotic vegetation. This data is valuable in establishing a clear indication of the level of water quality to maintain. In addition to the more traditional water quality issues, the Plan also addresses objectives for wetlands. The prime focus is to protect wetland hydrology, such as natural temperature and other physical and chemical characteristics, and to maintain existing habitats with their full complement of flora and fauna, including food supplies, breeding area and wildlife corridors.

4.2 Strategic Planning and Implementation

The goal of the Regional Board is to protect all beneficial uses. As such, several strategies have been developed depending on the nature of the water quality problem. Strategies include control of point source pollutants, control of non-point source pollutants, and remediation of pollution. Many of the programs are implemented through permit review. In the case of the proposed project, the applicant is required to obtain 401 Water Quality Certification, and a Construction Storm Water Permit under the NPDES program, which includes the development of a Storm Water Pollution Prevention Plan.

4.3 Beneficial Uses

According to the Los Angeles Basin Water Quality Control Plan (February, 1995), the project site is located within the Santa Clara-Calleguas Hydrologic Unit (403.00) of the Upper Santa Clara River Hydrologic Areas (403.50), within the Eastern Hydrologic Subarea (403.51). While Pico Canyon Creek and Wickham Canyon Creek are not named in the Basin Plan, they are hydrologically connected to the Santa Clara River; therefore, the same beneficial uses apply. The Basin Plan describes Santa Clara-Calleguas Hydrologic Unit as follows:

> The Santa Clara – Calleguas Hydrologic Unit covers most of Ventura County, part of northern Los Angeles County and small parts of Santa Barbara and Kern Counties. With a drainage area of 1,760 square miles, it is the largest hydrologic unit in the Region. Most of the upland area is within the Angeles and Los Padres National Forests. While land use in the lower portion of the drainage area – in particular the Oxnard Plain – is predominantly agricultural, urban (primarily residential) land uses are encroaching upon and rapidly replacing these agricultural lands. The Santa Clara River and Calleguas Creek are the major streams in this area, draining the San Gabriel Mountains, Santa Susana Mountains, Oak Ridge, South Mountain, Simi Hills, Sawmill, Liebre and Frazier Mountains. Large reserves of groundwater exist in alluvial aquifers underlying the Oxnard Plain and along the valleys of the Santa Clara River and its tributaries.

The Basin Plan has been developed to address problems such as these and others. The plan includes measures to preserve and enhance water quality and protect the beneficial uses of all

regional waters. The Basin Plan designates beneficial uses for surface and ground waters, sets objectives to protect beneficial water uses, and describes implementation programs. Applicable beneficial uses are listed below. The Basin Plan requires the protection of all beneficial uses. The beneficial uses associated with the waters of the Aidlin project site currently exist, or have the potential to exist in the future, as listed below (in no preferential order).

Municipal and Domestic Supply (MUN)
Uses of water for community, military or individual water supply systems including, but not limited to, drinking water supply. (Potential)

Agricultural Supply (AGR)
Uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing. (Existing)

Industrial Process Supply (PROC)
Uses of water for industrial activities that depend primarily on water quality. (Existing)

Industrial Service Supply (IND)
Uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization. (Existing)

Ground Water Recharge (GWR)
Uses of water for natural or artificial recharge of groundwater for purposes of future extraction, maintenance of water quality, or halting of saltwater intrusion into freshwater aquifers. (Existing)

Freshwater Replenishment (FRSH)
Uses of water for a natural or artificial maintenance of surface water quantity or quality (e.g., salinity). (Existing)

Non-contact Water Recreation (REC-2)
Uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities. (Existing)

Warm Freshwater Habitat (WARM)
Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates. (Existing)

Wetland Habitat (WET)
Uses of water that support wetland ecosystems, including, but not limited to, preservation or enhancement of wetland habitats, vegetation, fish, shellfish, or wildlife, and other unique wetland functions which enhance quality, such as providing flood and erosion control, stream bank stabilization, and filtration and purification of naturally occurring contaminates. (Existing)

Wildlife Habitat (WILD)

Uses of water that supports terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, and invertebrates), or wildlife water and food sources. (Existing).

Rare, Threatened, or Endangered Species (RARE)

Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered. (Existing).

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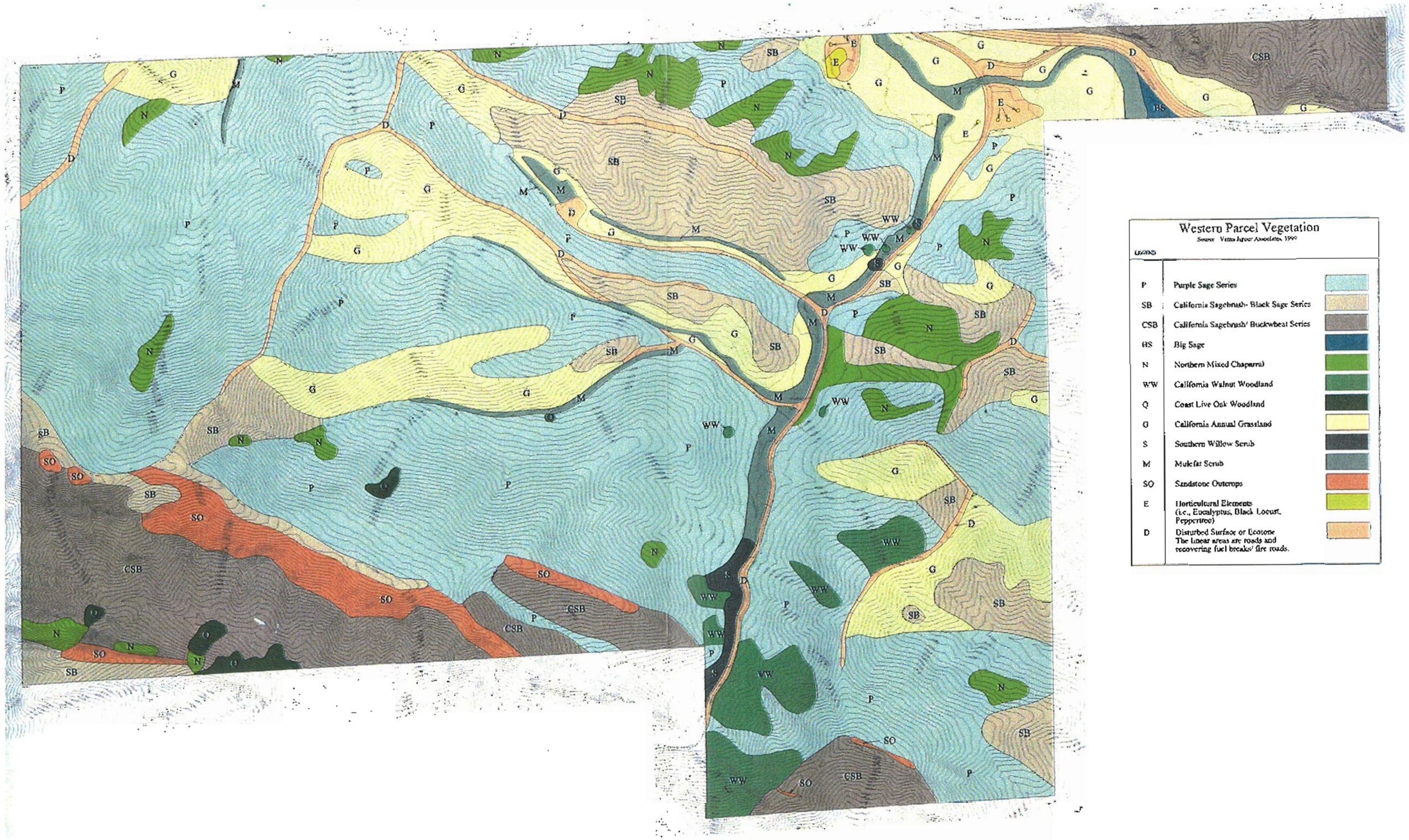


THE AIDLIN PROJECT

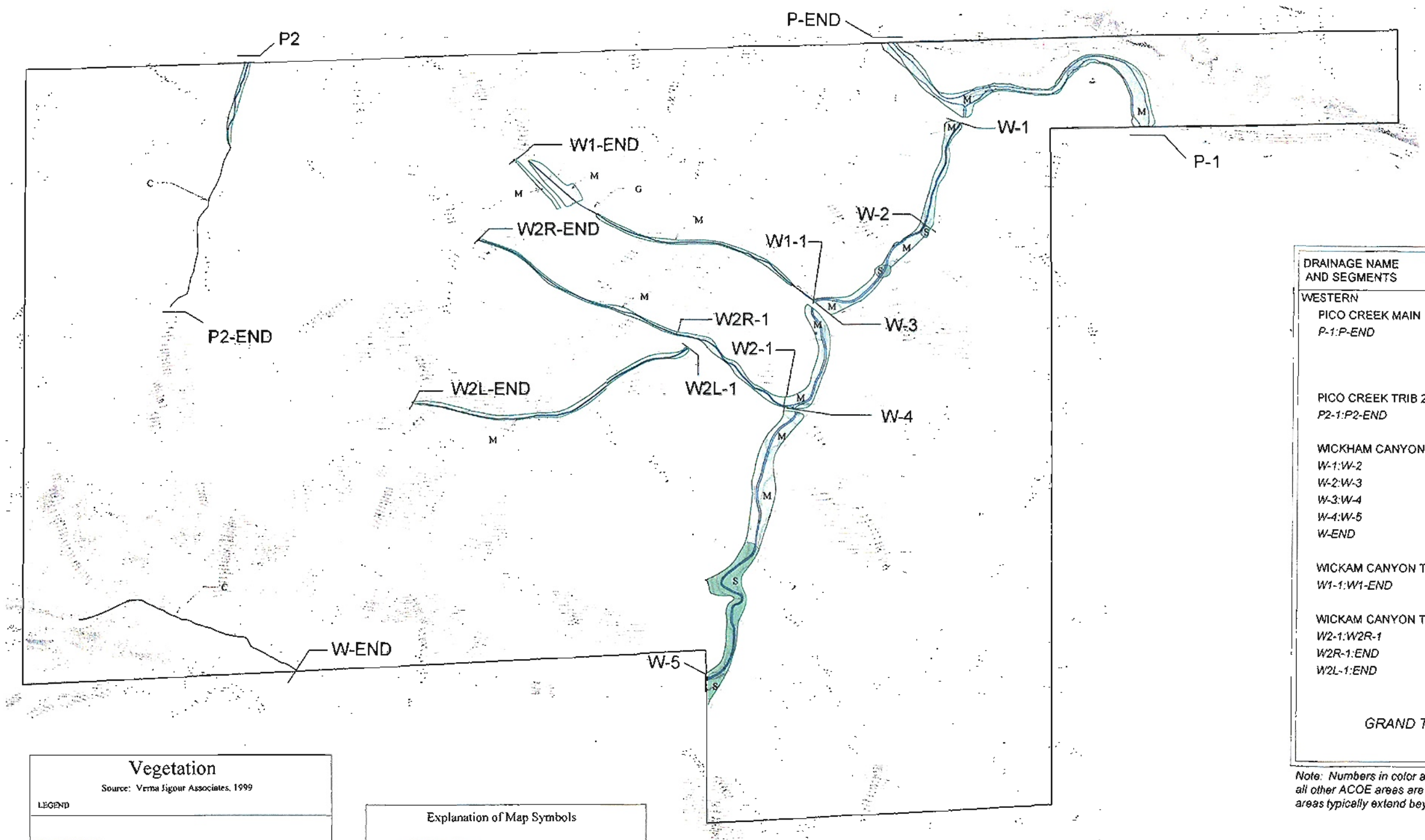
Vegetation Map

ENVICOM CORPORATION

FEET 0 200 400

FIGURE 3

AIDLIN PROPERTIES



DRAINAGE NAME AND SEGMENTS	EXISTING ACOE (sq. ft.)	EXISTING CDFG (sq. ft.)
WESTERN		
PICO CREEK MAIN		
P-1:P-END	30,325	57,980
Subtotal	30,325	57,980
PICO CREEK TRIB 2		
P2-1:P2-END	520	6,310
Subtotal	520	6,310
WICKHAM CANYON		
W-1:W-2	2,180	14,840
W-2:W-3	3,070	23,320
W-3:W-4	2,670	21,050
W-4:W-5	6,530	73,700
W-END	1,800	1,800
Subtotal	16,250	134,710
WICKAM CANYON TRIB 1		
W1-1:W1-END	2,590	38,200
Subtotal	2,590	38,200
WICKAM CANYON TRIB 2		
W2-1:W2R-1	1,550	11,200
W2R-1:END	1,010	10,170
W2L-1:END	2,040	20,700
Subtotal	4,600	42,070
GRAND TOTAL	54,285	279,270
ACRES	1.25	6.41

Note: Numbers in color are areas that meet ACOE wetland definitions; all other ACOE areas are Waters of the United States. CDFG estimated areas typically extend beyond ACOE areas, and include the latter.

Vegetation

Source: Verna Sigour Associates, 1999

LEGEND

- S — Southern Willow Scrub and Woodland) (includes Cottonwood trees)
- O — Coast Live Oak Woodland
- M — Mulefat Scrub
- G — Annual Grassland
- C — Chaparral (riparian)

Explanation of Map Symbols

- CDFG Riparian
- ACOE within CDFG
- CDFG Riparian and ACOE (*Coincident*)
- D1-2 — Station Numbers

(Field Survey April 9-23, 1999)

1"=400'

THE AIDLIN GROUP

Project: Aidlin Property
File:
Drawn By:
Date:

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The Aidlin Project: Tentative Tract No. 52796 Los Angeles County Initial Study Assessment: Vegetation and Flora June 9, 2000

Introduction

The Aidlin property lies among the sand- and siltstone foothills on the northern flanks of the Santa Susana Mountains in the vicinity of Sand Rock Peak and Stevenson Ranch (USGS Oat Mtn. and Newhall quadrangles). Elevations within the property boundaries range from approximately 1,480 to 2,240 feet above sea level. The local climate arises from both coastal and desert influences and is intermediate between these extremes. Wickham Canyon, along with two unnamed tributary canyons, form the primary drainage for most of the Aidlin property, discharging into Pico Canyon. The most northerly slopes on the property drain directly into Pico Canyon. Access to the site is provided by Pico Canyon Road.

Site Reconnaissance and Vegetation Mapping

This report documents site reconnaissance performed on February 17-18, April 19-23, and May 27, 1999, along with a rare plant survey conducted on June 1-2, 2000 by Verna Jigour. The reconnaissance consisted of walking all the ridgelines and negotiable canyons within the property boundaries, noting plant species, relationships and other distinguishing features of the land. The reconnaissance and this report focus on the upland portions of the site, while wetland and other drainageway locations, character and plant species are documented by Envicom Corporation in a separate exhibit. Vegetation was mapped by correlating a color aerial photo, flown on September 1, 1998 and printed at the scale of 1"=200', to the topographic base map at that scale.

Results: Introduction

The terrain is covered with a mosaic of primarily native scrubby vegetation dotted with woodland elements on protected slopes and ridgelines, along with riparian scrub-lined drainages. Distinct plant associations are strongly correlated with solar exposure, elevation and related moisture availability. While evidence of past oil development and cattle grazing exists on the site, the overall degree of vegetation disturbance observed is relatively limited, with the most pronounced changes in native plant community structure occurring near the on-site structures, along the unpaved ranch roads and Pico Canyon Road, and on the most exposed slopes. According to beekeeper Gilbert Vannoy who operates the bee house on-site, the previous owners had, at most, ten cattle on the property at any given time, although they clearly altered vegetation structure on the exposed south-to-west-facing slopes. Narrow trails traversing the upper elevations of the property may have been worn by cattle, deer, humans, and/or combinations thereof, over the history of the site. The evidence suggests that even those lower elevation ridgelines that have not recently been graded for vehicle passage have served as roads or

firebreaks in the past. Some of these former disturbances now provide niches for native bunchgrasses and other herbaceous species, apparently due to their relatively open character within the scrub matrix, along with soil texture, moisture and related factors. The edges of the existing ranch roads are typically lined with an assortment of nonnative annual grasses, mustards, and other exotic and weedy native herbaceous species that also colonize other human-disturbed areas near the existing structures and Pico Canyon Road, along with the most xeric slopes on the property, as mentioned above. During the June 2000 reconnaissance, mustard and other disturbance-adapted plant species were rapidly encroaching on the lesser roads (branching away from Wickham Canyon) that had apparently bladed in 1998 or 1999.

But the remainder of the site is covered with native vegetation in an apparent ecological succession following the most recent fire in 1987, mentioned on page 287 of the (untitled draft copy of the) Environmental Impact Report (EIR) for Tract No. 43793. In the absence of fire or other catastrophic disturbances, the spatial distribution of plant communities presumably remains relatively constant from year to year. However, observations made during this field reconnaissance must be understood in light of the fact that the rainy season of 1998-99 had been relatively dry in this part of the state, apparently the La Niña aftermath of the previous season's El Niño weather pattern. According to Gilbert Vannoy, the overall vigor of the vegetation on the site during 1999 was markedly reduced compared to that observed the previous year. This comment was supported by the abundance of the previous year's flowering stalks, especially prominent during the February visits. Along with the apparent overall reduction in shrub growth rates and biomass, the reduced rainfall may have resulted in a reduced distribution of annual and other herbaceous species. The winter 1999 through spring 2000 produced another aberrant rainfall season, with little rain falling until relatively late in spring.

The accompanying plant list documents all plant species identified during the field reconnaissance of the Aidlin property, Tentative Tract No. 52796.

Vegetation/Habitats

A suite of systems is currently used to describe vegetation and habitat types in California. In the most generalized of these, the California Wildlife Habitat Relations (WHR) system, the site would be described as consisting primarily of coastal scrub, with elements of coastal oak woodland, perennial and annual grassland, and freshwater emergent wetland. In describing vegetation, the California Natural Diversity Database (CNDDB) employs the plant community descriptions delineated by Holland (1986), while the California Native Plant Society (CNPS) is promoting a newer system that recognizes finer divisions of plant association series (Sawyer and Keeler-Wolf 1995). The following descriptions correlate the systems respectively, as expressed by the vegetation on the site. Please refer to the vegetation exhibit for spatial distributions.

Venturan Coastal Sage Scrub: Purple Sage Series

The most extensive vegetation on the site is coastal (interior) sage scrub, with the majority of that best described as a purple sage series, dominated by purple sage (*Salvia leucophylla*), chaparral bush mallow (*Malacothamnus fasciculatus*) and California sagebrush (*Artemisia californica*). This particular combination of dominant species including the bush mallow, is not mentioned in

the description of the purple sage series (ibid.) to date, although that may be due to its nature as a relatively early seral association in the ecological succession following fire. This association occupies most of the canyon slopes, with the exception of several west and southwesterly oriented slopes that are characterized by disturbed annual grassland (refer to the following description). Fire scars at the bases of many shrubs attest to past fire history. Much of this area may have burned in the reported 1987 fire referred to in the Results: Introduction section. The vicinity of the highest point that peaks near the southwest property boundary is populated with patches of bush poppies (*Dendromecon rigida*) and hence is referred to hereafter as Bush Poppy Peak for convenience. Herbaceous species occupying sparsely vegetated, erosive siltstone patches along the highest elevation ridgeline adjacent Bush Poppy Peak include Turkish rugging (*Chorizanthe staticoides*) and tarweed (*Hemizonia fasciculata*). On the property's lower elevation, northernmost ridge, two individuals of white sage (*Salvia apiana*) were observed, the only location where this species was observed on-site. While this species may be expected within the purple sage series, the apparent absence of the species from other areas of the property suggests the possibility of it having been introduced in prehistoric times, as it was/is an ethnobotanically important species. Alternatively, its limited distribution may be related to the site's fire history. Within the overall coastal sage scrub matrix, several of the drainages and other disturbed areas are lined with giant ryegrass (*Leymus condensatus*), apparently the first species to re-arise from one recently bladed canyon bottom.

Note that the SEATAC Biota Report on Tentative Tract 43896 (including adjacent Dewitt Canyon) prepared by EDAW, Inc. and Frank Hovore & Associates (1997) describes this vegetation (under the Holland/CNDDB system) as riversidean sage scrub, perhaps lumping it with the associations described below under that name. However, this author considers the presence of California encelia (*Encelia californica*) and absence of brittlebush or desert encelia (*Encelia farinosa*) among the factors that would place it in the Venturan coastal sage scrub community, according to that classification system, although the scrub community on site is missing many of the species typical of more coastal exposures. Of course nature itself knows no such divisions and plant species associations often appear to follow transitional gradients influenced by climate, elevation and substrate factors, defying attempts at "pigeonholing".

Riversidean Upland Sage Scrub: California Sagebrush-Black Sage Series

Portions of the northernmost ridgeline on the site is clothed with a mix dominated by black sage (*Salvia mellifera*) with sugar bush (*Rhus ovata*), toyon (*Heteromeles arbutifolia*), hollyleaf redberry (*Rhamnus ilicifolia*), California sagebrush, California buckwheat (*Eriogonum fasciculatum* ssp. *foliosum*), and thick-leaved yerba santa (*Eriodictyon crassifolium*) – characteristic of the California sagebrush-black sage series. Squawbush (*Rhus trilobata*) is also common along this ridge, but not mentioned in the series description. Just downslope from the ridgeline on the northern exposure, and along several other ridgelines, the black sage series transitions into stands of northern mixed chaparral, described below. A xeric form of this association intergrading with non-native grassland appears on some south-facing slopes, probably representing the historic cover prior to type conversion of the non-native grasslands.

Riversidean Upland Sage Scrub: California Sagebrush/California Buckwheat Series

At the northeastern "panhandle" of the property, as well as the southwestern corner, steep sandstone cliffs ascend sharply from the canyons below, described under Sandstone Outcrops, following. At lower, more gentle inclines these south-facing xeric slopes become clothed with a mix dominated by California buckwheat, California sagebrush, chamise (*Adenostoma fasciculatum*), black sage and red brome (*Bromus madritensis rubens)*, closely matching the text descriptions of both Riversidean sage scrub in the Holland/CNDDB system, and California sagebrush-California buckwheat series in that system. Both descriptions include the relationship with steep, xeric, south-facing slopes.

Northern Mixed Chaparral (no applicable series equivalent)

While perhaps not a perfect fit, the Holland/CNDDB northern mixed chaparral offers a convenient category to describe and map the stands of larger shrubby species on ridgelines and northern exposures. On several ridgelines the matrix of purple sage and bush mallow becomes dotted with toyon, sugar bush, hollyleaf redberry – an assemblage that may be more characteristic of California walnut woodland than any other association (Keeley 1990), but in the absence of walnuts is treated herein as northern mixed chaparral. Downslope on northern exposures this association is represented by denser patches where blue elderberry is a common dominant species. Foothill ash (*Fraxinus dipetala*) joins the assemblage on the two northernmost, north-facing slopes on the property. While their closed-canopy structure while in leaf resembles a tall chaparral, the deciduous character of these latter two predominant species differs from the typical evergreen, sclerophyllous (thick, leathery or "hard"-leaved) nature of true chaparral. Thus this is a category of convenience, rather than explicit description, though foothill ash is included in the list of species for this association, as well as for the California walnut series.

California Walnut Woodland: California Walnut Series

The California walnut woodland/series occupies the steeply incised slopes above Wickham Canyon at the southern end of the property. A portion of this association likely falls within the proposed limit of grading near the canyon bottom, but more extends to higher elevations. This association is characterized by dispersed specimens of California walnut (*Juglans californica*), mostly of large shrub stature, along with blue elderberry (*Sambucus mexicana*), sugar bush, toyon, hollyleaf redberry, and three coast live oak specimens (*Quercus agrifolia*) in Wickham Canyon. The species composition of the walnut woodland patches on the property is relatively diverse compared with published descriptions of other walnut woodlands in Ventura, Los Angeles and Orange Counties (Swanson 1967 and Leskinen 1972) whose weedy herbaceous understories suggested greater disturbance from historic grazing. On the northernmost north-facing slope on the property, above Pico Canyon and within the limit of grading, young, or resprouted California walnuts may occur within the northern mixed chaparral. This is an association which tolerates fire – the walnuts themselves quickly resprout from their root crowns repeatedly in response to fire, developing large basal "platforms" (Quinn 1990). Quinn interprets the basal platform as an adaptation to fire, as the largely subterranean platform "shields meristematic tissue from the heat of passing fires, and post-fire sprouts arise from its lower portions" (ibid.) But according to Keeley (1990) walnut woodland is neither particularly fire-

prone nor fire-dependent. Fires affecting this woodland type/series usually arise in the chaparral or coastal sage scrub associations with which it commonly associates, and the sexual reproduction of this association's species is not linked to fire (Keeley 1990). On the property in question, fire has apparently limited the stature of the walnut trees within the woodland.

Coast Live Oak Woodland: Coast Live Oak Series

Three coast live oak specimens, one within the limit of grading in Wickham Canyon at the southern property boundary, are associated with the California walnut and mixed willow series on the property, although as the canyon deepens, leading off the property, it becomes canopied with the coast live oak woodland/ series. Patches of coast live oak woodland dot the Pico Canyon drainage on the property. Additional coast live oak woodland is present near the southwestern property boundary, in a steeply incised tributary trending sharply westward from the lower Wickham Canyon axis. This steep canyon area, framed by sandstone escarpments described in a following section, lies far outside the proposed limit of grading.

Within the property boundaries, but more than 200 feet outside the closest limit of grading, a patch of twelve coast live oaks, two of them saplings, occupies a steep side drainage on the upper north-facing slope of a canyon branch west of Wickham Canyon. These oaks are closely associated with several blue elderberries on their western side, helping to shelter the oaks from desiccation on hot summer afternoons. The trees are underlain primarily by a deep oak leaf duff with patches of wild cucumber (*Marah macrocarpus* var. *macrocarpus*), woodland star (*Lithophragma* sp.), *Bowlesia incana* (no common name) and goose grass (*Galium aparine*) occupying their deep shade, California maidenhair (*Adiantum jordanii*) in the dappled sunlight at the southeastern edge of the patch, and giant ryegrass extending from under the canopy to the steep drainage below. With no California walnuts nearby, this cluster may be referred to as representing the coast live oak woodland/series. Equally delightful as this woodland is the patch of *Melica* meadow just east of the highest tree, described in the Needlegrass Grassland section following. This isolated woodland and associated meadow are certain to attract at least some future residents of the planned development. In any case, and especially because the steep incline of the site renders it susceptible to human disturbance, a proactive resource management program should be developed to ensure the sustainability of this potentially fragile woodland/ meadow complex. Such a program should employ sensitive "site hardening" and other protective techniques to facilitate a sustainable relationship between the site and its future neighbors.

Southern Willow Scrub: Mixed Willow Series

Specimens of red willow (*Salix laevigata*) and arroyo willow (*Salix lasiolepis*) dot the upper (southern) portion of Wickham Canyon. The willows, along with blue elderberry, are interspersed with mulefat (*Baccharis salicifolia*), and form a transition zone between the coast live oak woodland/series lining the drainage off the property, and the mulefat scrub lining lower reaches of the drainage. At the time of the February site reconnaissance, the red willows were in full bloom, but just beginning to leaf out, so identity was confirmed by keying the staminate (male) flowers that typically occupy lower branches. Pistillate (female) flowers were out of reach by this surveyor, but immensely popular with the local bees. The deciduous branches and twigs of specimens on-site appear to lie at the browner end of the spectrum of red-to-brown

twigs that characterize this species in winter. A California thrasher (*Toxostoma redivivum*) was observed among the leafless branches of a Wickham Canyon willow during the February visit. Along with occasional clumps of arroyo willow and elderberry, discontinuous specimens of Fremont cottonwood (*Populus fremontii*) occur amid the mulefat scrub in lower portions of the Wickham Canyon drainage. Not dense enough to be considered representative of the Fremont cottonwood series, these trees may be considered part of the southern willow scrub community, but not well expressed in series descriptions to date. It may be that the historic density of cottonwoods on-site was thinned during the occupancy of the former landowners, which dates well back into the nineteenth century, according to Gilbert Vannoy. Most of this association occurs within the proposed limit of grading and the implied wetland conditions have been addressed in the jurisdictional delineation exhibit prepared by Envicom Corporation.

Mulefat Scrub: Mulefat Series

The majority of vegetation lining on-site drainages is the mulefat series, a riparian scrub association which consists primarily of its namesake species, along with occasional clumps of giant ryegrass, Douglas mugwort (*Artemisia douglasiana*), vervain (*Verbena lasiostachys* var. *scabrida*) and punctuated in some locations by elderberry and cottonwood. Mulefat is considered a facultative wetland species – that is, it occurs in both wetland and non-wetland situations. Refer to the jurisdictional delineation exhibit provided by Envicom Corp. for documentation. Also refer to the note regarding soil stockpiling in the following section.

Giant reed (*Arundo donax*), an exotic pest plant that threatens riparian habitats around the state, occurs infrequently within the mulefat scrub, but precautions should be taken to prevent its spread during the land disturbance process. A rhizomatous species, it can resprout from very small pieces of stem and is well adapted to disturbance. Another exotic pest plant observed in the uppermost branch canyons off Wickham is tamarisk (*Tamarix ramossimus*). This pest plant threatens riparian and other seasonally moist areas from the California deserts to inland northern California, spreading by wind-blown seeds. As of June 2000, its onsite population had expanded considerably over that observed in 1999. Ideally, the existing tamarisk should be treated with herbicide (cut stump method) prior to land disturbance, to help prevent its spread.

Alkali Meadow: Saltgrass Series

In the course of conducting the June 2000 rare plant survey, Verna Jigour traveled through the uppermost branch canyon off Wickham, and its northernmost branch, to access potential rare plant habitats along ridgelines. The portions of the branch canyon bottoms that had been bladed relatively clean in 1999 were being repopulated with mostly weedy vegetation in 2000. Tamarisk had invaded the northernmost branch, where it had not been observed in 1999, probably because that portion of the canyon had been cleared for vehicular traffic in 1999. Also not observed in that same branch canyon bottom in 1999, but present in 2000, was an extended stretch (less than one meter wide) of wild heliotrope (*Heliotropum curassavicum*), variously associated with western ragweed (*Ambrosia artemisifolia*), common velvet grass (*Holcus lanatus*), and bull thistle (*Cirsium vulgare*), along with a small patch of rush (*Juncus mexicanus*). Disturbance-adapted vervain (*Verbena lasiostachys* var. *scabrida*) marked the transition zones between this association and adjacent patches of mulefat scrub and non-native grassland. While saltgrass

(*Distichlis spicata*) itself was not observed here during this casual inspection, this incipient assemblage appears similar in nature to one observed on a nearby property to the east that may be best characterized as alkali meadow: saltgrass series. Wild heliotrope is typically associated with saline wetlands and its presence suggests the presence of wetland conditions. Refer to the wetland jurisdictional delineation exhibit provided by Envicom Corp. However, these vegetative indicators were not present during the 1999 field evaluations and this strip of canyon bottom was originally mapped as part of the adjacent California annual (non-native) grassland. According to the U.S. Fish and Wildlife Service 1996 National List: of Vascular Plant Species That Occur in Wetlands, wetland indicator status is as follows for each of these species observed in the strip of alkali meadow observed on June 1-2, 2000:

Heliotropum curassavicum	OBL	Tamarix ramossimus	FAC
Juncus mexicanus	FACW	Verbena lasiostachys	FAC-
Cirsium vulgare	FAC	Ambrosia artemisifolia	FACU
Holcus lanatus	FAC		

Indicator Categories:

OBL Obligate Wetland: Occur almost always (estimated probability >99%) under natural conditions in wetlands.

FACW Facultative Wetland: Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.

FAC Facultative: Equally likely to occur in wetlands or non-wetlands (estimated probability 67%-99%).

FACU Facultative Upland: Usually occur in non-wetlands (estimated probability 67%-99%, but occasionally found in wetlands (estimated probability 1%-33%)

Since the objective of the June visit was the rare plant survey, no other canyon bottoms were inspected and it is not known whether this association occurs elsewhere on the site. However, it seems likely that all the branch canyon bottoms, including all areas of mulefat scrub, hold accumulations of fine-textured, silty sediments that may help support local wetland conditions. In areas of proposed disturbance such soils should ideally be conserved for application to any created wetlands, as part of the impacts mitigation. However, the soil seedbanks in many of these areas are heavily contaminated with exotic species and thus, as in the case of the strip of alkali meadow noted above, it may be advisable to omit the upper three inches from stockpiling for created wetlands.

Needlegrass Grassland: Foothill Needlegrass Series

Isolated stands of native perennial bunchgrass were observed in several locations across the property. Several of these locations have north or northeastern exposures – particularly along ridgelines and the former roadbeds that have traversed them. Oniongrass or melic (*Melica imperfecta*) was just beginning to bloom at the time of the April, 1999 site reconnaissance, typically occupying these artificially created, semi-compacted openings in the adjacent scrub series. The most outstanding example of this association observed on the property was in full bloom on May 27, 1999, adjacent and east of the "hanging" coast live oak woodland described previously. This "Melica meadow" clothes a steep hillside, fully exposed to morning sunlight,

but sheltered from afternoon heat by the adjacent oaks. Also in full and glorious bloom there on May 27, 1999 were punchbowl godetia (*Clarkia bottae*) and small fescue [*Vulpia (Festuca) microstachys*], a native annual grass. Ithuriel's spear [*Triteleia (Brodiaea) laxa*] had not yet opened but it's characteristic inflorescence and the blue-purple floral buds confirmed its identity. This species, apparently near the southern extremity of its range (Transverse Ranges), is associated with clay soils. Other species present include Chinese houses (*Collinsia heterophylla*), hairy fringepod (*Thysanocarpus curvipes*), slender tarweed (*Madia gracilis*), and fleabane daisy (*Erigeron foliosus*) (not yet near blooming but identified by sleuth Carl Wishner). Foothill needlegrass [*Nassella* (*Stipa*) lepida], the signature genus for the on-site grassland/series, was not observed among this assemblage, but no other accepted categories encompass this grassland type, thus the needlegrass grassland/series, which include *Melica* species, is a category of convenience for the *Melica* meadow.

While many of the bunchgrass stands observed, including foothill needlegrass, oniongrass and (one individual of) one-sided bluegrass (*Poa secunda* ssp. *secunda*), were associated with open ridgeline habitats, several stands occur along the road in upper Wickham Canyon – amid the purple sage scrub and California walnut woodland ecotones, and extending off the property as the canyon transitions into oak woodland. Elements of this grassland/series may be expected to occur in natural openings elsewhere in the scrub, though these may be less readily observable. The June 1-2, 2000 visit enabled identification of foothill needlegrass and seed was collected from both canyon and ridgeline populations – the latter from a population of at least 40 plants clustered around a saddle with a gentle easterly slope aspect. This population occurs on an area that has apparently served as a ranch road in the not-too-distant past, thus a relatively broad opening has been created for establishment of the needlegrass stand. The bunchgrasses have likely served as important slope stabilizers following fires and other disturbances, and a soil seedbank may be present beneath the scrub communities. Soil stockpiled from native scrub communities may be expected to yield some native grass seeds. But since most of the bunchgrass stands observed lie within the proposed area of grading, prior to grading it would be ideal to collect additional seeds from these stands, to be used in revegetating the post-disturbance landscape. The genetic heritage of these local native grasses may be particularly well adapted for on-site soil and climatic conditions.

Non-native Grassland: California Annual Grassland Series

This association, typified by cheat grass (*Bromus tectorum*), wild oats (*Avena* sp.) and black mustard (*Brassica nigra*) represents the vegetation type most altered from its native structure and composition. Occupying the most xeric south- to west-facing slopes, the placement suggests that this non-native grassland replaced a native coastal scrub association following disturbance (as opposed to replacing native grassland – see Keeley 1993). The combined effects of fire and grazing likely both played a role in this type conversion. As native vegetation is removed through either or both causes, it is slowest to recover on these most xeric exposures. The life cycle of the rapid germinating, rapid growing annual species that comprise this series is better adapted to repeated domestic grazing pressure than are the native plant associations that evolved with more migratory native grazers. This series also lines the roads and other surface disturbances on the property.

Ecotones between Non-native Annual Grassland and Other Communities/ Series

Field observations on this and similar sites in the Pico Canyon drainage emphasize the importance of ecotones (ecological transition zones) between non-native annual grassland and other communities/series in maintaining native herbaceous biodiversity following disturbance such as historic grazing and the subsequent onslaught of disturbance-adapted invasive alien species. These ecotones typically occur along ridgeline breaks between slope aspects with different solar exposures and often appear to have been mechanically scraped and/or compacted. Their relative openness offers the smaller herbaceous species access to light otherwise blocked within the shrub community matrix, along with relative freedom from the intense competition of the aggressive non-native grassland species. On-site ecotones offer ecological niches for native species such as the native bunchgrasses, mariposa lilies (*Calochortus* sp.), Peirson's morning glory (*Calystegia* peirsonii), purple owl's clover (*Castilleja* exserta), Indian paintbrush (*Castilleja* sp.), and likely many others. (Refer to the related discussion of sensitive plant species in the section, Sensitive Plant Species and Communities, following.)

Over the past three decades, the factors specifically responsible for the existence of such ecotones, observed throughout the California Floristic Province and elsewhere, have been the subjects of much speculation and limited research. The following excerpt from an article by this author, summarizing a session at the 1997 Society for Ecological Restoration, California Chapter (SERCAL) Annual Conference, offers a convenient synopsis along with pertinent revegetation considerations:

> On behalf of colleagues Rich Riefner and Dave Pryor, California State Parks, Ted St. John, [then of] Tree of Life Nursery, presented preliminary results from their collaboration on an innovative coastal sage scrub (css) restoration project begun in April '94 at San Onofre State Beach, San Diego County. The site is former agricultural land dominated by black mustard. The goal is to restore ecosystem function as a means to suppress the invasive exotics and facilitate the restoration of css. Establishment of a "below-ground network of mycorrhizal hyphae" is a cornerstone of the plan. Naturally, as a public agency project, cost was an issue. Methods involved a "seed mix dominated by an aggressive native grass (*Bromus carinatus*), applied with a land imprinter equipped to inoculate soil fungi, create soil surface heterogeneity, and improve infiltration and soil aeration"; cost was about $1,500 per acre [essentially flat land]. "Recent preliminary data suggest that establishment and spread of the mycelial network suppresses reproduction and vitality of black mustard." Ted raised a few eyebrows by pointing to the "bare" zones often intervening between scrub and annual grassland associations as an example of scrub mycorrhizal suppression of the exotics. [Hadn't earlier hypotheses of allelopathy been supplanted by evidence of small mammal herbivory in these bare zones?] Ted didn't cite references on this, but later I happened to come across some references to phytotoxic effects of mycorrhizal fungi, and possibly other soil microbes, as factors in creation of such bare zones and suppression of herbaceous understory. In one case soil microbes turned out to be the actual source of what was originally interpreted as allelopathic effects from chamise. (Jigour 1997)

While certain pertinent literature dates back to the 1930s, mycorrhizae, the general term for the relationships between the hyphae (thread- or root-like structures) of certain soil fungi and the roots of many plants, have been a subject of increasing interest since the 1970s. When this author was a young botany student in the '70s, professors at U.C. Davis were declaring that this relationship had been documented for a few plants, but the relationship was considered relatively anomalous. Since the 1980s, such relationships have been documented among a majority of perennial (and at least one annual) plant species in relatively intact habitats. This association has particularly captured the attention of restoration ecologists seeking tools to hasten the recovery of disturbed ecosystems. The relationship is a mutualistic symbiosis in which the photosynthetic plant provides the fungus with food in the form of carbohydrates, while the fungus aids in the delivery of water and certain nutrients to the roots of the photosynthetic plant. Moreover, clusters of hyphae around roots help protect them from pathogens, while interconnected networks of hyphae form an infrastructure for soil particle aggregation and overall soil structural development. Four primary types of mycorrhizal relationships are known to date, with two of those likely important in the local ecosystem. For simplicity, these may be referred to as endo- and ectomycorrhizae, with the terms referring to the specific type of relationship between the fungal hyphae and photosynthetic plant root. Generally, endomycorrhizae (a.k.a. vesicular-arbuscular or VAM) are likely important in local scrub communities, while ectomycorrhizae are likely important in local oak and walnut woodlands, as well as willow associations.

We are far from understanding the full complexity of interacting influences in the structure and function of ecotones. In the past the greatest attention has been paid to potential aboveground factors. Only in the 1990s have we seen the emergence of a field of soil ecology that considers the complex interactions among many organisms in the soil food web, in contrast to the soil science of the past that focused reductionisticly and nearly exclusively on physical soil factors. However, evidence of the influence of the mycorrhizal network provides a good beginning. As demonstrated by the San Onofre State Beach project referred to above, which now has a longer track record of success, the establishment of a mycorrhizal network can be a keystone tool in efforts to restore disturbed ecosystems. Moreover, consideration of documented mycorrhizal relationships could prove a useful tool in promoting ecotone-like diversity in transitions zones between human land uses and native plant associations. A pertinent example is the fuel modification zones that will be required for fire safety to intervene between the proposed development and associated wildlands. In the zones where thinning of native vegetation is indicated, selective removal, along with potential planting of favorable local native species, may be strategically orchestrated to protect and maintain the below-ground mycorrhizal network, as well as the entire soil food web. By protecting the soil ecosystem while creating openings in the scrub vegetation, native herbaceous diversity may be protected and possibly enhanced in a manner similar to a functional ecotone. Once again, effective topsoil storage can provide a source of mycorrhizal inoculum to use in revegetation, and application of commercial inoculum can further expedite the restoration of soil structure and function. Both measures should be included in the project's revegetation program.

Sandstone Outcrops

Near the southwestern property boundary and well outside the proposed limit of grading, nearly vertical sandstone escarpments rise from a tributary to Wickham Canyon. Formed of cemented sandstone and conglomerate, these "strike" ridges are more resistant to erosive forces than other substrates, such as the siltstone which, along with the other two bedrock types, comprise the Pico Formation (The J. Byer Group 1998). While the exposed rock surfaces are clearly visible in a vertical aerial photo, the foreshortening masks their precipitous incline. The north-facing surfaces may be viewed across the canyon from the vicinity of Bush Poppy Peak and the strike ridge trending eastward from it. The south-facing escarpments are visible in the oblique aerial photo included in the SEATAC Biota Report Technical Appendices for Tentative Tract #43896 (EDAW and Frank Hovore & Assoc. 1997). In that photo the south-facing escarpment appears quite similar to the one directly across Pico Canyon Road, north of the Aidlin property, although its closer proximity to the opposing strike face likely influences some ecological differences on the walls, as well as the canyon below. Most of the outcrop surfaces may be accessed only by technically-assisted climbing, as along the strike ridge leading eastward from Bush Poppy Peak the topography drops off sharply at the escarpment. However, these sandstone faces may provide questionable surfaces for even technical climbing. The opposing (southernmost, north-facing) ridgeline must be accessed from outside the property boundaries.

The value of the canyon in offering niches for cliff-dwelling bird species was confirmed by the presence of cliff swallows (*Petrochelidon pyrrhonata*) swooping over the tributary canyon between the escarpments and Bush Poppy Peak in April 1999. Turkey vultures (*Cathartes aura*), along with other bird species observed in the area, may also occupy niches in these rock faces. As an example, Bullock's oriole (*Icterus bullockii*) was among the species frequently observed flying between the escarpment north of the property and vegetation along Pico Canyon, within the northern property boundary. Refer to the report on vertebrate species (including butterflies) prepared by Robb Hamilton, Consulting Biologist, for further detail on animals species observed on the site.

There is a real potential that some future residents of the proposed project may be tempted to practice their rock-climbing skills on the escarpment faces. The potential implications of such activity should be addressed in the EIR and an appropriate resource management program developed.

Horticultural Elements

Since the property has been occupied by humans from at least the mid-nineteenth century, vegetation surrounding the on-site structures in particular has been modified. The most obvious examples of introduced vegetation are the black locust (*Robinia pseudoacacia*) trees adjacent the bee house. This species is considered an exotic pest plant that can invade riparian habitats. Although it does not appear to have spread from the row of presumably planted trees near the bee house to adjacent areas anywhere in the Pico Canyon vicinity, an expanding population of black locust was noted in nearby Lyon Canyon on May 25, 1999. Cottonwoods sheltering the other on-site structures were probably planted, but could have been retained from a previous natural grove.

Sensitive Plant Species and Communities

According to a CNDDB list of sensitive elements dated 6/17/98, the following sensitive plant species and elements occur within one or more of the Oat Mtn., Newhall and Simi Valley East USGS quads, and thus could potentially occur on the tentative tract site. Among the plant species observed on-site, none are threatened or endangered, although five sensitive floral elements may be present as follows:

Scientific/Common Name	Federal/State/CNPS Status	Observed Presence (p)/ Absence (a)
Berberis nevenii/ Nevin's Barberry	Proposed Endangered/ Endangered/ 1B	a
California Walnut Woodland	None/None	p
Calochortus clavatus var. gracilis Slender Mariposa Lily	Species of Concern/ None/ 1B	(p?)
Calochortus plummerae Plummer's Mariposa Lily	Species of Concern/ None/ 1B	(a?)
Calystegia peirsonii/ Peirson's Morning-Glory	Species of Concern/ None/ 4	p
Cismontane Alkali Marsh	None/None	a
Hemizonia minthornii/ Santa Susana Tarplant	Species of Concern/ Rare/ 1B	(a?)
Mainland Cherry Forest	None/None	a
Opuntia basilaris var. brachyclada Short-joint Beavertail	Species of Concern/ None/ 1B	a
Riversidian Alluvial Fan Sage Scrub	None/None	a
Southern Coast Live Oak Riparian Forest	None/None	a
Southern Cottonwood Willow Riparian Forest	None/None	a
Southern Mixed Riparian Forest	None/None	a
Southern Riparian Scrub	None/None	p
Southern Sycamore Alder Riparian Woodland	None/None	a
Southern Willow Scrub	None/None	p
Valley Oak Woodland	None/None	a

Potentially one or both of the sensitive mariposa lily species (*Calochortus* sp.) occur on the property. At the time of the April 1999 reconnaissance, one mariposa lily plant observed on April 19 was in bud, but had not yet begun to bloom and thus its specific identity could not be confirmed. This individual was located on a ridgeline leading to Bush Poppy Peak, apparently outside the limit of grading. Other individuals of this species may have been present elsewhere, indistinguishable among other blade-leaved (monocot) species such as the exotic annual grasses. The May 1999 visit was cut short before this ridgeline site could be revisited.

However, just east of this property a population of slender mariposa lily (*Calochortus clavatus* var. *gracilis*) was identified in full flower along a ridgeline ecotone between northern slope ash/elderberry "chaparral" and southern slope non-native/California annual grassland, also straddling the boundary between Tentative Tracts No. 43896 (Laing Homes, Section 6, Oat Mtn. quad) and 52908 (Aidlin/Edson parcel, Section 5) on May 26 and 27, 1999. On May 27, 1999 a much larger population was observed in full bloom in a coast live oak woodland/ /annual grassland/ceanothus chaparral ecotone along Pico Canyon (near midpoint of northern boundary of Section 5, Oat Mtn. quad), on land reportedly slated to become a park. One common trait between these two relatively dissimilar sites is an openness of the vegetation, in contrast to the scrub community matrix, allowing light to nourish the lower-growing herbaceous species. Another is the ecotonal nature of the placement relative to the primarily non-native grassland. These traits provide hints at the types of conditions that might support the species elsewhere, as well as potential natural resource management strategies that might be used to protect and sustain the species into the future.

While Skinner and Pavlik (1994 p. 86) perhaps erroneously list March as the blooming period for slender mariposa lily, Munz and Keck (1968 p. 1353) list the blooming period as April–June for *Calochortus clavatus*, and May-June for var. *gracilis*, in keeping with 1999 observations in the Pico Canyon vicinity, and likely another hint at the identity of the species on the project site. According to both of references, the bloom period for Peirson's morning glory (*Calystegia peirsonii*), also found on a nearby parcel, is May-June.

On June 1-2, 2000 a rare plant survey was conducted, consisting of walking all the ridgeline ecotones on the property, as well as roadside openings. Since both the slender mariposa lily and Peirson's morning glory appear to favor ecotonal habitats and bloom during the same period, it was presumed that a focused survey for mariposa lilies would likely pick up the morning glory as well. In fact, while three populations of Peirson's morning glory were located, no mariposa lilies were encountered (including vegetative growth), despite intensive searching of the area where one had been observed in 1999. Since the survey was conducted just a few days more than one year after the slender mariposa lily had been observed in full bloom in 1999, the timing is beyond dispute. But after finding no mariposa lilies on the Aidlin property, June 1, Verna Jigour visited the parkland site along Pico Canyon where the large population of slender mariposa lilies, referred to above, had been observed last year. Not a single mariposa lily, including vegetative growth, could be found at that site either. Based on these compared observations, it must be concluded that conditions were not favorable for the species this year, perhaps due to the delayed rainy season, with most rainfall falling late in winter or during spring. Thus, the results of the rare plant survey are inconclusive for slender mariposa lily.

The immature mariposa lily observed on the Aidlin property April 19, 1999 is likely the slender mariposa lily, as Plummer's mariposa lily (*Calochortus plummerae*) is more commonly associated with granitic substrates, in contrast to the apparent sand/siltstone-derived soils on the site. According to Frank Hovore and Associates (1997), Plummer's mariposa lily was reportedly not encountered on either the Laing #43896 or Newhall Ranch properties, while slender mariposa lily was reported only on the former. While specific locations of mariposa lily populations on the site cannot be confirmed, it is likely that soils supporting the native scrub and chaparral associations contain a seedbank and source of bulbs for the species. Effective conservation of suitable topsoil and reapplication during the revegetation process could help conserve latent populations of slender mariposa lily on the site.

During the June 1-2, 2000 survey, populations of Peirson's morning glory (*Calystegia peirsonii*) were observed in three locations on the property, and this appeared to be the only *Calystegia* species on the site. Two of these populations were located on ridgeline ecotones between California annual grassland and purple sage scrub or mixed chaparral. In both cases, the surfaces occupied by the plants were at the edges of former road surfaces. The northernmost population was comprised of approximately six individuals as indicated by aboveground growth. However, since the species is rhizomatous (spreading by underground stems), some or all of the apparent individuals may be connected via their rhizomes. Verna Jigour positively identified the species by testing samples from this population against the dichotomous key for *Calystegia* in Hickman (1993). The population on the adjacent ridgeline to the south occurs in the vicinity of a large population (40+ individuals) of foothill needlegrass, referred to in the section on that association. This population apparently consisted of a single individual that was not in flower at the time, but distinguishable by its distinctive leaf shape. In the absence of flowers this species tends to blend into its background and may be easily missed. But not to be missed along the roadside in upper Wickham Canyon (near the southern property boundary), the largest population observed was in prominent flower on June 2. This population is spread patchily across an area approximately 2 meters (parallel the road) by less than one meter, although, again, the species' rhizomatous nature prevents ready identification of the number of distinct individuals. It occurs in an area that is ecotonal in nature between the California walnut woodland and purple sage scrub, as well as the road edge, and may lie outside the limit of proposed disturbance. All three populations of Peirson's morning glory on the property were prominently flagged (bright pink) with identity notations. Since the species is rhizomatous, salvaged specimens may transplant with reasonable success and it would be worthwhile to attempt salvage of the populations to be disturbed. The species likely occurs elsewhere on the site in less accessible openings in the scrub. Thus, again, effective conservation of topsoil from areas to be disturbed may facilitate the propagation of this species on revegetated areas.

There is a remote potential that the Santa Susana tarplant (*Hemizonia minthornii*) could occur on the sandstone outcrops near the southwestern property boundary. However, all Santa Susana tarplant populations documented to date occur in the vicinity of Santa Susana, along the southern flanks of the Santa Susana Mountains, separated from the Aidlin property by the steep crest of the mountain range, including Oat Mountain at 3,747 feet, and several other peaks ranging from 3,300 to 3,600 feet above sea level. It addition to forming a natural barrier to gene migration, the mountain range likely causes some degree of rainshadow effect on the Pico Canyon watershed

which is subject to high desert influences. The average relative humidity there is presumably lower than the sites where the tarplant has been documented on the opposite side of the range with greater coastal influences. Nevertheless, CNDDB occurrence #11 of Santa Susana tarplant mentions "coastal scrub on steep sandstone outcrops" as part of the ecological description, suggesting that the escarpments on the Aidlin property may be considered potential habitat. It would be difficult to confirm presence or absence of the species on most of these rock faces due to access constraints. The ridgelines could be inspected for the species, as well as the more gentle slopes at the bases of the escarpments. If a search was to be executed for the species it should be performed during the blooming period which is listed as July – October in Munz and Keck (1968) and July – November in Skinner and Pavlik (1994). In any case, these outcrops are well outside the proposed limit of grading, so no direct impacts would be expected from the proposed project if the species is present.

The CNDDB-listed sensitive plant communities that occur on the site and are described in previous sections of this report are: 1.) California walnut woodland; 2.) southern riparian scrub, embodied on the site as mulefat scrub; and 3.) southern willow scrub, represented by the mixed willow series. While these plant communities have no official regulatory status, potential impacts to the communities should be considered in the EIR, along with corresponding mitigation measures.

Note that while, according to Skinner and Pavlik (ibid.), one or more occurrences of a state-listed threatened species, Braunton's milkvetch (*Astragalus brauntonii)*, may have been documented within the Oat Mountain USGS quadrangle, this record did not appear in the CNDDB report. The typical chaparral habitat of Braunton's milkvetch does not occur on the site, and the species was neither observed nor expected to occur here. Additionally of note is the absence of the plantain (*Plantago erecta*), host plant for the Quino checkerspot butterfly, which was neither observed nor expected to occur on the property.

Summary of Preliminary Site Conditions and Recommendations

The majority of the property, and especially the area of the proposed development, is covered with an interior form of coastal sage scrub vegetation dominated by purple sage and bush mallow, with sugar bush, squawbush, toyon and black sage on northerly exposures. Patches of California walnut and coast live oak woodland occur within, and outside of the proposed limit of grading. Riparian scrub communities/series occur on the site, described generally above and in greater detail by the wetland and jurisdictional delineation exhibit prepared by Envicom Corporation. An incipient alkali meadow association was observed in June 2000 in a canyon bottom previously cleared for road use, suggesting the potential presence of a narrow strip of wetland soil conditions in a tributary of Wickham Canyon. Potential impacts of the proposed project on these communities should be evaluated in the EIR. The natural resources management program developed for the project should include measures to protect and sustain the ecological integrity of the woodlands retained on-site from potential human impacts. Special attention should be given to the potentially fragile "hanging" oak woodland/meadow complex occupying a steep slope in the southwestern quadrant of the project, outside the proposed limit of grading, as it is likely to attract human visitors to its steep slopes.

Three populations of the rare Peirson's morning glory were confirmed during the rare plant survey in June 2000. But while an immature mariposa lily was observed on the site in 1999, outside the proposed limit of grading, no mariposa lilies were located on the Aidlin property nor at the nearby site where a large populations was observed in 1999. Thus the survey was inconclusive for sensitive mariposa lilies. Effective topsoil conservation may help sustain seedbanks of these rare species, as well as common native species, and is strongly recommended. Native herbaceous species diversity should also be protected and sustained through strategic management of the requisite fuel modification zone at the wildlands/ development interface, in order to emulate the ecological functions of a natural ecotone. While there is a slight possibility that Santa Susana tarplant could occur on nearly vertical sandstone outcrops near the southern property boundary, all known occurrences of this species lie on the opposite side of the Santa Susana Mountains from the subject property. Access to most of these surfaces would require technically assisted climbing on sandstone that may not be suited to the task. In any case, no direct impacts are expected in or near these sandstone habitats as they are well outside the proposed limit of grading. Potential indirect impacts of possible future rock-climbing attempts in the area should be addressed in the EIR and appropriate mitigation measures developed.

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The Aidlin Project: Tentative Tract No. 52796
Spring Plant List June 7, 2000

The following list includes plant species identified on the Aidlin property, Tentative Tract 52796, during site reconnaissance conducted on Feb. 17-18, April 19-23 and May 27, 1999, and June 1-2, 2000. This list focuses on upland species. Several specific identifications were contributed by Carl Wishner, Envicom Corporation. A list of plant species associated with wetlands and drainages on these properties is documented in the jurisdictional delineation provided by Envicom Corporation.

FERNS

Pteridaceae	**Brake Family**
Adiantum jordanii	California Maidenhair
Pellea andromedifiolia	Coffee Fern
Pentagramma (Pityrogramma) triangularis ssp. maxonii	Goldback Fern

DICOTS

Amaranthaceae	**Amaranth Family**
*Amaranthus albus	Pigweed
Anacardiaceae	**Sumac, Cashew Family**
Rhus ovata	Sugar Bush
Rhus trilobata	Squawbush
Toxicodendron diversilobum	Poison Oak
Apiaceae	**Carrot Family**
Bowlesia incana	no common name
Sanicula crassicaulis	Pacific Sanicle
Asteraceae	**Sunflower Family**
*Ambrosia artemisifolia	Western Ragweed
Artemisia californica	California Sagebrush
Artemisia douglasiana	Douglas Mugwort
Artemisia dracunculus	Tarragon
Baccharis pilularis (B. p. var. cosanguinea)	Coyote Brush
Baccharis salicifolia (B. glutinosa, B. viminea)	Mulefat
Brickelia californica	California Bricklebush
*Centauria millitensis	Tocalote

* denotes exotic species

Asteraceae (continued)	**Sunflower Family**
Encelia californica	California Encelia
Ericameria palmeri	Palmer's Goldenbush
Erigeron foliosus	Fleabane Daisy
Eriophyllum confertiflorum	Golden-Yarrow
Gnaphalium bicolor	Everlasting
Hemizonia fasciculata	Tarweed
Heterotheca sessiliflora ssp. sessiliflora (Chrysopsis villosa)	Goldenaster
Lasthenia californica	Goldfields
Lessingia (Corethrogyne) filaginifolia var. filaginifolia	Cudweed Aster
Madia gracilis	Slender Tarweed
Rafinesquia californica	California Chicory
*Silybum marianum	Milk Thistle
Solidago californica	California Goldenrod
Stephanomeria exigua	no common name
Boraginaceae	**Borage Family**
Amsinckia menziesii var. intermedia	Rancher's Fireweed
Cryptantha clevelandii	Cryptantha
Pectocarya linearis ssp. ferocula	Pectocaria
Plagiobothrys nothofulvus	Popcornflower
Heliotropum curassavicum	Wild Heliotrope
Brassicaceae	**Mustard Family**
*Brassica nigra	Mustard
Lepidium sp.	Peppergrass
Thysanocarpus curvipes	Hairy Fringepod, Lacepod
Caprifoliaceae	**Honeysuckle Family**
Sambucus mexicana	Blue Elderberry
Chenopodiaceae	**Goosefoot Family**
*Salsola tragus	Russian Thistle, Tumbleweed
Convolvulaceae	**Morning-Glory Family**
Calystegia peirsonii	Peirson's Morning Glory
Crassulaceae	**Stonecrop Family**
Dudleya lanceolata	Live-Forever
Cucurbitaceae	**Gourd Family**
Marah macrocarpus var. macrocarpus	Man-root, Wild Cucumber

* denotes exotic species

Cuscutaceae	**Dodder Family**
Cuscuta sp.	Dodder
Euphorbiaceae	**Spurge Family**
Chamaesyce albomarginata	Rattlesnake Weed
Eremocarpus setigerus	Turkey Mullein, Dove Weed
Fabaceae	**Legume Family**
Astragalus trichopodus var. lonchus	Locoweed, Milkvetch
Lathyrus vestitus	Pacific Pea
Lotus scoparius	Deerweed
Lupinus bicolor ssp. microphyllus	Miniature Lupine
Lupinus longifolius	Bush Lupine
Lupnus succulentus	Arroyo Lupine
*Melilotus indica	Sourclover, Yellow Sweetclover
*Robinia pseudoacacia	Black Locust
Fagaceae	**Oak Family**
Quercus agrifolia	Coast Live Oak
Geraniaceae	**Geranium Family**
*Erodium cicutarium	Storksbill, Filaree
Grossulariaceae	**Gooseberry Family**
Ribes aureum var. gracillimum	Golden Currant
Hydrophyllaceae	**Waterleaf Family**
Eriodictyon crassifolium	Thick-leaved Yerba Santa
Eucrypta chrysanthmifolia	Eucrypta
Phacelia ramosissima	Phacelia
Phacelia cicutaria var. hispida	Phacelia
Pholistoma auritum var. auritum	Fiesta Flower
Juglandaceae	**Walnut Family**
Juglans californica	California Walnut
Lamiaceae	**Mint Family**
*Marrubium vulgare	Horehound
Salvia apiana	White Sage
Salvia leucophylla	Purple Sage
Salvia mellifera	Black Sage
Trichostema lanceolatum	Vinegar Weed
Trichostema lanatum	Woolly Blue Curls
Malvaceae	**Mallow Family**
Malacothamnus fasciculatus	Chaparral Bush Mallow

* denotes exotic species

Nyctaginaeae	**Four O'Clock Family**
Mirabilis californica	Wishbone Bush
Onagraceae	**Evening Primrose Family**
Camissonia sp.	Sun Cup
Clarkia bottae	Punchbowl Godetia
Clarkia unguiculata	Elegant Clarkia
Paeoniaceae	**Peony Family**
Paeonia californica	California Peony
Papaveraceae	**Poppy Family**
Dendromecon rigida	Bush Poppy
Eschscholzia caespitosa	Yellow California Poppy
Polemoniaceae	**Phlox Family**
Gilia capitata ssp. abrotanifolia	Globe Gilia
Leptodactylon californicum	Prickly Phlox
Navarretia sp.	Navarretia
Polygonaceae	**Buckwheat Family**
Chorizanthe staticoides	Turkish Rugging
Eriogonum fasciculatum ssp. foliosum	California Buckwheat
Eriogonum gracile	Buckwheat
Portulacaeae	**Purslane Family**
Claytonia perfoliata	Miner's Lettuce
Ranunculaceae	**Buttercup Family**
Clematis lasiantha	Pipestems
Rhamnaceae	**Buckthorn Family**
Ceanothus leucodermis	Chaparral Whitethorn
Ceanothus oliganthus	Hairyleaf Ceanothus
Rhamnus ilicifolia (R. crocea ssp. ilicifolia)	Hollyleaf Redberry, Buckthorn
Rosaceae	**Rose Family**
Adenostoma fasciculatum	Chamise
Heteromeles arbutifolia	Toyon
Rosa californica	Wild Rose
Rubiaceae	**Madder Family**
Galium angustifolium ssp. angustifolium	Narrow-leaved Bedstraw
*(?) Galium aparine	Goose Grass

[Galium aparine has historically been considered as introduced from Eurasia, though L. Dempster, in Hickman (1993) p. 982 treats it as CA native – "perhaps native to Europe".]

Galium nuttallii	San Diego Bedstraw

* denotes exotic species

Salicaceae	**Willow Family**
Populus fremontii	Western Cottonwood
Salix laevigata	Red Willow
Salix lasiolepis	Arroyo Willow
Saxifragaceae	**Saxifrage Family**
Lithophragma sp. (likely L. affine)	Woodland Star
Scrophulariaceae	**Figwort Family**
Castilleja affinis var. affinis	Indian Paintbrush
Castilleja exserta	Purple Owl's Clover
Castilleja sp.	Indian Paintbrush
Collinsia heterophylla	Chinese Houses
Keckiella (Penstemon) cordifolia	Heart-leaved Penstemon
Mimulus aurantiacus	Bush, or Sticky Monkeyflower
Penstemon centranthifolius	Scarlet Bugler
Solanaceae	**Nightshade Family**
Datura wrightii	Jimson Weed
*Nicotiana glauca	Tree Tobacco
Solanum xanti (xantii var. intermedium)	Purple Nightshade
Tamaricaeae	**Tamarisk Family**
*Tamarix ramossimus	Tamarisk
Urticaceae	**Nettle Family**
*Urtica urens	Dwarf Nettle
Verbenaceae	**Vervain Family**
Verbena lasiostachys var. scabrida	Vervain

MONOCOTS

Juncaceae	**Rush Family**
Juncus mexicanus	Rush
Liliaceae	**Lily Family**
Bloomeria crocea	Common Goldenstar
Calochortus sp.	Mariposa Lily
Chlorogalum pomeridianum	Soap Plant
Dichelostemma capitatum (Brodiaea pulchella)	Blue Dicks
Triteleia (Brodiaea) laxa	Ithuriel's Spear
Yucca whipplei	Our Lord's Candle (Chaparral Yucca)

* denotes exotic species

Poaceae	**Grass Family**
*Arundo donax	Giant Reed
*Avena barbata	Slender Wild Oat
*Avena fatua	Wild Oat
*Bromus madritensis rubens	Red Brome
*Bromus tectorum	Cheat Grass
Distichlis spicata	Saltgrass
Elymus glaucus	Blue Wild Rye
*Holcus lanatus	Common Velvet Grass
Hordeum sp.	Barley
Leymus (Elymus) condensatus	Giant Ryegrass
*Lolium multiflorum (possibly L. rigidum per Hickman p. 1270)	Italian Ryegrass
Melica imperfecta	Oniongrass, Melic
Nassella (Stipa) lepida	Foothill Needlegrass
Poa secunda ssp. secunda (P. scabrella)	One-Sided Bluegrass
Vulpia (Festuca) microstachys	Small Fescue

Nomenclature follows:

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* denotes exotic species

Appendix D

Phase I Cultural and Paleontological Resources Assessment

PHASE I CULTURAL AND PALEONTOLOGICAL RESOURCES ASSESSMENT FOR THE PROPOSED AIDLIN PROPERTY RESIDENTIAL PROJECT (STEVENSON RANCH); COUNTY OF LOS ANGELES, CALIFORNIA

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Tentative Tract Map No. 52796

Newhall and Oat Mountain, CA United States Geological Survey 7.5' Quadrangle, Township 3 North, Range 16 West, Section 6

Project Acreage: 229.6
Surveyed Acreage: Approximately 18.34 acres

Dates Surveyed: April 3-4 and 7, 2014

Resources Identified: 19-101199 and 19-101200

Report Completed: June 2014

EXECUTIVE SUMMARY

Lennar Homes (the "Applicant") is proposing a residential development known as the Aidlin Property Residential Project on an approximately 229.6 acres of land (the "Project site") in an unincorporated area of Los Angeles County, California. The project would include the construction of pads for residences, parks, and streets, and the construction of manufactured slopes (the "Proposed Project"). The Proposed Project would include excavations across the Project site.

PCR Services Corporation (PCR) conducted a Phase I cultural and paleontological resources assessment of the Proposed Project to determine the potential impacts to cultural and paleontological resources for the purpose of complying with the California Environmental Quality Act ("CEQA"). The scope of work for this assessment included a cultural resources records search through the California Historical Resources Information System-South Central Coastal Information Center ("CHRIS-SCCIC"), a paleontological resources records search through the Natural History Museum of Los Angeles County ("NHMLAC"), a Sacred Lands File ("SLF") search through the California Native American Heritage Commission ("NAHC") and follow-up Native American consultation, and a pedestrian survey of the Project site. The assessment also includes the evaluation of eligibility for resources identified within the Project site, impact analyses, and the recommendation of mitigation measures to reduce impacts to resources from the Proposed Project to a less than significant level.

ARCHAEOLOGICAL RESOURCES

One historic archaeological resource (19-101200) was identified within the Project site during the survey. However, since the resource is not considered a historical resource under CEQA, impacts to 19-101200 are not considered a significant impact on the environment and therefore no impacts analysis or mitigation is warranted. These findings, however, do not preclude the existence of undiscovered and buried archaeological resources located below the ground surface and lacking surface manifestation. Although, no standing structures related to the former Larinan Apiary as recorded on its DPR Site Form are currently present within the Project site, it is possible that buried historical archaeological deposits associated with these structures could be encountered during construction excavations associated with the Proposed Project. As a result, recommended mitigation measures are provided in Chapter 9 of this report to reduce potentially significant impacts to previously undiscovered archaeological resources that may be accidentally encountered during project implementation to a less than significant level.

BUILT-ENVIRONMENT HISTORICAL RESOURCES

Results of the records search through the CHRIS-SCCIC revealed that a built-environment resource, the Larinan Apiary, once existed within the Project site. The Larinan Apiary is described as being constructed in 1918 and consisting of a house with a storage shed, a garage, a chicken coop, a plank bridge, a honey house, a corral, and a well head. However, these structures were removed by at least 2005, if not earlier, as McKenna (2005) did not encounter these structures during their pedestrian survey. Since the Larinan Apiary no longer exists, no impacts would result to any above-ground elements of the resource from the Proposed Project excavations.

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EXECUTIVE SUMMARY

Lennar Homes (the "Applicant") is proposing a residential development known as the Aidlin Property Residential Project on an approximately 229.6 acres of land (the "Project site") in an unincorporated area of Los Angeles County, California. The project would include the construction of pads for residences, parks, and streets, and the construction of manufactured slopes (the "Proposed Project"). The Proposed Project would include excavations across the Project site.

PCR Services Corporation (PCR) conducted a Phase I cultural and paleontological resources assessment of the Proposed Project to determine the potential impacts to cultural and paleontological resources for the purpose of complying with the California Environmental Quality Act ("CEQA"). The scope of work for this assessment included a cultural resources records search through the California Historical Resources Information System-South Central Coastal Information Center ("CHRIS-SCCIC"), a paleontological resources records search through the Natural History Museum of Los Angeles County ("NHMLAC"), a Sacred Lands File ("SLF") search through the California Native American Heritage Commission ("NAHC") and follow-up Native American consultation, and a pedestrian survey of the Project site. The assessment also includes the evaluation of eligibility for resources identified within the Project site, impact analyses, and the recommendation of mitigation measures to reduce impacts to resources from the Proposed Project to a less than significant level.

ARCHAEOLOGICAL RESOURCES

One historic archaeological resource (19-101200) was identified within the Project site during the survey. However, since the resource is not considered a historical resource under CEQA, impacts to 19-101200 are not considered a significant impact on the environment and therefore no impacts analysis or mitigation is warranted. These findings, however, do not preclude the existence of undiscovered and buried archaeological resources located below the ground surface and lacking surface manifestation. Although, no standing structures related to the former Larinan Apiary as recorded on its DPR Site Form are currently present within the Project site, it is possible that buried historical archaeological deposits associated with these structures could be encountered during construction excavations associated with the Proposed Project. As a result, recommended mitigation measures are provided in Chapter 9 of this report to reduce potentially significant impacts to previously undiscovered archaeological resources that may be accidentally encountered during project implementation to a less than significant level.

BUILT-ENVIRONMENT HISTORICAL RESOURCES

Results of the records search through the CHRIS-SCCIC revealed that a built-environment resource, the Larinan Apiary, once existed within the Project site. The Larinan Apiary is described as being constructed in 1918 and consisting of a house with a storage shed, a garage, a chicken coop, a plank bridge, a honey house, a corral, and a well head. However, these structures were removed by at least 2005, if not earlier, as McKenna (2005) did not encounter these structures during their pedestrian survey. Since the Larinan Apiary no longer exists, no impacts would result to any above-ground elements of the resource from the Proposed Project excavations.

The pedestrian survey revealed the existence of one built-environment resource (19-101199) along the northeast portion of the Project site. However, since the resource is not considered a historical resource under CEQA, impacts to 19-101199 are not considered a significant impact on the environment and therefore no impacts analysis or mitigation is warranted.

PALEONTOLOGICAL RESOURCES

Although no surficial paleontological resources were discovered during the survey, the records search revealed that the majority of the Project site has exposures of the fossiliferous marine Pliocene Pico Formation which has produced fossil specimens (sea lion, bonito shark, white shark, and whale) from similar deposits in close proximity to the Project site. During the pedestrian survey, several outcrops of the Pico Formation and alluvial sediments were documented on ridgelines and canyon bottoms where they were unobscured by vegetation and modern soil development. The very southwestern portion of the Project site has exposures of the fossiliferous marine latest Miocene to Pliocene Towsley Formation which has also produced fossil specimens (baleen whale, dugong) from similar deposits in close proximity to the Project site. Surface deposits of younger Quaternary Alluvium that exist within the Pico and Wickham Canyon drainages within the Project site are not known to contain significant vertebrate fossils in the uppermost layers and no localities with such deposits exist nearby. However, older Quaternary deposits may well contain significant fossil remains at depth as these deposits have produced a fossil mastodon nearby. Based on the results of the records search, shallow excavations in the younger Quaternary Alluvium in the Pico Canyon and Wickham Canyon drainages are unlikely to yield significant vertebrate fossils. However, deeper excavations in the drainages extending down into older sedimentary deposits (i.e., older Quaternary alluvium), or any excavations in the Pico Formation or Towsley Formation within the Project site have the potential to encounter paleontological resources. As a result, recommended mitigation measures are provided in Chapter 9 of this report to reduce potentially significant impacts to previously undiscovered paleontological resources that may be accidentally encountered during project implementation to a less than significant level.

1.0 INTRODUCTION

1.1 PROPOSED PROJECT AND LOCATION

Lennar Homes (the "Applicant") proposes a residential development known as the Aidlin Property Residential Project on an approximately 229.6 acres of land (the "Project site") near Santa Clarita, California. The Proposed Project would include the construction of pads for residences, parks, and streets, and the construction of manufactured slopes. The Project site is located in the northern foothills of the Santa Susana Mountains in an unincorporated area of Los Angeles County ("County"), known as Stevenson Ranch (**Figure 1,** *Regional Map*). The Project site is located in Section 6 of Township 3 North, Range 16 West of the United States Geological Survey ("USGS") 1952 (photo-revised 1988) Newhall and 1952 (photo-revised 1969) Oat Mountain, California 7.5' topographic quadrangle maps (**Figure 2,** *Vicinity Map*). The Project site is located approximately 1.6 miles west of Interstate 5 ("I-5"). Pico Canyon Road crosses the northeastern portion of the Project site. Residential communities are located east of the Project site while undeveloped foothills are located north, south, and west of the Project site (**Figure 3,** *Aerial Photograph*). The Project site is characterized by undeveloped hilly terrain with moderate to steep slopes, ridgelines and canyons. The Project site is designated by the Land Use Element of the County General Plan for 1 Low Density Residential and R Non-Urban uses. The Project site is located within a Hillside Management Area identified on the Special Management Areas Policy Map of the Open Space and Conservation Element. The site is addressed by the Santa Clarita Valley Area Plan under the land use categories Hillside Management, Urban 2, and Floodway/Floodplain. The site is zoned A-2-2 (Heavy Agricultural Zone).

1.2 PROJECT DESCRIPTION

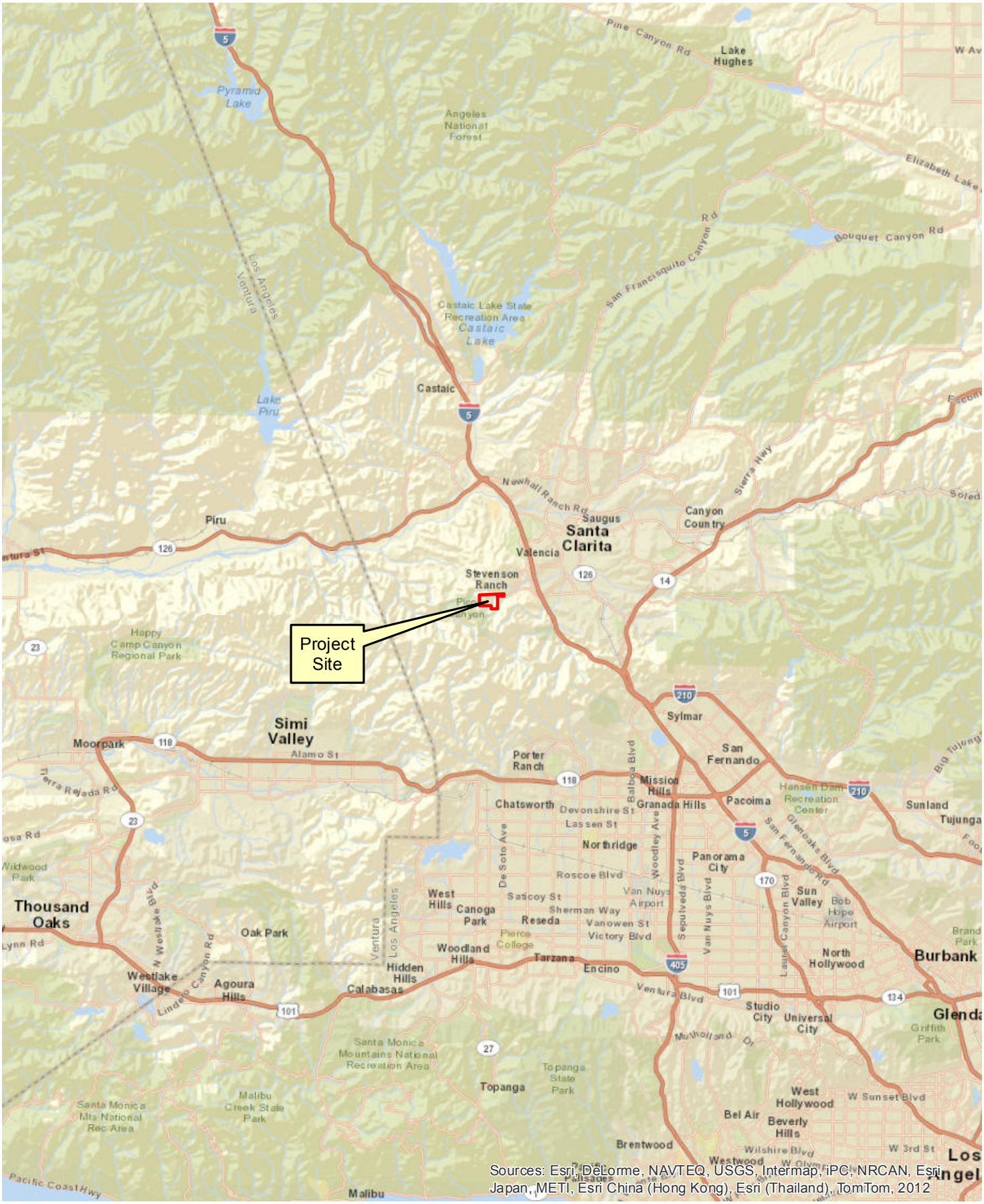
The Proposed Project would include the development of 102 single family residences grouped together in the northeastern portion of the Project site and adjacent to Pico Canyon Road. As Pico Canyon Road has been designated as a major arterial road by the County, the project would also consist of widening the segment of Pico Canyon Road which traverses the Project site and the alignment of the road east of the Project site. In addition, an approximate 15-20 foot unpaved access road would also be maintained to provide access to private properties south of the Project site. The project would also provide approximately 134.3 acres of undeveloped natural area within the southern and western portions of the site. Three parks would also be developed within the Project site. Two of these parks would be located in the cluster of residences, while the third one, a public park would be developed near Pico Canyon Road and would serve as a buffer to the residential development to the east, as well as from Pico Canyon Road. The project would also require the grading of natural topography, including slopes in order to remediate existing geologic conditions and to create stable building pads and roadways. The grading would create a natural interface with ungraded areas and therefore the project would require substantial excavation and recompaction to avoid differential settlement. The project would require approximately 4.1 million yards of earth movement, which would be balanced on site.

1.3 SCOPE OF STUDY AND PERSONNEL

PCR conducted a Phase I cultural resources assessment of the Proposed Project to determine the potential impacts to cultural and paleontological resources associated with the Proposed Project for the purpose of

complying with CEQA and the County's cultural resource guidelines. The scope of work for this assessment included a cultural resources records search through the CHRIS-SCCIC, a SLF records search through the NAHC and follow-up Native American consultation, a paleontological records search through the NHMLAC, a pedestrian survey of the Project site, evaluation of cultural resources, impact analysis, and the recommendation of mitigation measures.

The assessment was managed by PCR archaeologist, Mrs. Fatima Clark. The records searches were conducted by Mrs. Clark and the archaeological pedestrian survey was conducted by Mrs. Clark and Ms. Amber Madrid. The paleontological survey was conducted by Michael Williams, Ph.D. Oversight for the Project was provided by PCR archaeologist, Kyle Garcia. Qualifications of key personnel are provided in Appendix A.



PCR

0 5 Miles 0 10 Kilometers

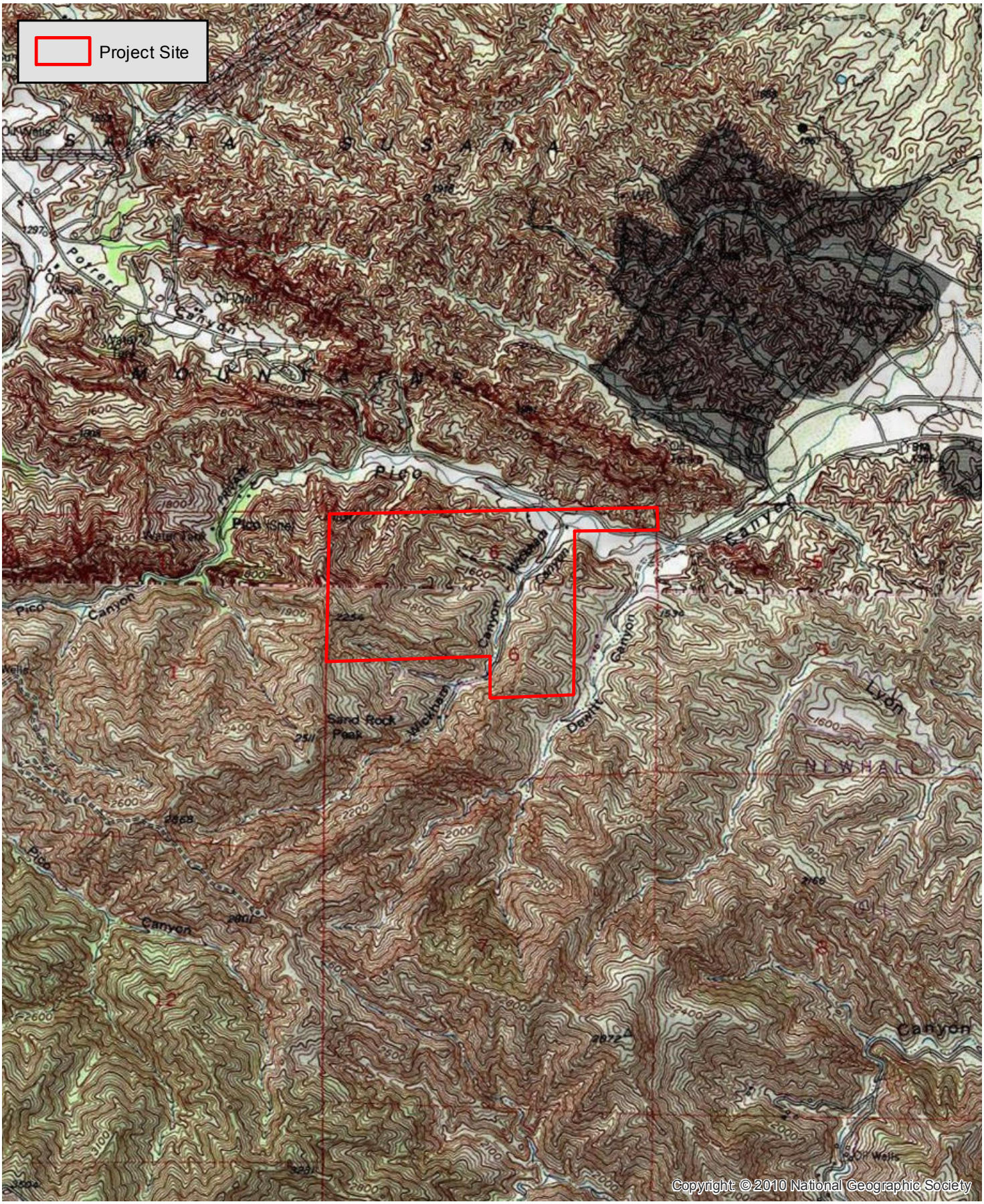
Regional Map

Aidlin Property Residential Project

Source: ESRI Street Map, 2009; PCR Services Corporation, 2014.

FIGURE

1



PCR

N

0 2,000 Feet 0 600 Meters

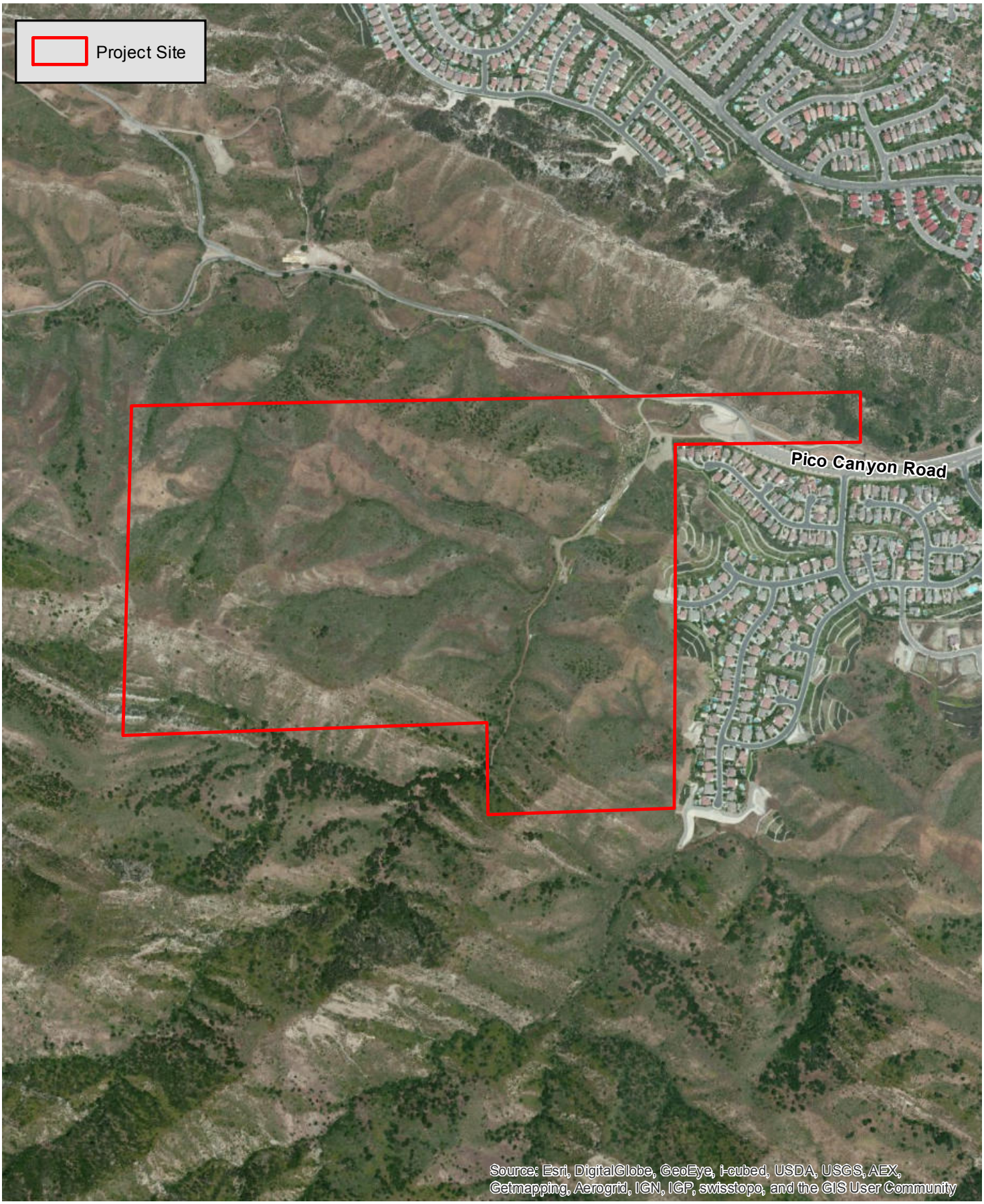
Vicinity Map

Aidlin Property Residential Project

Source: USGS Topographic Series (Newhall, Oat Mountain, CA); PCR Services Corporation, 2014.

FIGURE

2



PCR

N

0 900 Feet 0 300 Meters

Aerial Photograph

Aidlin Property Residential Project

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

3

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2.0 REGULATORY SETTING

Numerous laws and regulations require federal, state, and local agencies to consider the effects of a Proposed Project on cultural resources. These laws and regulations establish a process for compliance, define the responsibilities of the various agencies proposing the action, and prescribe the relationship among other involved agencies (e.g., State Historic Preservation Office and the Advisory Council on Historic Preservation). The National Historic Preservation Act (NHPA) of 1966, as amended, CEQA, and the California Register of Historical Resources (California Register), Public Resources Code (PRC) 5024, are the primary federal and state laws governing and affecting preservation of historic resources of national, state, regional, and local significance. Other relevant regulations at the local level include the Conservation Element of the County's General Plan. A description of the applicable laws and regulations is provided in the following paragraphs.

2.1 STATE LEVEL

2.1.1 California Register of Historical Resources

The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the National Historic Preservation Act on a statewide level. The OHP also maintains the California Historic Resources Inventory. The State Historic Preservation Officer (SHPO) is an appointed official who implements historic preservation programs within the State's jurisdictions.

Created by Assembly Bill 2881, which was signed into law on September 27, 1992, the California Register is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change."[1] The criteria for eligibility for the California Register are based upon National Register criteria.[2] Certain resources are determined by the statute to be automatically included in the California Register, including California properties formally determined eligible for, or listed in, the National Register of Historic Places.[3]

To be eligible for the California Register, a prehistoric or historic property must be significant at the local, state, and/or federal level under one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

[1] *California Public Resources Code § 5024.1(a).*

[2] *California Public Resources Code § 5024.1(b).*

[3] *California Public Resources Code § 5024.1(d).*

4. Has yielded, or may be likely to yield, information important in prehistory or history.

A resource eligible for the California Register must meet one of the criteria of significance described above and retain enough of its historic character or appearance (integrity) to be recognizable as a historical resource and to convey the reason for its significance. It is possible that a historic resource may not retain sufficient integrity to meet the criteria for listing in the National Register, but it may still be eligible for listing in the California Register.

Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. The resource must also be judged with reference to the particular criteria under which it is proposed for eligibility.[4]

Additionally, the California Register consists of resources that are listed automatically and those that must be nominated through an application and public hearing process. The California Register automatically includes the following:

- California properties listed on the National Register and those formally Determined Eligible for the National Register.
- California Registered Historical Landmarks from No. 770 onward.
- Those California Points of Historical Interest that have been evaluated by the OHP and have been recommended to the State Historical Commission for inclusion on the California Register.

Other resources that may be nominated to the California Register include:

- Historical resources with a significance rating of Category 3 through 5.[5]
- Individual historical resources.
- Historical resources contributing to historic districts.
- Historical resources designated or listed as local landmarks, or designated under any local ordinance, such as an historic preservation overlay zone.

2.1.2 California Environmental Quality Act

CEQA is the principal statute governing environmental review of projects occurring in the State. CEQA requires lead agencies to determine if a proposed project would have a significant effect on archaeological resources (PRC Sections 21000 *et seq*.). As defined in Section 21083.2 of the PRC a "unique" archaeological resource is 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:

[4] *Ibid.*

[5] *Those properties identified as eligible for listing in the National Register, the California Register, and/or a local jurisdiction register.*

- Contains information needed to answer important scientific research questions and there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person.

In addition, CEQA Guidelines section 15064.5 broadens the approach to CEQA by using the term "historical resource" instead of "unique archaeological resource." The CEQA Guidelines recognize that certain historical resources may also have significance. The CEQA Guidelines recognize that a historical resource includes: (1) a resource in the California Register of Historical Resources; (2) a resource included in a local register of historical resources, as defined in PRC section 5020.1 (k) or identified as significant in a historical resource survey meeting the requirements of PRC section 5024.1 (g); and (3) any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California by the lead agency, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

If a lead agency determines that an archaeological site is a historical resource, the provisions of section 21084.1 of the PRC and section 15064.5 of the CEQA Guidelines apply. If an archaeological site does not meet the criteria for a historical resource contained in the CEQA Guidelines, then the site is to be treated in accordance with the provisions of PRC section 21083, which is a unique archaeological resource. The CEQA Guidelines note that if an archaeological resource is neither a unique archaeological nor a historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. (CEQA Guidelines §15064.5(c)(4)).

2.1.3 Paleontological Resources

Paleontological resources are also afforded protection under CEQA. Appendix G (part V) of the CEQA Guidelines provides guidance relative to significant impacts on paleontological resources, which states, "a project will normally result in a significant impact on the environment if it will …disrupt or adversely affect a paleontological resource or site or unique geologic feature, except as part of a scientific study." Section 5097.5 of the PRC specifies that any unauthorized removal of paleontological remains on state lands is a misdemeanor. Further, the California Penal Code Section 622.5 sets the penalties for damage or removal of paleontological resources.

2.2 LOCAL LEVEL

2.2.1 Santa Clarita Valley Area Plan

The Santa Clarita Valley Area Plan Update (Plan Update) of Los Angeles County was adopted in 2012 and recognizes the Conservation and Open Space Element (Element). The Background section of the Element contains a subsection for cultural and historical resources, as well as biological resources, soil and geological resources, water, quality and conservation, air quality, energy conservation, and climate change; parks, recreation and trails; and open space conservation. The Cultural and Historical Resources section of the Element acknowledges that the Native American Heritage Commission has identified three sites of Native

American cultural significance near the Santa Clara River. One of the most important sites mentioned is the Bowers Cave near Val Verde, which yielded one of the most significant assemblages of Native American religious and ceremonial artifacts. The Identification of Historical Sites section of the Element also mentions that the Valley's historical heritage is listed in the City of Santa Clarita's General Plan and includes dozens of "significant historical properties, sites and landmarks in the planning area," which are also included in the Element (Los Angeles County 2012: 150). The Historic and Preservation Efforts section also indicates that in 1975 the Santa Clarita Valley Historical Society was formed to identify, preserve and protect historical structures and sites in the Valley (Los Angeles County 2012).

3.0 ENVIRONMENTAL SETTING

The Project site is located in the northern foothills of the Santa Susana Mountains and is characterized by undeveloped hilly terrain with moderate to steep slopes, ridgelines and canyons. Wickham Canyon and Pico Creek are located within the Project site boundaries. Pico Canyon Road follows Pico Creek in the north and Wickham Canyon crosses the Project site in a roughly northerly direction slightly to the east of center. Two unnamed and lesser canyons enter Wickham Canyon from the west. The Project site is located approximately three miles south of the Santa Clara River.

The Project site is known to fall within the western Mojave Desert. The nearby Soledad Canyon connects the eastern open desert with the San Fernando Valley areas. Northeast of the Project site, the Mojave Desert region is geologically known as being a wedge-shaped fault block and it is bounded by the San Andreas and Garlock fault zones, on the southwest and north, respectively. The Mojave Desert is distinguished by north-south trending mountain ranges. The climate in the vicinity of the Project site is explained as sub-arid and transitioning from the colder climate of the close by Great Basin and the subtropical climate of the Sonoran Desert (McKenna et al. 2005).

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4.0 CULTURAL SETTING

4.1 PREHISTORIC BACKGROUND

Prehistory is most easily discussed chronologically, in terms of environmental change and recognized cultural developments. Several chronologies have been proposed for inland Southern California, the most widely accepted of which is Wallace's four-part Horizon format (1955), which was later updated and revised by Claude Warren (1968). The advantages and weaknesses of Southern California chronological sequences are reviewed by Warren (in Moratto 1984), Chartkoff and Chartkoff (1984), and Heizer (1978). The following discussion is based on Warren's (1968) sequence, but the time frames have been adjusted to reflect more recent archaeological findings, interpretations, and advances in radiocarbon dating.

4.1.1 Paleo-Indian Period (ca. 13,000-11,000 years before present [YBP])

Little is known of Paleo-Indian peoples in inland southern California, and the cultural history of this period follows that of North America in general. Recent discoveries in the Americas have challenged the theory that the first Americans migrated from Siberia, following a route from the Bering Strait into Canada and the Northwest Coast some time after the Wisconsin Ice Sheet receded (ca. 14,000 YBP), and before the Bering Land Bridge was submerged (ca. 12,000 YBP). Based on new research from the Pacific Rim, it has been proposed that modern humans settled islands of the eastern Pacific between 40,000 and 15,000 years ago. Evidence of coastal migration has also come from sites on islands off Alta and Baja California. As a result, these sites are contemporary with Clovis and Folsom points found in North America's interior regions. All of these new findings have made the coastal migration theory gain credibility in recent times (Erlandson et al. 2007).

The timing, manner, and location of this crossing are a matter of debate among archaeologists, but the initial migration probably occurred as the Laurentide Ice Sheet melted along the Alaskan Coast and interior Yukon. The earliest radiocarbon dates from the Paleo-Indian Period in North America come from the Arlington Springs Woman site on Santa Rosa Island. These human remains date to approximately 13,000 YBP (Johnson, et al. 2002). Other early Paleo-Indian sites include the Monte Verde Creek site in Chile (Meltzer, et al. 1997) and the controversial Meadowcroft Rockshelter in Pennsylvania. Both sites have early levels dated roughly at 12,000 YBP. Lifeways during the Paleo-Indian Period was characterized by highly mobile hunting and gathering. Prey included megafauna such as mammoth and technology included a distinctive flaked stone toolkit that has been identified across much of North America and into Central America. They likely used some plant foods, but the Paleo-Indian toolkit recovered archaeologically does not include many tools that can be identified as designed specifically for plant processing.

The megafauna that appear to have been the focus of Paleo-Indian life went extinct during a warming trend that began approximately 10,000 years ago, and both the extinction and climatic change (which included warmer temperatures in desert valleys and reduced precipitation in mountain areas) were factors in widespread cultural change. Subsistence and social practices continued to be organized around hunting and gathering, but the resource base was expanded to include a wider range of plant and game resources. Technological traditions also became more localized and included tools specifically for the processing of

plants and other materials. This constellation of characteristics has been given the name "Archaic" and it was the most enduring of cultural adaptations to the North American environment.

4.1.2 Archaic Period (ca. 11,000-3,500 YBP)

The earliest Archaic Period life in inland southern California has been given the name San Dieguito tradition, after the San Diego area where it was first identified and studied (Warren 1968). Characteristic artifacts include stemmed projectile points, crescents and leaf-shaped knives, which suggest a continued subsistence, focus on large game, although not megafauna of the earlier Paleo-Indian period. Milling equipment appears in the archaeological record at approximately 7,500 years ago (Moratto 1984:158). Artifact assemblages with this equipment include basin milling stones and unshaped manos, projectile points, flexed burials under cairns, and cogged stones, and have been given the name La Jolla Complex (7,500–3,000 YBP). The transition from San Dieguito life to La Jolla life appears to have been an adaptation to drying of the climate after 8,000 YBP, which may have stimulated movements of desert peoples to the coastal regions, bringing milling stone technology with them. Groups in the coastal regions focused on mollusks, while inland groups relied on wild-seed gathering and acorn collecting.

4.1.3 Late Prehistoric Period (ca. 3,500 YBP-A.D. 1769)

Cultural responses to environmental changes around 4,000–3,000 YBP included a shift to more land-based gathering practices. This period was characterized by the increasing importance of acorn processing, which supplemented the resources from hunting and gathering. Meighan (1954) identified the period after A.D. 1400 as the San Luis Rey complex. San Luis Rey I (A.D. 1400–1750) is associated with bedrock mortars and milling stones, cremations, small triangular projectile points with concave bases and Olivella beads. The San Luis Rey II (A.D. 1750–1850) period is marked by the addition of pottery, red and black pictographs, cremation urns, steatite arrow straighteners and non-aboriginal materials (Meighan 1954:223, Keller and McCarthy 1989:6). Work at Cole Canyon and other sites in southern California suggests that this complex, and the ethnographically described life of the native people of the region, were well established by at least 1,000 YBP (Keller and McCarthy 1989:80).

4.1.4 Ethnographic Context

The Project site is known to have been inhabited by the Native American group ethnographically known as the Tataviam. This Native American group is known to have lived mainly on the upper reaches of the Santa Clara River drainage east of Piru Creek. Although it is also known that their territory reached the Sawmill Mountains to the north. The Tatavium were surrounded by various Chumash groups to the west and to the south by various Gabrielino-speaking groups.

The Tataviam relied primarily on vegetable foods such as the buds of *Yucca whipplei*, acorns, juniper berries, sage seeds, and islay berries. Animal foods consisted of small mammals, deer, and antelope. Information recovered from Bowers's Cave located between Piru and Newhall suggests that there are major similarities among the Tataviam, Chumash and Gabrielino ritual organization. Ritual paraphernalia similar to that described by the Ventureño Chumash used by secret society members in the performance of ceremonies was found at Bowers's Cave. In addition, the Tataviam also appeared to have held their annual mourning ceremony in the late summer or early fall, just as did their southern neighbors. During historic times and by 1810, all the Tataviam had been baptized at the San Fernando Mission. By 1834, the descendants of the Tataviam had married into other groups at the mission or in the Tejon Region. By 1916, the last speaker of

Tataviam language had passed away. The San Fernando Mission registers are one of the main sources of data which still have not been investigated and which could yield information regarding village size, intermarriage, and distribution patterns for the Tatavium (King and Blackburn 1978).

4.1.5 European Contact

European exploration of the inland southern California began in the 1770s with expeditions of Captain Pedro Fages and Juan Bautista de Anza. Anza's journals are the first documented record of the area. The Spanish did not establish any missions in the project vicinity and so the effects of the mission system on the native inhabitants of the area were somewhat delayed until the early 1800s. The missions with the greatest influence on the project area were Mission San Gabriel, which is located 43 miles southeast from the Project site. Spanish soldiers and missionaries likely traveled through the area on their way to visit various missions and outposts in the vicinity. In the beginning of the nineteenth century, some Spaniards who had worked at the missions began to set up what would later be known as the "Ranchos." The Rancho era in California history was the period when the entire state was divided into large parcels of land equaling thousands of acres apiece. These large estates were ruled over in a semi-feudal manner by men who had been deeded the land by the first the Spanish crown, and later the Mexican government. In 1821, Mexico won independence from Spain and began to dismantle the mission system in California. As the missions began to secularize, they were transformed into small towns. It was during this time that "Americans" began to enter California. Many of the American Californians married into the Rancho families, a development that would transform land ownership in Mexican California. By the time the United States annexed California after the Mexican-American War, much of the Rancho lands were already in the hands of Americans.

Multiple epidemics took a great toll on Native American populations between approximately 1800 and the early 1860s (Porretta 1983), along with the cultural and political upheavals that came with European, Mexican, and American settlement (Goldberg 2001:50-52).

4.2 HISTORIC BACKGROUND

4.2.1 Pico Canyon

The Project site is located within an area known as Pico Canyon in the Santa Clarita Valley. Pico Canyon was named after Andres Pico, the younger brother of Pio Pico. Pico served as a commander during the Mexican-American War. As has been suggested, " Andres Pico knew the locality now called Pico Cañon…and has made oil for San Fernando Mission in a small way…He was probably the pioneer of coal oil manufacturer of the State" (Gudde 1969:245).

According to the data on file at the Bureau of Land Management General Land Office, the Project site was associated with two homestead properties. Specifically, the northern portion of Section 6 (about 40.8 acres of land) was claimed by Joseph George Hart in 1918. South of Hart's homestead, Roscoe Overman claimed 158 acres of land.

5.0 METHODS

5.1 CULTURAL RESOURCES RECORDS SEARCH

On March 4, 2014, Mrs. Clark conducted a cultural resource records search of the Project site at the CHRIS-SCCIC at California State University Fullerton. The records search included a review of all recorded archaeological sites within a one-half mile radius of the Project site as well as a review of cultural resource reports and historic topographic maps on file. In addition, PCR reviewed the California Points of Historical Interest ("CPHI"), the California Historical Landmarks ("CHL"), the California Register, the National Register of Historic Places ("National Register"), and the California State Historic Resources Inventory ("HRI") listings. The purpose of the record search is to determine whether or not there are previously recorded archaeological or built-environment resources within the Project site that require evaluation and treatment. The results also provide a basis for assessing the sensitivity of the Project site for additional and buried cultural resources.

5.2 PALEONTOLOGICAL RESOURCES RECORDS SEARCH

On March 4, 2014, Mrs. Clark commissioned a paleontological resources records search through the NHMLAC. This records search entailed an examination of current geologic maps and known fossil localities inside and within the general vicinity of the Project site. Results of the record search indicate whether or not there are previously recorded paleontological resources or fossiliferous geological formations within the Project site. The results also provide a basis for assessing the sensitivity of the Project site for additional and buried paleontological resources.

5.3 SACRED LANDS FILE SEARCH AND NATIVE AMERICAN CONSULTATION

On March 4, 2014, Mrs. Clark commissioned a SLF records search of the Project site through the NAHC in Sacramento, California and conducted follow-up consultation with Native American groups and/or individuals identified by the NAHC as having affiliation with the Project site vicinity. Each Native American group and/or individual listed was sent a project notification letter and map and was asked to convey any knowledge regarding prehistoric or Native American resources (archaeological sites, sacred lands, or artifacts) located within the Project site or surrounding vicinity. The letter included information such as Project site location and a brief description of the Proposed Project. Results of the search and follow-up consultation will provide information as to the nature and location of additional prehistoric or Native American resources to be incorporated in the assessment whose records may not be available at the CHRIS-SCCIC.

5.4 PEDESTRIAN SURVEY

On April 3 and 4, 2014, Mrs. Clark and Ms. Madrid conducted a cultural resources pedestrian survey of the Project site. The pedestrian survey consisted of an intensive investigation of flat areas, ridge lines, canyons, and drainages. Due to the steep slopes and densely vegetated areas that inhibited access and obstructed ground surface visibility, some areas of the Project site were not surveyed. Where possible, PCR surveyed the Project site in transect intervals spaced at 10 to 15 meters apart. These transect intervals were reduced

in most areas given the steep topography, dense vegetation and limited space along the ridge lines and drainages. A Trimble® GeoXT™ sub-meter Global Positioning System (GPS) unit was used for navigation and documenting distribution of the Project site conditions. Detailed notes and digital photographs were also taken of the project site and surrounding vicinity.

On April 7, 2014, Dr. Williams performed a paleontological survey of the Project site. The survey included walking along the road and ridgelines. The rugged terrain and dense vegetation in the Project site prevented a comprehensive survey of much of the surficial sediments; however, all exposed rock units were surveyed for paleontological resources and examined to determine their likelihood of yielding significant paleontological resources. Photographs were taken using a Motorola Droid Razr M with an 8.0 Megapixel digital camera, and Global Positioning System (GPS) coordinates were plotted using Locus Map Pro – Outdoor GPS application.

6.0 RESULTS

6.1 CULTURAL RESOURCES RECORDS SEARCH

The records search from the CHRIS-SCCIC indicates that a total of 11 cultural resource studies have been conducted within the one-half mile radius of the Project site. These studies were conducted from 1979 to 2011 and encompass approximately 25 percent of the one-half mile radius.

The results of the records search indicate that one study (Peak and Associates 1992) only covered a small portion of the Project site. The study by Peak and Associates (1992) consisted of a cultural resource assessment for the proposed Pacific Pipeline oil transportation project and yielded the identification of one prehistoric resource within the one-half mile radius of the Project site. Two other studies (Maxon 1999 and McKenna 2005) have previously encompassed the entire Project site boundaries. The study by Maxon (1999) consisted of a cultural resources reconnaissance and yielded the identification of the Larinan Apiary and a riveted iron standpipe identified as an exploratory oil well, which was never exploited, within the Project site. The Larinan Apiary is described as being constructed in 1918 and consisting of a house with a storage shed, a garage, a chicken coop, a plank bridge, a honey house, a corral, and a well head. The Larinan Apiary was described as located immediately east of a main dirt road through Wickham Canyon and the riveted iron pipe approximately 1,000 feet south of the Larinan Apiary. The Larinan Apiary and the exploratory oil well were evaluated in 1999 by a professional historian that concluded that these structures were not eligible for the National Register or a local ordinance, but eligible for special consideration in local planning (Gregory 1999). Gregory (1999) also recommended that the structures were of minor local significance under Criterion A of the California Register but recommended complete documentation of the resource and the production of a detailed historic report of the Larinan Apiary property.

The study by McKenna (2005) previously encompassed the entire Project site and yielded negative results for prehistoric archaeological resources. No evidence of the Larinan Apiary complex was found and the author mentioned that the structures had been removed prior to the survey (McKenna 2005).

The records search also revealed the existence of one prehistoric archaeological site (CA-LAN-1020) and one California Registered Historical Landmark (19-186568) within the one-half mile radius of the Project site. None of these resources are located near or within close proximity to the Project site, and therefore would not be impacted by the Proposed Project. No other resources from the California Register, National Register, CPHI, CHL, or HRI listings were recorded within the Project site.

6.2 PALEONTOLOGICAL RESOURCES RECORDS SEARCH

Results of the paleontological resources records search revealed that the majority of the Project site has exposures of the marine Pliocene Pico Formation. The closest fossil locality from the Pico Formation is a generalized locality (LACM 6365) possibly located within the northern portion of the Project site, and it produced the skull of an undetermined sea lion. The next closest localities are LACM 1931 and 3494 located approximately eight miles southwest between Las Llajas Canyon and Chivo Canyon that produced fossil specimens of bonito shark, white shark, and right whale. The next closest fossil locality is LACM 5456 located approximately 22 miles south of the Project site in Brown Canyon and it produced a skull of a sea

lion. The very southwestern portion of the Project site has exposures of the marine latest Miocene to Pliocene Towsley Formation. The closest vertebrate fossil locality from the Towsley Formation (LACM 7421) is located approximately 7.5 miles southeast of the Project site, and it produced a fossil of a primitive baleen whale. The next closest locality from the Towsley Formation is LACM (CIT) 441,approximately six miles northeast and it produced fossil specimens of the dugong.

Surface deposits of younger Quaternary Alluvium exist within the Pico and Wickham Canyon drainages within the Project site. These younger Quaternary Alluvium deposits are not known to contain significant vertebrate fossils in the uppermost layers and no localities with such deposits exist nearby. However, older deposits may well contain significant fossil remains at depth. The closest vertebrate fossil locality from older Quaternary deposits (LACM 7594) is located approximately eight miles southwest of the Project site in Simi Valley and it produced a mastodon specimen. Shallow excavations in the younger Quaternary Alluvium in the Pico Canyon and Wickham Canyon drainages are unlikely to yield significant vertebrate fossils. However, deeper excavations in the drainages extending down into older sedimentary deposits, or any excavations in the Pico Formation or Towsley Formation within the Project site may uncover significant fossil specimens.

The paleontological resources record search results are provided in Appendix B of this report.

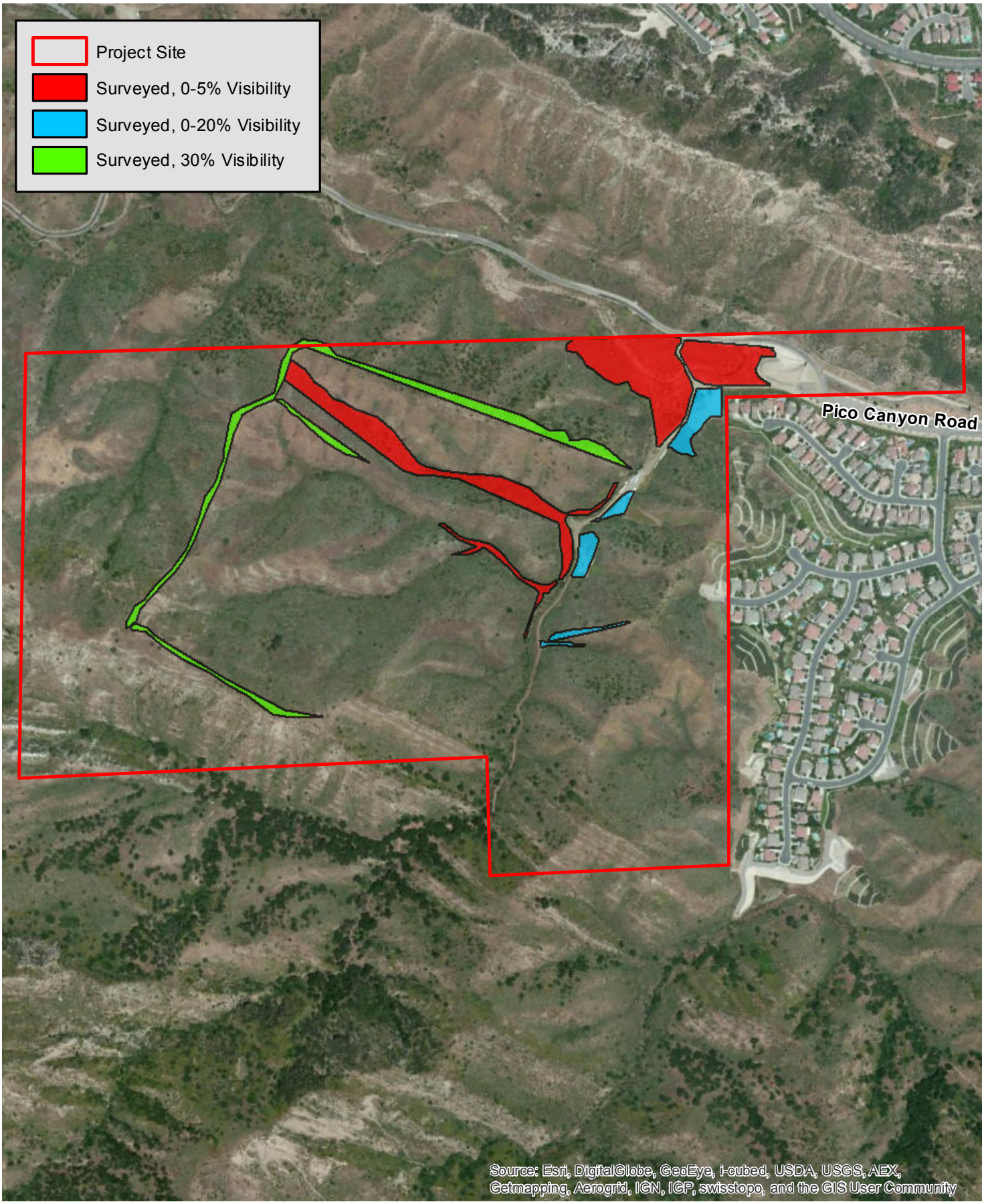
6.3 SACRED LANDS FILE SEARCH AND NATIVE AMERICAN CONSULTATION

Results of the SLF search through the NAHC did not indicate known Native American cultural resources from the NAHC archives within the Project site. The NAHC results letter can be found as an attachment to this report. The NAHC results also noted, however, that "the absence of archaeological and/or Native American cultural resources does not preclude their existence at the subsurface level" (Singleton 2014). Pursuant to NAHC suggested procedure, letters were sent via certified mail on April 1, 2014 to the nine Native American contacts identified by the NAHC as being affiliated with the vicinity of the Project site to request any additional information or concerns they may have about Native American cultural resources that may be affected by the proposed Project. On April 8, 2014, PCR received a phone call from Mr. Freddie Romero from the Santa Ynez Tribal Elders Council regarding the Proposed Project. Mr. Romero mentioned that he defers any comments regarding the project to the other tribes in the area. On April 12, 2014, PCR received a letter from the Fernandeño Tataviam Band of Mission Indians indicating that the Project site has been identified as breaking ground into traditional Tataviam tribal lands and that the Project could disturb culturally sensitive deposits. On April 21, 2014, PCR contacted Kimia Fatehi, representative for the Tataviam Band to request any additional comments or concerns. Ms. Fatehi indicated that the Project site overlaps with the culturally sensitive site of Tochonanga and because of this reason, the tribe requests tribal monitors to ensure that cultural artifacts don't go unnoticed.

The Native American consultation documentation is provided in Appendix C of this report.

6.4 PEDESTRIAN SURVEY

PCR surveyed approximately 20 percent of the Project site due to the constraints posed by steep slopes and dense vegetation within the Project site, which made surveying in these areas not feasible. Where feasible, PCR surveyed flat areas, ridge lines, canyons, and areas adjacent to drainages. Ground surface visibility for most of the Project site ranged from zero to 30 percent (**Figure 4**, *Survey Coverage and Visibility Map*).



PCR

N

0 700 Feet

0 200 Meters

Survey Coverage and Ground Visibility Map

Aidlin Property Residential Project

Source: Microsoft, 2010 (Aerial); PCR Services Corporation, 2014.

FIGURE

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Ground surface visibility for the dirt roads within the Project site was between 50 to 100 percent, which is equivalent to less than five percent of surface area within the Project site. The limited ground surface visibility for most of the Project site is a result of very dense and tall vegetation (**Figure 5**, *Project Site Photographs,* Photographs 1-5, **Figure 6**, Photograph 6).

During the pedestrian survey, PCR conducted a close-interval survey (i.e., less than 5-meter transects between surveyors) of the areas where the structures associated with the Larinan Apiary once existed. No prehistoric archaeological or paleontological resources were identified during PCR's pedestrian survey of the Project site. However, one built-environment resource (19-101199) and a historic archaeological resource (19-101200) were identified along the northeast portion of the Project site. These resources are described in detail, below:

6.4.1 19-101199

This built-environment resource consists of a brick-lined well plastered with cement that was identified near the intersection of the two dirt access roads in the Project site. The well is approximately four feet in diameter and approximately 12 feet deep. Modern refuse, metals, wood, bottles, and rocks were observed inside the well, and a metal pipe protrudes from the ground immediately adjacent to the well. The well is also located in close proximity to the previously recorded honey house which forms part of the Larinan Apiary (as described in Section 6.1 of this report, above) identified by Maxon (1999) and recorded by Gregory (1999). However, the well is not described in the Department of Parks and Recreation (DPR) Site Form for the Larinan Apiary. Since it appears that the well is associated with the Larinan Apiary given its proximity to the former complex, the well is likely over 45 years of age and therefore PCR has recorded it on a DPR form that can be found in Appendix D (**Figure 6**, *Project Site Photographs*, Photographs 7-8).

6.4.2 19-101200

The remnants of concrete foundation reinforced with metal rebar were identified approximately 160 feet south of the intersection of the two dirt roads and within close proximity to the second entrance gate in the Project site. The foundation debris appears to have been dumped on top of large boulders which form part of a drainage located nearby and are compacted with dirt. It is possible that the foundation debris is related

to the honey house or corral that once existed nearby for the Larinan Apiary. As a result of this, PCR has recorded it on a DPR form that can be found in Appendix D (See Figure 6, Photograph 9).

6.4.3 Other Items

Other debris consisting of granite chunks, concrete chunks, cinder blocks, metal rebar, and large asphalt chunks were found in the northeast portion of the Project site. This debris appeared to be the result of modern refuse dumping. Modern refuse dumps consisting of broken pieces of glass, pieces of plastic, broken pieces of ceramic pipe, etc., were also found along the main dirt road which traverses north-south in the Project site.

6.4.4 Paleontological Resources

During the paleontological survey, no surficial paleontological resources were documented. Due to extensive vegetative cover and rugged terrain with steep slopes, not all areas of the proposed project were able to be surveyed; however, several outcrops of the Pico Formation and alluvial sediments were documented on ridgelines and canyon bottoms where they were unobscured by vegetation and modern soil development. A resistant fine- to coarse-grained outcrop of Pico Formation sandstone was noted on a ridgeline west of Wickham Canyon **(Figure 7**, *Project Site Photographs,* Photograph 10). Fine-grained, weathered, silty-shales with scattered gypsum were documented along a west-southwest striking ridge along the southern boundary of the proposed project. Alluvial sediments were present along the road at the bottom of Wickham Canyon. These sediments consisted of a mixture of cobbles, gravels, and coarse sands in a finer-grained matrix and were moderately cemented (see Figure 7, Photograph 11).

Photograph 1: Overview of flat area in northern portion of the Project Site, view southeast.

Photograph 2: Thick and tall vegeation in Project Site, view east.

Photograph 3: Close-up of canyon with surveyor in the background walking down, view east.

Photograph 4: Overview of ridge lines in the Project site, facing down and east

PCR

Project Site Photographs

Aidlin Residential Project

Source: PCR Services Corporation, 2014.

FIGURE

5

Photograph 5: Close-up of ground surface on ridge line.

Photograph 6: Overview of road along eastern portion of the Project site, view north.

Photograph 7: Overview of built environment resource (well) in Project site, view northwest.

Photograph 8: Close-up of well in Project site.

PCR

Project Site Photographs

Aidlin Residential Project

Source: PCR Services Corporation, 2014.

FIGURE

6

Photograph 9: Overview of concrete foundation with rebar, view south.

Photograph 10: Close up of outcrop of Pico Formation sandstone observed along a ridgeline.

Photograph 11: Alluvial sediments found along the road at the bottom of Wickham Canyon.

PCR

Project Site Photographs

Aidlin Residential Project

Source: PCR Services Corporation, 2014.

FIGURE

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7.0 EVALUATION

Evaluation of cultural resources is determined by conducting an "evaluation" of a resource's eligibility for listing in the California Register; determining whether it qualifies as a "unique archaeological resource"; and determining whether the resource retains integrity. This is achieved by applying the California Register criteria (including criteria for a "unique archaeological resource") to the resources as defined in Chapter 2 of this report. If a resource is determined eligible for listing in the California Register or qualifies as a "unique archaeological resource", then the resource is considered an archaeological resource and/or a historical resource pursuant to CEQA §15064.5 and any substantial adverse change to the resource is considered a significant impact on the environment. The CEQA guidelines do not provide criteria to evaluate paleontological resources.

7.1 ARCHAEOLOGICAL RESOURCES

As discussed in the previous Chapter, no known prehistoric or historic archaeological resources from the SCCIC records were recorded within the Project site and no prehistoric archaeological resources were identified during the pedestrian survey. However, one historic archaeological resource was identified within the Project site during the survey. This resource, a concrete foundation debris concentration, is evaluated below.

7.1.1 19-101200

The remnants of concrete foundation reinforced with metal rebar were identified approximately 160 feet south of the intersection of the two dirt access roads and within close proximity to the second entrance gate in the Project site. It is possible that the foundation debris is associated with the honey house or corral that once existed nearby for the Larinan Apiary. Steel-reinforced concrete is a specific type of building material that has fibers of strong steel rebar added to it while it is wet which increases the strength and durability of the concrete. The use of steel-reinforced concrete became prevalent in the 1900s in the United States (Ezine 2014). Although it is possible that the foundation debris is associated with the honey house or corral of the former Larinan Apiary, the debris has been displaced from its original location, does not retain integrity, and does not meet any of the four eligibility criteria. As a result, the resource is not eligible for the California Register nor does it qualify as a unique archaeological resource and therefore is not a historical resource under CEQA and impacts to the resource are not considered a significant impact on the environment.

7.2 BUILT-ENVIRONMENT HISTORICAL RESOURCES

7.2.1 19-101199

The pedestrian survey revealed the existence of a brick-lined well plastered with cement, located near the intersection of two dirt access roads in the northeast portion of the Project site. The well is approximately four feet in diameter and approximately 12 feet deep. Although this well was never recorded as being part of the former Larinan Apiary structures, the honey house is located in close proximity to the well, and there are no other structures in the Project site that the well could be associated with. The well is in good condition and retains integrity of structure but it does not appear to be made in a distinctive style or form as it appears to be consistent with rural wells in the region. Moreover, the well is not associated with events that have

made a significant contribution to the broad patterns of California's history; is not associated with the lives of persons important in our past; does not embody characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, and is not likely to yield information important in history. As a result, the resource is not eligible for the California Register nor does it qualify as a unique archaeological resource and therefore is not a historical resource under CEQA and impacts to the well are not considered a significant impact on the environment.

7.3 PALEONTOLOGICAL RESOURCES

As discussed in the previous Chapter, no known paleontological resources from the NHMLAC records were recorded within the Project site and no resources were identified during the pedestrian survey; therefore, no evaluation of paleontological resources is necessary.

8.0 IMPACTS/EFFECTS ANALYSIS

The purpose of this Chapter is to discuss the potential impacts to archaeological resources, historical resources, paleontological resources, and human remains associated with implementing the Proposed Project.

8.1 CEQA SIGNIFICANCE THRESHOLDS

8.1.1 Archaeological Resources

The current CEQA Guidelines state that a project will have a significant impact on the environment if it ***will cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5.***

According to the CEQA Guidelines, an archaeological resource is further defined as a resource that qualifies as a "historical resource"[6] pursuant to CEQA Guidelines Section 15064.5 or a "unique archaeological resource" pursuant to Section 21083.2 of the Public Resources Code. These terms are defined earlier in this report. Therefore, a project will have a significant impact on the environment if it will cause a "substantial adverse change" in the significance of a historical resource or "damage" to a unique archaeological resource.

A "substantial adverse change" (as defined in the CEQA Guidelines) is caused when one or more of the following occurs:

- Substantial adverse change in the significance of an historical resource 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.

- The significance of a historical resource is materially impaired when a project:

    a. 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

    b. 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 a 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

    c. 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

[6] *A historical resource can be an archaeological object, site or district that is listed in or determined eligible for the CRHR.*

inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

The CEQA Guidelines do not define "damage" when it comes to unique archaeological resources, but it can be reasonably interpreted as having a meaning similar to that of "substantial adverse change" (as defined above).

8.1.2 Historical Resources

The current CEQA Guidelines state that a project will have a significant impact on the environment if it ***will cause a substantial adverse change in the significance of a historical resource as defined in §15064.5.***

According to the CEQA Guidelines, a historical resource is further defined as a resource that qualifies for listing in the California Register or another federal or local register. The criteria for listing are defined earlier in this report. Therefore, a project will have a significant impact on the environment if it will cause a "substantial adverse change" in the significance of a historical resource. The definition of "substantial adverse change" is provided in the previous section, 8.1.1.

The *Secretary of the Interior's Standards for Rehabilitation* (Standards) are codified at 36 Code of Federal Regulations (CFR) Section 67.7. In most circumstances, the Standards are relevant in assessing whether there is a substantial adverse change under CEQA. Section 15064.5b(3) of the CEQA Guidelines states in part that ". . . a project that follows the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* or the *Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings* (1995), Weeks and Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historic resource," and therefore may be considered categorically exempt.

8.1.3 Paleontological Resources

The current CEQA Guidelines state that a project will have a significant impact on the environment if it ***will directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.***

The CEQA Guidelines do not define "directly or indirectly destroy," but it can be reasonably interpreted as the physical damage, alteration, disturbance, or destruction of a paleontological resource.

8.1.4 Human Remains

The current CEQA Guidelines state that a project will have a significant impact on the environment if it ***will disturb any human remains, including those interred outside of formal cemeteries.***

The CEQA Guidelines do not define "disturb" but it can be reasonably interpreted as the physical damage, alteration, disturbance, or destruction of any human remains.

8.2 POTENTIAL IMPACTS

8.2.1 Project Description

The Proposed Project proposes the development of 102 single family residences grouped together in the northeastern portion of the Project site and adjacent to Pico Canyon Road. As Pico Canyon Road has been designated as a major arterial road by the County, the project would also consist of widening the segment of Pico Canyon Road which traverses the Project site and the alignment of the road east of the Project site. In addition, an approximate 15-20 foot unpaved access road would also be maintained to provide access to private properties south of the Project site. The project would also provide approximately 134.3 acres of undeveloped natural area within the southern and western portions of the site. Three parks would be developed within the Project site. Two of these parks would be located in the cluster of residences, while the third one, a public park would be developed near Pico Canyon Road and would serve as a buffer to the residential development to the east, as well as from Pico Canyon Road. The project would also require the grading of natural topography, including slopes in order to remediate existing geologic conditions and to create stable building pads and roadways. The grading would create a natural interface with ungraded areas and therefore the project would require substantial excavation and recompaction to avoid differential settlement. The project would require approximately 4.1 million yards of earth movement, which would be balanced on site.

8.2.2 Archaeological Resources

As discussed earlier in this report, one historic archaeological resource (19-101200) was identified within the Project site during the survey. However, since the resource is not considered a historical resource under CEQA, impacts to 19-101200 are not considered a significant impact on the environment and therefore no impacts analysis or mitigation is warranted. These findings, however, do not preclude the existence of undiscovered and buried archaeological resources located below the ground surface and lacking surface manifestation. Although, no standing structures related to the Larinan Apiary as recorded on its DPR Site Form are currently present within the Project site, it is possible the buried historical archaeological deposits associated with these structures could be encountered during construction excavations associated with the proposed project. As a result, recommended mitigation measures are provided in the following chapter to reduce potentially significant impacts to previously undiscovered archaeological resources that may be accidentally encountered during project implementation to a less than significant level.

8.2.3 Built-Environment Historical Resources

As discussed earlier, the Larinan Apiary and related structures once existed within the boundaries of the Project site. However, these structures were removed by at least 2005, if not earlier, as McKenna (2005) did not encounter these structures during their pedestrian survey. Since the Larinan Apiary no longer exists, no impacts would result to any above-ground elements of the resource from the Proposed Project excavations.

The pedestrian survey conducted by PCR revealed the existence of one built-environment resource (19-101199) along the northeast portion of the Project site. However, since the resource is not considered a historical resource under CEQA, impacts to 19-101199 are not considered a significant impact on the environment and therefore no impacts analysis or mitigation is warranted.

8.2.4 Paleontological Resources

Results of the paleontological resources records search revealed that the majority of the Project site has exposures of the fossiliferous marine Pliocene Pico Formation which has produced fossil specimens (sea lion, bonito shark, white shark, and whale) from similar deposits in close proximity to the Project site. During the pedestrian survey, several outcrops of the Pico Formation and alluvial sediments were documented on ridgelines and canyon bottoms where they were unobscured by vegetation and modern soil development. The very southwestern portion of the Project site has exposures of the fossiliferous marine latest Miocene to Pliocene Towsley Formation which has also produced fossil specimens (baleen whale, dugong) from similar deposits in close proximity to the Project site. Surface deposits of younger Quaternary Alluvium that exist within the Pico and Wickham Canyon drainages within the Project site are not known to contain significant vertebrate fossils in the uppermost layers and no localities with such deposits exist nearby. However, older Quaternary deposits may well contain significant fossil remains at depth as these deposits have produced a fossil mastodon nearby.

As a result of these findings, shallow excavations in the younger Quaternary Alluvium in the Pico Canyon and Wickham Canyon drainages are unlikely to yield significant vertebrate fossils. However, deeper excavations in the drainages extending down into older sedimentary deposits (i.e., older Quaternary alluvium), or any excavations in the Pico Formation or Towsley Formation within the Project site have the potential to encounter paleontological resources. As a result, recommended mitigation measures are provided in the following chapter to reduce potentially significant impacts to previously undiscovered paleontological resources that may be accidentally encountered during project implementation to a less than significant level.

8.2.5 Human Remains

No known human remains have been identified from the CHRIS-SCCIC records within the Project site or within a half-mile radius and none were observed during PCR's pedestrian survey. However, these findings do not preclude the existence of previously unknown human remains located below the ground surface that may be encountered during construction excavations associated with the Proposed Project. As a result, recommended mitigation measures are provided in the following chapter that would reduce potentially significant impacts to previously unknown human remains that may be unexpectedly discovered during project implementation to a less than significant level.

9.0 RECOMMENDED MITIGATION MEASURES

9.1 ARCHAEOLOGICAL RESOURCES

The following mitigation measures have been recommended to reduce potentially significant impacts to archaeological resources that are accidentally discovered during implementation of the Proposed Project to a less than significant level:

Mitigation Measure CULT-1: The Applicant shall retain a qualified archaeological monitor who shall be present during construction excavations (e.g., grading, trenching, or clearing/grubbing) in areas where the Larinan Apiary structures once existed in the northern portion of the Project site. Other areas outside the boundaries of the Larinan Apiary structures shall not be monitored. The frequency of monitoring shall be based on the rate of excavation and grading activities, proximity to known archaeological resources, the materials being excavated (native versus artificial fill soils), and the depth of excavation, and if found, the abundance and type of archaeological resources encountered. Full-time monitoring can be reduced to part-time inspections if determined adequate by the archaeological monitor.

Mitigation Measure CULT-2: In the event that archaeological resources are unearthed, ground-disturbing activities shall be halted or diverted away from the vicinity of the find so that the find can be evaluated. Work shall be allowed to continue outside of the vicinity of the find. All archaeological resources unearthed by project construction activities shall be evaluated by a qualified archaeologist. The Applicant shall coordinate with the archaeologist to develop an appropriate treatment plan for the resources. Treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis or preservation in place. The Applicant, in consultation with the archaeologist, shall designate repositories in the event that archaeological material is recovered.

Mitigation Measure CULT-3: The archaeological monitor shall prepare a final report at the conclusion of archaeological monitoring. The report shall be submitted by the Applicant to the County, the South Central Costal Information Center, and representatives of other appropriate or concerned agencies to signify the satisfactory completion of the project and required mitigation measures. The report shall include a description of resources unearthed, if any, treatment of the resources, and evaluation of the resources with respect to the California Register of Historical Resources.

9.2 BUILT-ENVIRONMENT HISTORICAL RESOURCES

The Proposed Project would not impact historical resources therefore no mitigation measures are recommended.

9.3 PALEONTOLOGICAL RESOURCES

The following mitigation measures have been recommended to reduce potentially significant impacts to paleontological resources that are accidentally discovered during implementation of the Proposed Project to a less than significant level:

Mitigation Measure CULT-4: A qualified Paleontologist shall be retained if construction excavations would encounter older Quaternary alluvium, or deposits associated with Pico Formation or Towsley Formation. The Paleontologist shall attend a pre-grading/excavation meeting to discuss a paleontological monitoring program. A qualified paleontologist is defined as a paleontologist meeting the criteria established by the Society for Vertebrate Paleontology. The qualified Paleontologist shall supervise a paleontological monitor who shall be present at such times as required by the Paleontologist during construction excavations into older Quaternary alluvium, or deposits associated with Pico Formation or Towsley Formation. Monitoring shall consist of visually inspecting fresh exposures of rock for larger fossil remains and, where appropriate, collecting wet or dry screened sediment samples of promising horizons for smaller fossil remains. The frequency of monitoring inspections shall be determined by the Paleontologist and shall be based on the rate of excavation and grading activities, the materials being excavated, and the depth of excavation, and if found, the abundance and type of fossils encountered.

Mitigation Measure CULT-5: If a potential fossil is found, the paleontological monitor shall be allowed to temporarily divert or redirect grading and excavation activities in the area of the exposed fossil to facilitate evaluation and, if necessary, salvage. At the Paleontologist's discretion and to reduce any construction delay, the grading and excavation contractor shall assist in removing rock samples for initial processing. Any fossils encountered and recovered shall be prepared to the point of identification and catalogued before they are donated to their final repository. Any fossils collected shall be donated to a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County. Accompanying notes, maps, and photographs shall also be filed at the repository.

Mitigation Measure CULT-6: The paleontologist shall prepare a report summarizing the results of the monitoring and salvaging efforts, the methodology used in these efforts, as well as a description of the fossils collected and their significance. The report shall be submitted by the Applicant to the lead agency and the Natural History Museum of Los Angeles County, and other appropriate or concerned agencies to signify the satisfactory completion of the Project and required mitigation measures.

9.4 HUMAN REMAINS

Components of the Proposed Project that require excavation activities, the following mitigation measure is recommended to reduce potentially significant impacts to previously unknown human remains that are unexpectedly discovered during excavations to a less than significant level:

Mitigation Measure CULT-7: If human remains are unearthed during implementation of the Proposed Project, the Applicant shall comply with State Health and Safety Code Section 7050.5. The Applicant shall immediately notify the County Coroner and no further disturbance shall occur until the County Coroner has made the necessary findings as to

origin and disposition pursuant to PRC Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC shall then identify the person(s) thought to be the Most Likely Descendent (MLD). The MLD may, with the permission of the landowner, inspect the site of the discovery of the Native American remains and may recommend to the landowner means for treating or disposing, with appropriate dignity, the human remains and any associated funerary objects. The MLD shall complete their inspection and make their recommendation within 48 hours of being granted access by the landowner to inspect the discovery. The recommendation may include the scientific removal and nondestructive analysis of human remains and cultural items associated with Native American burials. Upon the discovery of the Native American remains, the landowner shall ensure that the immediate vicinity, according to generally accepted cultural or archaeological standards or practices, where the Native American human remains are located, is not damaged or disturbed by further development activity until the landowner has discussed and conferred, as prescribed in this mitigation measure, with the MLD regarding their recommendations, if applicable, taking into account the possibility of multiple human remains. The landowner shall discuss and confer with the descendants all reasonable options regarding the descendants' preferences for treatment. MLDs in the region typically recommend reburial of the remains as close to the original burial location as feasible accompanied by a ceremony. The MLD shall file a record of the reburial with the NAHC and the project archaeologist shall file a record of the reburial with the CHRIS-SCIC.

If the NAHC is unable to identify a MLD, or the MLD identified fails to make a recommendation, or the landowner rejects the recommendation of the MLD and the mediation provided for in Subdivision (k) of Section 5097.94, if invoked, fails to provide measures acceptable to the landowner, the landowner or his or her authorized representative shall inter the human remains and items associated with Native American human remains with appropriate dignity on the facility property in a location not subject to further and future subsurface disturbance. A record of the reburial shall be filed with the NAHC and the CHRIS-SCCIC.

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1984 *California Archaeology*. Academic Press, San Diego.

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Warren, Claude N.
1968 Cultural Tradition and Ecological Adaptation on the Southern California Coast. In Archaic Prehistory in the Western United States, C. Irwin-Williams, ed, pp. 1-4. *Eastern New Mexico University* Contributions *in Anthropology*. Portales.

APPENDIX A – PERSONNEL QUALIFICATIONS

Fatima Clark, ARCHAEOLOGIST/PALEONTOLOGIST

Education

- M.A. (ABT), Anthropology, California State University Fullerton, 2008
- B.A., Anthropology, California State University Fullerton, 2005

Continuing Education

- Workshop: The Art and Science of Flintknapping, California Desert Studies Center, 2013
- 40-Hour HAZWOPER Training – Update, 2012
- Successful CEQA, Compliance-Southern California Edison, Environmental Training, 2011
- Cultural Resources Protection under CEQA and Other Legislative Mandates, UCLA Extension, 2010
- Public Archaeology Course, California State University Fullerton, 2005

Professional Affiliations

- Society for California Archaeology

Summary

Fatima Clark is an archaeologist with eight years of hands-on experience. Her field experience is complimented by the courses she has taken and participation in many archaeological excavations in California, Arizona and Peru. In addition to her archaeology background, Ms. Clark has been cross trained in Paleontology and conducted surveys, monitoring and co-authored and managed associated reports.

Ms. Clark has gained valuable knowledge in Cultural Resource Management by conducting field surveys, conducting Phase II testing, site recordation, records searches, monitoring, and writing California Environmental Quality Act (CEQA) document sections and Phase I CEQA-level reports for a wide variety of projects including energy, water and road infrastructure projects as well as residential and mixed-use. Having recently worked at Southern California Edison (SCE) as a contingent employee, Ms. Clark has become seasoned in Deteriorated Pole, General Order 131D and Capital projects.

Experience

Archaeology: Ms. Clark has performed pedestrian surveys and written Phase I reports for diverse project types, each pursuant to applicable State and federal regulations (e.g., CEQA and National Environmental Policy Act [NEPA]). Her infrastructure projects including the Badlands Landfill stockpile project for Riverside County, the Palos Verdes pipeline project and Crenshaw Reservoir project for the California Water Service Company, the City of San Clemente Recycled Water project, and the Cascade Solar project in San Bernardino County. She is also serving as the Project Manager for the I-10/Pepper Avenue project which includes a bridge expansion along Pepper Avenue in Colton. The project involves the preparation of an Archaeological Survey Report in accordance with Caltrans guidelines.

Bridging the gap of public and private project work is her leadership of the La Costa Chevron Project in Encinitas, which addressed Chevron-created erosion onto a Caltrans right-of-way. Due to the project site's location within a recognized archaeological site Caltrans required an Extended Phase I excavation (XPHI). Managing PCR's role as a subcontractor to a larger engineering firm she has coordinated with the prime consultant as well as the Native American groups in the area and served as the primary author of the XPHI. Ms. Clark's general real estate experience includes the 2nd+PCH Mixed-Use project in Long Beach, the Isla Verde Residential Project in Moreno Valley, the Frontier Chino project, and the 220-acre Aidlin Property project in the Stevenson Ranch community of the Santa Clarita Valley.

Ms. Clark has also participated on a Phase II site investigation for the Cascade Solar Project in the high desert, located in the 29 Palms area where she excavated several Shovel Test Probes within a newly recorded archaeological site. As part of the Phase II field investigation, Ms. Clark has also conducted lab analysis of lithic materials recovered at the archaeological site. She has also written peer reviews for Archaeological Survey Reports for San Bernardino Associated Governments (SANBAG) transportation projects, preparing Native American letters (Senate Bill 18), and performing records searches at several Southern California Information Centers. Ms. Clark also performed the Phase II Testing for the Mill Creek testing at site Ca-SBR-2845 in Chino.

In addition to stand-alone assessments, Ms. Clark has prepared CEQA Document sections and archaeological monitoring. Her CEQA work includes the Initial Study sections for the Anaheim 3-Lot Henning Way residential Subdivision, the Burbank Reservoir No. 1 Replacement project, and the Century Woods project in Los Angeles. Her monitoring experience includes a number of projects for the City of San Juan Capistrano, Burbank Water & Power, as well as work at the Orange County Great Park (on the former El Toro MCAS), with the city of Mission Viejo, for the Cascade Solar Project, the Willow Heights project in Diamond Bar, and various Lennar Homes and John Laing Homes Housing development projects.

Southern California Edison: Ms. Clark worked at SCE as a full-time in-house consulting archaeologist. Ms. Clark was in charge of managing work sent to outside consultants for surveys and preparation of archaeological reports and coordinating with consultants and SCE staff. Ms. Clark also conducted over 100 archaeological reviews – conducting records searches, field surveys, project coordination, report writing – for projects subject to the rules and regulations of the California Public Utilities Commission (CPUC) and therefore follows CEQA mandated requirements. Among the larger projects in which Ms. Clark was involved with was the Valley South Subtransmission Project (VSSP). The VSSP had three alternative routes with a total of approximately 25 miles in length. The VSSP was conducted for the purpose of developing a Proponent's Environmental Assessment (PEA) for the CPUC's review. Ms. Clark had the role of Project Manager for the VSSP and her duties consisted of records searches, creating a Scope of Work, reviewing PEA bidders' proposals, assessing/developing study corridors, developing suitable access roads to avoid/minimize impact to archaeological sites, and project coordination with SCE team members for the entire project and outside consulting archaeologists.

Paleontology: Ms. Clark has performed a number of paleontological surveys and monitoring projects, and co-authored the associated reports. Projects include the Highgrove Library Project in Riverside County; the proposed San Clemente Recycled Water Project study areas associated with the installation, transmission, distribution of pipelines, and expansion of facilities at water treatment plants; and the 2nd + PCH mixed-use project in Long Beach.

Amber Marie Madrid, AFFILIATE ARCHAEOLOGIST

Education

- M.S., Anthropology with an Archaeology emphasis, California State University Los Angeles, In Progress
- B.A., Anthropology, University of California, Los Angeles, 2011

Affiliations

- Society for California Archaeology
- Society for American Archaeology

Summary

Anne Marie Madrid is an archaeologist with over three years of experience as an archaeological technician, crew member, and lab director. Her research interests include coastal, mainland, and island archaeology of California; malacology; fishing technology; bone tool technology; maritime adaptation; and zooarchaeology

Experience

Monitoring: Ms. Madrid has performed archaeological monitoring for the Casmalia property in California's Central Coast, the Rancho Malibu hotel project in Malibu, both of which had her working alongside a Chumash Native American Monitor. She also lent her expertise to the Cascade solar development project in the Sunfair community of San Bernardino County and the 1340 S. Figueroa development in Los Angeles.

Surveys: Ms Madrid has served as a crew member for a number of projects in and around the Channel Islands. These projects include the SRI Uplands and Terrace Survey project and the Island Drainage Survey, both on Santa Rosa Island; the NPS SCRI East End Survey and Site Update Project and Diablo Valdez Bedrock Mortar Project, both on Santa Cruz Island; and the Pimu Catalina Island Archaeology Project on Santa Catalina Island. She also served as a crew member and co-investigator on the Owen Valley Site Protection and Management Project and Owen Valley Survey Project, Little Lake in and around Lone Pine, California.

Paper Presentations

"The History of Cannibalism: From Peter the Martyr to Hannibal Lecter and the Like." Paper presented to the Biological Anthropology Society of UCLA. 2012.

"Defining Death: A Living Understanding of the Dying and the Dead." Paper presented to the Undergraduate Anthropological Association of UCLA & the Biological Anthropology Society of UCLA. 2011.

"NAGPRA: The Good, the Bad, and the Misconceptions." Paper presented to the Biological Anthropology Society of UCLA. 2011.

"Ethical Debate: Handling Human Remains." Paper presented to the Biological Anthropology Society of UCLA. 2011.

"Defining Science: A Four Field Approach." Paper presented to the Biological Anthropology Society of UCLA. 2011.

Michael J. Williams, Ph.D., PRINCIPAL PALEONTOLOGIST

Education

- Ph.D., Geology and Geophysics, Louisiana State University, Baton Rouge, Louisiana, 2009
- B.S., Zoology, Louisiana State University, Baton Rouge, Louisiana, 2002

Summary

Michael Williams is a paleontologist with over 12 years of paleontological experience, including sediment processing, survey, geologic map review, construction monitoring, fossil collection, identification, and curation. In addition, he has experience stabilizing, molding, casting, and sculpting fossilized remains of large mammals. Dr. Williams has four years of experience in California geology and paleontology and has published numerous articles in scholarly journals.

His expertise includes the evolution, biostratigraphy, biogeography, and paleoecology of fossil herpetofaunas. He has performed numerous surveys, excavations, and monitoring for a variety of development projects throughout southern California in Los Angeles, Orange, Riverside, San Diego, and San Bernardino counties.

He has experience in the academic, laboratory, museum, and field setting. Over the years he has performed several field excavations and sorted, identified, and curated hundreds of fossil microvertebrates. As a result he is proficient in the computerized vertebrate specimen database *Paradox 7*.

Experience

Whisler Ranch, Lake Forest, Orange County, California – Dr. Williams performed paleontological construction monitoring services during the ground- disturbing activities associated with the proposed 13-acre Whisler Ranch residential development in the City of Lake Forest. Duties include inspecting sidewall profiles and spoils piles for fossils, supervising on-site paleontological monitors, and collection and analysis/identification of Miocene fossils that were encountered during construction.

Life Time Fitness, Laguna Niguel, Orange County, California – Dr. Williams served as the Principal Paleontologist for the monitoring activities during the construction of a health club in Laguna Niguel. He performed periodic site examinations to analyze exposed sediments and identify significant fossils. Dr. Williams stabilized and prepared several rare shellfish fossils recovered, including a Haliotis specimen which represents the first Pliocene abalone from Orange County.

Our Lady Fatima Catholic Church Expansion, San Clemente, Orange County, California – Dr. Williams performed paleontological construction monitoring services during the ground-disturbing activities associated with the proposed church expansion project. During the project, he identified and recovered a partial baleen whale skeleton.

I-405 Extension, Seal Beach to Fountain Valley, Orange County, California – Dr. Williams performed paleontological survey of the proposed project is support of the CalTrans PIR-PER report.

LAX Central Utility Replacement Project, Los Angeles, California – Dr. Williams provided senior paleontological monitoring support, conducted paleontological monitoring of excavation activities, collected and screened sediment samples for microfossils, identified the fossil specimens encountered during monitoring, and assisted in preparation of the final monitoring report.

1500 Figueroa Mixed-Use Project, Los Angeles, California – Dr. Williams provided senior paleontological monitoring support, collected and screened sediment samples for microfossils, identified the fossil specimens and geological formations encountered during monitoring, and assisted in preparation of the final monitoring report.

Cascade Solar Project, San Bernardino County, California – Dr. Williams performed the records search and associated paleontological survey and report for the proposed Cascade Renewable Energy project located on 150 acres in the Sunfair community in an unincorporated region of San Bernardino County.

I-215/Newport Avenue Overcrossing Bridge Reconstruction Project, Grand Terrace, San Bernardino County, California – Dr. Williams performed the paleontological services associated with the requisite Paleontological Identification and Evaluation (PIR-PER) report for the San Bernardino Associated Governments' project per California Department of Transportation (Caltrans) guidelines. The proposed project includes excavation activities for retaining walls, spread footings (for the bridge piers), and drainage improvements associated with the removal and replacement of the existing Newport Avenue Overcrossing Bridge in the City of Grand Terrace. The paleontological services included survey, geologic map review, record searches, and report preparation.

Oasis Date Gardens, Coachella Valley, Riverside County, California – Dr. Williams conducted paleontological research, field survey, and assisted with report preparation for the proposed 165-acre Oasis Date Gardens Specific Plan project. The proposed project would demolish one large building on the eastern edge of the site and redevelop the property for senior housing and other mixed-uses.

Kyle Garcia, SENIOR ARCHAEOLOGIST

Education

- M.A., Anthropology (Archaeology Option), California State University Los Angeles, In Progress
- B.A., Anthropology, (Physical/ Biological Emphasis), University of California, Santa Barbara, 2004

Registrations/Certifications

- Riverside County Registered Archaeologist #202
- 40-Hour HAZWOPER Training – Update, 2013

Continuing Education

- NAGPRA Notices: Types, Process, and Content, National NAGPRA Program, National Park Service, U.S. Department of the Interior (Webinar), 2012
- Cultural Resources Orientation & Pro-Seminar, County of Riverside, 2011
- Introduction to Professional Practice under Section 106 of the National Historic Preservation Act (NHPA), 2009
- Cultural Resources Protection Under CEQA and Other Legislative Mandates, UCLA Extension, 2008
- Riverside County Archaeology and Cultural Sensitivity Training Program, 2007
- The Art and Science of Flintknapping, California State University, San Bernardino, College of Extended Learning, 2007

Professional Affiliations

- Society for American Archaeology
- Society for California Archaeology
- Pacific Coast Archaeological Society

Summary

Kyle Garcia has over 10 years of professional experience in the archaeology and prehistory of California. Mr. Garcia is knowledgeable about archaeological resources in coastal, interior, and island settings. He specializes in faunal analysis and has worked in faunal laboratories at UCSB and the Santa Barbara Museum of Natural History.

Mr. Garcia has evaluated historic and prehistoric archaeological resources for listing in the National Register of Historic Places and the California Register of Historical Resources, conducted agency and Native American consultation, conducted and supervised all aspects of archaeological fieldwork (pedestrian surveys, testing and evaluation excavations, and construction monitoring) and laboratory processing (sorting, identification, cataloging, and analysis), conducted numerous record searches at the regional Information Centers across the State, and authored or co-authored more than 330 technical reports and sections in support of various levels of California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) documents.

Experience

Mr. Garcia has contributed his services and archaeological expertise to projects subject to requirements of CEQA, Section 106 of the NHPA, NEPA, and other federal, State, and local regulations. These projects included energy, infrastructure, utility, residential, commercial, mixed-use, schools, parks, trail systems, and urban redevelopment serving a variety of public and private sector clients throughout California and Arizona. Mr. Garcia has conducted archaeological work in Los Angeles (including Santa Catalina Island), San Bernardino, Orange, Riverside, San Diego, Kern, Santa Barbara, Monterey, Mono, Inyo, and San Joaquin counties. In addition to his archaeological work, Mr. Garcia has been cross-trained in paleontological mitigation monitoring and assisted in the excavations of a Miocene whale fossil near Irvine, California.

General Project Experience: Mr. Garcia has extensive experience in dealing with projects with a large number of archaeological resources. His large-scale surveys include a pedestrian survey and site recordation of more than 200 historic and prehistoric archaeological resources as part of a Class III Inventory on an approximately 11,000-acre portion of the La Osa Ranch Project site in Pinal County, Arizona; and he directed the 1,400-acre field survey and the successful site recordation of over 150 prehistoric and historic archaeological resources per the Section 106 Process for a confidential project in Riverside County. He also served as Deputy Project Manager for the approximately 240-acre Archaeological Treatment & Restoration Plan for The Cove project that was subject to Section 106, where he performed the field survey, Native American consultation, prepared the final report, and supervised the thorough recordation and documentation of over 350 significant artifacts which included artifact photography and illustrations.

Energy Projects: He is well-versed in the potential effects of energy production projects on California Archaeology through his service as an on-call consultant to Southern California Edison (SCE) where he has served as the Project Director and Manager for over 100 SCE projects and managed SCE purchase order contracts in excess of $1.5M. These projects were subject to requirements of CEQA, Section 106 of the NHPA, and other local ordinances. These projects included deteriorated pole replacements, conduit and vault installations, distribution circuit installations, and emergency on-call archaeological survey and monitoring services for SCE property during southern California wildfires. Mr. Garcia not only managed the budgets and supervised the work but he also conducted most of the record searches, surveys, report writing, site recordation, and client/agency coordination for these projects. These projects also entailed rapid response services including close-interval surveys, construction monitoring, and sensitivity assessments for SCE property in areas damaged by the wildfires.

Peer Reviews: Mr. Garcia is often sought after to conduct Peer Review services of controversial projects across southern California. These reviews include environmental documentation for the Needles Highway Safety Realignment Project for the County of San Bernardino Department of Public Works and various infrastructure projects for Caltrans/San Bernardino Associated Governments.

APPENDIX B – PALEONTOLOGICAL RECORDS SEARCH RESULTS

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

Vertebrate Paleontology Section
Telephone: (213) 763-3325
Fax: (213) 746-7431
e-mail: smcleod@nhm.org

25 March 2014

Planning Consultants Research
One Venture, Suite 150
Irvine, CA 92618

Attn: Fatima Clark, Archaeologist

re: Paleontological Records Check for the proposed Aidlin Property Residential Development Project, in Stevenson Ranch near Newhall, Los Angeles County, project area

Dear Fatima:

I have conducted a thorough search of our Vertebrate Paleontology records for the proposed Aidlin Property Residential Development Project, in Stevenson Ranch near Newhall, Los Angeles County, project area as outlined on the portions of the Newhall and Oat Mountain USGS topographic quadrangle maps that you sent to me via e-mail on 4 March 2014. We have one vertebrate fossil locality that may be situated within the proposed project area boundaries, and we have other localities nearby from the same sedimentary deposits that occur in the proposed project area.

Most of the proposed project area has exposures of the marine Pliocene Pico Formation. Our closest vertebrate fossil locality from the Pico Formation is LACM 6365, a generalized locality in Pico Canyon, and thus possibly within the very northern portion of the proposed project area, that produced a skull of an undetermined sea lion, Otariidae. Our next closest Pico Formation locality is LACM 5456, due south of the proposed project area in Brown Canyon south of Oat Mountain, that produced fossil specimens of bonito shark, *Isurus planus*, and white shark, *Carcharodon sulcidens*. Our next closest vertebrate fossil localities from the Pico Formation are LACM 1931 and 3494, both southwest of the proposed project area between Las Llajas Canyon and Chivo Canyon, that produced fossil specimens of bonito shark, *Isurus planus*, white shark, *Carcharodon sulcidens*, and right whale, Balaenidae.

In the very southwestern portion of the proposed project area there are exposures of the marine latest Miocene to Pliocene Towsley Formation. Our closest vertebrate fossil locality from the Towsley Formation is LACM 7421, east-southeast of the proposed project area on the eastern side of the Golden State Freeway (I-5) west of Grapevine Canyon, that produced a fossil specimen of primitive baleen whale, *Nannocetus*. Our next closest vertebrate fossil locality from the Towsley Formation is LACM (CIT) 441, east-northeast of the proposed project area near Humphreys, that produced fossil specimens of the dugong *Dusisiren jordani* published in the scientific literature by D.P. Domning in 1978 (Sirenian Evolution in the North Pacific Ocean. University of California Publications in Geological Sciences, 118:1-176) and also by F. A. Whitmore and L.G. Barnes in 2008 (The Herpetocetinae, a New Subfamily of Extinct Baleen Whales (Mammalia, Cetacea, Ceotheriidae). Virginia Museum of Natural History Special Publication 14(5):141-180).

In the Pico Canyon and Wickham Canyon drainages in the proposed project area there are surface deposits of younger Quaternary Alluvium. These younger Quaternary alluvial deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, and we have no fossil vertebrate localities anywhere nearby from such deposits, but they may well contain significant vertebrate fossil remains at depth in older deposits. Our closest vertebrate fossil locality from older Quaternary deposits probably is LACM 7594, west-southwest of the proposed project area in the northern part of Simi Valley near the mouth of Chivo Canyon, that produced a fossil specimen of mastodon, *Mammut*.

Shallow excavations in the younger Quaternary Alluvium exposed in the Pico Canyon and Wickham Canyon drainages in the proposed project area are unlikely to encounter any significant vertebrate fossils. Deeper excavations in those areas that extend down into older sedimentary deposits, or any excavations in the Pico Formation or the Towsley Formation exposed in the proposed project area, however, may well uncover significant fossil vertebrate specimens. Any substantial excavations in the proposed project area, therefore, should be monitored closely to quickly and professionally recover any fossil remains while not impeding development. Any fossils collected should be placed in an accredited scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

APPENDIX C – NAHC SLF SEARCH RESULTS AND NATIVE AMERICAN CONSULTATION DOCUMENTATION

STATE OF CALIFORNIA

Edmund G. Brown, Jr., Governor

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Boulevard, Suite 100
West Sacramento, CA 95691
(916) 373-3715
Fax (916) 373-5471
Web Site www.nahc.ca.gov
Ds_nahc@pacbell.net

March 18, 2014

Ms. Fatima Clark
PCR SERVICES CORPORATION
ONE VENTURE, Suite 150
Irvine, CA 92618

Sent by FAX to: 949-753-7003
No. of Pages: 4

RE: Sacred Lands File Search and Native American Contacts list for the **"Stevenson Ranch Environmental Impact Report (EIR);"** located in the City of Santa Clarita; Los Angeles County, California

Dear Ms. Clark:

A record search of the NAHC Sacred Lands Inventory **failed to indicate** the presence of Native American traditional cultural places in the Project site(s) or 'areas of Potential effect' (APE), submitted to this office. There are, however, cultural resources in close proximity to the APE. Note also that the absence of archaeological and/or Native American cultural resources does not preclude their existence at the subsurface level. Please check with the tribal representative to assess possible impact.

In the 1985 Appellate Court decision (170 Cal App 3rd 604), the Court held that the NAHC has jurisdiction and special expertise, as a state agency, over affected Native American resources impacted by proposed projects, including archaeological places of religious significance to Native Americans, and to Native American burial sites.

When the project becomes public, please inform the Native American contacts as to the nature of the project (e.g. residential, renewable energy, infrastructure or other appropriate type). Attached is a list of Native American tribes, Native American individuals or organizations that may have knowledge of cultural resources in or near the proposed project area (APE). As part of the consultation process, the NAHC recommends that local government and project developers contact the tribal governments and native American individuals on the list in order to determine if the proposed action might impact any cultural places or sacred sites. If a response from those listed on the attachment is not received in two weeks of notification, the NAHC request that a follow-up telephone call be made to ensure the project information has been received.

California Government Code Sections 65040.12(e) defines 'environmental justice' to provide "fair treatment of people…with respect to the development, adoption,

implementation, and enforcement of environmental laws, regulations and policies." Also, Executive Order B-10-11 requires that state agencies "consult with Native American tribes, their elected officials and other representatives of tribal governments in order to provide meaningful input into...the development of legislation, regulations, rules and policies on matter that may affect tribal communities."

If you have any questions or need additional information, please contact me at (916) 373-3715.

Sincerely,

Dave Singleton
Program Analyst

Attachments

Native American Contacts
Los Angeles County California
March 18, 2014

Beverly Salazar Folkes
1931 Shadybrook Drive
Thousand Oaks, CA 91362
folkes9@msn.com
805 492-7255
(805) 558-1154 - cell
folkes9@msn.com

Chumash
Tataviam
Ferrnandeño

Kitanemuk & Yowlumne Tejon Indians
Delia Dominguez, Chairperson
115 Radio Street
Bakersfield , CA 93305
deedominguez@juno.com
(626) 339-6785

Yowlumne
Kitanemuk

Fernandeno Tataviam Band of Mission Indians
Larry Ortega, Chairperson
1019 - 2nd Street, Suite #1
San Fernando CA 91340
(818) 837-0794 Office

(818) 837-0796 Fax

Fernandeno
Tataviam

San Fernando Band of Mission Indians
John Valenzuela, Chairperson
P.O. Box 221838
Newhall , CA 91322
tsen2u@hotmail.com
(661) 753-9833 Office
(760) 885-0955 Cell
(760) 949-1604 Fax

Fernandeño
Tataviam
Serrano
Vanyume
Kitanemuk

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th St, Rm. 403
Los Angeles , CA 90020
randrade@css.lacounty.gov
(213) 351-5324
(213) 386-3995 FAX

Randy Guzman - Folkes
4676 Walnut Avenue
Simi Valley , CA 93063
ndnRandy@yahoo.com
(805) 905-1675 - cell
(805) 520-5915-FAX

Chumash
Fernandeño
Tataviam
Shoshone Paiute
Yaqui

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
Private Address

tattnlaw@gmail.com
310-570-6567

Gabrielino Tongva

Santa Ynez Tribal Elders Council
Freddie Romero, Cultural Preservation Conslnt
P.O. Box 365
Santa Ynez , CA 93460
805-688-7997, Ext 37
freddyromero1959@yahoo.com

Chumash

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

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

This list s only applicable for contacting locative Americans with regard to cultural resources for the proposed Stevenson Ranch Project; located in the City of Santa Clarita; Los Angeles County, California for which a Sacred Lands File search and Native American Contacts were requested.

Native American Contacts
Los Angeles County California
March 18, 2014

PeuYoKo Perez
11465 Nardo Street
Ventura , CA 93004
grndowl4U@yahoo.com
805-231-0229 cell

Chumash

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

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

This list s only applicable for contacting locative Americans with regard to cultural resources for the proposed Stevenson Ranch Project; located in the City of Santa Clarita; Los Angeles County, California for which a Sacred Lands File search and Native American Contacts were requested.

Larry J. Ortega Sr.
Tribal President

Fernandeño Tataviam Band of Mission Indians
Tribal Historic & Cultural Preservation

Tribal Historic & Cultural Preservation Committee
Steve Ortega
Chairman
Berta Pleitez

April 9, 2014

Fatima Clark
One Venture, Suite 150
Irvine, Ca 92618

Re: PROPOSED AIDLIN PROPERTY RESIDENTIAL PROJECT IN STEVENSON RACH, UNINCORPORATED LOS ANGELES COUNTY, CALIFORNIA

Dear Ms. Clark,

The Fernandeño Tataviam Band of Mission Indians thanks you for the request of consultation for your proposed project. Your project has been identified as breaking ground in traditional Tataviam tribal lands and may disturb culturally sensitive deposits.

In accordance with the National Historic Preservation Act of 1966, consultation with the tribe is legally mandated. Failure to comply with the minimum consultation requirement will result in the notification of such to applicable lead agencies. Moreover, it is required that federal agencies consult with tribal authorities before permitting archaeological excavations on tribal lands (16 U.S.C. §§ 470aa–470mm). Additionally, it is necessary to protect and preserve the access to all, if any, sites the tribe believes sacred (42 U.S.C. § 1996). As expressed in 14. Cal.Code Regs §15064.5, if significant Native American artifacts that meet the definition of a "historical resource" are found, work shall not resume until the archaeologist has recovered them for the tribal monitor.

Please contact our offices so we can begin consultation. The Tataviam charge standard fees to fund the necessary and extensive research required to fulfill your needs. Attached is information regarding our consultation rates.

Regular updates in regards to your project would be greatly appreciated. We are looking forward to working with you on this matter to the satisfaction of all those involved.

Sincerely,

KFatehi

Kimia Fatehi
Tribal Historic and Cultural Preservation
KFatehi@tataviam-nsn.us

TRIBAL CULTURAL RESOURCES SERVICES

The Fernandeño Tataviam Band of Mission Indians (Tribe) has the necessary qualifications, experience and abilities to provide Native Monitoring for scared lands and burial sites to the Client. Also the Tribe is prepared to work with the Client to provide any and all documentation needed to facilitate permit process. The Tribe is agreeable to provide Native Consulting and Monitoring on the terms and conditions as set out in this Agreement.

SUMMARY OF GENERAL TERMS & CONDITIONS

1. Native Monitoring and Consulting

The Tribe would provide the services consisting of Tribal Consulting and Monitoring (the "Services"), and the Tribe would also provide the services if agree upon duration the solid disturbance of the project.

2. Compensation

For the Services provided by the Tribe, the Client agrees to pay in accordance to the Fee Structure. Compensation will be set upon terms agree by both interested parties as there Services are render.

3. Fee Structure

Time spent on the project by professional, monitor, and clerical personnel will be billed hourly. The following ranges of hourly rates for various categories of personnel are currently in effect:

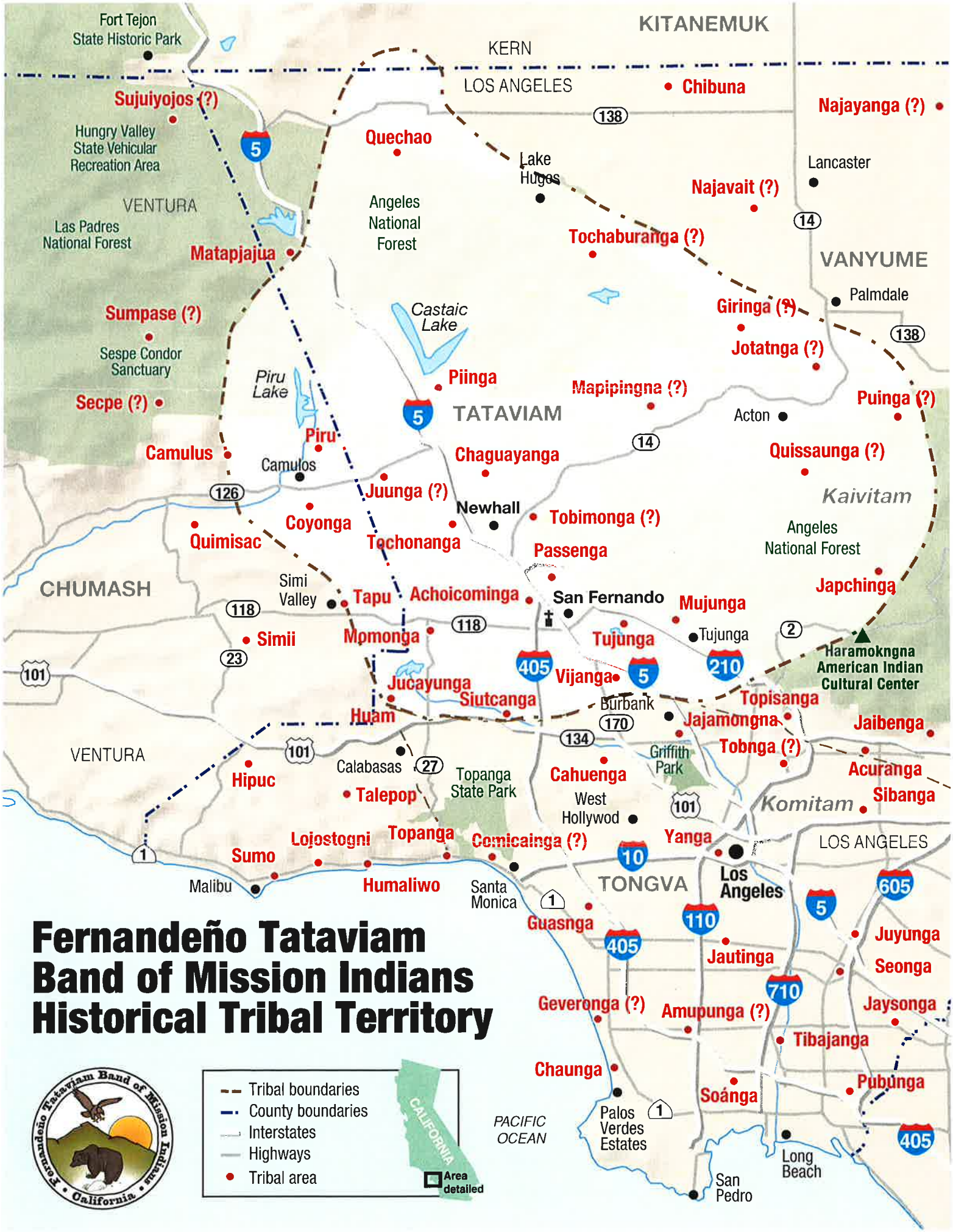
Hourly Rate	Category
$75	Consultation
$55	Monitoring
$35	Clerical

Hourly rates will be adjusted semi-annually to reflect changes in the cost-of-living index as published. If overtime for nonprofessional personnel is required, the premium differential figured at time and one-half of their regular hourly rates are charged at direct cost to the project. Unless otherwise stated, any cost estimate presented in a proposal is for budgetary purposes only, and is not a fixed price.

4. Capacity/Independent Contractor

It is expressly agreed that the Tribe would be acting as an independent contractor and not as an employee in providing the Services hereunder.

Fernandeño Tataviam Band of Mission Indians Historical Tribal Territory



APPENDIX D - CONFIDENTIAL APPENDIX: NOT FOR PUBLIC DISSEMINATION - DPR SITE FORMS

□tate o□□ali□ornia – □he □e□o□rce□ □□enc□
DEPART **M**ENT OF PARKS AND RECREATION
PR □**M**ARY RECORD

□ri□ ar□ #
HRI #
□rino□ ial
NRHP □tat□□ □ode
Other Listings
Review Code Reviewer Date

□a□e 1 o□2

□e□o□rce □a□ e or #: (Assigned by recorder) Concrete foundation debris

P1. □ther □denti□ier: Concrete foundation debris
P2. □ocation: [X] Not for Publication [ ] Unrestricted a. □o□nt□ Los Angeles
b US GS 7.5′ □□ad Newhall □ate 1952 T 3N; R 16W; NE 1/4 o□ □ec 6; SB □M.
c. □ddre□□ N/A □it□ Stevenson Ranch □ip N/A
d. UT M: NAD 1983 Zone 11, 353360mE/ 3805144 mN
e. □ther □ocational □ata: This resource is located approximately 1.5 miles west of Interstate 5, near Pico Canyon Road and immediately north of the second entrance gate at the Project site.

□□a. □e□cription: The remnants of concrete foundation reinforced with metal rebar were identified approximately 160 feet south of the intersection of the two dirt access roads and within close proximity to the second entrance gate in the Project site. It is possible that the foundation debris is associated with the honey house or corral that once existed nearby for the Larinan Apiary. The Larinan Apiary was constructed in 1918 and consisted of a house with a storage shed, a garage, a chicken coop, a plank bridge, a honey house, a corral and a well head.

P3b. □e□o□rce □ttri□□te□: (List attributes and codes) Concrete foundation debris
P4. □e□o□rce□ □re□ent: [ ] Building [x] Structure [ ] Object [ ] Site [ ] District [ ] Element of District

□5a. □hoto or □ra□in□ (Photograph required for buildings, structures, and objects)

P5b. □e□cription o□□hoto: □View, date, accession #) Concrete foundation debris, view southwest
P6. □ate □on□tr□cted/ □□e: and □o□rce□: [x] Historic [ ] Prehistoric [ ] Both

P7. □□ner and □ddre□□:
Lennar Homes
391 North Main Street,
Suite 300, Corona, CA 92880
P8. □ecorded by (Name, affiliation, and address): Fatima Clark, PCR Services
One Venture, Suite 150,
Irvine, CA
P9. □ate □ecorded: April 15, 2014

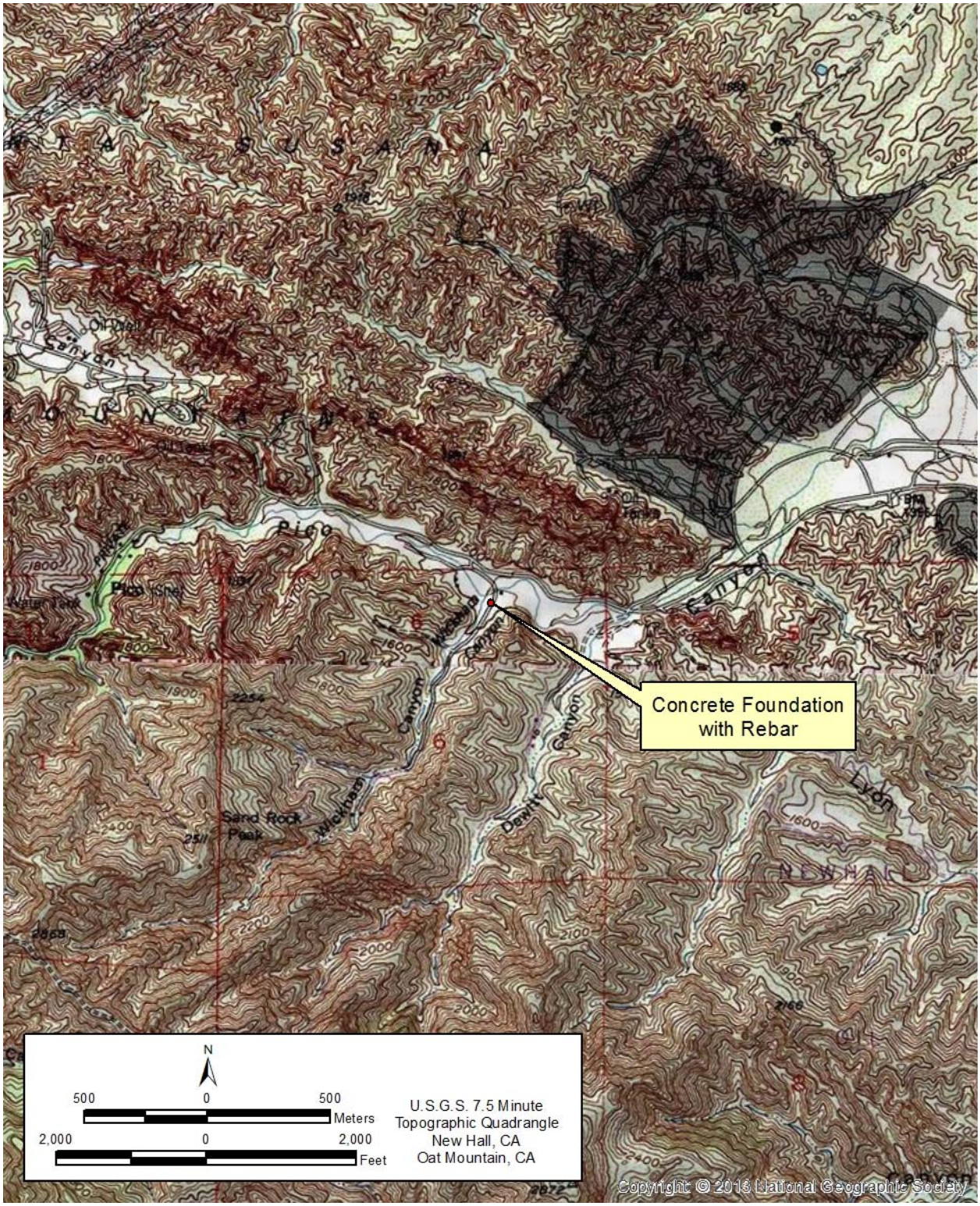
P10. □□pe o□□□r□e□: (Describe)
Pedestrian survey

P11. □eport □itation: Phase I Cultural and Paleontological Resources Assessment for the Proposed Aidlin Property Residential Project, Stevenson Ranch, County of Los Angeles, California (Clark and Garcia 2014).
□ttach□ ent□: [ ] NONE [x] Location Map [ ] Sketch 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):

□e□o□rce □a□ e or □□ Concrete foundation debris

Map □a□ e□ USGS Newhall 7.5’ Topographic Quadrangle **□cale□** 1:2000 feet

□ate o□Map□ 1952 (photo-revised 1988)



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DEPART **M**ENT OF PARKS AND RECREATION
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Other Listings
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□e□o□rce □a□ e or #: (Assigned by recorder) Well

P1. □ther □denti□ier: Well
P2. □ocation: [X] Not for Publication [ ] Unrestricted a. □o□nt□ Los Angeles
and (P2b and P2c or P2d. Attach location map as necessary.)
b USGS 7.5' □□ad Newhall □ate 1952 (Photo-revised 1988) T 3N; R 16W; NE 1/4 o□ □ec 6; SB □□M.
c. □ddre□□ N/A □it□ Stevenson Ranch □ip N/A d. UTM: / Zone 11, mE/ 353378 mN 3805196
e. □ther □ocational □ata: This resource is located approximately 1.5 miles west of Interstate 5, near Pico Canyon Road and near the intersection of two main dirt roads in the Project site.

□□a. □e□cription (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries):
During a pedestrian survey for the proposed Aidlin Property Residential Project, a brick-lined well plastered with cement was discovered. The well is located near the intersection of two dirt access roads in the northeast portion of the Project site. The well is approximately four feet in diameter and approximately 12 feet deep. Although this well was never recorded as being part of the former Larinan Apiary structures, the honey house is located in close proximity to the well, and there are no other structures in the Project site that the well could be associated with (Clark and Garcia 2014).

P3b. □e□o□rce □ttri□□te□: (List attributes and codes) Well
P4. □e□o□rce□ □re□ent: [ ] Building [x] Structure [ ] Object [ ] Site [ ] District [ ] Element of District

□□a. □hoto or □ra□in□ (Photograph required for buildings, structures, and objects)

P5b. □e□cription o□□hoto: Close-up of well, view southwest

P6. □ate □on□tr□cted/ □□e: and □o□rce□:
[x] Historic [ ] Prehistoric [ ] Both

P7. □□ner and □ddre□□: Lennar Homes
391 North Main Street,
Suite 300, Corona, CA 92880

P8. □ecorded by (Name, affiliation, and address):
Fatima Clark and Amber Madrid, PCR Services Corporation
One Venture, Suite 150, Irvine, CA

P9. □ate □ecorded: April 15, 2014

P10. □□pe o□□□r□e□: (Describe)
Pedestrian survey

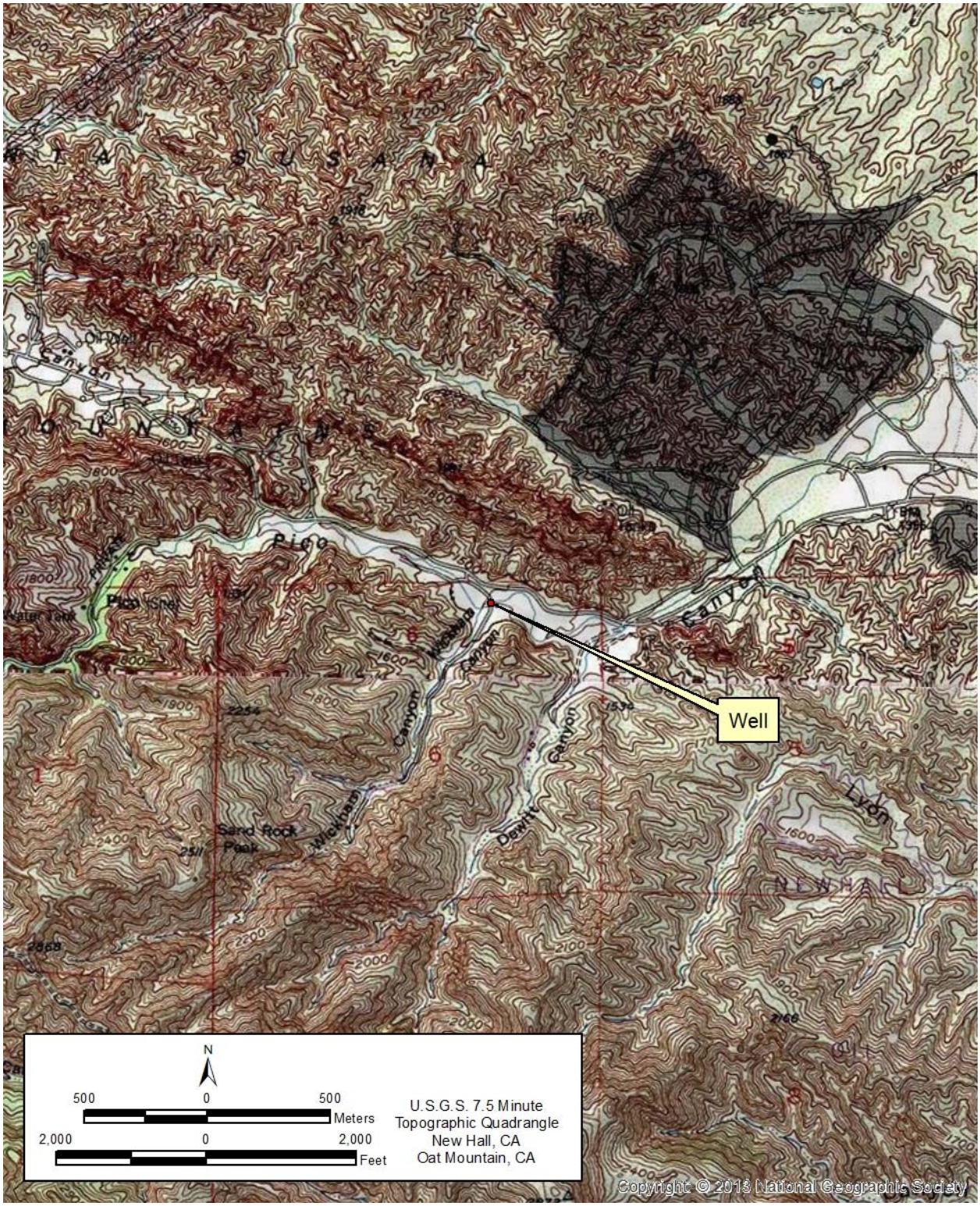
P11. □eport □itation (Provide full citation or enter "none."): Phase I Cultural and Paleontological Resources Assessment for the Proposed Aidlin Property Residential Project, Stevenson Ranch, County of Los Angeles, California (Clark and Garcia 2014).

□ttach□ ent□: [ ] NONE [x] Location Map [ ] Sketch 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):

□e□o□rce □a□ e or □□ Well

Map □a□ e□ USGS Newhall 7.5’ Topographic Quadrangle **□cale□** 1:2000

□ate o□Map□ 1952 (photo-revised 1988)



Appendix E

Geotechnical Evaluation and 100-Scale Plan Review

GEOLOGIC/GEOTECHNICAL EVALUATION FOR

ENVIRONMENTAL IMPACT REPORT

VESTING TENTATIVE TRACT MAP NO. 52796

LOS ANGELES COUNTY, CALIFORNIA

FOR

LENNAR HOMES

APRIL 3, 2014

JOB NO. 2013-014-051

RTF&A

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

RT&A

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

April 3, 2014

Lennar Homes
980 Montecito Drive, Suite
Corona, California 92879

Attention: Ms. Cherryl Thompson

Ladies/Gentlemen:

We are pleased to submit our "Geologic/Geotechnical Evaluation for Environmental Impact Report, Vesting Tentative Tract Map No. 52796 (VTTM 52796), Los Angeles County, California." The location of VTTM 52796 is shown on the Site Location Map, Figure 1. The scope of our services was planned in consultation with Ms. Cherryl Thompson of Lennar Homes, in accordance with our proposal dated November 15, 2013 (Proposal No. P059-2013-051).

Our evaluation is provided for incorporation into an Environmental Impact Report for VTTM 52796 and includes a discussion of the geologic and geotechnical conditions and their impact on future VTTM 52796 development.

Should you have any questions regarding this project, please do not hesitate to call our office.

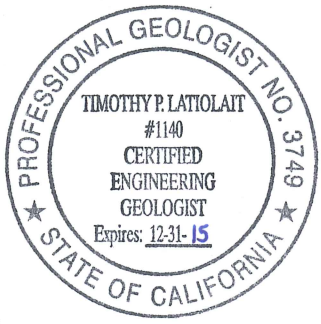
Respectfully submitted,

R. T. FRANKIAN & ASSOCIATES

REGISTERED PROFESSIONAL ENGINEER
ALAN W. RASPLICKA
No. GE 2558
GEOTECHNICAL
STATE OF CALIFORNIA

by: Alan W. Rasplicka
Principal Geotechnical Engineer

R. T. FRANKIAN & ASSOCIATES
1329 SCOTT ROAD BURBANK CALIFORNIA 91504
TEL. (818) 531-1501 FAX (818) 531-1511 WWW.RTFRANKIAN.COM



and: Timothy P. Latiolait
Principal Engineering Geologist

AWR/TPL/eaw

PDF Distribution via Email:
Lennar Homes – Ms. Cherryl Thompson
Alliance Land Planning & Engineering, Inc. – Mr. Craig Whitteker and Ms. Erin Stanley

Hard Copy Distribution:
Alliance Land Planning & Engineering, Inc.
Attn: Ms. Erin Stanley
(2 wet-signed, stamped copies plus 1 CD of PDF file for submittal to the Geotechnical and Materials Engineering Division)

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Lennar Homes
April 3, 2014
2013-014-051

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Appendix B – SCEC Historic Earthquake Search Results (12 pages)
Appendix C – CBC Seismic Design (6 pages)

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

GEOLOGIC/GEOTECHNICAL EVALUATION FOR

ENVIRONMENTAL IMPACT REPORT

VESTING TENTATIVE TRACT MAP NO. 52796

LOS ANGELES COUNTY, CALIFORNIA

APRIL 3, 2014

JOB NO. 2013-014-051

INTRODUCTION

This report presents the results of R. T. Frankian & Associates' (RTF&A) evaluation of the geologic and geotechnical conditions within Vesting Tentative Tract Map No. 52796 (VTTM 52796), Los Angeles County, California. The purpose of the evaluation is to assess the impact of the geologic/geotechnical conditions on future site development. This data is provided for incorporation into an Environmental Impact Report (EIR).

RTF&A recently completed a geotechnical plan review of the 100-scale revised Vesting Tentative Tract Map for VTTM 52796 (RTF&A, 2014). The plan was prepared by Alliance Land Planning and Engineering Inc. (Alliance) with a signature date of January 28, 2014. Geologic and geotechnical data collected as part of the plan review has been incorporated into this report. Previous geotechnical studies conducted on the site were performed by GeoSoils, Inc. (GeoSoils) in 1989 and 1997, and The J. Byer Group, Inc. (J. Byer) in 2000. Data from these reports were reviewed and evaluated in preparation of this EIR report.

The findings, conclusions, and recommendations presented in this report are based on the concurrent and previous geotechnical reports, results of a review of published data, and appropriate engineering and geologic analyses. The assessment of general site conditions for the presence of contaminants in the soils and groundwater was beyond the scope of this investigation.

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

SITE DESCRIPTION

VTTM 52796 consists of approximately 230 acres of hillside terrain located along the south side of Pico Canyon, within Los Angeles County, California. Topography at the site is characterized by a series of steep to moderately steep northwest-southeast trending ridges. These ridges descend towards intervening northwest-southeast trending drainage courses that flow towards the centrally located Wickham Canyon. Wickham Canyon, a northerly-draining tributary of Pico Canyon, essentially bisects the site. Elevations across the site range from approximately 1,470 feet above mean sea level, near the confluence of Wickham and Pico Canyons, to 2,000 feet, in the southwest corner of the site. The natural slopes on-site exhibit gradients ranging from approximately 1½:1 to 3:1 (horizontal:vertical).

Development of VTTM 52796 will encompass approximately 120 of the 230 acres and will consist of cut and fill grading to create 102 single-family lots. The 102 lots will all be located west of Wickham Canyon. Included in the development will be realignment and widening of Pico Canyon Road, two water quality basins, and a private driveway/fire lane extending westerly from Tract No. 43896. Cut slopes are proposed at gradients of 2:1, with the maximum cut slope height approaching 120 feet. The maximum fill depth is approximately 70 feet.

GEOLOGY

REGIONAL GEOLOGY

VTTM 52796 is located in the eastern Ventura basin, within the Transverse Ranges geomorphic province of California. The Ventura basin consists of a narrow, elongate sedimentary trough extending from the Santa Barbara Channel on the west, to the San Gabriel fault on the east. The axis of the trough trends east-west, reflecting the overall east-west trend of the Transverse Ranges, and generally coincides with the Santa Clara River Valley and the Santa Barbara Channel. The Ventura basin has been an area of subsidence and sediment accumulation

since the beginning of the Tertiary period, with the present trough-like form developing near the beginning of the Miocene epoch (Winterer and Durham, 1962).

The structure of the basin is defined as a highly folded "synclinorium" formed by north-south compressional forces (Kew, 1924) and containing a maximum 50,000± feet of marine and nonmarine Tertiary through Quaternary age sediments (Bailey and Jahns, 1954). Two main periods of general deformation of the Ventura basin are indicated by the regional geologic structure: one in middle to late Miocene (represented by deposition of the Modelo Formation) and the other during the Pleistocene epoch, after deposition of the Plio-Pleistocene Saugus Formation (Kew, 1924; Winterer and Durham, 1962; Yeats et al., 1994). The flanks of the Ventura basin synclinorium are broken by a series of large reverse/thrust faults including the Santa Susana and Oak Ridge faults on the southern flank, and the Red Mountain and San Cayetano faults on the northern flank (Bailey and Jahns, 1954; Yeats et al., 1994). The San Gabriel fault, the dominant geologic feature in the Santa Clarita Valley, forms the eastern Ventura basin boundary, and separates the Ventura basin from the structurally similar Soledad basin.

Sedimentary rock units comprising the eastern Ventura basin include approximately 2,000 feet of undifferentiated middle to late Eocene age rocks, 1,000± feet of the middle Miocene age Topanga Formation, 5,000± feet of the late Miocene age Modelo Formation, 4,000± feet of the late Miocene to early Pliocene age Towsley Formation, 5,000± feet of the Pliocene age Pico Formation, and 7,000± feet of the Plio-Pleistocene Saugus Formation (Winterer and Durham, 1962). The undifferentiated Eocene units and the Topanga, Modelo, Towsley, and Pico Formations are composed of marine sediments; the Saugus Formation is composed of interfingering shallow-water marine, brackish water, and nonmarine units (Kew, 1924; Winterer and Durham, 1962). These Tertiary period rock units rest unconformably on pre-Cretaceous age metamorphic and igneous basement rocks of the San Gabriel Mountains.

SITE GEOLOGY

General: Geologic conditions within the boundaries of VTTM 52796 have been previously evaluated by GeoSoils (1989 and 1997) and J. Byer (2000). Additional geologic data was collected by RTF&A during reconnaissance geologic mapping of VTTM 52796 (RTF&A, 2014).

Geologic Units: The geologic units within VTTM 52796 consist of bedrock of the Pico Formation, landslides, slope wash deposits, alluvium, and man-made fill. The geologic units identified within VTTM 52796 are shown on the Geologic Map (Figure 2). A description of each unit is presented as follows:

Pico Formation (Tp): Marine sedimentary rock units of the Pliocene age Pico Formation (map unit "Tp") underlie VTTM 52796. These units are comprised of interbedded sandstone, conglomerate, and siltstone. Bed thickness ranges from massive (typically greater than 3 feet thick) to thickly bedded (1 to 3 feet thick). In general, sandstone and conglomerate beds are brown to orangish brown in color, hard to very hard, weakly cemented to cemented, and moderately to slightly weathered. Siltstone beds are grayish brown to greenish gray, slightly hard to hard, fractured, and very weathered in the upper exposed portions of the rock.

Landslides (Qls): Three landslides have been mapped within the VTTM 52796 boundaries. The slides consist of disturbed bedrock materials, typically derived from siltstone units. The landslides have been observed to depths of approximately 30 feet below ground surface.

Numerous surficial failures are located on the steep natural slopes on-site. These deposits generally are composed of slope wash and/or weathered rock materials that failed during periods of heavy rainfall. For the most part these deposits are less than 10 feet thick.

Alluvium (Qal): Holocene age alluvium ("Qal") is present within Pico and Wickham Canyons and generally consists of mixtures of sand, silt, gravel, cobbles, and boulders. The observed depths of alluvium in exploratory borings ranged from 26 feet in Pico Canyon to 15 feet in Wickham Canyon. The alluvium is generally loose to moderately dense and uncemented.

Slope Wash Deposits (Qsw): Slope wash, or colluvial deposits ("Qsw"), are present in drainage swales and side canyons, and at the lower elevations of the natural slopes. The slope wash generally consists of poorly consolidated deposits of sand and silt mixtures.

Man-made Deposits (af and sr): Man-made deposits, associated with past grading activities within VTTM 52796, consist of artificial fill ("af") and stockpiled oversize rocks ("sr"). Artificial fill deposits are located along portions of the Pico Canyon flood plain, and within a secondary easterly-draining tributary canyon to Wickham Canyon. For the most part the materials have been derived from the immediately adjacent bedrock materials. The fill within Pico Canyon is generally less than 5 feet deep. The fill in the area east of Wickham Canyon is estimated to be approximately 30 feet deep. Test pits excavated within this fill by both GeoSoils (1989) and RTF&A encountered discolored soils with a hydrocarbon odor.

Stockpiled oversize rock is present near the junction of Pico and Wickham Canyons. This material was presumably generated during grading of adjacent Tract No. 43896.

Geologic Structure: VTTM 52796 is located along the northerly limb of the asymmetrical Pico anticline. Within the VTTM 52796 boundaries, the beds forming the northerly limb strike west-northwest and dip 45 to 85 degrees to the north.

GROUNDWATER

VTTM 52796 is located in Township 3 North, Range 16 West, Section 6, within the Eastern Hydrologic Subarea of the Upper Santa Clara River watershed of Los Angeles County. Within VTTM 52796, groundwater occurs in the alluvial deposits within Pico Canyon and major tributary canyons.

Data from the Water Resources Division of Los Angeles County Department of Public Works (LACDPW) indicates that one water well was located within the site boundaries. This well, designated as Well No. 5802, was located within the flood plain of Pico Canyon, south of Pico Canyon Road. The water level data from this well is limited to one measurement only, obtained on April 11, 1950. The water level at that time was measured at a depth of 22 feet

below existing ground surface (corresponding to water surface elevation of approximately 1,472 feet below mean sea level).

Exploration completed within VTTM 52796 in 2000 by J. Byer indicated groundwater within Pico Canyon at depths of 14 to 19 feet below existing ground surface. Groundwater was not encountered in any of the exploratory borings excavated within Wickham Canyon.

GEOLOGIC AND GEOTECHNICAL HAZARDS

GENERAL

Potential geologic and geotechnical hazards include, but are not limited to, primary earthquake hazards (ground shaking and ground rupture), secondary earthquake hazards from earthquake ground shaking (such as liquefaction, tsunamis, and seiches), and landslides/slope instability. Earthquakes have the potential to inflict the greatest loss of life and property damage. Consequently, the location of a site to active or potentially active faults is a key element in assessing the potential for earthquake damage.

The major cause of damage from earthquakes is generally the result of strong ground shaking from movement along a fault or fault zone. Ground shaking could occur not only immediately adjacent to the earthquake epicenter, but within areas for many miles in all directions. Damage due to actual fault displacement or ground rupture beneath a structure may also occur; however, fault ground rupture is much less common, and typically confined to areas along, or immediately adjacent to, the surface trace of the fault.

Landslides are common hazards in southern California, particularly in hillside areas underlain by sedimentary rock units. Landslides can occur in terrain ranging from vertical cliffs to slopes as gentle as one or two degrees. Materials on slopes that are subject to landsliding include rock, soil, artificial fill, or combinations of these.

FAULTS

Earthquakes result from movement along faults or volcanic activity. In California, earthquakes are more commonly associated with faults or fault zones; the southern California region is historically seismically active. The numerous faults in California include both active and potentially active faults. In accordance with criteria established by the California Geological Survey (CGS), formerly known as California Division of Mines and Geology (CDMG), for the Alquist-Priolo Earthquake Fault Zoning program (Hart and Bryant, 1999), a fault can be considered active if it has demonstrated movement within the Holocene epoch, or approximately the last 11,000 years. Faults that have demonstrated Quaternary movement (last 1.6 million years), but lack strong evidence of Holocene movement, are classified as potentially active. Faults that have not moved since the beginning of the Quaternary period are deemed inactive.

No known active faults underlie VTTM 52796, and VTTM 52796 is not within an Alquist-Priolo Earthquake Fault Zone, as established by CGS. The closest active (and zoned) faults to the site are several minor, discontinuous flexural-slip faults observed in Stevenson Ranch following the 1994 Northridge earthquake, and the San Gabriel fault. The flexural-slip faults are located approximately 1 mile northeast of VTTM 52796; the San Gabriel fault is located approximately 4 miles to the northeast.

There are no active faults within VTTM 52796 boundaries. In our opinion, there is little probability of surface rupture due to faulting occurring on-site during the design life of the project.

A discussion of nearby active and potentially active faults is presented in the following sections. The location of the site, relative to nearby active and potentially active faults, is illustrated on the Regional Fault Map (Figure 3).

Active Faults: The site is located within an area potentially susceptible to severe ground shaking, due to the close proximity of several active faults, including the flexural-slip faults within Stevenson Ranch, the San Gabriel fault, Santa Susana fault, the Oak Ridge fault, and San Cayetano fault.

Flexural-Slip Faults: Following the 1994 Northridge earthquake, CGS mapped ground distress cracks near the mouth of Pico Canyon, within the Stevenson Ranch area of Los Angeles County (Treiman, 1994 and 1995). Specifically, the ground distress consisted of a northwest-trending zone of cracks and a closed depression in Tract 45433, and a linear array of six northwest-trending surface fractures identified within Tracts 33698 and 44338. Initially CGS concluded that the distress cracks were not the result of primary surface rupture of the causative fault; rather the cracks were the manifestation of secondary surface rupture associated with slippage along existing bedding-planes (also referred to as flexural slip). According to CGS Fault Evaluation Report FER-242 (Treiman, 1994), the flexural slip was associated with the tightening of the Pico anticline in response to the seismic forces operating during the Northridge earthquake.

Subsequent to the release of the CGS FER report, the ground cracking was investigated by GeoSoils (1995) and Alan E. Seward Engineering Geology, Inc. (AES) (1995). Both GeoSoils and AES offered differing interpretations regarding the rupture mechanism for the distress cracks (Treiman, 1995). The varied interpretations included seismically triggered elastic rebound, seismic shaking, lurching, and settlement of the ridge flank.

After reviewing the AES and GeoSoils studies, CGS issued a supplement to FER-242 (Treiman, 1995), concluding that: (1) the surface ruptures, and associated uplift and surface deformation, occurred during the Northridge earthquake; (2) the surface ruptures were in response to folding along a northwest-trending concave-up monoclinal flexure that forms the north flank of the Pico anticline; (3) repeated past compressional folding and faulting, associated with tightening of the monocline, has affected Pleistocene age terrace deposits in the area; (4) the location of the observed ruptures are not directly related to formational contacts; (5) the faults within the active monocline may be shallowly rooted and are probably not seismogenic; and (6) fault rupture (and significant surface deformation) can be expected to recur in the future along the linear zone of flexure.

CGS designated six of the surface distress cracks as "faults" that are "sufficiently active and well-defined" (Treiman, 1995). These faults, designated by CGS as Faults A through F, lie approximately 1 mile northeast of VTTM 52796 and have been included in an Alquist-Priolo Earthquake Fault Zone by the State Geologist.

San Gabriel Fault: The active San Gabriel fault is located approximately 4 miles northeast of VTTM 52796. The San Gabriel fault extends approximately 90 miles through the Transverse Ranges of southern California and consists of a zone of imbricate steeply north-dipping faults. Throughout most of its extent, the fault has strong geomorphic expression, with the faults comprising the zone characterized by displaced geologic units, deflected drainages, strike valleys, notched ridges, subparallel faulting, fracturing, and folding (Oakeshott, 1958; Wentworth and Yerkes, 1971).

Within the Santa Clarita Valley, from Castaic Creek to the San Gabriel Mountains, the fault crosses the Castaic lowlands and the Santa Clara River, where its course is marked by a belt of braided small faults and steep dips in Pliocene and Pleistocene beds. Since most of the displacement within the fault zone took place before deposition of these geologically young beds, the fault's trend through this area is not nearly as conspicuous as within the rocks along the southwestern margin of the Ridge basin or in the basement rocks of the San Gabriel Mountains (Crowell, 1982). The location of the fault, however, is somewhat defined by the steeply-dipping and folded beds of the Plio-Pleistocene Saugus Formation, and the fault is exposed in cut slopes, roadcuts, and trenches.

Prior to 1979, most geologists studying the San Gabriel fault acknowledged that late Pleistocene (approximately the past 100,000 years) activity along the fault zone was probable, but evidence for possible Holocene activity was judged to be very questionable (Kahle, 1986b). However, after completing a geologic and geomorphic investigation of the San Gabriel fault, Weber (1979) concluded that some evidence strongly suggested Holocene activity. Subsequently, Cotton and Seward (1984) conducted exploratory trenching along segments of the fault zone in the Santa Clarita Valley. Although no surface evidence of faulting was recognized,

at least two trenches revealed displacement of Holocene age alluvial deposits. Radiocarbon analyses of detrital charcoal from faulted alluvial materials in a trench excavated in Rye Canyon yielded an age of 3,500±250 years before present. Alluvium dated as 1,550±190 years before present was shown to be unfaulted in the same trench, establishing limits of latest movement on the Castaic-Bouquet Junction segment of the San Gabriel fault.

Based on the findings of Weber (1979), Cotton and Seward (1984), and the recommendations of Kahle (1986b) for a CGS Fault Evaluation Report for the fault, the State Geologist established an Alquist-Priolo Earthquake Fault Zone within the Newhall Quadrangle for the San Gabriel fault in 1987.

Santa Susana Fault: The Santa Susana fault, located approximately 3.5 miles southwest of VTTM 52796, consists of a complex zone of primarily north-dipping thrust faults. The fault zone extends northeastward from the Santa Susana Mountains, across San Fernando Pass, and into the San Gabriel Mountains. A short segment of the Santa Susana fault ruptured during the 1971 San Fernando earthquake (Southern California Earthquake Center [SCEC], 2010); however, the remainder of the fault zone has not demonstrated displacement since late Pleistocene time (Slosson and Barnhart, 1967).

Oak Ridge Fault: The Oak Ridge fault is a south-dipping reverse fault that forms a ridge to the south of its trace. The fault extends for a distance of approximately 56 miles from Piru on the east, to offshore at a point about 20 miles south of Santa Barbara. The onshore segment of the Oak Ridge fault is roughly parallel to both the Santa Clara River and State Highway 126. The offshore segment is associated with a definite zone of active seismicity (SCEC, 2010); the only known Holocene surface rupture is found onshore, between the towns of Bardsdale and Fillmore (Yeats et al., 1986; Powell, 1991).

At its eastern end, the Oak Ridge fault appears to be overthrust by the Santa Susana fault, becoming a “blind thrust fault” (SCEC, 2010). The fault associated with the 1994 Northridge earthquake is probably associated with the Oak Ridge fault system. At its closest point, the Oak Ridge fault is situated approximately 3.5 miles west of VTTM 52796.

San Cayetano Fault: The San Cayetano fault is an east-west trending, north-dipping thrust fault that extends approximately 28 miles from the foothills north of Piru to the southeastern edge of Ojai Valley. Weber et al. (1973) and Kahle (1985) suggest that Holocene fault activity is indicated by well-defined fault scarps and off-set Holocene alluvial and colluvial sediments. The San Cayetano fault is located approximately 6 miles west-northwest of VTTM 52796.

San Fernando Fault: The San Fernando fault zone comprises one of a number of left lateral/reverse frontal faults bounding the southern margin of the San Gabriel and Santa Susana Mountains. Movement along segments of this fault zone occurred on February 9, 1971, causing the magnitude 6.4 San Fernando earthquake. At its closest point, the San Fernando fault zone is approximately 6 miles southeast of VTTM 52796.

San Andreas Fault Zone: The San Andreas fault zone is about 22 miles northeast of VTTM 52796. This fault zone, California's most prominent geological feature, trends generally northwest for almost the entire length of the state. The southern segment, closest to the site, is approximately 280 miles long and extends from the Mexican Border to the Transverse Ranges west of Tejon Pass. Wallace (1968) estimated the recurrence interval for a magnitude 8.0 earthquake along the entire fault to be between 50 and 200 years. Sieh (1984) estimated a recurrence interval of 140 to 200 years. The 1857 Fort Tejon earthquake was the last major earthquake along the San Andreas fault zone in Southern California.

Potentially Active Faults: Potentially active faults near VTTM 52796 include the Holser and Del Valle faults.

Holser Fault: The Holser fault consists of a south-dipping, sharply folded reverse fault (Winterer and Durham, 1962) that trends east-southeast from near Piru Creek to at least Castaic Junction. The location of the fault south of Castaic Junction is highly speculative, and the southerly fault terminus may be at approximately the Santa Clara River. The Holser fault post-dates deposition of the Pico Formation and is believed to be a “backthrust” of a subsurface thrust fault that represents the intersection of the San Cayetano and Santa Susana faults at depth (Yeats

et al., 1994). Weber (1979) states that there is no clear evidence of Holocene activity along the Holser fault, but "plentiful evidence" that activity has occurred in the past 100,000 years. Geolabs-Westlake Village (Geolabs) (2007a) conducted a surface fault rupture hazard assessment for the Holser fault within Parcel Map 18108, located near Castaic Junction. Geolabs concluded that the last known movement on the Holser fault was approximately 40,000 to 100,000 years ago. Consequently, the fault is considered potentially active. The Holser fault is located approximately 3 miles north of VTTM 52796.

Del Valle Fault: The Del Valle fault trends eastward from the Los Angeles-Ventura County Line for nearly two miles, turning southward before crossing San Martinez Grande Canyon near its confluence with the Santa Clara River. According to Winterer and Durham (1962), the eastward-trending segment of the Del Valle fault consists of a south-dipping reverse fault; the southward-trending segment is considered a tear (strike-slip) fault. The age of the fault is estimated to be late Quaternary (Jennings and Bryant, 2010). Based on published mapping of Dibblee (1993) the southerly terminus of the Del Valle fault lies approximately 5.4 miles northwest of VTTM 52796.

Blind-Thrust Faults: A growing body of geologic and seismologic data, supplemented by regional structural interpretations, suggests Pliocene to modern deformation in the Los Angeles basin is partly accommodated by developing basement-involved fold and thrust belts (Davis et al., 1989; Hauksson, 1990; Shaw and Suppe, 1996). The fold and thrust belts are expressed at the ground surface by elongate, low-lying anticlinal ridges. At the core of these anticlinal ridges are low-angle, blind-thrust faults rising off a basal detachment surface. Recognized blind-thrust faults in the Los Angeles and Ventura basins include the Elysian Park, Compton-Los Alamitos, Oak Ridge, and Northridge blind-thrust faults.

The closest known blind-thrust fault to the site is the Northridge blind-thrust fault. VTTM 52796, however, is not underlain by any known blind-thrust fault.

SEISMICITY

Historic Seismicity: The historic occurrence of earthquakes within the region of VTTM 52796 was determined using the program EQSEARCH for Windows (Blake, 2000a). This program computes and prints the epicentral distance from a selected site to each of the earthquakes within a specified search radius (100 miles). From the computed distances, the program also estimates the peak horizontal ground acceleration that may have occurred at the site, due to each earthquake, utilizing the Bozorgnia-Campbell-Niazi (1999) attenuation relationship. A historic earthquake search for the time period 1932 through 2013 was also attained from the SCEC website, since the data for the EQSEARCH program has not been updated since 2005. There have only been two magnitude 5.0 or larger events within the vicinity of the site since 2005, within the 100 mile search radius. The Chino Hills earthquake occurred on July 29, 2008 and registered a magnitude of 5.40 (M5.40). The epicenter of this earthquake was approximately 58 miles east of VTTM 52796. The most recent earthquake with a magnitude greater than 5.0 was located in La Habra and occurred on March 29, 2014. The earthquake search data from EQSEARCH is presented in Appendix A, and earthquake search data from the SCEC website is presented in Appendix B.

The closest recorded earthquake epicenter was located 1.2 miles from the site, based on the EQSEARCH output. This earthquake event, with a measured magnitude of 5.1 (M5.1), occurred on January 19, 1994 and was likely an aftershock of the Northridge earthquake of January 17, 1994. The calculated site-specific ground motion associated with this event was 0.264g. At least 14 events of M5 or greater have occurred within 15 miles of the site during the period of 1800 to 2013, as listed in Appendix A. Most of the M5 or greater events were associated either with the February 9, 1971, M6.4 San Fernando earthquake or the January 17, 1994, M6.7 Northridge earthquake. The San Fernando earthquake resulted in a calculated site-specific ground motion measured at 0.225g. Ground motion at the site from the Northridge earthquake was 0.261g.

The largest known earthquake event occurring within 100 miles of the site was the M7.9 Fort Tejon earthquake of January 9, 1857. The epicenter of this earthquake was approximately 93 miles from the site. The estimated site-specific ground motion from the Fort Tejon earthquake was 0.075g.

The largest recorded earthquake ground motion at the site occurred on April 4, 1893, with an estimated ground motion of 0.340g. The epicenter of this earthquake was located approximately 5.2 miles from the site.

California Building Code Seismic Design: Under Section 1613 Earthquake Loads of the CBC, the following coefficients and factors apply to seismic force design of structures at the subject site. We determined the coefficients and factors using ASCE 7-10 as the Design Code Reference Standard. The parameters were determined using the U. S. Seismic Design Maps at the United States Geological Survey (USGS) Earthquakes Hazard website. The output from the USGS Earthquake Hazard website is presented in Appendix C.

Site Class	C
Ss	3.093
S1	0.980
SMs	3.093
SM1	1.274
SDs	2.062
SD1	0.849
PGA	1.162

LIQUEFACTION

General: The State of California Seismic Hazard Maps for the Newhall Quadrangle (1998) and Oat Mountain Quadrangle (1998) indicate that within the VTTM 52796 boundaries, Pico and Wickham Canyons are considered potential liquefaction areas. The potential liquefaction areas are depicted on Figure 4, Seismic Hazard Zones.

Liquefaction may occur when saturated, loose to medium dense, cohesionless soils are densified by ground vibrations. The densification results in increased pore water pressures if the soils are not sufficiently permeable to dissipate these pressures during, and immediately following, an earthquake. When the pore water pressure is equal to or exceeds the overburden pressure, liquefaction of the affected soil layers occurs. For liquefaction to occur, three conditions are required:

- ground shaking of sufficient magnitude and duration;
- soils that are susceptible to liquefaction; and
- a groundwater level at or above the level of the susceptible soils during the ground shaking.

For a site to be considered susceptible to liquefaction using the criteria and methodology initially developed by Seed and Idriss (1982), liquefaction of underlying soil layers must result in an observed surface effect such as sand boils, mud-spouts, surface water seepage, ground cracking, or quicksand-like conditions.

Lateral spreading can result in ground cracking, and may occur when a site is sloped or is near a free-face and there is a sufficiently continuous liquefiable layer on which the overlying soils can move laterally.

Ground settlement may occur during seismic shaking of an area. The settlement can be caused by liquefaction of loose granular soils and by compaction of loose, but not necessarily liquefiable, soils.

As a result of the existing and proposed grading, there will not be any soils potentially subject to liquefaction remaining within the proposed habitable areas of the project at the completion of grading operations. The site is also not subject to liquefaction related lateral spread. The Wickham Canyon alluvial deposits within proposed grading areas will be removed to bedrock which will eliminate the potential for liquefaction. Within the proposed “A” Street as it approaches Pico Canyon, the upper loose alluvial soils to depths of up to 10 to 15 feet will be removed and replaced with compacted fill soils. However, some alluvial soils are proposed to remain in place below the

existing groundwater elevation. The remaining alluvium will be mantled by certified engineered fill. The alluvial soils are underlain by bedrock materials. Accordingly, the portion of proposed "A" Street within a potential liquefiable area will be underlain by a combination of bedrock materials, dense alluvial deposits, and certified engineered fill. The maximum total static settlement will be about 1.25 inches and static and seismic differential settlements will be less than 1.0 inches of vertical movement across a horizontal distance of 30 feet. The proposed utilities and other improvements within "A" Street should be designed to resist the potential static and dynamic settlements.

SLOPE STABILITY

General: Slope stability considerations include existing landslides, future cut-and-fill slopes, slopes that will remain natural at the completion of grading, and debris flows associated with natural slopes and rockfall hazard.

Landslides: Three landslides have been identified within VTTM 52796. RTF&A has designated the three landslides as "Qls 1 through Qls 3". Landslides Qls 1 and Qls 3 lie outside of the proposed development footprint and will have no impact on the proposed VTTM 52796 development. Landslide Qls 2 lies within the proposed grading limits, beneath proposed Lot Nos. 71 through 73. This landslide should be entirely removed during site grading. Where necessary, engineered fill will be placed in the landslide removal area to restore proposed slope and/or pad grades.

Numerous surficial failures have been identified within VTTM 52796. All surficial failures within proposed limits of grading will be removed.

Cut Slopes: Proposed site development will include the grading of numerous cut slopes. The cut slopes will be graded at inclinations of 2:1. All cut slopes exceeding 30 feet in height will be designed with terrace drains every 25 vertical feet. The maximum proposed cut slope is approximately 120 feet in height.

The proposed cut slopes will be grossly stable if graded in accordance with the recommendations presented in RTF&A's 2014 100-scale plan review report (RTF&A, 2014).

Fill Slopes: Proposed fill slopes will be graded at inclinations of 2:1 or flatter. All fill slopes exceeding 30 feet in height will be designed with terrace drains every 25 vertical feet. The maximum proposed fill slope height is approximately 70 feet. The proposed fill slopes will be grossly stable if graded in accordance with the recommendations of RTF&A's 2014 report and the project grading plan.

Natural Slopes: The natural slopes proposed for VTTM 52796 have gradients ranging from 1½:1 to 3:1. Steep natural slopes adjacent to future building pads were evaluated by RTF&A (2014). The standard setbacks from grossly stable ascending and descending natural slopes provided in the Los Angeles County/California Building Code shall also be followed, where not superseded by the recommended building setbacks.

Debris Flow: Potential debris flow hazard exists anywhere that a moderate to thick accumulation of residual soil, slope wash, or weathered bedrock materials occur on moderate to steep descending slopes that border future building pads. Potential debris flow may be mitigated by one or a combination of the following measures:

- remove loose surficial material;
- construct diverter slough walls;
- construct an impact wall;
- construct debris basins;
- construct stabilization fill slopes;
- control run-off water; and
- plant selective deep-rooting vegetation.

In general, building lots most susceptible to potential debris flow are those lots located directly below and adjacent to natural slopes. Based on our review of the Alliance plan, all future lots appear to have acceptable separation, either vertical or horizontal, from natural slopes and potential debris flow source areas. Therefore, potential debris flow impacts are judged to be minimal. However, potential debris flow should be further evaluated once a 40-scale rough

grading plan has been developed for VTTM 52796. Appropriate mitigation measures can be provided for any additional debris flow areas identified on the rough grading plan.

Rockfalls: Future building pads within VTTM 52796 will not be located directly downslope of any potential rockfall areas.

TSUNAMIS AND SEICHES

VTTM 52796 is not in a coastal zone and, therefore, not susceptible to tsunamis (seismic sea waves).

VTTM 52796 is not located downslope of any large impounded bodies of water that would adversely impact the site as a result of seiches (oscillations in a body of water due to earthquake shaking). Therefore, the site is considered safe from hazards associated with tsunamis or seiches.

SUBSIDENCE AND HYDROCONSOLIDATION

The site is not within an area of known subsidence associated with petroleum or groundwater withdrawal. Furthermore, the site is not in an area of known peat deposits; therefore, the site will not be impacted by subsidence associated with peat oxidation. The potential for ground subsidence in response to fluid withdrawal or peat oxidation within VTTM 52796 is judged to be low.

Hydroconsolidation is the process by which dry alluvial soils, with high void-ratio, collapse under structural load in response to the application or introduction of water into the soils. Areas of potentially collapsible or compressible soils were investigated by J. Byer (2000) and RTF&A (2014). J. Byer identified the upper 10 feet of natural alluvial soils within Pico Canyon as potentially susceptible to hydroconsolidation and recommended that these materials be removed and replaced with engineered fill materials. Wickham Canyon alluvial deposits within the grading footprint will be removed to bedrock materials, eliminating any potential hydroconsolidation concerns.

Based on the recommended alluvial removals, hydroconsolidation of natural soils on-site after the completion of grading is considered low.

EROSION POTENTIAL AND DRAINAGE

The bedrock, soil/alluvial material, and future fill material are susceptible to erosion if sheet flow drainage is not provided. The degree of erosion is controlled by the degree of cementation or consolidation of the various materials; accordingly, the bedrock materials are less susceptible to erosion than the other materials. Water should not be allowed to pond on future graded areas, or allowed to flow uncontrolled over natural or graded slopes. Surface drainage should be directed to terrace drains or debris basins. Debris material generated from erosion should be contained within site boundaries. All slope terrace drains should be kept clear of all debris to limit impounding or surface water. Graded slopes should be seeded with a deep-rooting, drought-resistant vegetation to minimize erosion.

CONSTRUCTION CONSIDERATIONS

OIL WELLS

Data from the California Division of Oil, Gas and Geothermal Resources (DOGGR) indicate that two oil wells, designated Electrological Petroleum Corporation, Ltd. "Overman" 1 and NM Fraser "Gerard" 1 are located within the VTTM 52796 boundary. "Overman" 1 is located east of Wickham Canyon. Only limited data on this well exists in the DOGGR records. Based on the data, the well was drilled in 1931 to a depth of 1,070 feet and left idle for several years. After DOGGR was unable to locate anyone associated with Electrological Petroleum Corporation, Ltd., the well records were closed and the oil well marked as abandoned on DOGGR maps in 1938.

"Gerard" 1, located in the western portion of the property, was drilled in 1936 for a total depth of 960 feet. The hole was dry and subsequently plugged and abandoned.

Based on the existing DOGGR maps, both oil wells appear to be located outside of the proposed grading footprint. It is recommended that, prior to development, the locations of the two wells be surveyed and staked in the field. The surveyed locations should be plotted on the current grading plan to determine the location relative to the grading footprint. Furthermore, DOGGR should be afforded the opportunity to review the site development plans to provide the necessary recommendations with respect to well abandonment. It is likely that reabandonment of both oil wells to current DOGGR standards will be required if the wells are found to lie within the grading footprint.

GROUNDWATER

Groundwater within VTTM 52796 occurs in the alluvial deposits within Pico Canyon and major tributary canyons. Exploration completed within VTTM 52796 by GeoSoils (1989) and J. Byer (2000) indicated groundwater within Pico Canyon at depths of 14 to 19 feet below existing ground surface. Groundwater was not encountered in any of the exploratory borings excavated within Wickham Canyon. The recommended removal depths during grading operation (RTF&A, 2014) are above the reported groundwater elevations and dewatering is not expected to be required.

RIPPABILITY

The bedrock exposed within VTTM 52796 is weakly to moderately cemented and can likely be excavated with conventional grading equipment. Heavy single shank ripping may be needed for massive conglomerate or well-cemented sandstone units within the Pico Formation. Should a hard, well-cemented layer be encountered, the use of breakers or jackhammers may be necessary.

OVERSIZED MATERIAL

Oversized material (material larger than 8 inches in diameter) will be generated during grading, but is not considered a significant detriment to development of VTTM 52796.

Oversized material may be incorporated into the engineered fill as rockfill windrows or be removed from the site.

The existing stockpiled oversize rock on-site should be removed from future grading areas and disposed of off-site or placed within rockfill windrows as recommended by RTF&A (2014).

EXPANSIVE MATERIAL

Fine-grained units (i.e., siltstone and claystone units) within the Pico Formation may be expansive in nature. The clayey alluvial, slope wash, and artificial fill deposits could also be expansive. Engineered fills created from on-site earth materials are anticipated to have a low to medium expansion potential, based on data developed by J. Byer (2000) and RTF&A (2014). The expansion characteristics of engineered fill exposed at rough grade will be evaluated by the Project Geotechnical Consultant at the completion of the VTTM 52796 grading, as required by Appendix J of the 2014 Los Angeles County Building Code (CBC). The final foundation design should be based on those expansion test results. Expansive materials could be mitigated by utilizing special foundations and reinforcement (RTF&A, 2014).

SHRINKING AND BULKING

The weakly consolidated materials on-site, such as the artificial fill, slope wash deposits, slide debris, and alluvium, shrink in volume when excavated then placed as engineered fill. Conversely, the more consolidated Pico Formation units are likely to bulk. Shrinkage and Bulking estimates were presented in our tentative plan review report (RTF&A, 2014). Shrinkage of about 12 to 18 percent is estimated for the on-site natural alluvial soils when removed and placed as compacted fill. A bulking value of about 2 to 6 percent is estimated for materials generated from Saugus Formation bedrock cut areas for use as compacted fill. The actual shrinkage and bulking will depend upon the relative compaction obtained by the contractor during grading operations and would be expected to change on a daily basis.

CORROSION

Corrosion testing performed on soils by J. Byer (2000) suggests that the soils within VTTM 52796 may be severely corrosive to concrete and ferrous metals. Additional corrosion testing of the on-site soils will be performed, as required by Appendix J of the CBC, once a 40-scale rough grading plan has been developed for VTTM 52796. Final recommendations for concrete will be in accordance with the latest CBC requirements; a corrosion specialist should provide design recommendations for potential corrosion of concrete and metals in contact with on-site soils.

HYDROCARBON-IMPACTED FILL SOIL

Soils suspected to be impacted by hydrocarbons have been identified within the north-central portion of the site, beneath future Lot Nos. 56, 57, 67, 68, and 82 through 84 (J. Byer, 2000) and (RTF&A, 2014). To RTF&A's knowledge, these soils have not been characterized relative to extent and levels of potential contamination. It is recommended that an environmental assessment of these materials be performed to determine future handling and/or treatment. For planning purposes, and in lieu of chemical analytical characterization, it should be assumed that the impacted soils can not be incorporated in materials placed as engineered fill, and will need to be disposed of off-site.

CONCLUSIONS

On the basis of our geologic/geotechnical evaluation, we conclude that the project is feasible from a geologic and geotechnical standpoint and will be safe from geologic hazards, provided that the geologic and geotechnical recommendations outlined in this report, the referenced RTF&A report (2014), and the CBC are taken into consideration during the planning, design, and construction phases of the project. In our opinion, VTTM 52796 is suitable for the proposed development.

GEOLOGIC AND GEOTECHNICAL HAZARDS

Potential geologic and geotechnical hazards include, but are not limited to, primary earthquake hazards (ground shaking and ground rupture associated with active or potentially active faults), secondary earthquake hazards from earthquake ground shaking (such as liquefaction, tsunamis, and seiches), and landslides/slope instability.

Faults: Earthquakes result from movement along faults or volcanic activity. In California, earthquakes are more commonly associated with faults or fault zones, and the southern California region is historically seismically active. The numerous faults in California include both active and potentially active faults.

Active Faults**:** No known active faults underlie VTTM 52796, and VTTM 52796 is not within an Alquist-Priolo Earthquake Fault Zone, as established by CGS. The closest active (and zoned) faults to VTTM 52796 are the flexural-slip faults located approximately 1 mile to the northeast. No evidence of active faulting or ground rupture associated with active faulting has been identified within VTTM 52796. For the reasons stated above, the probability of ground rupture due to active faulting occurring on-site during the design life of the project is considered to be very low.

- **Mitigation:** No mitigation is required.

Potentially Active Faults**:** No known potentially active faults are located within the boundaries of VTTM 52796. The closest potentially active faults to VTTM 52796 are the Holser and Del Valle faults, located 3 miles north and 5.4 miles northwest, respectively, of the site. By definition, potentially active faults have not demonstrated movement within the last 11,000 years. Therefore, in our opinion the probability of ground rupture occurring within VTTM

52796 from nearby potentially active faults during the design life of the project is considered to be very low.

- **Mitigation:** No mitigation is required.

Seismicity: VTTM 52796 is located within a region of southern California that is subject to strong ground motion from movement along a fault or fault zone. Ground shaking could occur not only immediately adjacent to the earthquake epicenter, but within areas for many miles in all directions.

- **Mitigation:** VTTM 52796 should be designed in accordance with all applicable current codes and standards, utilizing the appropriate geotechnical parameters presented below and in the "Seismicity" section of this report to reduce seismic risk to an acceptable level as defined by CGS in Chapter 2 of SP 117a (CGS, 2008).

Site Class	C
Ss	3.093
S1	0.980
SMs	3.093
SM1	1.274
SDs	2.062
SD1	0.849
PGA	1.162

Liquefaction: VTTM 52796 is subject to liquefaction, as some relatively thin liquefaction-prone zones locally exist within Pico Canyon at isolated depth intervals. Liquefaction can result in ground failure and excessive settlement.

- **Mitigation**: The mitigation for liquefaction at the site will consist of removing the upper alluvial soils susceptible to liquefaction within Pico Canyon and designing proposed improvements within proposed A Street to withstand the anticipated liquefaction induced dynamic settlements.

Slope Stability: Slope stability considerations include future cut-and-fill slopes, slopes that will remain natural at the completion of grading, debris flows associated with natural slopes, landslides, surficial failures, and rockfall hazard.

Cut Slopes: Cut slopes will be created as part of the proposed site development and off-site grading. The cut slopes will be graded at inclinations of 2:1. All 2:1 cut slopes exceeding 30 feet in height will be designed with terrace drains every 25 vertical feet.

- **Mitigation:** All cut slopes will be grossly stable if graded in accordance with the recommendations of the Project Geotechnical Consultant. Recommended mitigation includes:
    - maintaining cut slope inclinations no steeper than 2:1 (horizontal:vertical); and
    - constructing stability fill slopes in areas of adverse geologic structure.

Fill Slopes: Proposed fill slopes will be graded at inclinations of 2:1 or flatter. All 2:1 fill slopes exceeding 30 feet in height will be designed with terrace drains every 25 vertical feet.

- **Mitigation**: The proposed fill slopes will be grossly stable if graded in accordance with the recommendations of the Project Geotechnical Consultant and in accordance with the CBC. Recommended mitigation measures for fill slopes include:
    - maintaining fill slope inclinations no steeper than 2:1 (horizontal:vertical);
    - keying and benching fill slopes into competent natural material; and
    - compacting fill slope materials to 90 percent, or greater, relative compaction.

Natural Slopes: Slopes within VTTM 52796 remaining natural have gradients ranging from 1½:1 to 3:1.

- **Mitigation:** Natural slopes will be grossly stable if the adjacent grading is confined to the proposed grading limits and does not undercut natural slopes outside the grading limits. Furthermore, the standard setbacks presented in Section 1808.7 and illustrated in Figure 1808.7.1 of the CBC for ascending and descending natural slopes shall be followed and incorporated in the project design.

Debris Flow: Potential debris flow hazard exists anywhere that a moderate to thick accumulation of residual soil, slope wash, or weathered bedrock materials occurs on moderate to steep descending slopes that border future building pads.

- **Mitigation**: Potential debris flow may be mitigated by one or a combination of the following measures:

  - remove loose surficial material;
  - construct diverter slough walls;
  - construct impact wall;
  - construct debris basins;
  - construct stabilization fill slopes;
  - control run-off water; and
  - plant selective deep-rooting vegetation.

Landslides: Three landslides are present within VTTM 52796. One of the landslides will be encountered during grading; the other two landslides lie outside of the grading footprint and will not impact the development.

- **Mitigation:** The landslide within the grading footprint will be completely removed during grading. The two landslides outside of the grading footprint will not impact the development and do not need to be mitigated.

Surficial Failures: Numerous surficial failures occur within VTTM 52796.

- **Mitigation:** All surficial failures within the grading limits will be removed during grading.

Rockfalls: VTTM 52796 is not located directly downslope of any potential rockfalls.

- **Mitigation**: No mitigation is required.

Tsunamis and Seiches: VTTM 52796 is not in a coastal zone and, therefore, not susceptible to tsunamis (seismic sea waves). The site is not located downslope of any large impounded bodies of water that would adversely impact the site as a result of seiches (oscillations in a body of water due to earthquake shaking). Therefore, VTTM 52796 is considered safe from hazards associated with tsunamis or seiches.

- **Mitigation**: No mitigation is required.

Subsidence: VTTM 52796 is not within an area of known subsidence associated with petroleum or groundwater withdrawal. Furthermore, the site is not in an area of known peat deposits; therefore, the site will not be impacted by subsidence associated with peat oxidation. The potential for ground subsidence in response to fluid withdrawal or peat oxidation within VTTM 52796 is judged to be remote.

- **Mitigation**: No mitigation is required.

Hydroconsolidation: Loose, dry alluvial soils susceptible to hydroconsolidation have been identified within Pico and Wickham Canyons of VTTM 52796.

- **Mitigation**: Alluvial soils susceptible to hydroconsolidation will be removed to competent natural material during VTTM 52796 grading. The depths of alluvial removals to mitigate soils susceptible to hydroconsolidation in Pico Canyon will be 10 to 15 feet. Mitigation for Wickham Canyon will consist of removal of all alluvial deposits within the grading footprint.

Erosion Potential and Drainage: The bedrock, soil/alluvial material, and future fill material are susceptible to erosion if sheet flow drainage is not provided.

- **Mitigation**: Water should not be allowed to pond on future graded areas, or allowed to flow uncontrolled over natural or graded slopes. Surface drainage should be directed to terrace drains or debris basins. Debris material generated from erosion should be contained within site boundaries. All slope terrace drains should be kept

clear of all debris to limit impounding or surface water. Graded slopes should be seeded with deep-rooting, drought-resistant vegetation to minimize erosion.

LIMITATIONS

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical engineers and engineering geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared for Lennar Homes and their design consultants, to be used solely for planning and design of VTTM 52796. The report has not been prepared for use by other parties and may not contain sufficient information for purposes of other parties or other uses.

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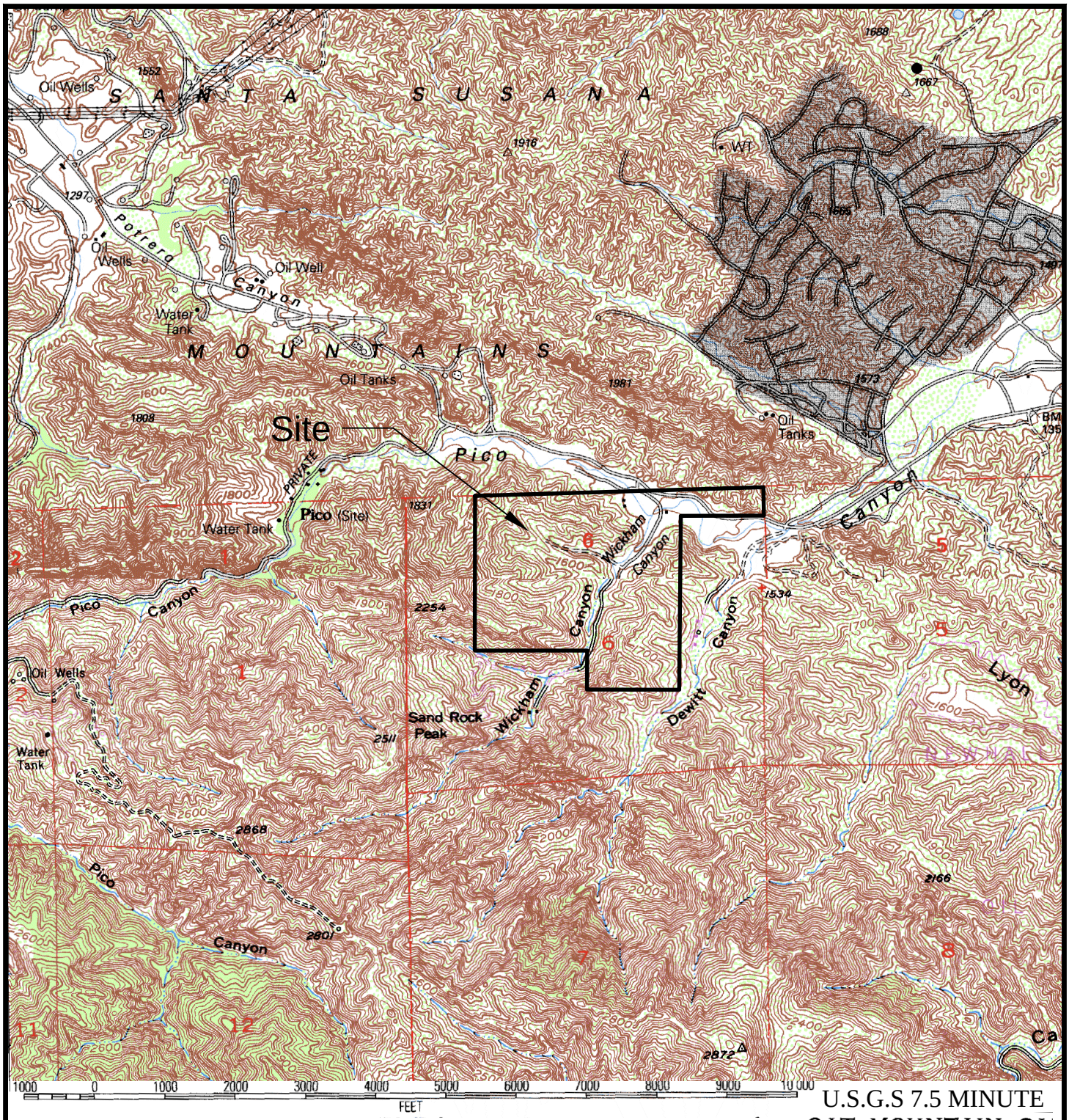
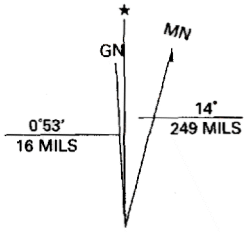


U.S.G.S 7.5 MINUTE
OAT MOUNTAIN, CA
34118-C5-TF-024

1952
NEWHALL, CA
1995
NIMA 2252 I NE - SERIES V895



UTM GRID AND 1998 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Site Location Map

Prepared for
Lennar Homes
Vesting Tentative Tract Map No. 52796
Los Angeles County, California

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Geotechnical Map

PREPARED FOR: Lennar Homes

PROJECT LOCATION: Vesting Tentative Tract No. 52796
Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
1"=100'	JH	TPL
DATE 4-3-2014	Figure 2	JOB NO. 2013-014-051

1329 SCOTT ROAD
BURBANK, CA. 91504
TEL: (818) 531-1501
FAX: (818) 531-1511
www.rtfrankian.com

RTFA
GEOTECHNICAL ENGINEERING & ENVIRONMENTAL SERVICES

SHEET COUNTY OF LOS ANGELES 2 SHEETS

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP
NO. 52796

LOCATED IN THE UNINCORPORATED AREA OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE. CARLSBAD, CA 92008 TEL: (760) 431-9896 FAX: (760) 431-8802
27451 TOURNEY ROAD SUITE 140 VALENCIA, CA 91355 TEL: (661) 799-2760
CIVIL ENGINEERING • LAND PLANNING • HILLSIDE DESIGN • SURVEYING

PREPARED FOR:
LENNAR HOMES
980 MONTECITO DRIVE, SUITE 302
CORONA, CA 92879
(951)817-3542
REPRESENTATIVE: CHERRYL THOMPSON

PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 1/28/14
DATE

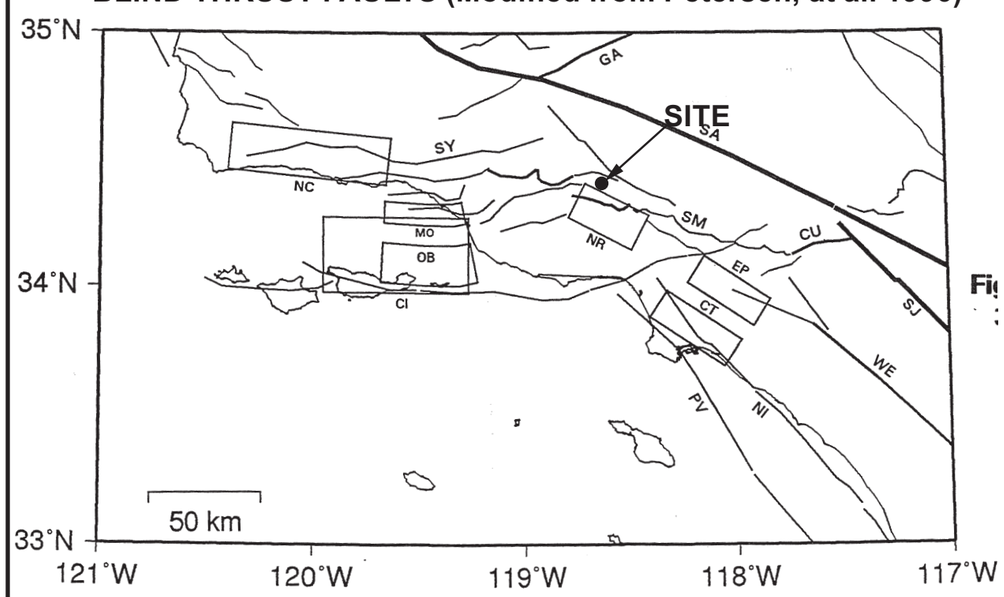
REGISTERED PROFESSIONAL ENGINEER CRAIG M. WHITTEKER NO. 51929 EXP. 6-30-14 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

C:\Users\LiveAction\Documents\Jobs\2013-014\GM-2.dwg

Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION: ON LAND	DESCRIPTION: OFFSHORE
Quaternary	Late Quaternary	Historic				Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	200		? ? ? ? ?	Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
		Pleistocene	10,000		? ? ? ?	Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Pleistocene age.
	Early Quaternary		700,000		? ?	Undivided Quaternary faults – most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
			1,600,000		? ?	Late Cenozoic faults within the Sierra Nevada, including parts of, but not restricted to, the Foothills fault system. These faults may have been active in Quaternary time.	
Pre-Quaternary			4.5 billion (Age of earth)			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive. Pre-Quaternary faults not shown in Nevada and Oregon.	Fault cuts strata of Pliocene or older age.

APPROXIMATE LOCATION OF SOUTHERN CALIFORNIA BLIND THRUST FAULTS (Modified from Petersen, at al. 1996)



Reference: Modified from Jennings (1994).

Scale: 1" ≈ 12 Miles

Regional Fault Map

PREPARED FOR: Lennar Homes

PROJECT LOCATION: Vesting Tract No. 52796, Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
1:750,000	JH	TL
DATE: 4-3-2014	FIGURE NO.: Figure 3	JOB NO.: 2013-014-051

1329 SCOTT ROAD
BURBANK, CA, 91504
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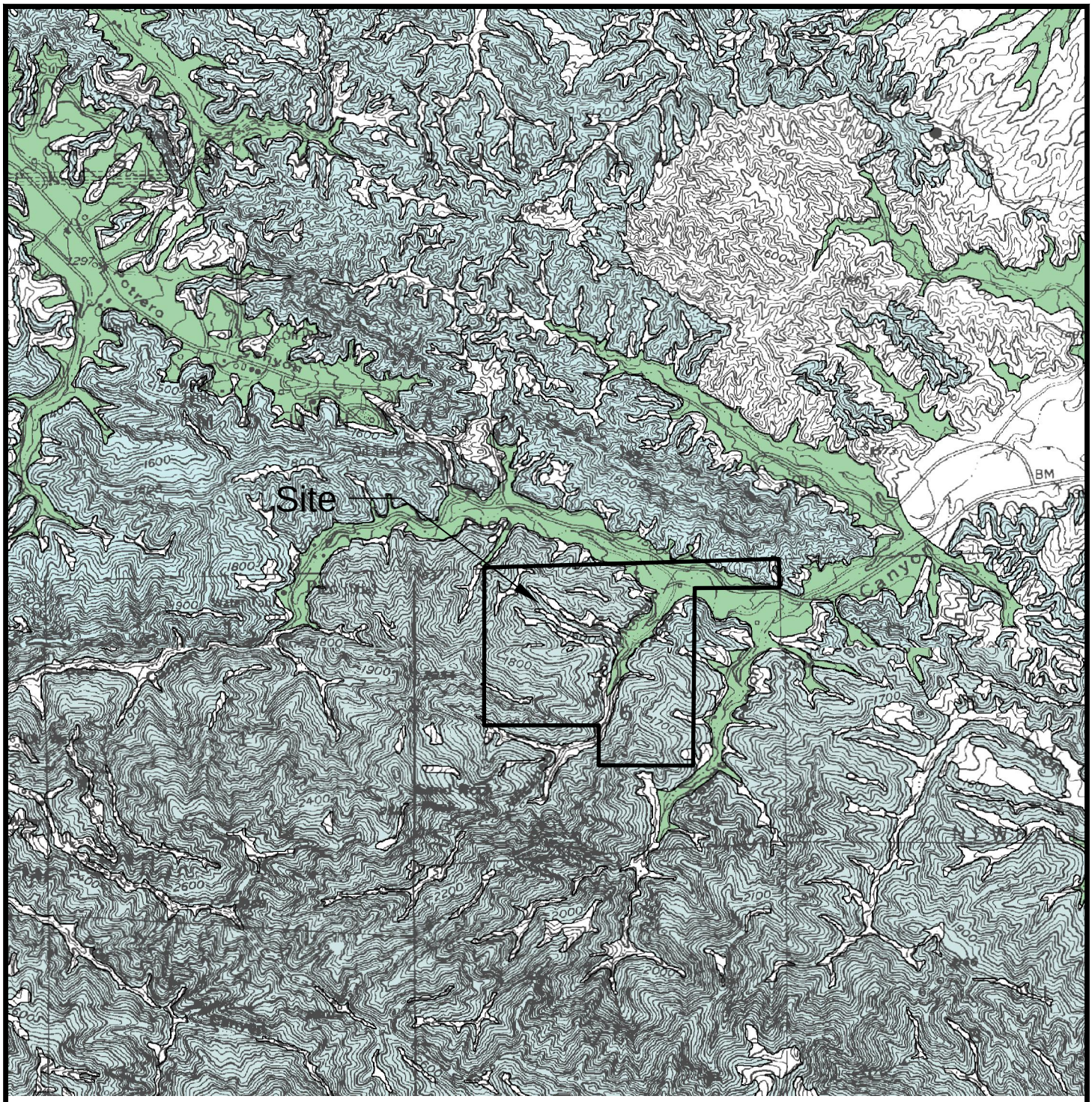


1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10 000
FEET

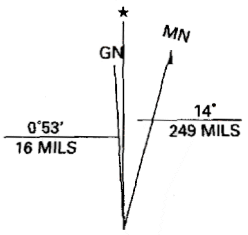
U.S.G.S 7.5 MINUTE

OAT MOUNTAIN QUADRANGLE
OFFICIAL MAP
Released: February 1, 1998

NEWHALL QUADRANGLE
OFFICIAL MAP
Released: February 1, 1998

Seismic Hazard Zones

Prepared for
Lennar Homes
Vesting Tentative Tract Map No. 52796
Los Angeles County, California



UTM GRID AND 1998 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Lennar Homes
April 3, 2014
2013-014-051

APPENDIX A

EQSEARCH HISTORIC EARTHQUAKE SEARCH RESULTS

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

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*************************
*                       *
*    E Q S E A R C H    *
*                       *
*     Version 3.00      *
*                       *
*************************
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ESTIMATION OF
PEAK ACCELERATION FROM
CALIFORNIA EARTHQUAKE CATALOGS

JOB NUMBER: 2013-014-051

DATE: 04-02-2014

JOB NAME: Pico Magnitude

EARTHQUAKE-CATALOG-FILE NAME: ALLQUAKE.DAT

MAGNITUDE RANGE:
MINIMUM MAGNITUDE: 5.00
MAXIMUM MAGNITUDE: 9.00

SITE COORDINATES:
SITE LATITUDE: 34.4708
SITE LONGITUDE: 119.6917

SEARCH DATES:
START DATE: 1800
END DATE: 2014

SEARCH RADIUS:
100.0 mi
160.9 km

ATTENUATION RELATION: 10) Bozorgnia Campbell Niazi (1999) Hor.-Holocene Soil-Cor.
UNCERTAINTY (M=Median, S=Sigma): M Number of Sigmas: 0.0
ASSUMED SOURCE TYPE: DS [SS=Strike-slip, DS=Reverse-slip, BT=Blind-thrust]
SCOND: 0 Depth Source: A
Basement Depth: 5.00 km Campbell SSR: 0 Campbell SHR: 0
COMPUTE PEAK HORIZONTAL ACCELERATION

MINIMUM DEPTH VALUE (km): 3.0

2013-014-051Distance

EARTHQUAKE SEARCH RESULTS

Page 1

FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
T-A	34.5000	119.6700	06/01/1893	12 0 0.0	0.0	5.00	0.226	IX	2.4(3.8)
MGI	34.4000	119.7000	03/25/1806	8 0 0.0	0.0	5.00	0.175	VIII	4.9(7.9)
T-A	34.4200	119.8200	00/00/1862	0 0 0.0	0.0	5.70	0.198	VIII	8.1(13.0)
PAS	34.3470	119.6960	08/13/1978	225453.4	12.8	5.10	0.128	VIII	8.5(13.8)
DMG	34.3670	119.5830	07/01/1941	75054.8	0.0	5.90	0.197	VIII	9.5(15.2)
DMG	34.5000	119.5000	06/29/1926	2321 0.0	0.0	5.50	0.131	VIII	11.1(17.8)
DMG	34.5000	119.5000	08/05/1930	1125 0.0	0.0	5.00	0.096	VII	11.1(17.8)
MGI	34.3000	119.8000	07/03/1925	1638 0.0	0.0	5.30	0.098	VII	13.3(21.4)
MGI	34.3000	119.8000	07/03/1925	1821 0.0	0.0	5.30	0.098	VII	13.3(21.4)
DMG	34.3000	119.8000	06/29/1925	144216.0	0.0	6.25	0.177	VIII	13.3(21.4)
DMG	34.2000	119.8000	12/21/1812	19 0 0.0	0.0	7.00	0.194	VIII	19.7(31.7)
DMG	34.1180	119.7020	07/05/1968	04517.2	5.9	5.20	0.050	VI	24.4(39.2)
DMG	34.1000	119.4000	05/19/1893	035 0.0	0.0	5.50	0.048	VI	30.5(49.1)
DMG	34.0000	119.5000	02/18/1926	1818 0.0	0.0	5.00	0.032	V	34.3(55.2)
DMG	33.9860	119.4750	08/06/1973	232917.0	16.9	5.00	0.030	V	35.7(57.4)
DMG	34.0000	120.0170	04/01/1945	234342.0	0.0	5.40	0.036	V	37.4(60.2)
DMG	34.7000	120.3000	01/12/1915	431 0.0	0.0	5.50	0.038	V	38.0(61.2)
DMG	34.7000	120.3000	07/31/1902	920 0.0	0.0	5.50	0.038	V	38.0(61.2)
DMG	34.8000	119.1000	09/05/1883	1230 0.0	0.0	6.00	0.048	VI	40.6(65.3)
MGI	34.6000	120.4000	07/28/1902	657 0.0	0.0	6.30	0.057	VI	41.3(66.4)
MGI	34.6000	120.4000	08/01/1902	330 0.0	0.0	6.30	0.057	VI	41.3(66.4)
DMG	34.7000	119.0000	10/23/1916	254 0.0	0.0	5.50	0.034	V	42.4(68.2)
MGI	34.8000	120.4000	12/12/1902	0 0 0.0	0.0	5.70	0.035	V	46.2(74.4)
DMG	34.0650	119.0350	02/21/1973	144557.3	8.0	5.90	0.039	V	46.8(75.3)
MGI	34.9000	120.4000	03/29/1928	625 0.0	0.0	5.30	0.025	V	49.9(80.4)
DMG	34.8670	118.9330	09/21/1941	1953 7.2	0.0	5.20	0.023	IV	51.0(82.1)
DMG	34.0000	119.0000	09/24/1827	4 0 0.0	0.0	7.00	0.073	VII	51.1(82.3)
MGI	34.0000	119.0000	12/14/1912	0 0 0.0	0.0	5.70	0.031	V	51.1(82.3)
DMG	34.9000	118.9500	08/01/1952	13 430.0	0.0	5.10	0.022	IV	51.5(82.9)
DMG	34.9410	118.9870	11/15/1961	53855.5	10.7	5.00	0.021	IV	51.5(82.9)
DMG	34.9320	118.9760	03/01/1963	02557.9	13.9	5.00	0.021	IV	51.6(83.1)
DMG	35.0000	119.0330	07/21/1952	12 2 0.0	0.0	5.60	0.029	V	52.3(84.1)
DMG	35.0000	119.0170	01/12/1954	233349.0	0.0	5.90	0.034	V	52.9(85.2)
DMG	35.0000	119.0170	07/21/1952	115214.0	0.0	7.70	0.117	VII	52.9(85.2)
DMG	34.9830	118.9830	05/23/1954	235243.0	0.0	5.10	0.021	IV	53.5(86.2)
DMG	35.0000	119.0000	02/16/1919	1557 0.0	0.0	5.00	0.020	IV	53.6(86.3)
DMG	35.0000	119.0000	07/21/1952	12 531.0	0.0	6.40	0.047	VI	53.6(86.3)
T-A	34.9200	118.9200	05/23/1857	0 0 0.0	0.0	5.00	0.020	IV	53.7(86.4)
T-A	34.9200	118.9200	01/20/1857	0 0 0.0	0.0	5.00	0.020	IV	53.7(86.4)
DMG	34.9000	118.9000	10/23/1916	244 0.0	0.0	6.00	0.036	V	53.8(86.6)
GSB	34.3790	118.7110	01/19/1994	210928.6	14.0	5.50	0.025	V	56.2(90.5)
GSP	34.3770	118.6980	01/18/1994	004308.9	11.0	5.20	0.021	IV	57.0(91.7)
DMG	34.9500	118.8670	07/21/1952	121936.0	0.0	5.30	0.022	IV	57.3(92.2)

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GSP	35.1490	119.1040	05/28/1993	044740.6	21.0	5.20	0.021	IV	57.5(92.5)
GSP	34.3260	118.6980	01/17/1994	233330.7	9.0	5.60	0.026	V	57.5(92.5)
DMG	35.3000	119.8000	01/09/1857	16 0 0.0	0.0	7.90	0.124	VII	57.6(92.7)
GSP	34.3940	118.6690	06/26/1995	084028.9	13.0	5.00	0.018	IV	58.5(94.1)
GSP	34.3690	118.6720	04/26/1997	103730.7	16.0	5.10	0.019	IV	58.5(94.1)
MGI	35.0000	120.5000	11/19/1927	332 0.0	0.0	5.00	0.018	IV	58.6(94.4)
T-A	34.8300	118.7500	11/27/1852	0 0 0.0	0.0	7.00	0.063	VI	59.0(94.9)
DMG	35.0000	118.8330	07/23/1952	181351.0	0.0	5.20	0.019	IV	60.9(98.0)
DMG	35.0000	118.8330	07/23/1952	75319.0	0.0	5.40	0.022	IV	60.9(98.0)
GSP	34.3780	118.6180	01/19/1994	211144.9	11.0	5.10	0.018	IV	61.5(98.9)

EARTHQUAKE SEARCH RESULTS

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FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
PAS	34.9430	118.7430	06/10/1988	23 643.0	6.8	5.40	0.021	IV	62.9(101.3)
DMG	34.3000	118.6000	04/04/1893	1940 0.0	0.0	6.00	0.030	V	63.3(101.9)
GSP	34.3050	118.5790	01/29/1994	112036.0	1.0	5.10	0.017	IV	64.4(103.7)
PAS	33.6710	119.1110	09/04/1981	155050.3	5.0	5.30	0.019	IV	64.4(103.7)
DMG	34.9000	120.7000	11/04/1927	135053.0	0.0	7.50	0.082	VII	64.5(103.7)
GSB	34.3010	118.5650	01/17/1994	204602.4	9.0	5.20	0.018	IV	65.3(105.0)
GSP	34.2130	118.5370	01/17/1994	123055.4	18.0	6.70	0.044	VI	68.2(109.7)
PAS	33.9440	118.6810	01/01/1979	231438.9	11.3	5.00	0.015	IV	68.2(109.8)
DMG	35.1330	118.7670	07/21/1952	194122.0	0.0	5.50	0.020	IV	69.6(111.9)
DMG	33.9500	118.6320	08/31/1930	04036.0	0.0	5.20	0.017	IV	70.4(113.3)
MGI	35.2500	120.5000	07/10/1917	045 0.0	0.0	5.30	0.018	IV	70.6(113.7)
MGI	35.2500	120.5000	07/10/1917	043 0.0	0.0	5.30	0.018	IV	70.6(113.7)
MGI	35.2500	120.5000	07/09/1917	2222 0.0	0.0	5.00	0.015	IV	70.6(113.7)
MGI	35.2500	120.5000	07/09/1917	2238 0.0	0.0	5.30	0.018	IV	70.6(113.7)
GSP	34.2310	118.4750	03/20/1994	212012.3	13.0	5.30	0.017	IV	71.3(114.7)
DMG	34.3080	118.4540	02/09/1971	144346.7	6.2	5.20	0.016	IV	71.4(114.9)
DMG	35.2170	118.8170	07/23/1952	1317 5.0	0.0	5.70	0.022	IV	71.5(115.0)
PAS	33.9190	118.6270	01/19/1989	65328.8	11.9	5.00	0.015	IV	71.8(115.5)
DMG	34.4110	118.4010	02/09/1971	14 041.8	8.4	6.40	0.033	V	73.6(118.5)
DMG	34.4110	118.4010	02/09/1971	14 1 8.0	8.0	5.80	0.023	IV	73.6(118.5)
DMG	34.4110	118.4010	02/09/1971	141028.0	8.0	5.30	0.017	IV	73.6(118.5)
DMG	34.4110	118.4010	02/09/1971	14 244.0	8.0	5.80	0.023	IV	73.6(118.5)
DMG	35.3330	118.9170	08/22/1952	224124.0	0.0	5.80	0.023	IV	73.9(119.0)
MGI	34.0000	118.5000	11/19/1918	2018 0.0	0.0	5.00	0.014	IV	75.4(121.3)
DMG	34.0000	118.5000	08/04/1927	1224 0.0	0.0	5.00	0.014	IV	75.4(121.3)
DMG	35.1500	118.6330	01/27/1954	141948.0	0.0	5.00	0.014	III	76.2(122.6)
DMG	35.3000	118.8000	12/23/1905	2223 0.0	0.0	5.00	0.014	III	76.3(122.9)
DMG	35.1830	118.6500	07/21/1952	151358.0	0.0	5.10	0.014	IV	76.8(123.6)
MGI	35.1700	120.7500	12/01/1916	2253 0.0	0.0	5.70	0.020	IV	77.0(123.9)
T-A	35.2500	120.6700	00/00/1830	0 0 0.0	0.0	5.70	0.020	IV	77.2(124.3)
T-A	35.2500	120.6700	12/17/1852	0 0 0.0	0.0	5.70	0.020	IV	77.2(124.3)
DMG	35.3830	118.8500	07/29/1952	7 347.0	0.0	6.10	0.025	V	79.0(127.1)
MGI	35.3000	120.7000	12/07/1906	640 0.0	0.0	5.90	0.022	IV	80.9(130.1)
DMG	35.4000	118.8170	07/29/1952	8 146.0	0.0	5.10	0.014	III	81.0(130.4)
DMG	35.2330	118.5330	07/21/1952	174244.0	0.0	5.10	0.013	III	84.1(135.4)
DMG	33.2670	119.4500	11/18/1947	2159 3.0	0.0	5.00	0.012	III	84.3(135.6)
DMG	34.5190	118.1980	08/23/1952	10 9 7.1	13.1	5.00	0.012	III	85.1(136.9)
DMG	35.3330	118.6000	07/31/1952	12 9 9.0	0.0	5.80	0.019	IV	85.8(138.1)
MGI	34.0000	118.3000	09/03/1905	540 0.0	0.0	5.30	0.014	IV	85.8(138.1)

									Distance
MGI	34.0800	118.2600	07/16/1920	18 8 0.0	0.0	5.00	0.012	III	86.0(138.4)
DMG	33.2910	119.1930	10/24/1969	82912.1	10.0	5.10	0.013	III	86.3(138.9)
MGI	35.5000	120.6000	01/01/1830	0 0 0.0	0.0	5.00	0.012	III	87.7(141.1)
DMG	35.3670	118.5830	07/23/1952	03832.0	0.0	6.10	0.023	IV	88.1(141.8)
DMG	35.3670	118.5830	07/23/1952	31923.0	0.0	5.00	0.012	III	88.1(141.8)
T-A	34.0000	118.2500	01/10/1856	0 0 0.0	0.0	5.00	0.012	III	88.5(142.4)
T-A	34.0000	118.2500	03/26/1860	0 0 0.0	0.0	5.00	0.012	III	88.5(142.4)
T-A	34.0000	118.2500	09/23/1827	0 0 0.0	0.0	5.00	0.012	III	88.5(142.4)
DMG	35.3150	118.5160	07/25/1952	194323.7	11.2	5.70	0.018	IV	88.5(142.4)
DMG	35.3110	118.4990	07/25/1952	1313 8.2	2.8	5.00	0.012	III	89.0(143.3)
DMG	35.3170	118.4940	07/25/1952	19 944.6	5.5	5.70	0.017	IV	89.5(144.1)
DMG	35.5000	118.7000	01/06/1905	1430 0.0	0.0	5.00	0.011	III	90.5(145.7)
DMG	33.8500	118.2670	03/11/1933	1425 0.0	0.0	5.00	0.011	III	92.0(148.0)
DMG	35.6000	118.8000	06/30/1926	1331 0.0	0.0	5.00	0.011	III	92.8(149.4)

EARTHQUAKE SEARCH RESULTS

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FILE CODE	LAT. NORTH	LONG. WEST	DATE	TIME (UTC) H M Sec	DEPTH (km)	QUAKE MAG.	SITE ACC. g	SITE MM INT.	APPROX. DISTANCE mi [km]
DMG	35.7500	120.2500	03/10/1922	112120.0	0.0	6.50	0.028	V	93.8(150.9)
MGI	34.1000	118.1000	07/11/1855	415 0.0	0.0	6.30	0.024	V	94.3(151.8)
PAS	34.0730	118.0980	10/04/1987	105938.2	8.2	5.30	0.013	III	95.0(152.9)
DMG	33.7830	118.2500	11/14/1941	84136.3	0.0	5.40	0.014	III	95.1(153.0)
DMG	35.7500	120.3300	08/18/1922	512 0.0	0.0	5.00	0.011	III	95.4(153.5)
PAS	34.0610	118.0790	10/01/1987	144220.0	9.5	5.90	0.018	IV	96.3(154.9)
GSP	34.2620	118.0020	06/28/1991	144354.5	11.0	5.40	0.013	III	97.4(156.7)
DMG	35.8000	120.3300	06/08/1934	447 0.0	0.0	6.00	0.019	IV	98.6(158.7)
DMG	35.8000	120.3300	06/05/1934	2148 0.0	0.0	5.00	0.010	III	98.6(158.7)
DMG	35.8000	120.3300	12/28/1939	121538.0	0.0	5.00	0.010	III	98.6(158.7)
DMG	35.8000	120.3300	06/08/1934	430 0.0	0.0	5.00	0.010	III	98.6(158.7)
DMG	34.6090	121.4350	11/05/1969	1754 7.9	10.0	5.60	0.015	IV	99.6(160.3)

****

-END OF SEARCH- 118 EARTHQUAKES FOUND WITHIN THE SPECIFIED SEARCH AREA.

TIME PERIOD OF SEARCH: 1800 TO 2014

LENGTH OF SEARCH TIME: 215 years

THE EARTHQUAKE CLOSEST TO THE SITE IS ABOUT 2.4 MILES (3.8 km) AWAY.

LARGEST EARTHQUAKE MAGNITUDE FOUND IN THE SEARCH RADIUS: 7.9

LARGEST EARTHQUAKE SITE ACCELERATION FROM THIS SEARCH: 0.226 g

COEFFICIENTS FOR GUTENBERG & RICHTER RECURRENCE RELATION:
a-value= 1.439
b-value= 0.386
beta-value= 0.890

TABLE OF MAGNITUDES AND EXCEEDANCES:

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2013-014-051Distance

Earthquake Magnitude	Number of Times Exceeded	Cumulative No. / Year
4.0	118	0.54884
4.5	118	0.54884
5.0	118	0.54884
5.5	48	0.22326
6.0	20	0.09302
6.5	8	0.03721
7.0	6	0.02791
7.5	3	0.01395

Lennar Homes
April 3, 2014
2013-014-051

APPENDIX B

SCEC HISTORIC EARTHQUAKE SEARCH RESULTS

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Catalog Search Results

#YYY/MM/DD	HH:mm:SS.ss	ET	MAG	M	LAT	LON	DEPTH	Q	EVID	NPH	NGRM
1933/02/24	19:33:17.51	le	4.85	l	33.063	-118.163	6.0	C	3359699	1	0
1933/03/11	01:54:09.34	le	6.40	w	33.631	-117.999	6.0	C	3359741	7	0
1933/03/11	02:04:00.06	le	4.68	h	33.630	-117.970	6.0	C	3359742	1	0
1933/03/11	02:09:00.06	le	4.54	l	33.630	-117.970	6.0	C	3359745	1	0
1933/03/11	02:09:57.69	le	4.40	h	33.794	-118.059	6.0	C	3359752	10	0
1933/03/11	02:11:00.00	le	4.40	h	33.750	-118.083	0.0	Z	10084338	0	0
1933/03/11	02:16:00.00	le	4.50	h	33.750	-118.083	6.0	Z	10087150	0	0
1933/03/11	02:17:23.10	le	4.62	l	33.728	-117.892	6.0	C	3359754	10	0
1933/03/11	02:28:13.84	le	4.47	l	33.733	-117.983	6.0	C	3359756	12	0
1933/03/11	02:29:59.21	le	4.70	l	33.750	-118.083	6.0	D	3359757	8	0
1933/03/11	02:31:00.00	le	4.40	h	33.600	-118.000	0.0	Z	10084346	0	0
1933/03/11	02:58:17.97	le	4.20	h	33.736	-118.114	6.0	C	3359763	9	0
1933/03/11	03:00:23.34	le	4.43	h	33.752	-118.201	6.0	C	3359764	11	0
1933/03/11	03:05:57.14	le	4.17	l	33.683	-117.661	6.0	C	3359766	11	0
1933/03/11	03:10:21.42	le	4.00	l	33.715	-117.924	6.0	C	3359767	10	0
1933/03/11	03:11:00.06	le	4.03	h	33.750	-118.083	6.0	C	3359768	1	0
1933/03/11	03:24:01.18	le	4.75	l	33.705	-118.069	6.0	C	3359769	11	0
1933/03/11	04:37:31.13	le	4.43	h	33.735	-118.042	6.0	C	3359783	11	0
1933/03/11	04:39:00.00	le	4.90	h	33.750	-118.083	0.0	Z	10084354	0	0
1933/03/11	04:40:00.00	le	4.70	h	33.750	-118.083	0.0	Z	10084358	0	0
1933/03/11	05:11:02.84	le	4.90	h	33.756	-118.020	6.0	C	3359790	7	0
1933/03/11	05:13:24.72	le	4.37	l	33.638	-117.913	6.0	C	3359794	10	0
1933/03/11	05:18:47.51	le	5.02	h	33.767	-117.985	6.0	C	3359797	11	0
1933/03/11	05:21:45.49	le	4.12	l	33.722	-117.910	6.0	C	3359799	9	0
1933/03/11	06:12:28.72	le	4.10	l	33.794	-118.114	6.0	C	3359806	12	0
1933/03/11	06:18:45.04	le	4.11	l	33.681	-118.118	6.0	C	3359808	11	0
1933/03/11	06:58:44.39	le	5.29	h	33.624	-118.001	6.0	C	3359813	11	0
1933/03/11	07:50:53.98	le	4.07	l	33.785	-118.066	6.0	C	3359817	10	0
1933/03/11	08:09:07.25	le	4.28	l	33.655	-117.976	6.0	C	3359819	12	0
1933/03/11	08:55:39.05	le	4.86	h	33.701	-118.003	6.0	C	3359825	9	0
1933/03/11	09:10:58.00	le	4.83	h	33.757	-117.944	6.0	C	3359827	8	0
1933/03/11	09:11:00.06	le	4.08	l	33.750	-118.083	6.0	C	3359828	1	0
1933/03/11	11:04:38.27	le	4.36	l	33.764	-118.020	6.0	C	3359842	9	0
1933/03/11	11:42:27.94	le	4.01	l	33.770	-118.142	6.0	C	3359846	10	0
1933/03/11	11:47:42.48	le	4.21	l	33.744	-118.037	6.0	C	3359847	9	0
1933/03/11	12:50:50.44	le	4.22	l	33.679	-117.950	6.0	C	3359850	12	0
1933/03/11	13:51:15.25	le	4.21	l	33.737	-117.991	6.0	C	3359856	12	0
1933/03/11	14:26:19.69	le	4.45	l	33.820	-118.127	6.0	C	3359862	12	0
1933/03/11	14:47:16.84	le	4.31	l	33.752	-118.005	6.0	C	3359865	12	0
1933/03/11	14:57:37.75	le	4.33	l	33.885	-118.157	6.0	C	3359866	11	0
1933/03/11	15:10:20.00	le	4.30	l	33.745	-118.013	6.0	C	3359867	12	0
1933/03/11	16:54:29.18	le	4.54	l	33.728	-117.999	6.0	C	3359872	11	0
1933/03/11	22:32:00.00	le	4.01	l	33.799	-118.071	6.0	C	3359880	12	0
1933/03/12	00:28:04.72	le	4.18	l	33.712	-118.006	6.0	C	3359885	12	0
1933/03/12	06:16:56.75	le	4.09	l	33.814	-118.129	3.0	C	3359893	12	0
1933/03/12	17:38:25.76	le	4.09	l	33.505	-117.867	6.0	C	3361628	5	0
1933/03/12	19:30:29.71	le	4.07	l	33.752	-118.178	6.0	C	3359949	12	0
1933/03/12	23:24:39.40	le	4.00	h	33.678	-117.975	8.0	C	3359910	12	0
1933/03/12	23:54:37.36	le	4.34	l	33.712	-117.981	4.0	C	3359911	12	0
1933/03/13	04:33:26.09	le	4.44	l	33.817	-118.176	6.0	C	3359913	12	0
1933/03/13	13:18:14.05	le	4.78	l	33.741	-118.001	6.0	C	3359943	12	0
1933/03/13	19:30:29.68	le	4.07	l	33.750	-118.186	5.0	C	3359975	12	0
1933/03/14	00:36:54.82	le	4.06	l	33.688	-118.086	6.0	C	3359959	10	0
1933/03/14	12:19:48.45	le	4.40	l	33.706	-118.070	6.0	C	3359960	12	0
1933/03/14	19:02:36.10	le	4.76	l	33.688	-118.019	8.0	C	3359963	12	0
1933/03/15	05:41:03.25	le	4.11	l	33.783	-118.198	6.0	C	3359971	12	0
1933/03/15	11:13:19.42	le	4.66	l	33.714	-118.002	6.0	C	3359974	10	0
1933/03/16	15:28:59.70	le	4.21	l	33.535	-117.844	6.0	C	3360027	1	0
1933/03/16	15:30:00.00	le	4.10	h	33.750	-118.083	6.0	Z	10087154	0	0

1933/03/18	20:52:00.07	le	4.15	l	33.474	-117.917	6.0	C	3360029	1	0
1933/03/21	03:26:00.02	le	4.04	l	33.837	-118.160	6.0	C	3360309	1	0
1933/03/23	08:40:00.03	le	4.06	l	33.496	-118.170	6.0	C	3360319	1	0
1933/03/25	13:46:00.02	le	4.12	l	33.422	-117.754	6.0	C	3360328	1	0
1933/03/30	12:25:00.05	le	4.25	l	33.840	-118.208	6.0	C	3360329	1	0
1933/04/01	06:42:00.04	le	4.21	l	33.552	-118.041	6.0	C	3360331	1	0
1933/04/29	14:59:59.41	le	4.19	l	33.433	-118.145	6.0	C	3360402	2	0
1933/06/26	06:25:39.58	le	4.42	l	34.220	-120.123	6.0	C	3360824	7	0
1933/06/26	06:27:47.85	le	4.45	l	34.033	-120.251	6.0	D	3360826	8	0
1933/10/02	09:10:18.92	le	4.75	l	33.822	-118.164	6.0	C	3361375	8	0
1933/10/25	07:00:45.50	le	4.04	l	33.954	-118.145	7.7	C	3361582	12	0
1934/01/09	14:10:32.15	le	4.30	l	34.123	-117.662	8.6	B	3361801	13	0
1934/11/16	21:26:44.86	le	4.06	l	33.729	-117.975	6.0	C	3362562	15	0
1935/01/23	13:52:56.99	le	4.05	l	35.481	-119.296	6.0	D	3362716	10	0
1935/06/19	11:17:08.35	le	4.44	l	33.736	-117.469	6.0	C	3363034	13	0
1935/07/13	10:54:18.04	le	4.57	l	34.111	-117.892	2.7	B	3363080	13	0
1935/09/03	06:47:11.53	le	4.20	l	34.023	-117.242	6.0	C	3363155	14	0
1935/12/25	17:15:48.79	le	4.31	l	33.664	-117.964	19.7	C	3363371	13	0
1936/02/23	22:20:42.30	le	4.69	l	34.031	-117.323	19.7	B	3363468	8	0
1937/09/01	13:48:08.37	le	4.39	l	34.181	-117.557	0.3	C	3364379	16	0
1937/09/01	16:35:33.41	le	4.43	l	34.196	-117.537	9.2	B	3364381	12	0
1938/05/31	08:34:55.42	le	5.23	l	33.699	-117.511	10.2	C	3364626	11	0
1938/07/05	18:06:55.69	le	4.27	l	33.691	-117.545	6.0	C	3364686	12	0
1938/08/31	03:18:14.12	le	4.35	l	33.767	-118.277	6.0	C	3364738	11	0
1938/10/02	18:45:15.07	le	4.07	l	34.192	-119.727	11.4	C	3364775	15	0
1939/02/23	08:45:50.09	le	4.41	l	35.033	-118.988	6.0	C	3364901	18	0
1939/02/23	09:18:46.75	le	4.63	l	34.902	-119.012	6.0	C	3364903	18	0
1939/05/08	02:48:02.94	le	4.38	l	35.063	-119.062	6.0	C	3364995	10	0
1939/11/07	18:52:09.68	le	4.45	l	34.037	-117.251	17.4	A	3365145	16	0
1939/12/27	19:28:48.59	le	4.51	l	33.744	-118.328	6.0	C	3365178	13	0
1940/02/19	12:06:56.57	le	4.39	l	34.067	-117.010	20.0	C	3365227	12	0
1940/04/18	18:43:45.22	le	4.29	l	34.048	-117.333	11.7	A	3365255	15	0
1940/10/11	05:57:13.51	le	4.70	l	33.778	-118.472	6.0	C	3365468	12	0
1940/11/01	07:25:04.41	le	4.18	l	33.843	-118.465	6.0	C	3365487	9	0
1941/03/25	23:43:40.89	le	4.00	l	34.259	-117.431	2.5	B	3365591	13	0
1941/06/04	08:47:19.92	le	4.02	l	35.405	-119.251	6.0	C	3365625	15	0
1941/07/01	07:50:56.96	le	5.47	l	34.329	-119.564	9.6	D	3365643	8	0
1941/07/01	08:18:58.81	le	4.09	l	34.209	-119.663	18.0	D	3365651	7	0
1941/07/01	23:53:42.37	le	4.54	l	34.254	-119.664	9.7	D	3365668	10	0
1941/07/12	16:18:53.04	le	4.68	l	34.173	-119.591	6.0	C	3365685	12	0
1941/09/08	03:12:45.06	le	4.40	l	34.323	-119.680	18.0	D	3365731	7	0
1941/09/15	01:37:01.88	le	4.17	l	34.150	-119.633	6.0	D	3365748	4	0
1941/09/21	19:53:08.83	le	5.10	l	34.838	-118.933	6.0	C	3365754	11	0
1941/10/22	06:57:18.96	le	4.69	l	33.811	-118.301	0.2	C	3365787	8	0
1941/11/14	08:41:37.65	le	5.12	l	33.791	-118.264	6.0	C	3365807	10	0
1941/11/18	18:08:08.25	le	4.06	l	34.172	-119.643	6.0	C	3365814	7	0
1941/11/21	16:56:02.62	le	4.25	l	34.212	-119.624	9.9	D	3365816	7	0
1942/02/27	01:08:57.83	le	4.03	l	34.353	-116.852	6.0	C	3365912	13	0
1942/09/03	14:06:01.30	le	4.36	l	34.617	-118.992	20.0	C	3366067	14	0
1942/09/04	06:34:32.97	le	4.53	l	34.664	-118.983	20.0	C	3366068	12	0
1943/08/29	03:45:14.31	le	5.28	l	34.268	-116.968	6.0	C	3366373	13	0
1943/08/29	03:57:55.96	le	4.04	l	34.208	-116.990	6.0	C	3366374	16	0
1943/10/14	14:28:44.70	le	4.38	l	34.364	-116.850	6.0	C	3366402	15	0
1943/10/15	16:50:02.48	le	4.21	l	34.363	-116.854	6.0	C	12277739	20	0
1944/06/19	00:03:34.18	le	4.36	l	33.882	-118.249	0.0	C	3366571	16	0
1944/06/19	03:06:07.27	le	4.31	l	33.879	-118.296	1.0	C	3366572	20	0
1944/07/03	05:38:24.00	le	4.57	l	35.368	-117.847	6.0	C	3366587	20	0
1945/04/01	23:43:45.43	le	4.94	l	34.127	-119.823	0.1	C	3360909	20	0
1945/04/18	04:58:03.80	le	4.27	l	34.364	-116.972	6.0	C	3360925	17	0
1946/03/15	13:21:01.91	le	5.43	l	35.723	-117.941	6.0	C	3360172	12	0
1946/03/15	13:49:37.09	le	6.30	h	35.702	-117.944	6.0	C	3360174	10	0
1946/03/15	19:18:54.84	le	5.43	l	35.678	-117.820	6.0	C	3360181	13	0
1946/03/15	21:54:35.12	le	5.04	l	35.697	-118.052	6.0	D	3360183	11	0

1946/03/15	22:54:02.00	le	4.20	h	35.667	-117.800	6.0	Z	10084918	3	0
1946/03/16	09:46:18.75	le	4.83	l	35.703	-118.102	0.5	C	3360191	15	0
1946/03/16	13:07:05.00	le	4.10	h	35.733	-118.033	6.0	Z	10084946	2	0
1946/03/16	19:53:59.00	le	4.00	h	35.733	-118.033	6.0	Z	10084966	2	0
1946/03/17	06:03:48.50	le	4.15	l	35.636	-117.824	6.0	C	3360200	10	0
1946/03/17	08:16:36.81	le	4.12	l	35.649	-117.857	6.0	D	3360202	9	0
1946/03/17	21:18:35.00	le	4.00	h	35.733	-118.033	6.0	Z	10085038	2	0
1946/03/18	01:15:09.00	le	4.10	h	35.733	-118.033	6.0	Z	10085046	2	0
1946/03/18	03:00:22.00	le	4.10	h	35.733	-118.033	6.0	Z	10085054	2	0
1946/03/18	16:03:46.00	le	4.10	h	35.733	-118.033	6.0	Z	10085086	3	0
1946/03/25	23:36:46.22	le	4.06	l	35.653	-117.921	6.0	C	3359807	17	0
1946/06/05	21:59:33.43	le	4.31	l	35.628	-118.232	6.0	C	3359628	18	0
1946/07/24	00:19:09.53	le	4.08	l	35.136	-119.145	6.0	C	3359716	13	0
1947/02/06	17:20:41.56	le	4.55	l	35.660	-117.854	6.0	C	3358855	21	0
1947/11/18	21:59:05.81	le	4.96	l	33.172	-119.457	6.0	C	3358068	33	0
1948/03/01	08:12:13.52	le	4.60	l	34.266	-117.474	2.5	A	3357723	29	0
1948/04/16	22:26:25.30	le	4.55	l	33.900	-118.985	6.0	C	3357617	29	0
1948/07/26	17:50:01.82	le	4.42	l	35.586	-118.114	6.0	C	3357595	31	0
1948/09/29	04:06:49.29	le	4.13	l	35.518	-118.834	6.0	C	3356953	31	0
1950/02/26	00:06:22.29	le	4.49	l	34.776	-119.089	6.0	C	3366626	24	0
1950/08/22	22:47:57.96	le	4.11	l	34.120	-119.440	6.0	C	3344084	30	0
1950/12/14	13:56:20.57	le	4.27	l	35.232	-119.080	6.0	D	3342405	17	0
1951/09/22	08:22:38.90	le	4.14	l	34.137	-117.331	11.1	A	3322256	25	0
1952/02/17	12:36:58.06	le	4.39	l	34.014	-117.222	13.8	B	3322079	20	0
1952/07/21	11:52:14.54	le	7.50	w	34.958	-118.998	6.0	C	3319401	22	0
1952/07/21	11:54:00.00	le	4.50	h	35.000	-119.033	0.0	Z	10084394	0	0
1952/07/21	11:57:00.00	le	4.50	h	35.000	-119.033	0.0	Z	10084402	0	0
1952/07/21	11:58:00.00	le	4.60	h	35.000	-119.033	0.0	Z	10084406	0	0
1952/07/21	11:59:00.00	le	4.50	h	35.000	-119.033	0.0	Z	10084410	0	0
1952/07/21	12:02:00.00	le	4.31	h	35.000	-119.000	0.0	C	3319400	1	0
1952/07/21	12:05:31.24	le	5.80	h	34.973	-119.066	6.0	C	3319398	14	0
1952/07/21	12:06:00.00	le	5.40	h	35.000	-119.000	0.0	C	3319397	0	0
1952/07/21	12:07:00.00	le	5.18	h	35.000	-119.000	0.0	C	3319396	0	0
1952/07/21	12:10:00.02	le	4.53	l	35.100	-118.800	6.0	C	3319395	1	0
1952/07/21	12:12:00.02	le	4.75	l	35.100	-118.800	6.0	C	3319393	1	0
1952/07/21	12:18:08.33	le	4.17	l	35.089	-118.585	6.0	C	3319394	6	0
1952/07/21	12:19:36.19	le	5.20	l	35.020	-118.830	6.0	C	3319392	15	0
1952/07/21	12:22:00.00	le	4.97	l	35.100	-118.800	6.0	Z	10086310	0	0
1952/07/21	12:25:19.56	le	4.73	h	34.854	-118.879	6.0	C	3319391	8	0
1952/07/21	12:28:00.00	le	4.29	l	35.100	-118.800	6.0	Z	10086314	0	0
1952/07/21	12:39:00.02	le	4.27	l	35.100	-118.800	6.0	C	3319387	1	0
1952/07/21	12:39:11.61	le	4.26	l	35.049	-118.661	6.0	C	10086318	13	0
1952/07/21	12:59:37.48	le	4.42	l	35.188	-118.644	6.0	C	3319162	9	0
1952/07/21	13:08:00.03	le	4.39	l	35.028	-118.953	6.0	C	3319160	9	0
1952/07/21	13:11:05.87	le	4.06	l	35.153	-118.684	6.0	C	3319159	10	0
1952/07/21	13:13:05.91	le	4.51	l	34.997	-118.981	6.0	C	3319158	13	0
1952/07/21	13:17:00.61	le	4.18	l	35.026	-118.849	6.0	C	3319155	13	0
1952/07/21	13:25:12.09	le	4.35	l	34.936	-118.877	6.0	C	3319154	11	0
1952/07/21	13:35:57.05	le	4.19	l	35.127	-118.431	6.0	C	3319152	14	0
1952/07/21	13:38:36.58	le	4.03	l	34.991	-119.065	6.0	C	3319150	14	0
1952/07/21	13:59:55.57	le	4.88	l	35.069	-118.850	6.0	D	3319129	3	0
1952/07/21	14:06:20.35	le	4.03	l	35.000	-119.000	6.0	D	3319130	4	0
1952/07/21	14:15:13.42	le	4.35	l	34.868	-118.927	6.0	C	3319146	9	0
1952/07/21	14:17:52.06	le	4.10	l	34.978	-118.916	6.0	C	3319145	10	0
1952/07/21	14:42:37.73	le	4.26	l	35.296	-118.574	6.0	C	3319142	9	0
1952/07/21	14:51:38.54	le	4.18	l	35.018	-118.568	6.0	C	3319141	9	0
1952/07/21	15:13:58.54	le	4.93	l	35.187	-118.564	6.0	C	3319128	21	0
1952/07/21	15:34:02.79	le	4.19	l	35.346	-118.604	6.0	C	3319127	10	0
1952/07/21	15:36:15.55	le	4.33	l	35.266	-118.886	6.0	C	3319116	10	0
1952/07/21	15:38:02.22	le	4.48	l	34.984	-119.024	6.0	C	3319115	10	0
1952/07/21	15:42:35.31	le	4.24	l	35.299	-118.507	6.0	C	3319114	10	0
1952/07/21	15:53:04.71	le	4.42	l	34.968	-118.966	6.0	C	3319102	11	0
1952/07/21	16:17:00.34	le	4.05	l	35.040	-119.007	6.0	D	3319103	8	0

1952/07/21	16:38:40.01	le	4.52	l	34.974	-118.913	6.0	C	3319104	13	0
1952/07/21	17:42:44.83	le	4.66	l	35.291	-118.477	6.0	C	3319095	18	0
1952/07/21	18:00:25.86	le	4.60	l	35.174	-118.737	6.0	C	3319093	13	0
1952/07/21	18:23:39.08	le	4.40	l	35.275	-118.460	6.0	C	3319078	26	0
1952/07/21	18:26:28.23	le	4.05	l	35.346	-118.597	6.0	C	3319089	14	0
1952/07/21	19:12:07.64	le	4.17	l	35.243	-118.502	1.0	C	3319090	22	0
1952/07/21	19:16:19.00	le	4.21	l	35.261	-118.424	6.0	C	3319076	22	0
1952/07/21	19:41:22.62	le	5.19	l	35.115	-118.792	6.0	C	3319075	24	0
1952/07/21	20:21:05.16	le	4.09	l	35.235	-118.512	1.0	C	3319073	21	0
1952/07/21	21:53:08.90	le	4.28	l	34.864	-118.984	6.0	C	3319066	21	0
1952/07/21	22:03:12.91	le	4.02	l	35.318	-118.613	6.0	C	3318982	21	0
1952/07/21	23:53:28.30	le	4.41	l	34.969	-118.980	6.0	C	3318976	26	0
1952/07/22	01:41:02.47	le	4.49	l	35.142	-118.467	6.0	C	3318914	29	0
1952/07/22	01:51:51.07	le	4.45	l	35.272	-118.499	6.0	C	3318910	36	0
1952/07/22	03:21:04.86	le	4.42	l	35.237	-118.586	6.0	C	3318901	36	0
1952/07/22	07:44:54.78	le	4.02	l	34.892	-118.868	6.0	C	3318800	35	0
1952/07/22	08:16:22.71	le	4.36	l	35.123	-118.622	6.0	C	3318799	36	0
1952/07/22	08:21:21.08	le	4.20	l	35.017	-118.980	6.0	C	3318798	36	0
1952/07/22	08:47:33.37	le	4.64	l	35.079	-118.766	6.0	C	3318797	26	0
1952/07/22	09:10:24.93	le	4.42	l	35.236	-118.584	6.0	C	3318796	35	0
1952/07/22	10:19:38.55	le	4.02	l	35.002	-119.036	6.0	C	3319412	32	0
1952/07/22	13:31:42.74	le	4.71	l	34.926	-118.980	6.0	C	3318794	35	0
1952/07/22	14:05:10.69	le	4.03	l	35.035	-118.968	6.0	C	3318793	30	0
1952/07/22	14:30:18.31	le	4.13	l	34.875	-119.008	6.0	C	3318791	34	0
1952/07/22	15:03:14.24	le	4.31	l	35.250	-118.557	6.0	C	3318790	29	0
1952/07/22	17:52:34.88	le	4.09	l	35.031	-119.082	6.0	C	3318788	15	0
1952/07/22	19:08:58.55	le	4.32	l	35.210	-118.477	6.0	C	3318786	32	0
1952/07/22	19:10:21.61	le	4.00	l	35.163	-118.412	6.0	C	3318787	16	0
1952/07/22	21:02:09.98	le	4.12	l	35.118	-118.817	6.0	C	3318785	33	0
1952/07/22	22:31:33.62	le	4.64	l	34.962	-118.908	6.0	C	3318784	34	0
1952/07/23	00:38:31.81	le	5.43	h	35.372	-118.565	6.0	C	3318780	26	0
1952/07/23	00:43:08.21	le	4.34	l	34.950	-118.928	6.0	C	3318779	16	0
1952/07/23	00:47:36.88	le	4.62	l	35.407	-118.644	6.0	C	3318778	29	0
1952/07/23	03:19:22.25	le	5.07	l	35.378	-118.628	6.0	C	3318777	30	0
1952/07/23	03:49:27.61	le	4.26	l	35.283	-118.497	6.0	C	3318776	27	0
1952/07/23	04:01:39.20	le	4.81	l	35.342	-118.555	6.0	C	3318775	27	0
1952/07/23	05:46:03.01	le	4.58	l	35.338	-118.559	6.0	C	3318253	25	0
1952/07/23	06:10:45.58	le	4.17	l	35.260	-118.445	6.0	C	3318254	32	0
1952/07/23	06:26:28.71	le	4.16	l	35.362	-118.528	6.0	C	3318255	25	0
1952/07/23	06:53:41.76	le	4.22	l	35.432	-118.656	6.0	C	3318256	27	0
1952/07/23	07:37:00.03	le	4.78	l	35.264	-118.527	6.0	C	3318257	30	0
1952/07/23	07:53:18.13	le	5.55	l	34.988	-118.803	6.0	C	3318258	24	0
1952/07/23	09:38:42.28	le	4.31	l	35.270	-118.473	6.0	C	3318259	38	0
1952/07/23	10:54:13.57	le	4.11	l	35.284	-118.398	6.0	C	3318260	36	0
1952/07/23	13:17:05.67	le	5.51	l	35.166	-118.799	6.0	C	3318262	24	0
1952/07/23	13:30:03.77	le	4.50	l	35.267	-118.498	6.0	C	3318265	34	0
1952/07/23	16:18:38.10	le	4.43	l	35.284	-118.542	6.0	C	3318269	27	0
1952/07/23	16:48:52.77	le	4.44	l	35.345	-118.592	6.0	C	3318270	28	0
1952/07/23	17:22:24.21	le	4.49	l	35.313	-118.448	6.0	C	3318273	32	0
1952/07/23	17:53:28.91	le	4.09	l	35.050	-119.027	6.0	C	3318274	29	0
1952/07/23	18:03:28.29	le	4.03	l	35.332	-118.484	6.0	C	3318276	36	0
1952/07/23	18:13:50.17	le	5.13	l	34.996	-118.930	15.2	B	3318277	32	0
1952/07/23	19:51:33.85	le	4.15	l	35.325	-118.521	6.0	C	3318285	30	0
1952/07/23	21:16:58.00	le	4.03	l	35.035	-118.938	6.0	C	3318287	30	0
1952/07/23	22:32:19.37	le	4.05	l	35.033	-118.896	0.7	C	3318297	38	0
1952/07/24	02:41:43.21	le	4.06	l	35.266	-118.513	6.0	C	3318315	24	0
1952/07/24	03:11:06.51	le	4.08	l	35.113	-118.997	6.0	C	3318317	30	0
1952/07/24	05:02:50.36	le	4.33	l	35.321	-118.412	6.0	C	3318324	34	0
1952/07/24	09:50:33.05	le	4.45	l	34.912	-118.912	15.7	B	3318348	28	0
1952/07/24	11:47:55.27	le	4.25	l	35.409	-118.589	1.0	C	3318351	33	0
1952/07/24	12:07:57.07	le	4.09	l	35.286	-118.461	6.0	C	3318353	31	0
1952/07/24	14:05:26.53	le	4.29	l	35.300	-118.483	6.0	C	3318355	33	0
1952/07/24	17:35:05.71	le	4.26	l	35.233	-118.538	6.0	C	3318361	27	0

1952/07/25	00:03:45.01	le	4.07	l	35.225	-118.562	6.0	C	3318381	25	0
1952/07/25	01:46:55.57	le	4.10	l	35.155	-118.903	6.0	C	3318388	18	0
1952/07/25	07:03:50.93	le	4.23	l	35.445	-118.643	6.0	C	3318395	33	0
1952/07/25	13:13:08.23	le	4.93	l	35.316	-118.481	1.0	C	3318457	36	0
1952/07/25	14:34:42.53	le	4.42	l	35.103	-118.749	6.0	C	3318459	35	0
1952/07/25	19:09:45.29	le	5.55	l	35.332	-118.463	6.0	C	3318460	27	0
1952/07/25	19:43:23.50	le	5.62	l	35.304	-118.468	6.0	C	3318463	23	0
1952/07/25	20:06:06.28	le	4.74	l	35.330	-118.422	6.0	C	3318465	32	0
1952/07/26	01:02:20.42	le	4.09	l	35.297	-118.471	3.2	B	3318469	35	0
1952/07/26	06:38:49.71	le	4.07	l	35.197	-118.627	6.0	C	3318491	31	0
1952/07/26	09:22:07.28	le	4.30	l	35.316	-118.487	5.2	C	3318495	36	0
1952/07/26	15:08:30.70	le	4.43	l	35.059	-118.689	6.0	C	3318697	31	0
1952/07/26	18:02:43.14	le	4.05	l	35.114	-118.764	6.0	C	3318698	31	0
1952/07/26	22:41:02.70	le	4.54	l	35.179	-118.620	6.0	C	3318703	36	0
1952/07/26	22:58:55.84	le	4.30	l	35.322	-118.546	0.2	A	3318182	35	0
1952/07/27	00:09:16.24	le	4.20	l	35.319	-118.469	6.0	C	3317792	24	0
1952/07/27	02:49:11.05	le	4.05	l	35.505	-118.526	6.0	C	3317795	32	0
1952/07/27	07:16:09.83	le	4.09	l	35.066	-119.147	4.3	C	3317797	28	0
1952/07/27	07:35:39.02	le	4.06	l	35.362	-118.599	6.0	C	3317799	35	0
1952/07/27	11:34:38.16	le	4.04	l	35.090	-119.060	13.2	C	3317800	32	0
1952/07/28	05:45:54.57	le	4.11	l	35.130	-118.449	6.0	C	3317812	29	0
1952/07/29	07:03:46.25	le	5.72	l	35.357	-118.895	6.0	C	3317823	21	0
1952/07/29	07:13:58.28	le	4.01	l	35.337	-118.840	6.0	C	3317824	24	0
1952/07/29	08:01:45.83	le	5.19	l	35.403	-118.820	6.0	C	3318185	26	0
1952/07/29	15:49:50.22	le	4.78	l	35.189	-118.596	6.0	C	3317847	30	0
1952/07/29	17:36:42.60	le	4.43	l	35.243	-118.538	6.0	C	3317849	33	0
1952/07/29	19:51:31.75	le	4.57	l	35.346	-118.977	6.0	C	3317850	27	0
1952/07/30	09:59:28.65	le	4.21	l	35.314	-118.548	6.0	C	3317852	35	0
1952/07/30	11:02:55.33	le	4.13	l	34.892	-119.011	5.7	C	3317854	34	0
1952/07/30	14:46:49.71	le	4.07	l	35.243	-118.561	6.0	C	3317856	34	0
1952/07/31	04:10:21.07	le	4.27	l	35.285	-118.566	6.0	C	3317865	32	0
1952/07/31	12:09:09.13	le	5.64	l	35.249	-118.497	6.0	C	3317866	21	0
1952/07/31	17:19:08.02	le	4.64	l	35.283	-118.529	6.0	C	3317869	28	0
1952/07/31	19:53:13.09	le	4.70	l	35.352	-119.018	6.0	C	3317872	27	0
1952/08/01	03:16:11.79	le	4.54	l	35.301	-118.476	6.0	C	3317874	32	0
1952/08/01	13:04:29.18	le	4.92	l	34.904	-118.996	6.0	C	3317879	25	0
1952/08/01	21:35:22.88	le	4.04	l	35.295	-118.456	6.0	C	3317880	27	0
1952/08/03	01:51:56.52	le	4.03	l	35.359	-118.438	6.0	C	3317884	24	0
1952/08/04	19:47:52.39	le	4.00	l	35.026	-118.987	6.0	C	3317887	7	0
1952/08/05	06:50:09.74	le	4.32	l	35.376	-118.801	6.0	C	3317888	23	0
1952/08/06	03:46:23.64	le	4.26	l	35.309	-118.498	6.0	C	3317895	26	0
1952/08/07	16:31:50.61	le	5.03	l	35.045	-119.094	6.0	C	3317936	20	0
1952/08/07	19:19:07.31	le	4.19	l	35.342	-118.890	6.0	C	3317940	22	0
1952/08/09	10:07:31.99	le	4.19	l	35.298	-118.475	1.0	C	3306401	20	0
1952/08/10	12:23:16.69	le	4.59	l	35.318	-118.448	1.0	C	3306475	24	0
1952/08/10	19:44:23.40	le	4.21	l	35.012	-119.019	6.0	C	3306519	25	0
1952/08/11	13:21:48.57	le	4.43	l	35.374	-118.571	1.0	C	3306530	27	0
1952/08/13	04:29:39.07	le	4.63	l	35.286	-118.427	0.5	C	3306532	25	0
1952/08/13	17:39:25.60	le	4.68	l	35.089	-118.681	6.0	C	3306533	21	0
1952/08/13	21:25:48.63	le	4.16	l	35.261	-118.534	1.0	C	3306535	27	0
1952/08/14	07:28:21.84	le	4.27	l	35.120	-118.518	6.0	C	3306541	23	0
1952/08/14	11:41:46.13	le	4.10	l	35.033	-118.881	6.0	C	3306542	25	0
1952/08/17	09:09:06.51	le	4.00	l	35.028	-118.972	0.0	C	3306564	23	0
1952/08/17	21:04:41.25	le	4.17	l	35.027	-118.859	0.0	C	3306585	21	0
1952/08/18	04:40:10.04	le	4.70	l	35.035	-119.077	13.0	A	3306593	21	0
1952/08/19	19:12:26.62	le	4.42	l	35.020	-119.240	6.0	C	3306639	19	0
1952/08/20	08:47:46.52	le	4.26	l	34.897	-119.014	6.0	C	3306672	19	0
1952/08/22	22:41:23.48	le	5.52	l	35.352	-118.954	6.0	C	3306746	20	0
1952/08/23	06:03:02.34	le	4.28	l	35.015	-118.751	6.0	C	3306749	28	0
1952/08/23	10:09:06.82	le	4.75	l	34.508	-118.174	6.0	C	3306750	30	0
1952/08/25	06:20:26.10	le	4.66	l	35.057	-118.952	6.0	C	3306754	23	0
1952/08/26	20:56:41.08	le	4.48	l	35.058	-118.410	6.0	C	3306755	21	0
1952/08/30	04:55:59.47	le	4.71	l	35.318	-118.483	0.1	A	3306759	22	0

1952/09/01	10:39:00.50	le	4.01	l	35.273	-118.847	6.0	C	3306765	23	0
1952/09/02	12:41:32.52	le	4.61	l	35.068	-118.703	6.0	C	3306768	22	0
1952/09/02	16:38:08.52	le	4.04	l	35.298	-118.539	6.0	C	3306769	24	0
1952/09/02	20:45:56.83	le	4.70	l	34.909	-118.989	6.4	C	3306770	27	0
1952/09/04	18:06:49.67	le	4.43	l	35.300	-118.463	6.0	C	3306772	25	0
1952/09/12	10:35:24.61	le	4.43	l	34.982	-119.084	4.9	C	3306776	26	0
1952/09/16	15:21:06.52	le	4.32	l	35.345	-118.597	2.2	C	3306786	23	0
1952/09/25	16:21:35.47	le	4.03	l	35.056	-118.889	8.4	C	3306792	31	0
1952/09/26	20:21:20.05	le	4.04	l	35.123	-118.619	6.0	C	3306796	31	0
1952/10/02	23:10:19.77	le	4.13	l	35.431	-118.675	0.1	C	3306798	27	0
1952/10/13	22:20:35.17	le	4.02	l	35.362	-118.842	6.0	C	3306855	26	0
1952/10/16	12:22:06.95	le	4.35	l	34.952	-118.966	6.0	C	3306856	24	0
1952/10/20	18:14:43.24	le	4.26	l	35.291	-118.480	6.0	C	3306860	23	0
1952/11/07	08:55:35.01	le	4.53	l	34.964	-119.100	8.3	C	3307201	23	0
1952/11/07	09:42:37.51	le	4.00	l	35.027	-119.035	0.6	C	3307202	28	0
1952/11/11	17:22:07.19	le	4.12	l	35.133	-119.027	6.0	C	3307206	28	0
1952/11/11	18:12:24.80	le	4.05	l	34.945	-119.030	6.0	C	3307207	26	0
1952/11/14	23:34:00.47	le	4.02	l	35.051	-118.980	1.4	A	3307210	28	0
1952/11/27	15:36:41.78	le	4.09	l	34.924	-118.963	14.8	B	3307234	21	0
1952/12/01	05:26:09.76	le	4.41	l	34.979	-118.857	4.7	B	3307248	22	0
1952/12/25	05:56:33.13	le	4.05	l	35.356	-118.480	6.0	C	3307891	22	0
1953/01/20	08:13:22.08	le	4.03	l	35.317	-118.515	6.0	C	3317323	21	0
1953/02/19	08:12:06.00	le	4.41	l	35.301	-118.551	6.0	C	3302212	22	0
1953/03/23	17:06:36.37	le	4.04	l	35.032	-118.925	5.7	C	3303090	24	0
1953/04/29	12:47:45.02	le	4.69	l	34.990	-118.720	8.6	B	3303154	22	0
1953/05/23	07:52:54.29	le	4.16	l	34.998	-119.142	0.3	C	3304002	23	0
1953/05/25	03:24:00.47	le	4.77	l	34.971	-119.049	3.2	B	3304007	20	0
1953/06/20	23:18:51.43	le	4.30	l	35.396	-118.513	6.0	C	3305766	20	0
1953/08/05	12:20:59.30	le	4.19	l	35.007	-119.087	6.0	C	3300063	39	0
1953/08/06	11:20:03.25	le	4.29	l	35.064	-119.077	0.1	A	3300093	40	0
1953/09/12	06:41:16.04	le	4.02	l	35.374	-118.832	6.0	C	3300164	26	0
1953/10/07	14:59:21.28	le	4.70	l	34.996	-118.828	3.8	C	3300189	22	0
1953/11/23	20:39:01.15	le	4.33	l	35.461	-118.492	6.0	C	3300251	40	0
1953/11/26	16:19:12.53	le	4.09	l	35.326	-118.528	6.0	C	3300260	31	0
1953/12/15	12:44:35.69	le	4.64	l	35.198	-118.848	6.0	C	3300290	39	0
1954/01/12	23:33:48.28	le	5.40	l	34.982	-119.061	0.0	C	3301140	37	0
1954/01/12	23:40:37.21	le	4.06	l	35.054	-119.116	5.2	C	3301113	33	0
1954/01/13	01:45:31.10	le	4.60	l	35.036	-119.087	8.5	A	3301121	39	0
1954/01/27	14:19:48.19	le	4.96	l	35.143	-118.586	6.0	C	3301213	33	0
1954/02/07	00:09:53.23	le	4.56	l	35.045	-119.082	7.9	C	3301253	27	0
1954/02/10	23:58:38.28	le	4.61	l	34.930	-119.099	9.6	B	3301260	27	0
1954/02/24	22:30:22.55	le	4.67	l	35.060	-119.049	8.1	B	3298682	46	0
1954/05/01	22:04:38.99	le	4.09	l	35.438	-118.662	6.0	C	3299855	37	0
1954/05/23	23:52:43.13	le	5.03	l	34.968	-119.002	14.5	A	3299932	31	0
1954/08/26	13:48:01.61	le	4.76	l	33.870	-119.541	6.0	C	3298426	29	0
1954/10/26	16:22:25.77	le	4.05	l	33.709	-117.488	5.0	B	3298674	26	0
1954/11/17	23:03:52.15	le	4.29	l	34.562	-119.183	20.0	C	3298612	20	0
1955/01/15	01:03:06.84	le	4.28	l	34.955	-118.992	9.6	A	3298015	31	0
1955/02/11	19:44:30.27	le	4.40	l	35.366	-118.616	6.0	C	3297719	37	0
1955/05/28	19:44:20.03	le	4.51	l	35.538	-118.247	6.0	C	3297817	42	0
1955/08/08	03:21:50.51	le	4.48	l	35.414	-118.638	6.0	C	3297943	42	0
1955/08/24	17:05:40.82	le	4.06	l	35.387	-118.663	6.0	C	3297962	28	0
1955/11/21	20:55:27.45	le	4.40	l	35.380	-118.673	6.0	C	3297360	28	0
1956/01/03	00:25:49.13	le	4.71	l	33.753	-117.491	10.8	A	3297472	39	0
1956/02/07	02:16:56.50	le	4.05	l	34.562	-118.615	6.0	C	3297512	32	0
1956/02/07	03:16:38.56	le	4.38	l	34.579	-118.601	6.0	C	3297513	32	0
1956/03/03	06:24:14.36	le	4.16	l	35.054	-119.007	7.8	B	3297693	31	0
1956/03/23	21:23:26.12	le	4.37	l	35.077	-119.043	0.0	C	3295049	27	0
1956/03/25	03:32:02.55	le	4.12	l	33.617	-119.097	6.0	C	3295054	34	0
1956/06/04	08:33:19.12	le	4.03	l	35.177	-119.148	6.0	C	3295291	34	0
1956/08/09	00:08:49.08	le	4.09	l	34.341	-119.791	3.1	B	3295365	35	0
1957/03/18	18:56:28.18	le	4.82	l	34.146	-119.203	6.0	C	3295906	29	0
1958/07/14	05:25:55.11	le	4.44	l	34.350	-119.512	16.2	B	3296690	21	0

1958/11/16	09:34:03.88	le	4.12	l	34.461	-119.954	10.9	B	3296821	30	0
1959/07/01	23:49:23.62	le	4.63	l	35.178	-119.087	6.0	C	3297109	33	0
1959/10/24	15:35:15.34	le	4.14	l	35.750	-118.035	4.6	C	3297234	38	0
1960/06/28	20:00:47.49	le	4.09	l	34.126	-117.477	1.3	C	3350653	22	0
1961/09/01	16:51:49.00	le	4.07	l	35.212	-118.504	6.0	C	3344790	21	0
1961/10/04	02:21:30.89	le	4.40	l	33.853	-117.754	0.6	B	3344750	22	0
1961/10/20	19:49:50.18	le	4.58	l	33.671	-117.984	0.6	A	3344656	23	0
1961/10/20	20:07:13.88	le	4.12	l	33.666	-117.981	0.0	A	3344658	23	0
1961/10/20	21:42:40.25	le	4.10	l	33.673	-117.980	0.3	B	3344660	24	0
1961/10/20	22:35:33.60	le	4.12	l	33.671	-118.007	0.0	A	3344662	23	0
1961/11/15	05:38:55.62	le	4.97	l	34.946	-118.987	5.5	B	3344602	20	0
1961/11/18	03:18:36.00	le	4.30	l	35.390	-117.770	6.0	C	3344605	22	0
1961/11/20	08:53:35.32	le	4.10	l	33.727	-117.971	6.0	C	3344609	21	0
1962/04/27	09:12:31.07	le	4.19	l	33.800	-117.100	1.2	B	3344428	26	0
1962/10/29	02:42:53.71	le	4.97	l	34.349	-116.866	6.0	C	3331521	24	0
1962/11/30	23:51:05.81	le	4.33	l	34.329	-116.938	6.0	C	3331496	25	0
1962/12/01	00:35:48.84	le	4.40	l	34.341	-116.900	6.0	C	3331497	23	0
1962/12/02	00:41:39.02	le	4.44	l	34.301	-116.886	6.0	C	3331510	19	0
1963/01/09	06:04:03.39	le	4.08	l	34.939	-119.136	5.8	B	3331464	23	0
1963/03/01	00:25:57.93	le	4.64	l	34.956	-118.971	8.4	C	3331412	23	0
1963/09/14	03:51:16.77	le	4.70	l	33.562	-118.329	6.0	C	3331219	23	0
1963/09/16	05:36:16.00	le	4.90	h	35.750	-118.050	6.0	Z	10086718	0	0
1964/01/02	19:48:41.38	le	4.22	l	35.442	-118.349	6.0	C	3331038	26	0
1964/02/07	22:07:49.96	le	4.46	l	35.466	-118.641	0.9	C	3331017	22	0
1964/02/07	22:10:52.12	le	4.29	l	35.481	-118.687	0.0	C	3331019	23	0
1965/01/01	08:04:17.78	le	4.46	l	34.129	-117.509	3.3	A	3330737	22	0
1965/04/15	20:08:33.45	le	4.61	l	34.135	-117.436	6.0	C	3330616	23	0
1965/07/16	07:46:22.35	le	4.09	l	34.519	-118.484	6.0	C	3330501	24	0
1966/10/11	16:59:12.80	le	4.36	l	35.118	-117.315	6.0	C	3329994	25	0
1967/06/15	04:58:05.77	le	4.06	l	33.992	-117.991	9.0	B	3329599	31	0
1968/04/18	17:42:12.93	le	4.12	l	34.324	-116.888	6.0	C	3329101	21	0
1968/06/29	19:12:21.46	le	4.29	l	34.232	-119.738	16.3	C	3328761	25	0
1968/06/29	19:13:56.32	le	4.42	l	34.277	-119.630	5.9	D	3328762	7	0
1968/07/05	00:45:16.74	le	5.05	l	34.139	-119.723	0.2	B	3328690	24	0
1968/07/07	14:33:31.23	le	4.56	l	34.207	-119.802	21.0	C	3328708	23	0
1969/02/28	04:56:12.66	le	4.35	l	34.553	-118.121	6.0	C	3327845	24	0
1969/05/05	16:02:09.32	le	4.30	l	34.312	-117.556	3.2	C	3327639	26	0
1969/10/24	08:29:12.42	le	4.85	l	33.336	-119.161	6.0	C	3326120	20	0
1969/10/24	20:26:43.62	le	4.63	l	33.343	-119.133	6.0	C	3326128	21	0
1969/10/27	13:16:02.14	le	4.40	l	33.526	-117.800	6.0	C	3326147	23	0
1969/10/31	10:39:29.51	le	4.60	l	33.461	-119.132	6.0	C	3326170	21	0
1970/07/08	09:25:30.41	le	4.07	l	35.419	-117.791	6.0	C	3323937	31	0
1970/09/12	14:10:11.23	le	4.03	l	34.258	-117.501	7.5	B	3323896	28	0
1970/09/12	14:30:53.00	le	5.22	l	34.255	-117.534	10.8	A	3323898	30	0
1970/09/13	04:47:48.83	le	4.21	l	34.260	-117.538	12.2	C	3323910	26	0
1971/02/09	14:00:41.92	le	6.60	w	34.416	-118.370	8.9	C	3347678	23	0
1971/02/09	14:01:12.45	le	5.80	h	34.416	-118.370	6.0	C	3360255	2	0
1971/02/09	14:01:36.84	le	4.20	h	34.416	-118.370	6.0	C	3360254	2	0
1971/02/09	14:01:40.08	le	4.10	h	34.416	-118.370	6.0	C	3360253	1	0
1971/02/09	14:01:53.04	le	4.50	h	34.416	-118.370	6.0	C	3360252	1	0
1971/02/09	14:01:54.44	le	4.20	h	34.416	-118.370	6.0	C	3360251	1	0
1971/02/09	14:01:59.08	le	4.10	h	34.416	-118.370	6.0	C	3360250	1	0
1971/02/09	14:02:03.00	le	4.10	h	34.411	-118.401	6.0	Z	12315507	0	0
1971/02/09	14:02:29.94	le	4.70	h	34.416	-118.370	6.0	C	3360246	1	0
1971/02/09	14:02:30.00	le	4.30	h	34.411	-118.401	6.0	Z	12315511	0	0
1971/02/09	14:02:31.00	le	4.70	h	34.411	-118.401	6.0	Z	12315515	0	0
1971/02/09	14:02:45.74	le	5.80	h	34.416	-118.370	6.0	C	3360245	3	0
1971/02/09	14:03:25.08	le	4.40	h	34.416	-118.370	6.0	C	3360238	1	0
1971/02/09	14:03:43.34	le	4.10	h	34.416	-118.370	6.0	C	3360236	1	0
1971/02/09	14:04:07.44	le	4.10	h	34.416	-118.370	6.0	C	3360235	1	0
1971/02/09	14:04:35.98	le	4.20	h	34.416	-118.370	6.0	C	3360232	3	0
1971/02/09	14:04:37.64	le	4.10	h	34.416	-118.370	6.0	C	3360230	1	0
1971/02/09	14:04:42.34	le	4.20	h	34.416	-118.370	6.0	C	3360226	1	0

1971/02/09	14:04:44.08	le	4.10	h	34.416	-118.370	6.0	C	3360227	1	0
1971/02/09	14:04:46.00	le	4.20	h	34.411	-118.401	6.0	Z	12315527	0	0
1971/02/09	14:05:41.34	le	4.10	h	34.416	-118.370	6.0	C	3360221	2	0
1971/02/09	14:05:52.15	le	4.10	h	34.416	-118.370	6.0	C	3360220	2	0
1971/02/09	14:07:10.44	le	4.00	h	34.416	-118.370	6.0	C	3360212	1	0
1971/02/09	14:07:43.97	le	4.50	h	34.416	-118.370	6.0	C	3360209	2	0
1971/02/09	14:07:59.24	le	4.00	h	34.416	-118.370	6.0	C	3360207	3	0
1971/02/09	14:08:03.41	le	4.20	h	34.416	-118.370	6.0	C	3360206	3	0
1971/02/09	14:08:34.04	le	4.50	h	34.416	-118.370	6.0	C	3360204	1	0
1971/02/09	14:08:53.72	le	4.60	h	34.416	-118.370	6.0	C	3360203	4	0
1971/02/09	14:10:21.33	le	4.64	l	34.246	-118.396	14.6	B	3342443	7	0
1971/02/09	14:10:29.04	le	5.30	h	34.416	-118.370	6.0	C	3360199	1	0
1971/02/09	14:11:31.38	le	4.00	h	34.274	-118.321	6.0	C	3360257	5	0
1971/02/09	14:22:17.04	le	4.15	l	34.353	-118.316	7.6	C	3342486	11	0
1971/02/09	14:34:39.35	le	4.83	l	34.310	-118.414	2.8	B	3342514	13	0
1971/02/09	14:40:17.11	le	4.08	l	34.400	-118.455	6.1	C	3342533	13	0
1971/02/09	14:43:47.72	le	4.38	l	34.314	-118.428	19.0	C	3347629	20	0
1971/02/09	15:58:20.88	le	4.59	l	34.350	-118.339	13.9	B	3347652	24	0
1971/02/09	16:19:27.72	le	4.08	l	34.322	-118.460	10.4	B	3347654	29	0
1971/02/10	05:06:35.96	le	4.29	l	34.376	-118.311	10.9	B	3347693	27	0
1971/02/10	05:18:07.06	le	4.40	l	34.403	-118.421	9.8	B	3347694	29	0
1971/02/10	11:31:33.93	le	4.22	l	34.406	-118.394	0.3	C	3347703	26	0
1971/02/10	13:49:53.64	le	4.25	l	34.347	-118.440	12.6	B	3347709	27	0
1971/02/10	14:35:26.18	le	4.15	l	34.347	-118.476	1.8	C	3347710	25	0
1971/02/10	17:38:54.97	le	4.04	l	34.374	-118.362	12.2	B	3347716	26	0
1971/02/10	18:54:41.24	le	4.05	l	34.426	-118.436	0.0	B	3347717	26	0
1971/02/21	05:50:52.30	le	4.43	l	34.383	-118.434	7.9	B	3323345	21	0
1971/02/21	07:15:11.48	le	4.25	l	34.346	-118.447	14.2	B	3323346	21	0
1971/03/03	12:05:15.69	le	4.09	l	35.660	-118.355	0.9	A	3323213	24	0
1971/03/07	01:33:40.01	le	4.20	l	34.346	-118.430	2.4	C	3323221	22	0
1971/03/08	23:08:07.64	le	4.20	l	35.661	-118.371	3.3	A	3323232	27	0
1971/03/25	22:54:09.55	le	4.16	l	34.301	-118.493	13.0	B	3323276	22	0
1971/03/31	14:52:22.42	le	4.30	l	34.285	-118.464	2.2	B	3322956	22	0
1971/04/01	15:03:03.67	le	4.09	l	34.403	-118.418	11.7	B	3322983	30	0
1971/04/15	11:14:32.19	le	4.15	l	34.256	-118.511	3.2	C	3323057	19	0
1971/06/22	10:41:17.87	le	4.22	l	33.715	-117.490	1.6	B	3322532	26	0
1972/01/31	01:55:04.31	le	4.01	l	34.306	-116.883	6.0	C	3321559	30	0
1972/07/27	00:31:17.21	le	4.31	l	34.790	-118.892	3.7	C	3321101	31	0
1973/02/21	14:45:56.14	le	5.30	w	33.979	-119.050	10.0	C	3320341	22	0
1973/07/14	08:00:20.17	le	4.49	l	34.431	-116.853	6.0	C	3319553	49	0
1973/08/06	23:29:16.66	le	5.14	l	33.957	-119.475	16.9	B	3319386	37	0
1974/01/24	05:02:01.00	le	4.05	l	35.033	-119.079	6.0	C	3318571	58	0
1974/03/09	00:54:31.63	le	4.37	l	34.386	-118.385	8.6	B	3320111	45	0
1975/04/17	09:18:33.45	le	4.06	l	35.773	-118.606	3.1	A	3076282	91	0
1975/05/02	18:03:22.90	le	4.25	l	35.218	-117.617	1.0	C	3021953	102	0
1975/05/13	00:21:35.60	le	4.56	l	35.007	-119.097	24.1	B	3022027	104	0
1975/06/05	14:46:45.06	le	4.09	l	35.052	-119.000	1.0	C	3022245	80	0
1976/01/01	17:20:12.91	le	4.38	l	33.972	-117.896	10.2	A	3001636	88	0
1976/04/08	15:21:37.99	le	4.47	l	34.358	-118.673	15.1	A	3002657	121	0
1976/11/22	17:55:11.60	le	4.16	l	33.950	-118.629	11.8	A	152235	89	0
1977/08/12	02:19:26.14	le	4.37	l	34.371	-118.458	10.8	A	3334224	81	120
1977/09/24	21:28:24.35	le	4.02	l	34.459	-118.418	13.3	A	3334905	87	109
1978/06/16	04:21:31.95	le	4.16	l	35.041	-119.129	11.0	A	3340018	72	150
1978/08/13	22:54:52.91	le	5.08	l	34.314	-119.706	18.0	C	10012262	102	0
1978/11/20	06:55:09.30	le	4.27	l	34.147	-116.960	14.5	A	3314007	109	147
1979/01/01	23:14:38.62	le	5.21	l	33.916	-118.687	13.3	A	12228815	100	142
1979/06/29	05:53:20.44	le	4.40	l	34.245	-116.891	11.3	A	3350266	101	142
1979/06/30	00:34:11.59	le	4.83	l	34.242	-116.882	12.6	A	3350295	109	148
1979/06/30	07:03:52.89	le	4.36	l	34.248	-116.889	12.9	A	3350317	114	146
1979/10/17	20:52:36.97	le	4.31	l	33.893	-118.658	10.7	A	12281891	82	115
1979/10/19	12:22:37.83	le	4.07	l	34.203	-117.529	7.1	A	3352948	84	91
1980/09/26	13:18:41.46	le	4.29	l	35.255	-119.377	9.9	A	3302524	40	164
1981/06/22	04:57:47.16	le	4.02	l	35.098	-118.504	1.3	A	518117	98	152

1981/09/04	15:50:48.70	le	5.45	l	33.557	-119.120	6.0	C	522177	121	153
1981/10/23	17:28:16.44	le	4.76	l	33.590	-119.004	10.0	C	526000	93	146
1981/10/23	19:15:52.17	le	4.61	l	33.618	-119.017	14.8	A	526013	97	152
1981/11/10	22:34:35.73	le	4.71	l	35.011	-119.133	8.0	A	526822	135	151
1981/11/10	22:37:04.69	le	4.19	c	35.013	-119.178	1.7	A	526823	62	149
1982/04/13	11:02:12.36	le	4.01	l	34.063	-118.970	12.1	A	528652	96	155
1982/05/25	13:44:30.30	le	4.36	l	33.546	-118.206	12.6	A	531265	88	148
1983/01/08	07:19:30.49	le	4.02	l	34.133	-117.453	7.8	A	503897	119	153
1983/02/22	02:18:29.91	le	4.38	l	33.037	-117.952	6.0	C	1100586	84	162
1984/05/07	19:32:32.76	le	4.26	l	34.661	-119.973	9.9	C	39006	60	195
1984/06/12	00:27:52.38	le	4.04	l	34.541	-118.989	11.7	C	41122	112	205
1984/10/25	10:36:02.37	le	4.53	l	34.737	-120.147	6.0	C	52453	21	197
1984/10/26	17:20:43.54	le	4.56	l	34.016	-118.988	13.3	A	53124	77	203
1985/02/08	06:58:16.86	le	4.61	l	35.457	-118.906	6.0	C	58486	88	212
1985/04/03	04:04:50.07	le	4.07	l	34.380	-119.038	24.9	A	61973	117	206
1985/05/06	23:14:33.02	le	4.41	l	35.297	-119.346	24.4	A	64604	131	205
1985/10/02	23:44:12.45	le	4.58	l	34.023	-117.245	15.2	A	107945	186	244
1986/03/10	15:33:16.27	le	4.14	l	34.402	-119.802	18.0	C	118360	103	207
1987/05/11	15:10:10.24	le	4.12	l	34.311	-116.918	5.3	A	721973	139	255
1987/10/01	14:42:20.02	le	5.90	w	34.061	-118.079	9.5	A	731691	178	254
1987/10/01	14:45:41.45	le	4.70	l	34.049	-118.100	13.6	A	624578	33	127
1987/10/01	14:48:03.11	le	4.11	l	34.076	-118.090	11.7	A	731693	55	161
1987/10/01	14:49:05.92	le	4.75	l	34.060	-118.100	11.7	A	624580	47	125
1987/10/01	15:12:31.76	le	4.62	l	34.052	-118.091	10.8	A	134294	164	251
1987/10/01	15:59:53.55	le	4.02	l	34.050	-118.087	10.4	A	731717	128	227
1987/10/04	10:59:38.19	le	5.25	l	34.074	-118.098	8.3	A	732031	189	256
1987/10/24	23:58:33.12	le	4.03	l	33.676	-119.058	12.2	A	733642	95	244
1987/12/15	18:23:46.10	le	4.02	l	35.372	-118.774	3.2	A	630677	112	227
1988/02/11	15:25:55.65	le	4.69	l	34.077	-118.047	12.5	A	743060	135	260
1988/03/23	08:42:46.96	le	4.01	l	34.250	-119.622	17.6	A	136023	113	260
1988/06/10	23:06:43.05	le	5.37	l	34.943	-118.743	6.8	A	640798	120	262
1988/06/26	15:04:58.48	le	4.66	l	34.136	-117.709	7.9	A	136984	134	260
1988/09/12	13:24:34.20	le	4.04	l	33.867	-118.457	3.4	A	1008955	74	259
1988/11/20	05:39:28.67	le	4.83	l	33.507	-118.071	6.0	C	1013254	105	270
1988/12/03	11:38:26.45	le	5.02	l	34.151	-118.130	14.3	A	650799	187	271
1989/01/19	06:53:28.84	le	4.96	l	33.919	-118.627	11.9	A	1018595	165	272
1989/02/14	15:43:54.65	le	4.10	l	35.043	-119.156	13.8	A	1020974	65	247
1989/02/18	07:17:04.85	le	4.05	l	34.006	-117.738	3.3	A	1021313	145	269
1989/03/29	09:29:49.53	le	4.31	l	34.914	-118.992	14.3	A	1025141	117	265
1989/04/07	20:07:30.30	le	4.80	l	33.619	-117.902	12.8	A	657729	142	271
1989/06/12	16:57:18.49	le	4.82	l	34.028	-118.180	15.6	A	1032113	142	272
1989/06/12	17:22:25.52	le	4.47	l	34.022	-118.178	15.5	A	661481	139	271
1989/12/28	09:41:08.20	le	4.23	l	34.192	-117.386	14.6	A	140477	145	271
1990/01/11	01:22:10.30	le	4.01	l	35.225	-118.215	3.6	A	1049754	107	258
1990/02/28	23:43:36.75	le	5.51	l	34.144	-117.697	4.5	A	1053635	120	271
1990/03/01	00:34:57.15	le	4.03	l	34.127	-117.701	4.4	A	1053648	83	233
1990/03/01	03:23:03.03	le	4.72	l	34.153	-117.720	11.4	A	676027	158	269
1990/03/02	17:26:25.48	le	4.47	l	34.145	-117.695	5.6	A	1053953	162	271
1990/04/17	22:32:27.29	le	4.50	l	34.106	-117.722	3.6	A	1057313	113	277
1990/12/18	16:56:43.09	le	4.25	l	35.374	-118.846	6.0	B	688784	106	266
1991/06/28	14:43:54.66	le	5.80	w	34.270	-117.993	9.2	A	2021449	157	331
1991/06/28	17:00:55.56	le	4.30	l	34.253	-117.992	9.5	A	2021473	120	308
1991/07/05	17:41:57.12	le	4.13	l	34.497	-118.556	10.9	A	2022113	132	311
1991/12/04	08:17:03.51	le	4.09	l	34.178	-117.022	10.7	A	2036038	152	313
1992/03/04	19:06:26.95	le	4.30	l	32.975	-118.791	6.0	C	3007288	129	315
1992/06/28	17:01:32.01	le	4.98	l	34.179	-116.925	10.8	A	3031154	67	305
1992/06/28	17:05:57.56	le	5.26	l	34.255	-116.912	7.7	A	3031157	102	296
1992/06/28	17:21:27.31	le	4.16	l	34.225	-116.862	1.4	A	3031168	73	284
1992/06/29	01:18:13.40	le	4.67	l	35.160	-117.362	4.2	A	3040295	28	296
1992/06/29	01:26:15.67	le	4.12	l	35.156	-117.351	5.5	C	2057196	68	214
1992/06/29	04:16:42.61	le	4.12	l	35.016	-117.203	3.5	A	3031395	52	200
1992/06/29	14:41:26.04	le	4.59	l	34.111	-116.997	4.8	A	3031622	66	311
1992/06/30	02:32:12.22	le	4.08	l	35.165	-117.351	4.9	A	3042717	98	303

1992/06/30	21:49:00.39	le	4.48	l	34.078	-116.987	4.6	A	3032368	148	327
1992/07/03	17:17:06.41	le	4.10	l	34.262	-116.896	7.6	A	3034125	138	368
1992/07/11	18:14:16.16	le	5.67	l	35.210	-118.067	10.7	A	3041390	83	365
1992/08/17	20:41:52.12	le	5.23	l	34.195	-116.863	11.3	A	3055028	141	350
1992/08/18	09:46:40.73	le	4.14	l	34.197	-116.862	12.2	A	3055197	138	353
1992/11/27	16:00:57.49	le	5.29	l	34.340	-116.900	1.4	A	3079915	164	336
1992/11/27	18:32:24.96	le	4.15	l	34.364	-116.905	1.1	A	3080022	85	332
1992/12/04	02:08:57.50	le	5.26	l	34.369	-116.898	3.0	A	3081404	151	325
1992/12/04	05:25:07.44	le	4.61	c	34.373	-116.912	3.6	A	3081485	36	323
1992/12/04	05:25:11.21	le	4.66	l	34.377	-116.918	2.7	A	3081464	157	296
1992/12/04	12:59:42.11	le	4.24	l	34.361	-116.914	0.7	A	3081531	130	326
1992/12/07	03:33:31.47	le	4.03	l	34.362	-116.924	1.1	A	3081990	74	326
1993/05/28	04:47:40.60	le	5.19	l	35.149	-119.104	21.4	A	3107503	157	362
1993/05/31	08:55:29.99	le	4.11	l	34.120	-116.995	5.7	A	3107911	66	360
1994/01/17	12:30:55.39	le	6.70	w	34.213	-118.537	18.4	A	3144585	160	428
1994/01/17	12:30:55.39	ts	6.70	s	34.216	-118.538	17.4	A	3140671	159	368
1994/01/17	12:31:58.12	le	5.89	l	34.275	-118.493	6.0	C	3149646	40	346
1994/01/17	12:34:18.42	le	4.44	l	34.308	-118.475	6.0	C	3144599	11	346
1994/01/17	12:39:39.80	le	4.89	l	34.265	-118.540	6.0	C	3144652	119	367
1994/01/17	12:40:09.52	le	4.82	l	34.320	-118.507	6.0	C	3144673	28	352
1994/01/17	12:40:36.12	le	5.20	l	34.340	-118.614	6.0	C	3144694	18	352
1994/01/17	12:55:46.83	le	4.07	l	34.277	-118.578	6.0	C	3140674	104	364
1994/01/17	13:06:28.34	le	4.62	l	34.251	-118.550	6.0	C	3140678	103	409
1994/01/17	13:26:45.01	le	4.68	l	34.318	-118.456	6.0	C	3140684	112	406
1994/01/17	13:56:02.48	le	4.44	l	34.293	-118.621	6.0	C	3140691	123	394
1994/01/17	14:14:30.63	le	4.45	l	34.331	-118.445	6.0	C	3140870	110	403
1994/01/17	15:07:03.17	le	4.20	l	34.304	-118.474	2.6	A	3140728	158	400
1994/01/17	15:07:35.46	le	4.14	l	34.307	-118.467	1.6	A	2138698	80	397
1994/01/17	15:54:10.76	le	4.85	l	34.376	-118.627	13.0	A	3140766	141	403
1994/01/17	17:56:08.21	le	4.63	l	34.228	-118.572	19.2	A	3140853	149	397
1994/01/17	19:43:53.38	le	4.05	l	34.368	-118.637	13.9	A	3141205	118	394
1994/01/17	20:46:02.40	le	4.85	l	34.302	-118.565	6.0	C	3141219	153	411
1994/01/17	22:31:53.73	le	4.12	l	34.339	-118.442	6.0	C	3141242	96	402
1994/01/17	23:33:30.69	le	5.58	l	34.326	-118.698	9.8	A	3141273	134	415
1994/01/18	00:39:35.02	le	4.40	l	34.379	-118.564	7.2	A	3141108	111	376
1994/01/18	00:40:04.09	le	4.21	l	34.394	-118.543	0.0	A	2150850	45	349
1994/01/18	00:43:08.89	le	5.24	l	34.377	-118.698	11.3	A	3141286	139	373
1994/01/18	04:01:26.72	le	4.26	l	34.358	-118.623	0.9	A	3141180	117	415
1994/01/18	07:23:56.02	le	4.04	l	34.333	-118.623	14.8	A	3141341	127	430
1994/01/18	11:35:09.90	le	4.19	l	34.218	-118.607	12.1	A	3141570	90	403
1994/01/18	13:24:44.13	le	4.32	l	34.319	-118.558	1.7	A	3141584	118	388
1994/01/18	15:23:46.89	le	4.84	l	34.379	-118.561	7.7	A	3141597	134	424
1994/01/19	04:40:47.00	le	4.34	l	34.361	-118.571	2.6	A	3142081	146	436
1994/01/19	04:43:14.57	le	4.04	l	34.366	-118.709	6.0	C	3142082	126	370
1994/01/19	09:13:10.90	le	4.05	l	34.304	-118.737	13.0	A	3142087	125	412
1994/01/19	14:09:14.83	le	4.52	l	34.215	-118.510	17.5	A	3142198	158	436
1994/01/19	21:09:28.61	le	5.06	l	34.379	-118.712	14.4	A	3142595	144	468
1994/01/19	21:11:44.90	le	5.07	l	34.378	-118.619	11.3	A	3142597	104	391
1994/01/21	18:39:15.26	le	4.53	l	34.301	-118.466	10.6	A	3145627	159	551
1994/01/21	18:39:47.08	le	4.00	l	34.297	-118.479	11.9	A	3159009	34	428
1994/01/21	18:42:28.77	le	4.25	l	34.310	-118.474	7.9	A	3143541	93	482
1994/01/21	18:52:44.23	le	4.31	l	34.302	-118.452	7.6	A	3143546	146	539
1994/01/21	18:53:44.57	le	4.32	l	34.298	-118.458	7.7	A	3143547	84	515
1994/01/22	22:54:10.66	le	4.64	c	34.393	-118.568	7.6	A	3187383	12	81
1994/01/23	08:55:08.66	le	4.07	l	34.300	-118.428	6.0	A	3144303	139	566
1994/01/24	04:15:18.82	le	4.59	l	34.347	-118.552	6.5	A	3145150	174	578
1994/01/24	05:50:24.34	le	4.30	l	34.361	-118.628	12.1	A	3145168	159	578
1994/01/24	05:54:21.07	le	4.20	l	34.364	-118.627	10.9	A	3145171	147	569
1994/01/27	17:19:58.83	le	4.57	l	34.273	-118.563	14.9	A	3146628	146	584
1994/01/28	20:09:53.43	le	4.21	l	34.375	-118.494	0.7	A	3146983	81	590
1994/01/29	11:20:35.97	le	5.06	l	34.306	-118.579	1.1	A	3147406	134	622
1994/01/29	12:16:56.35	le	4.33	l	34.278	-118.611	2.6	A	3147259	122	599
1994/02/06	13:19:27.02	le	4.09	l	34.292	-118.476	9.3	A	3150210	154	587

1994/02/25	12:59:12.59	le	4.03	l	34.357	-118.480	1.2	A	3155150	154	557
1994/03/20	21:20:12.26	le	5.24	l	34.231	-118.475	13.1	A	3159411	176	427
1994/04/06	19:01:04.06	le	4.78	l	34.192	-117.095	7.3	A	3162132	190	412
1994/05/25	12:56:57.05	le	4.40	l	34.312	-118.393	7.0	A	3169078	155	420
1994/06/15	05:59:48.63	le	4.13	l	34.311	-118.398	7.4	A	3172383	160	423
1994/12/06	03:48:34.49	le	4.54	l	34.293	-118.389	9.0	A	3195727	167	440
1995/02/19	21:24:18.07	le	4.34	l	34.049	-118.915	15.6	A	3203644	163	419
1995/06/26	08:40:28.94	le	5.02	l	34.394	-118.669	13.3	A	3217586	187	426
1995/12/27	09:42:58.51	le	4.20	h	34.245	-118.599	6.0	C	3247748	12	57
1995/12/31	21:48:23.06	le	4.09	l	35.098	-118.306	7.9	A	3248154	113	409
1996/03/20	07:37:59.76	le	4.11	l	34.362	-118.615	13.0	A	3258844	152	345
1996/05/01	19:49:56.42	le	4.09	l	34.354	-118.703	14.4	A	3263467	160	456
1996/10/23	22:09:29.38	le	4.07	l	34.481	-119.353	14.5	A	7047275	133	523
1997/04/26	10:37:30.67	le	5.07	l	34.369	-118.670	16.4	A	9008753	183	706
1997/04/27	11:09:28.38	le	4.92	l	34.377	-118.649	15.2	A	9008934	174	664
1997/05/06	19:12:53.76	le	4.49	l	35.453	-118.431	6.0	A	9009850	152	680
1997/06/28	21:45:25.10	le	4.18	l	34.168	-117.336	10.0	A	9014489	177	601
1997/12/05	17:04:38.92	le	4.08	l	34.097	-116.996	4.5	A	9033757	171	818
1998/01/05	18:14:06.47	le	4.29	l	33.951	-117.709	11.5	A	9038699	186	796
1998/03/11	12:18:51.83	le	4.45	l	34.024	-117.230	14.9	A	3298292	193	867
1998/08/16	13:34:40.23	le	4.78	l	34.121	-116.928	6.2	A	9064093	161	1320
1998/08/20	23:49:58.44	le	4.40	l	34.374	-117.648	9.0	A	9064568	209	811
1998/10/01	18:18:15.96	le	4.63	l	34.111	-116.920	4.4	A	7112721	150	1375
1998/10/27	15:40:17.06	le	4.09	l	34.320	-116.850	4.3	A	9070083	108	1370
1999/07/11	18:20:46.89	le	4.35	l	35.731	-118.478	5.7	A	9095528	56	1723
1999/09/20	07:02:49.18	le	4.12	l	34.322	-116.846	2.8	A	9105672	141	992
1999/10/16	10:11:03.07	uk	4.23	l	34.254	-117.103	0.0	C	9574820	23	770
1999/10/16	11:05:52.17	uk	4.19	l	34.398	-117.284	7.0	D	9574932	11	466
2000/02/21	13:49:43.13	le	4.37	l	34.050	-117.252	15.4	A	9140050	157	1630
2000/12/24	01:04:21.87	le	4.42	l	34.918	-119.020	13.9	A	9171679	102	3343
2001/01/14	02:26:14.06	le	4.26	l	34.284	-118.404	8.8	A	9173365	177	916
2001/01/14	02:50:53.69	le	4.05	l	34.289	-118.403	8.4	A	9173374	173	829
2001/02/02	04:26:23.14	ts	4.90	h	35.451	-118.197	7.0	C	9622181	0	152
2001/02/10	21:05:05.78	le	4.66	w	34.289	-116.946	9.1	A	9627721	249	1432
2001/02/11	00:39:15.97	le	4.22	l	34.288	-116.942	8.1	A	9627953	309	1434
2001/09/09	23:59:18.04	le	4.24	l	34.059	-118.388	7.9	A	9703873	140	1531
2002/01/29	05:53:28.93	le	4.18	l	34.361	-118.657	14.2	A	9753485	129	1596
2002/03/16	21:33:23.82	le	4.60	l	33.666	-119.330	7.0	C	12659440	75	1616
2002/06/17	16:56:56.00	ts	5.30	h	34.796	-118.455	7.9	C	13659476	36	910
2002/09/03	07:08:51.87	le	4.75	l	33.917	-117.776	12.9	A	9818433	245	1594
2003/01/25	09:16:10.22	le	4.54	l	35.318	-118.654	5.6	C	9882329	100	1769
2003/02/22	12:19:10.58	le	4.99	w	34.310	-116.848	1.2	A	13935988	202	1728
2003/02/22	12:20:15.64	le	4.00	h	34.311	-116.847	4.4	A	13935992	61	1728
2003/02/22	12:21:33.13	le	4.34	l	34.311	-116.851	4.4	A	13935996	104	1728
2003/02/22	12:25:13.64	le	4.01	l	34.326	-116.857	9.3	C	13936076	128	1732
2003/02/22	14:16:08.42	le	4.10	l	34.324	-116.858	4.2	A	13936432	193	1718
2003/02/22	19:33:45.80	le	4.50	l	34.310	-116.850	3.0	A	13936812	175	1719
2004/02/14	12:43:11.38	le	4.34	l	35.038	-119.132	11.7	A	9983429	192	1918
2004/05/09	08:57:17.30	le	4.40	l	34.395	-120.022	4.4	A	10006857	256	1930
2004/07/24	12:55:19.90	le	4.27	l	34.380	-119.436	3.6	A	14077668	224	1929
2004/09/29	22:54:54.24	le	5.03	w	35.390	-118.624	3.5	A	14095628	246	1902
2004/11/13	17:39:16.93	le	4.19	l	34.353	-116.845	9.6	A	10059745	221	1890
2005/01/06	14:35:27.67	le	4.42	l	34.125	-117.439	4.2	A	14116972	311	1844
2005/04/16	19:18:13.55	le	4.59	w	35.027	-119.178	10.3	A	14138080	292	1892
2005/05/06	02:29:09.51	le	4.06	l	35.031	-119.181	11.6	A	10097009	241	1896
2005/06/16	20:53:26.02	le	4.88	w	34.058	-117.011	11.6	A	14155260	326	1871
2005/07/24	12:59:42.87	le	4.11	l	33.674	-119.761	6.0	C	14165408	193	1814
2005/09/22	20:24:04.88	le	4.47	l	35.034	-119.010	11.2	A	14186608	101	1889
2005/09/22	20:24:48.62	le	4.69	w	35.043	-119.014	11.0	A	14186612	208	1889
2005/09/22	20:30:52.41	le	4.18	l	35.045	-119.007	11.2	A	14186628	77	1889
2007/08/09	07:58:49.59	le	4.66	l	34.300	-118.620	7.6	A	14312160	303	2005
2007/09/02	17:29:14.79	le	4.73	l	33.732	-117.477	12.6	A	10275733	352	1969
2007/10/16	08:53:44.12	le	4.20	l	34.385	-117.635	8.1	A	10285533	336	1979

SCEC Catalog Search Results

2007/12/19	12:14:09.63	le	4.06	l	34.156	-116.981	9.3	A	10295849	205	1922
2008/05/01	08:11:43.22	le	4.43	l	35.473	-118.425	6.0	C	10321585	271	2019
2008/07/29	18:42:15.00	ts	5.40	w	33.953	-117.761	14.7	Z	12340231	0	1694
2008/07/29	18:42:15.71	le	5.39	w	33.953	-117.761	14.7	A	14383980	366	1889
2008/10/02	09:41:49.27	le	4.14	l	34.084	-116.968	12.5	A	14396336	303	1986
2009/01/09	03:49:46.27	le	4.45	w	34.107	-117.304	14.2	A	10370141	342	1915
2009/01/31	21:09:22.59	le	4.39	l	35.413	-117.786	8.5	A	14418600	233	1931
2009/05/02	01:11:13.66	le	4.42	l	34.067	-118.882	14.2	A	10403777	179	2022
2009/05/08	20:27:13.95	le	4.17	l	34.440	-119.183	7.6	A	10406593	247	2071
2009/05/18	03:39:36.34	le	4.70	w	33.938	-118.336	13.9	A	10410337	294	2067
2009/05/19	22:49:11.55	le	4.04	l	33.934	-118.329	12.8	A	10411545	206	2060
2009/11/15	22:45:27.13	le	4.35	l	33.166	-119.302	6.0	C	10497389	181	2030
2010/01/16	12:03:25.70	le	4.28	l	33.932	-117.023	13.9	A	10530013	227	2046
2010/02/13	21:39:06.60	le	4.10	l	34.005	-117.180	8.5	A	10541957	191	2000
2010/03/16	11:04:00.19	le	4.44	l	33.992	-118.082	18.9	A	14601172	233	1969
2010/05/08	19:23:06.27	le	4.27	l	35.008	-119.268	17.2	A	10657701	99	2067
2011/09/01	20:47:07.95	le	4.24	l	34.339	-118.475	7.3	A	11001205	209	2213
2011/09/14	14:44:51.02	le	4.14	l	33.953	-117.076	16.9	A	11006189	167	2211
2012/01/03	14:18:56.11	le	4.14	l	33.195	-119.449	18.4	B	11049285	31	2127
2012/08/08	06:23:34.16	le	4.46	l	33.905	-117.792	10.1	A	15189073	345	2435
2012/08/08	16:33:22.05	le	4.45	l	33.904	-117.791	10.4	A	15189281	246	2445
2012/08/29	20:31:00.35	le	4.13	l	33.906	-117.788	9.2	A	15207433	200	2519
2013/05/15	20:00:06.23	le	4.08	w	33.658	-118.372	1.2	A	15343145	78	2408
2013/05/29	14:38:03.27	le	4.80	w	34.413	-119.926	8.0	A	15350729	39	2500
2013/07/24	16:46:02.63	le	4.29	l	35.486	-118.287	6.6	A	11339042	124	2459
2013/08/25	18:50:28.71	le	4.20	w	35.480	-118.285	2.3	A	15396881	120	2312
2014/01/15	09:35:18.87	le	4.43	w	34.143	-117.442	3.6	A	11413954	270	2390
2014/03/17	13:25:36.90	le	4.39	w	34.135	-118.486	9.9	A	15476961	389	2644
2014/03/29	04:09:42.00	ts	5.10	w	33.919	-117.944	7.5	Z	37183173	0	1909
2014/03/29	04:09:42.01	le	5.10	w	33.919	-117.944	7.5	A	15481673	234	2904
2014/03/29	21:32:45.93	le	4.14	w	33.961	-117.892	9.4	A	15483001	306	2662

Number of events: 720

Lennar Homes
April 3, 2014
2013-014-051

APPENDIX C

CBC SEISMIC DESIGN

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

USGS Design Maps Detailed Report

ASCE 7-10 Standard (34.37589°N, 118.5963°W)

Site Class C – "Very Dense Soil and Soft Rock", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1[1]	S_S = 3.100 g
From Figure 22-2[2]	S_1 = 0.984 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class C, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk-Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4-1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = C and S_S = 3.100 g, F_a = 1.000

Table 11.4-2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1-s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = C and S_1 = 0.984 g, F_v = 1.300

Equation (11.4–1): $S_{MS} = F_a S_S = 1.000 \times 3.100 = 3.100$ g

Equation (11.4–2): $S_{M1} = F_v S_1 = 1.300 \times 0.984 = 1.280$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

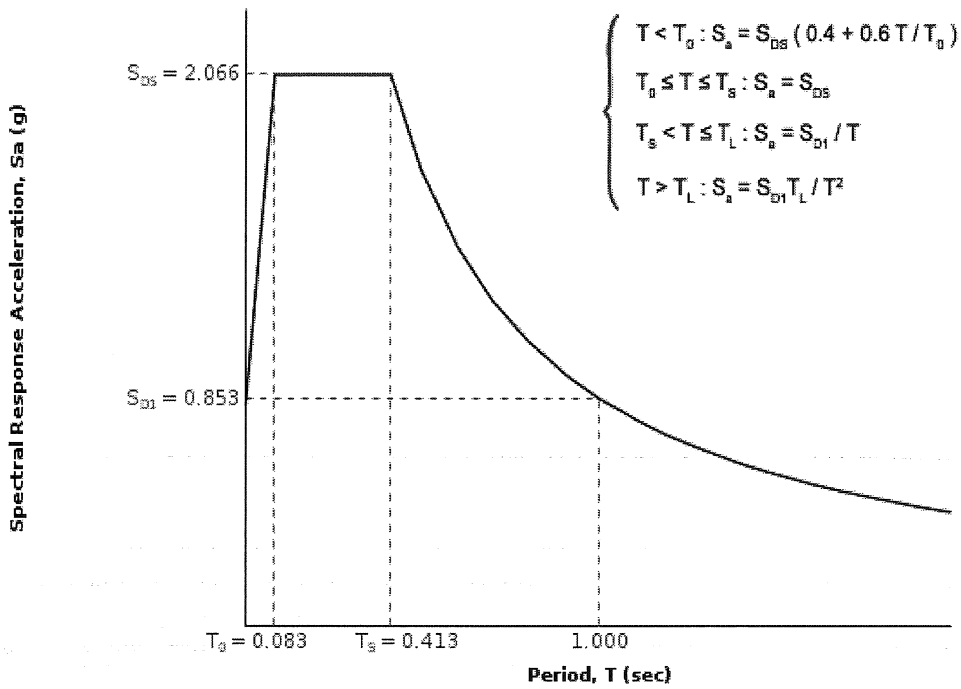
Equation (11.4–3): $S_{DS} = \frac{2}{3} S_{MS} = \frac{2}{3} \times 3.100 = 2.066$ g

Equation (11.4–4): $S_{D1} = \frac{2}{3} S_{M1} = \frac{2}{3} \times 1.280 = 0.853$ g

Section 11.4.5 — Design Response Spectrum

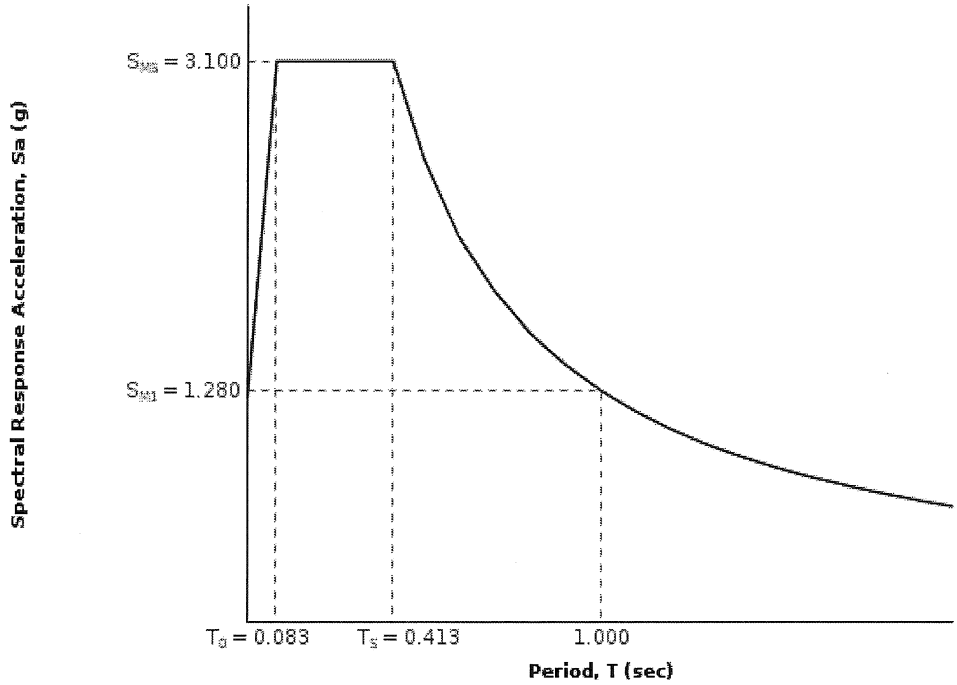
From Figure 22-12[3] $T_L = 8$ seconds

Figure 11.4–1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7[4] PGA = 1.166

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.000 \times 1.166 = 1.166$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = C and PGA = 1.166 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17[5] C_{RS} = 0.928

From Figure 22-18[6] C_{R1} = 0.950

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 2.066 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	C
$0.133g \leq S_{D1} < 0.20g$	C	C	D
$0.20g \leq S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.853 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = E

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

July 24, 2014

Lennar Homes
980 Montecito Drive
Suite 302
Corona, California 92879

Job No. 2013-014-022

Attention: Ms. Denise Williams

Subject: Response to County of Los Angeles Review Sheets
Vesting Tentative Tract Map No. 52796
Aidlin Hills
Los Angeles County, California

Reference: See Attached References

Ladies and Gentlemen:

This submittal provides information requested by the County of Los Angeles Department of Public Works (County), Geotechnical and Materials Engineering Division (GMED), Geologic and Soils Engineering Sections. The information provided is in answer to Geologic and Soils Engineering Review Sheets dated April 28 and May 8, 2014, respectively. The GMED comments on the review sheets are shown below in bold type. Our response follows each comment in regular type.

It should be noted that Alliance Land Planning & Engineering, Inc. (Alliance) has made some minor revisions to the Tentative Map. The revisions include the addition of a new lot at the end of the "C" Street cul-de-sac (Lot No. 50) with associated lot renumbering (see Lot Nos. 47 through 71), and addition of two debris basins and a debris channel. The debris basins are located adjacent to Lot Nos. 72 and 75; the debris channel replaces a former debris basin at the end of "C" Street and extends along the south side of Lot Nos. 47 through 50.

R. T. FRANKIAN & ASSOCIATES
1329 SCOTT ROAD BURBANK CALIFORNIA 91504
TEL. (818) 531-1501 FAX (818) 531-1511 WWW.RTFRANKIAN.COM

GEOLOGIC REVIEW SHEET

1. Provide a Geologist of Record letter. The engineering geologist must acknowledge all pertinent previous reports and make a statement that he agrees with their findings, conclusions, and recommendations or provide appropriate modification.

R. T. Frankian and Associates (RTF&A) has prepared a Consultant of Record letter, dated June 6, 2014, which has been forwarded to GMED. A PDF version of the Consultant of Record letter will be included on the compact disc as part of our response submittal.

2. Evaluate debris flow potential for each building area located below a swale or steep natural slope. Provide mitigation recommendations as necessary. Show recommended mitigation on the geologic map.

Building lots most susceptible to potential debris flow are those lots located directly below and adjacent to natural slopes. Based on our review of the Alliance plan, potential debris flow areas have been identified below natural slopes at the rear of Lot Nos. 47 through 50 and Lot Nos. 72 through 75.

We reviewed the previous explorations representative of the slope conditions above the subject lots and the depth of material subject to potential downward mobilization, based on our review of borings and test pit logs from GeoSoils, Inc. (GeoSoils) and J. Byer Group, Inc. (J. Byer). Mitigation for the potential debris will consist of a debris flow channel to be constructed along the south side of Lot Nos. 47 through 50, and two debris basins proposed for the rear of Lot Nos. 72 through 75. The debris basins and channel are indicated on the Geotechnical Map (Figures 1.1 and 1.2). The detail for the debris channel, titled "Debris Zone at Toe of Existing Slopes Detail," is indicated on Sheet 1 of 2 (Figure 1.1) of the Alliance plan. Based on the Alliance plan, Lot Nos. 47 through 50 and 72 through 75 will be elevated a minimum of 4 feet above the adjacent debris channel and/or basins.

The remaining lots within the project site have acceptable separation, either vertical or horizontal, from natural slopes and potential debris flow source areas, and potential debris flow impacts are judged to be minimal.

It is our opinion that the indicated debris basin and drainage swales indicate that the proposed development is feasible. It is recommended that additional debris evaluation be performed at the grading plan level of approval. Acceptable debris flow mitigation measures may consist of berms, impact walls, basins, and/or setback.

3. Place all unmitigated landslides in Restricted Use Areas. Show Restricted Use Areas on the geotechnical map.

The two unmitigated landslides within the tract boundary (designated as Qls 1 and Qls 3) have been placed in Restricted Use Areas (RUAs). The two landslides and associated RUAs are shown on the Geotechnical Map, Figures 1.1 and 1.2, included with this response.

4. The bedding depicted on cross-section B-B' west of the proposed grade does not appear to reflect the geologic conditions shown on the map. Revise the geologic cross-section as necessary.

RTF&A has reviewed Geologic Section B-B' relative to the depiction of bedding, particularly at the west end of the section line. Bedding at the west end of the section line strikes northwest, with the strike subparallel to the section line, and dips 86 degrees to the northeast. The calculated apparent dip for the 86 degree true bedding is 70 degrees northeast, which was reflected as such for Geologic Section B-B' in our March 27, 2014 report. Therefore, we believe the depiction of bedding as shown on Geologic Section B-B' is correct; accordingly, we have not revised Section B-B'.

During our review we noted that the bedding dip indicated at the south end of Geologic Section F-F', which crosses the west end of Geologic Section B-B', was incorrectly indicated as 67 degrees to the northeast. The correct bedding in this area dips 86 degrees to the northeast. Therefore, we have revised Geologic Section F-F' to reflect the 86 degree dip at the south end of the section line. The revised Geologic Section F-F' is presented as Figure 2.

5. The Soils Engineering review dated 5-8-14 is attached.

Our responses to the Soils Engineering Review Sheet are presented in the following section.

SOILS ENGINEERING REVIEW SHEET

1. Provide a change of consultant letter. The Soils Engineer of record must acknowledge all pertinent previous soil reports and make a statement that he agrees with their findings, conclusions, and recommendations or provide appropriate modifications.

RTF&A has prepared a Consultant of Record letter, dated June 6, 2014, which has been forwarded to GMED. A PDF version of the Consultant of Record letter will be included on the compact disc as part of our response submittal.

2. Provide an updated liquefaction analysis that is based on the proposed development. Provide data and analyses to determine liquefaction potential of the on-site soils. Also, evaluate the potential for seismically induced settlement (dry and saturated soils), lateral spreading, surface manifestation, etc. The analyses must be performed for soils within the upper 50 feet, as a minimum, for shallow foundation, or to greater depths when deep foundations and/or subterranean structures are proposed. The highest historical groundwater table shall be used in the analyses unless a shallower level (higher elevation than historic high) is determined to be appropriate. Recommend mitigation as necessary. The liquefaction data and analyses must conform to the California Department of Conservation, California Geological Survey "Special Publication 117A," dated 2008, and the Southern California Earthquake Center "Recommended Procedures for Implementation of DMG Special Publication 117," dated March 1999.

The proposed home sites are not subject to liquefaction. At the completion of grading operations, the subsurface conditions below the proposed home sites will consist of only Pico Formation bedrock and compacted fill. Within the proposed grading limits, the only material with a potential to be subject to liquefaction at the completion of grading is within the eastern portion of proposed "A" Street at, and near, the proposed intersection with existing Pico Canyon Road.

The area of potential liquefaction was evaluated by J. Byer and in our reviewed report which presented settlement estimates for the street areas outside the limits of the proposed home sites. RTF&A conducted additional subsurface exploration of the alluvial deposits within Pico Canyon to evaluate liquefaction potential as part of the preparation of this response. The exploration consisted of the excavation of one hollow-stem auger boring, designated HS-1, to a depth of 19½ feet. The boring encountered 19.0 feet of alluvial deposits. The boring could not be advanced past 19.5 feet due to refusal on a boulder at the alluvial and bedrock contact. It should be noted that a nearby 1989 GeoSoils boring (designated as Boring B-6G on the Geotechnical Map, Figures 1.1 and 1.2) also encountered refusal on cobbles with "sandstone and siltstone pieces."

The recommended removal within the vicinity of HS-1 is 10 to 15 feet, as indicated on the attached Geotechnical Map (Figures 1.1 and 1.2). The proposed grading would increase the existing site grade at Boring HS-1 by 20 feet, which in combination with the recommended removal of 15 feet would provide for about 35 feet of fill overlying less than 5 feet of alluvium

that would be underlain by bedrock at Boring HS-1. Accordingly, the portion of proposed "A" Street within a potential liquefiable area will be underlain by a combination of bedrock materials, denser alluvial deposits, and certified engineered fill. The liquefaction calculation and supporting documentation are presented in Appendix C and indicate a total wet liquefaction settlement of 0.84 inches and a dry sand settlement of 0.21 inches. The total dynamic settlement after performing the 15 feet of removal and elevating the site grade at HS-1 is 0.84 inches.

The recommended mitigation for liquefaction at the subject site for the eastern portion of proposed A Street will consist of ground modification and increasing the existing site elevation. The ground modification will consist of removal (removal and recompaction) of the upper portion of existing alluvial soils and replacing them with compacted fill soils. It is recommended that utilities and proposed improvements within the potential liquefaction areas of proposed "A" Street be designed to resist a static and dynamic settlement of 1.25 inches with differential settlements of up to 1.0 inches within a horizontal distance of 30 feet.

3. The geotechnical map included in the soils report dated 3/27/14 appears to be using a scale that is different from the one indicated on the map. Verify and provide a revised geotechnical map as necessary.

RTF&A has revised the scale on the Geotechnical Map (Figures 1.1 and 1.2) to reflect the correct scale of 1" = 100'.

4. Evaluate debris flow potential for the proposed development. Provide surficial slope stability analyses using the appropriate shear strength parameters and recommend mitigation if factors of safety are below the County minimum standards. Provide data (e.g. stress-strain diagrams) to substantiate the shear strength parameters used in the slope stability analyses.

See the response to Geologic Comment No. 2.

5. Provide additional data to substantiate the shear strength parameters (cohesion of 500 psf and friction angle of 37 degrees) used for the bedrock material in the global slope stability analyses. Provide revised global slope stability analyses and recommend mitigation if factors of safety are below the County minimum standards, as necessary.

Additional bedrock samples were obtained in boring HS-4 for direct shear testing as presented in Appendix B. In addition, we reviewed the Pico Formation shear test results from reports by Allen E. Seward Engineering Geology, Inc. (AES) and RTF&A for the nearby Vesting Tentative Tract Map No. 060678 (VTTM 060678) project, and J Byer for the subject site. The AES and RTF&A Pico Formation strengths were approved by GMED.

The AES report dated September 30, 2005 was for Newhall Ranch and recommended cohesion from 500 to 800 psf and PHI from 32 to 36 degrees for Pico Formation bedrock, depending upon the specific geographic area as indicated on their Attached Summary of Design Shear Strength Values presented in Appendix D. The VTTM 060678 report dated July 22, 2013 by RTF&A recommended cohesion of 500 psf with an angle of internal friction of 37 degrees. The J. Byer report dated June 5, 2000 for the subject site recommended a cohesion of 930 psf and a Phi angle of 30.5 degrees. The front pages and associated direct shear test results from the referenced reports are presented in Appendix D. It is our opinion that the results of the on-site and adjacent properties presented in the referenced reports included in Appendix D justify the use of cohesion of 500 psf with an angle of internal friction of 37 degrees.

The recent on-site direct shear test results presented in Appendix B and the direct shear test results presented in Appendix D justify the use of Pico Formation cross bedding strengths for cohesion of 500 psf with an angle of internal friction of 37 degrees.

6. Provide a report for the onsite infiltration rate. Report shall conform with current County policies.

RTF&A previously performed an infiltration evaluation for Vesting Tentative Tract No. 52796. The results of the evaluation were presented in our April 2, 2014 report (RTF&A, 2014b). The infiltration evaluation report will be provided to Los Angeles County under separate cover. A PDF version of the infiltration report will be included on the compact disc containing our response submittal.

7. Show the following on the geotechnical map:

a. Location of "Restricted Use Area(s)."
b. Grading required for construction of all stabilization fills.
c. All recommended mitigation measures, as necessary

The recommended RUAs are indicated on Figures 1.1 and 1.2. RTF&A has recommended a stabilization fill for Cut Slope CS-6. The approximate location of the stabilization fill keyway is indicated on Figures 1.1 and 1.2.

Alliance has revised the Tentative Map to reflect recommended debris retention devices, including debris basins and debris channels within potential debris flow areas, as discussed in our response to Geologic Review Comment No. 2.

8. Requirements of the Geology Section are attached.

Our responses to the Geologic Review Sheet were presented in the previous section of this report.

9. Include a copy of this review sheet with your response.

The Soils Engineering and Geologic Review Sheets are included at the end of this report.

The following are attached and complete this report.

- GMED Geologic Review Sheet dated April 28, 2014
- GMED Soils Engineering Review Sheet dated May 8 2014
- Geotechnical Map – Figures 1.1 and 1.2
- Geologic Section F-F' – Figure 2
- Appendix A – Field Explorations
- Appendix B – Laboratory Testing
- Appendix C – Liquefaction Calculation for HS-1
- Appendix D – Referenced Pico Formation Strengths

PROFESSIONAL GEOLOGIST NO. 3749
TIMOTHY P. LATIOLAIT
#1140
CERTIFIED
ENGINEERING
GEOLOGIST
Expires: 12-31-15
STATE OF CALIFORNIA

Respectfully submitted,

R. T. FRANKIAN & ASSOCIATES

by: Timothy P. Latiolait
Principal Engineering Geologist

REGISTERED PROFESSIONAL ENGINEER
ALAN W. RASPLICKA
No. GE 2558
GEOTECHNICAL
STATE OF CALIFORNIA

and: Alan W. Rasplicka
Principal Geotechnical Engineer

TPL/AWR/eaw

PDF Distribution via Email:
Lennar Homes – Ms. Denise Williams
Alliance Land Planning & Engineering, Inc. – Mr. Craig Whitteker and Ms. Erin Stanley

Hard Copy Distribution:
Alliance Land Planning & Engineering, Inc.
Attn: Ms. Erin Stanley
2 wet-signed, stamped copies plus 1 CD of PDF file for submittal to the Geotechnical and Materials Engineering Division

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

REFERENCES

Frankian, R. T. & Associates, 2013, "Updated Geotechnical Plan Review and Response to County of Los Angeles Review Sheets, Revised Vesting Tentative Tract Map No. 060678, Homestead South, Newhall Ranch, Los Angeles County, California," for Newhall Land and Farming Company, dated July 22, 2013, Job No. 94-501-021.

Frankian, R. T. & Associates, 2014a, "100-Scale Plan Review, Vesting Tentative Tract Map No. 52796, Los Angeles County, California," for Lennar Homes, dated March 27, 2014, Job No. 2013-014-021.

Frankian, R. T. & Associates, 2014b, "Infiltration Evaluation, Vesting Tentative Tract Map No. 52796, Los Angeles County, California," for Lennar Homes, dated April 2, 2014, Job No. 2013-014-052.

GeoSoils, Inc., 1989, "Preliminary Geologic and Geotechnical Engineering Investigation, Revised Vesting Tentative Tract 43896, Newhall, California," for Dale Poe Development, dated September 15, 1989, W.O. 3062-A-VN.

GeoSoils, Inc., 1997, "Geotechnical Review of Revised Vesting Tentative Tract Map, Tentative Tract 43896, "Mini" Sanborne Ranch, Stevenson Ranch, California," for Stevenson Ranch Ventures, LLC, dated July 14, 1997, W.O. 3062A-VN.

J. Byer Group, Inc., 2000, "Geologic and Soils Engineering Exploration, Proposed Hillside Residential Subdivision, Tentative Tract 52796, 26300 Pico Canyon Road, Los Angeles County, California," for Adlin Properties, dated June 5, 2000, Project No. JB 17826-B.

Seward, Allan E., Engineering Geology, Inc., 2005 "Geologic and Geotechnical Report, Review of Vesting Tentative Tract Map 060678 (Dated 8/3/05), Vesting Tentative Tract 060678, Homestead, Newhall Ranch, California," for The Newhall Land and Farming Company, dated September 30, 2005, Job No. 05-2062-4.

County of Los Angeles Department of Public Works
GEOTECHNICAL AND MATERIALS ENGINEERING DIVISION
GEOLOGIC REVIEW SHEET
900 So. Fremont Ave., Alhambra, CA 91803
TEL. (626) 458-4925

DISTRIBUTION
1 Geologist
__ Soils Engineer
1 GMED File
1 Subdivision

TENTATIVE TRACT MAP 52796 **TENTATIVE MAP DATED** 1/29/14 (Revision)
SUBDIVIDER Lennar Homes, Inc. **LOCATION** Stevenson Ranch
ENGINEER Alliance
GEOLOGIST & SOILS ENGINEER R.T. Frankian & Associates **REPORT DATE** 3/27/14

Additional Reports Reviewed The J. Byer Group: 3/29/01, 6/5/00

The Regional Planning Commission, developer, and engineer are advised that:

PRIOR TO RECOMMENDING APPROVAL OF THE TENTATIVE TRACT OR PARCEL MAP:

1. Provide a Geologist of Record letter. The engineering geologist must acknowledge all pertinent previous reports and make a statement that he agrees with their findings, conclusions, and recommendations or provide appropriate modification.

2. Evaluate debris flow potential for each building area located below a swale or steep natural slope. Provide mitigation recommendations as necessary. Show recommended mitigation on the geologic map.

3. Place all unmitigated landslides in Restricted Use Areas. Show Restricted Use Areas on the geotechnical map.

4. The bedding depicted on cross-section B-B' west of the proposed grade does not appear to reflect the geologic conditions shown on the map. Revise the geologic cross-section as necessary.

5. The Soils Engineering review dated 5-8-14 is attached.

NOTE Provide a copy of this review with your resubmittal

PROFESSIONAL GEOLOGIST
Geir R. Mathisen
No. 2376
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Reviewed by _____ Date 4/28/14
Geir Mathisen

Please complete a Customer Service Survey at http://dpw.lacounty.gov/go/gmedsurvey
52796, TM7 NA

FOR USE WITH RTF&A JOB NO. 2013-014-022 RESPONSE DATED 7-24-2014

COUNTY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
GEOTECHNICAL AND MATERIALS ENGINEERING DIVISION

SOILS ENGINEERING REVIEW SHEET

Address: 900 S. Fremont Ave., Alhambra, CA 91803
Telephone: (626) 458-4925
Fax: (626) 458-4913

District Office ---
Job Number GMTR
Sheet 1 of 1

Review No. 1

DISTRIBUTION:
1 Drainage
1 Grading
1 Geo/Soils Central File
District Engineer
Geologist
1 Soils Engineer
1 Engineer/Architect

Tentative Map (Tract)	52796
Location	Stevenson Ranch
Developer/Owner	Lennar Homes, Inc.
Engineer/Architect	Alliance
Soils Engineer	R. T. Frankian & Associates (2013-014-021)
Geologist	R. T. Frankian & Associates

Review of:

Tentative Map Tract and Exhibit Dated By Regional Planning 1/29/14 (rev.)
Soils Engineering and Geology Report Dated **3/27/14**
Additional Soils Engineering and Geology Reports by The J. Byer Group Dated 3/29/01, 6/5/00
Previous Review Sheet Dated 2/11/14

ACTION:

Tentative Map feasibility is not recommended for approval.

REMARKS:

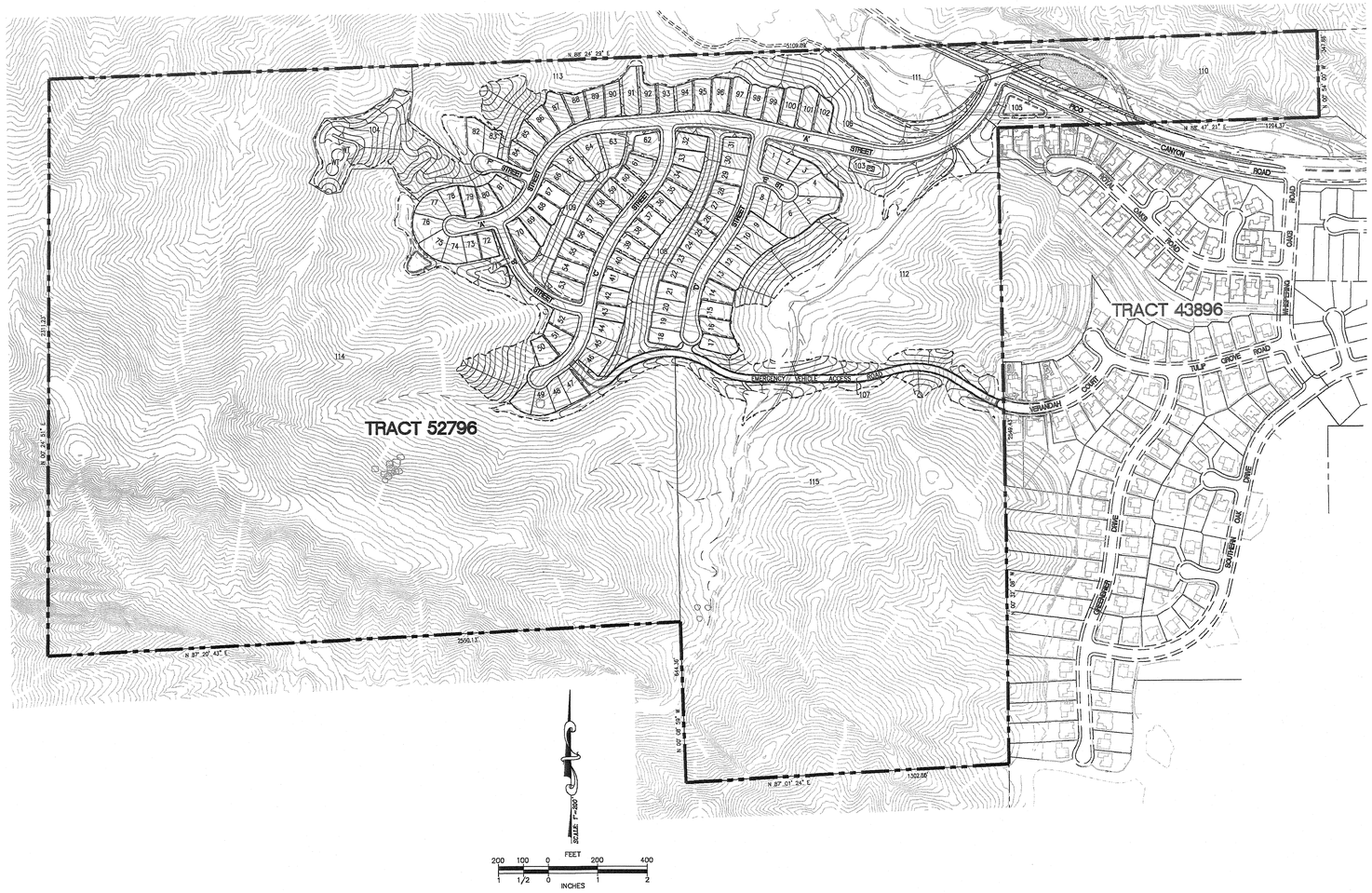
1. Provide a change of consultant letter. The Soils Engineer of record must acknowledge all pertinent previous soil reports and make a statement that he agrees with their findings, conclusions, and recommendations or provide appropriate modifications.
2. Provide an updated liquefaction analysis that is based on the proposed development. Provide data and analyses to determine liquefaction potential of the on-site soils. Also, evaluate the potential for seismically induced settlement (dry and saturated soils), lateral spreading, surface manifestation, etc. The analyses must be performed for soils within the upper 50 feet, as a minimum, for shallow foundation, or to greater depths when deep foundations and/or subterranean structures are proposed. The highest historical groundwater table shall be used in the analyses unless a shallower level (higher elevation than historic high) is determined to be appropriate. Recommend mitigation as necessary. The liquefaction data and analyses must conform to the California Department of Conservation, California Geological Survey "Special Publication 117A", dated 2008, and the Southern California Earthquake Center "Recommended Procedures for Implementation of DMG Special Publication 117", dated March 1999.
3. The geotechnical map included in the soils report dated 3/27/14 appears to be using a scale that is different from the one indicated on the map. Verify and provide a revised geotechnical map as necessary.
4. Evaluate debris flow potential for the proposed development. Provide surficial slope stability analyses using the appropriate shear strength parameters and recommend mitigation if factors of safety are below the County minimum standards. Provide data (e.g. stress-strain diagrams) to substantiate the shear strength parameters used in the slope stability analyses.
5. Provide additional data to substantiate the shear strength parameters (cohesion of 500 psf and friction angle of 37 degrees) used for the bedrock material in the global slope stability analyses. Provide revised global slope stability analyses and recommend mitigation if factors of safety are below the County minimum standards, as necessary.
6. Provide a report for the onsite infiltration rate. Report shall conform with current County policies (see http://dpw.lacounty.gov/ldd/lib/fp/Hydrology/Low%20Impact%20Development%20Standards%20Manual.pdf and http://dpw.lacounty.gov/gmed/permits/docs/policies/GS200.1.pdf for details).
7. Show the following on the geotechnical map:
   a. Location of "Restricted Use Area(s)".
   b. Grading required for construction of all stabilization fills.
   c. All recommended mitigation measures, as necessary.
8. Requirements of the Geology Section are attached.
9. Include a copy of this review sheet with your response.

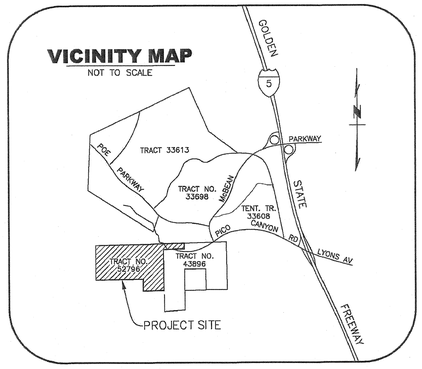
REGISTERED PROFESSIONAL ENGINEER
JEREMY CHUN YIN WAN
No. GE 2849
Exp. 6-30-15
GEOTECHNICAL
STATE OF CALIFORNIA

Prepared by _____ Date 5/8/14
Jeremy Wan

Please complete a Customer Service Survey at http://dpw.lacounty.gov/go/gmedsurvey.

NOTICE: Public safety, relative to geotechnical subsurface exploration, shall be provided in accordance with current codes for excavations, inclusive of the Los Angeles County Code, Chapter 11.48, and the State of California, Title 8, Construction Safety Orders.





GENERAL NOTES

1. GRADE ELEVATIONS SHOWN ON THIS VTTM ARE APPROXIMATE. THE ELEVATIONS MAY CHANGE BY 3 FEET. ELEVATION CHANGES MAY BE GREATER THAN 3 FEET BUT ONLY IF DETERMINED BY DPW AND DRP THAT THE REVISIONS ARE CONSISTENT WITH THE INTENT OF THE SUBDIVISION MAP APPROVAL.
2. LOT LINES CAN BE ADJUSTED TO THE SATISFACTION OF DRP PROVIDED NO ADDITIONAL DEVELOPMENT LOTS ARE CREATED. THE DEGREE OF ADJUSTMENT SHALL BE CONSISTENT WITH THE INTENT OF THE SUBDIVISION MAP ACT.
3. ALIGNMENT AND GEOMETRICS OF STREETS AND TRAILS ARE APPROXIMATE. ADJUSTMENTS TO TRAILS CAN BE MADE WITH APPROVAL BY DRP AND THE PARKS AND RECREATION DEPARTMENT.
4. THE RECORDATION OF A "LARGE LOT" PARCEL MAP WHERE ALL PARCELS ARE LARGER THAN 20 ACRES SHALL NOT REQUIRE THE OBLIGATION OF CONSTRUCTING IMPROVEMENTS OR INFRASTRUCTURE AS MAY BE OTHERWISE REQUIRED FOR THE SUBDIVISION, EXCEPT AS MAY BE REQUIRED BY CHAPTER 21.32 OF THE SUBDIVISION CODE.
5. THE RECORDATION OF A "LARGE LOT" PARCEL MAP SHALL NOT REQUIRE THE OBLIGATION OF FEES, DEDICATIONS (LOCAL RIGHTS-OF-WAY OR PARKS), EXACTIONS, OR INFRASTRUCTURE AS MAY BE OTHERWISE REQUIRED FOR THE SUBDIVISION, EXCEPT AS MAY BE REQUIRED BY CHAPTER 21.32 OF THE SUBDIVISION CODE.
6. THE RECORDATION OF A "LARGE LOT" PARCEL MAP SHALL BE CONSIDERED THE RUNNING OF THE FIRST UNIT FOR THE PURPOSE OF TIME EXTENSIONS PURSUANT TO THE SUBDIVISION MAP ACT.
7. PERMISSION IS REQUESTED FOR UNIT PHASING.
8. PERMISSION IS REQUESTED TO COMBINE LOTS.
9. PERMISSION IS REQUESTED TO RECORD ADDITIONAL OPEN SPACE LOTS.
10. PERMISSION IS REQUESTED TO RECORD ADDITIONAL UTILITY LOTS AND PROVIDE MAINTENANCE EASEMENTS TO THE SATISFACTION OF THE DPW AND DRP.
11. PERMISSION IS REQUESTED TO MASS GRADE.
12. PROPOSED STREET GRADING IS APPROXIMATE ONLY AND SUBJECT TO ADJUSTMENTS PENDING DETERMINATION OF FINAL DEVELOPMENT LAYOUT AND PLANS.
13. PERMISSION IS REQUESTED TO PROVIDE RIGHT OF WAY RETURN RADII OF 15 FT AT ALL LOCAL STREET INTERSECTIONS AND 27 FT WHERE ALL PLANNED HIGHWAYS INTERSECT OR WHERE ONE OF THE ROADS SERVES A COMMERCIAL OR INDUSTRIAL DEVELOPMENT.
14. MODIFIED STREET CROSS-SECTIONS AS SHOWN ON VESTING TENTATIVE TRACT MAP ARE REQUESTED. HOWEVER, PERMISSION IS SOUGHT TO CONSTRUCT STANDARD AND ALTERNATE STREET CROSS-SECTIONS AT THE DISCRETION OF THE SUBDIVIDER.
15. ALL DIMENSIONS SHOWN ARE APPROXIMATE.
16. TOPO COMPILED FROM DATA FLOWN DECEMBER, 2013.
17. ADDITIONAL RIGHT OF WAY MAY BE DEDICATED AS REQUIRED TO THE SATISFACTION OF PUBLIC WORKS.
18. MODIFICATIONS OF REQUIRED STREET FRONTAGE IS REQUESTED PER SECTION 21.24.040 OF THE LOS ANGELES COUNTY CODE.
19. HOMEOWNERS ASSOCIATION TO BE ESTABLISHED TO MAINTAIN COMMON AREA OPEN SPACE.

EASEMENT NOTES:

(1) AS EASEMENT TO CHEVRON USA, INC. FOR PIPELINE PURPOSES PER DEED RECORDED IN BOOK 6662 PAGE 121 OF DEEDS.
NOTE: THE LOCATION OF SAID EASEMENT IS INDETERMINATE IN NATURE.

(2) EASEMENT TO THE SOUTHERN CALIFORNIA GAS CO. FOR PIPELINE PURPOSES FOR DEED RECORDED IN BOOK 4489 PAGE 232, O.R.

(3) EASEMENT TO THE PACIFIC LIGHTING CORPORATION FOR PIPELINE PURPOSES PER DEED RECORDED MARCH 20, 1950 IN BOOK 32816 PAGE 336, O.R.

(4) EASEMENT TO THE SOUTHERN CALIFORNIA EDISON CO. FOR COMMUNICATION LINE PURPOSES PER DEED RECORDED FEBRUARY 8, 1957 IN BOOK 53600 PAGE 420, O.R.
NOTE: THE LOCATION OF SAID EASEMENT IS INDETERMINATE IN NATURE.

(5) EASEMENT FOR ROAD PURPOSES OVER THAT PORTION OF LOT 2 INCLUDED WITHIN THE RIGHT OF WAY LINES OF PROPOSED PICO CANYON ROAD.

(6) EASEMENT TO THE SOUTHERN CALIFORNIA EDISON COMPANY FOR PUBLIC UTILITY PURPOSES PER DEED RECORDED OCTOBER 28, 1965 AS INSTRUMENT NO. 4521, O.R.
NOTE: THE LOCATION OF SAID EASEMENT IS INDETERMINATE IN NATURE.

UTILITIES & SERVICES:

SEWER	L.A. COUNTY SANITARY DISTRICT #32
WATER	VALENCIA WATER COMPANY
GAS	SO. CALIFORNIA GAS CO.
ELECTRICAL	SO. CALIFORNIA EDISON CO.
TELEPHONE	AT&T
SCHOOLS	NEWHALL ELEMENTARY SCHOOL DISTRICT HART HIGH SCHOOL DISTRICT
FIRE	L.A. COUNTY FIRE DEPARTMENT
POLICE	L.A. COUNTY SHERIFF
T.V.	STEVENSON RANCH CABLE

RECORD OWNER

ADLIN GENERAL TRUST
TRACY WOODFORD, TRUSTEE
5143 SUNSET BLVD.
LOS ANGELES, CA 90027-5715
323-666-1910
JA51438@ACBELL.NET

APPLICANT

LENNAR COMMUNITIES
980 MONTECITO DRIVE, SUITE 302
CORONA, CA 92879
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ENGINEER:

ALLIANCE LAND PLANNING & ENGINEERING
2248 FARADAY AVENUE
CARLSBAD, CAD 92008
PHONE (760) 431-9896 FAX (760) 431-8802

LEGAL DESCRIPTION:

LOTS 1, 2, 3, 4, 5 AND A PORTION OF LOT 6, AND PORTIONS OF THE NORTHEAST QUARTER, SOUTHEAST QUARTER, NORTHWEST QUARTER AND SOUTHWEST QUARTER, ALL IN SECTION 8, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDIAN, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SPECIAL NOTES

1. WATER QUALITY BASINS WILL PROVIDE FOR TREATMENT OF STORM WATER RUN OFF PER THE APPROVED DRAINAGE CONCEPT.

PROJECT SUMMARY:

GROSS AREA: 230.5 Acres
NET AREA 228.8 Acres
(GROSS-PICO CANYON ROAD)
TOTAL LOTS: 115
TOTAL RESIDENTIAL D.U.: 102 DU
TOTAL OFFICE/COMMERCIAL: NONE

EXISTING ZONING: A-2-2
PROPOSED ZONING: A-2-2
EXISTING LAND USE: U-2, HM, W
PROPOSED LAND USE: U-2, HM, W
APN: 2826-020-020, 021, 022, 023, 024
2826-020-030, 031, 032, 033
2826-097-003
ESTIMATED EARTHWORK: 1,300,000 CY CUT
1,300,000 CY FILL
OVEREXCAVATION: 300,000 CY

OAK TREES TO BE REMOVED: 1 TREE
OAK TREES TO BE ENCROACHED: 0 TREE
OAK TREES TO REMAIN: 14 TREES
TOTAL OAK TREES: 15

RELATED ENTITLEMENTS

CONDITIONAL USE PERMIT NO. 00-136
OAK TREE PERMIT NO. 00-136

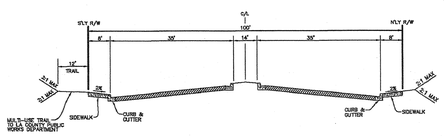
LOT SUMMARY

LOT NUMBERS	NO. OF LOTS	TYPE	TOTAL ACREAGE
1-102	102	SINGLE FAMILY	20.8 AC
103-104	2	WATER TANK/ PUMP STATION	3.9 AC
105-106	2	OPEN SPACE (WQT BASINS)	1.5 AC
107	1	OPEN SPACE (FIRE ACCESS ROAD)	1.4 AC
108-115	8	OPEN SPACE (LANDSCAPE & NATURAL)	193.3 AC
PUBLIC STREETS	N/A	N/A	9.6 AC
TOTAL	115		230.5 AC

LEGEND:

1 / PAD 1510 / 6,500 sf — LOT NO. / PAD ELEVATION / LOT AREA (SQUARE FEET)

PROJECT BOUNDARY
PROPOSED RIGHT OF WAY
PROPOSED EASEMENT
EXISTING EASEMENT
1000 — PROPOSED CONTOUR
PROPOSED DAYLIGHT LINE
D — PROPOSED STORM DRAIN
SS — PROPOSED SANITARY SEWER
W — PROPOSED WATER
D — PROPOSED STORM DRAIN INLET/OUTLET
PROPOSED CATCH BASIN
SD — EXISTING STORM DRAIN LINE
S — EXISTING SEWER LINE
W — EXISTING WATER LINE
O — EXISTING OIL LINE
G — EXISTING GAS LINE
OE — EXISTING OVERHEAD POWER LINE
EXISTING POWER POLE
PROPOSED RETAINING WALL
*RW — 6' HIGH MAX. RETAINING WALL
SEA — SEA LINE
FP — FEMA FLOODPLAIN
CDFG — CDFG LIMIT LINE
ACOE — ACOE LIMIT LINE
OAK NO. XX (TBE) — OAK TREE (TO BE ENCROACHED)
OAK NO. XX (TBR) — OAK TREE (TO BE REMOVED)
OAK NO. XX (TR) — OAK TREE (TO REMAIN)



BENCHMAR

R.D.B.M. TAG IN S CB 8.2M
LYONS AVE. & WILEY CANY
12.2M S/O C/L INT (NR W

NEWHALL 1995

Geotechnical Map

PREPARED FOR: Lennar Homes
Project Location: Vesting Tentative Tract No. 52796, Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
AS SHOWN	JH	TPL
DATE 7-24-2014	Figure 1.1	JOB NO. 2013-014-022

1329 SCOTT ROAD
BURBANK, CA. 91504
TEL: (818) 531-1501
FAX: (818) 531-1511
www.rtfanklin.com
RTFA GEOTECHNICAL ENGINEERING & ENVIRONMENTAL SCIENCE

ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
TEL: (760) 431-9896
FAX: (760) 431-8802
27489 TOURNEY ROAD
SUITE 120
VALENCIA, CA 91355
TEL: (661) 799-2760
CIVIL ENGINEERING • LAND PLANNING • HILLSIDE DESIGN • SURVEYING

PREPARED FOR:
LENNAR HOMES
980 MONTECITO DRIVE, SUITE 302
CORONA, CA 92879
(951)817-3542
REPRESENTATIVE: CHERRYL THOMPSON

PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 — 7/22/14 DATE

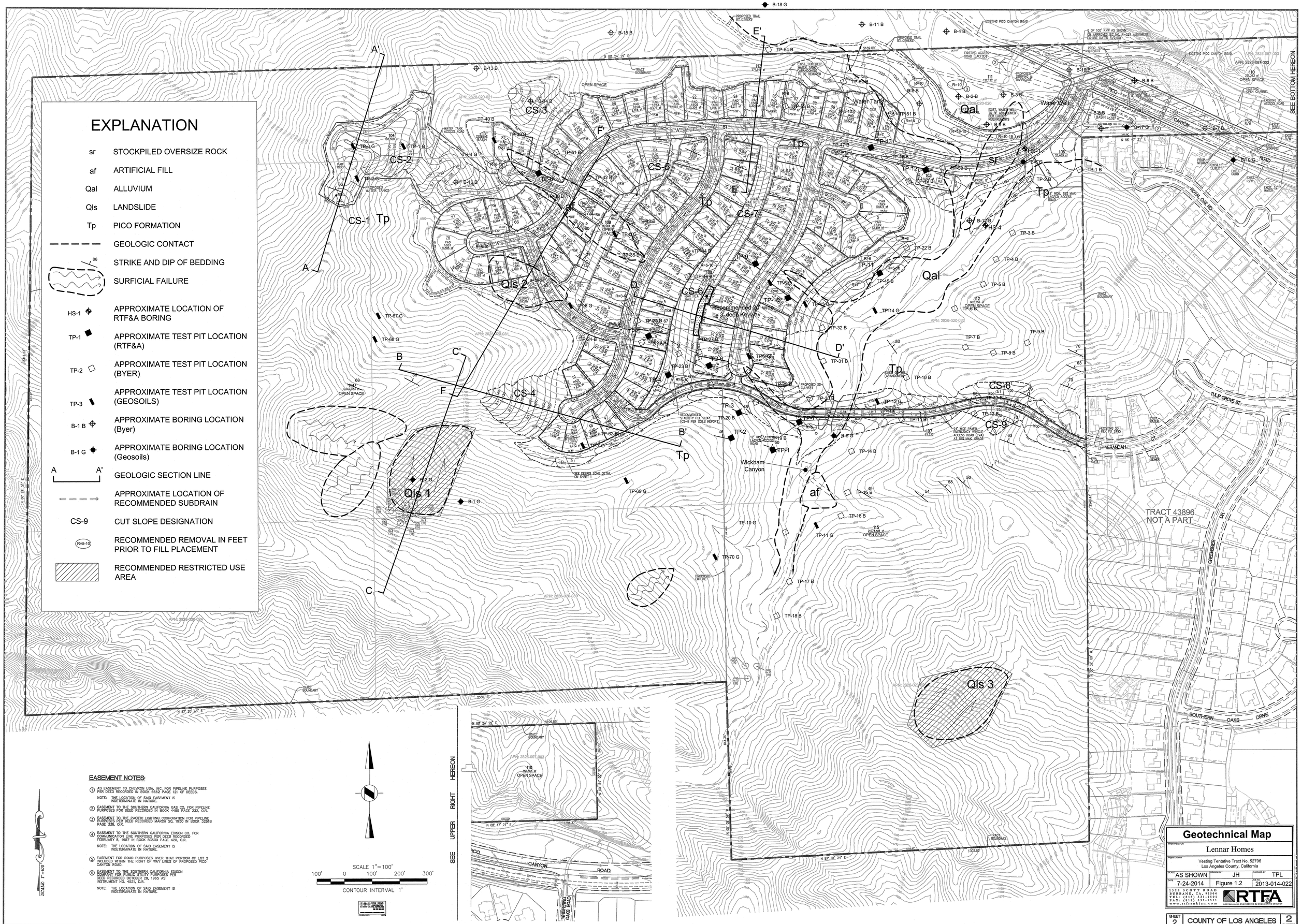
REGISTERED PROFESSIONAL ENGINEER — CRAIG M. WHITTEKER — NO. 51929 — EXP. 6-30-14 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

SHEET 1 — COUNTY OF LOS ANGELES — 2 SHEETS

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP
NO. 52796

LOCATED IN THE UNINCORPORATED AREA OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA



EASEMENT NOTES:

1. AS EASEMENT TO CHEVRON USA, INC. FOR PIPELINE PURPOSES PER DEED RECORDED IN BOOK 6692 PAGE 121 OF DEEDS.
   NOTE: THE LOCATION OF SAID EASEMENT IS INDETERMINATE IN NATURE.
2. EASEMENT TO THE SOUTHERN CALIFORNIA GAS CO. FOR PIPELINE PURPOSES FOR DEED RECORDED IN BOOK 4489 PAGE 232, O.R.
3. EASEMENT TO THE PACIFIC LIGHTING CORPORATION FOR PIPELINE PURPOSES PER DEED RECORDED MARCH 20, 1950 IN BOOK 33818 PAGE 336, O.R.
4. EASEMENT TO THE SOUTHERN CALIFORNIA EDISON CO. FOR COMMUNICATION LINE PURPOSES PER DEED RECORDED FEBRUARY 8, 1957 IN BOOK 53600 PAGE 420, O.R.
   NOTE: THE LOCATION OF SAID EASEMENT IS INDETERMINATE IN NATURE.
5. EASEMENT FOR ROAD PURPOSES OVER THAT PORTION OF LOT 2 INCLUDED WITHIN THE RIGHT OF WAY LINES OF PROPOSED PICO CANYON ROAD.
6. EASEMENT TO THE SOUTHERN CALIFORNIA EDISON COMPANY FOR PUBLIC UTILITY PURPOSES PER DEED RECORDED OCTOBER 28, 1985 AS INSTRUMENT NO. 4521, O.R.
   NOTE: THE LOCATION OF SAID EASEMENT IS INDETERMINATE IN NATURE.

Geotechnical Map

PREPARED FOR: Lennar Homes

Project Location: Vesting Tentative Tract No. 52796, Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
AS SHOWN	JH	TPL
DATE 7-24-2014	Figure 1.2	JOB NO. 2013-014-022

1329 SCOTT ROAD
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www.rtfanalysis.com

RTFA GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

SHEET 2 COUNTY OF LOS ANGELES 2 SHEETS

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP
NO. 52796

LOCATED IN THE UNINCORPORATED AREA OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE. CARLSBAD, CA 92008 TEL: (760) 431-9896 FAX: (760) 431-9892
27451 TOURNEY ROAD SUITE 140 VALENCIA, CA 91355 TEL: (661) 799-2750
CIVIL ENGINEERING • LAND PLANNING • HILLSIDE DESIGN • SURVEYING

PREPARED FOR:
LENNAR HOMES
980 MONTECITO DRIVE, SUITE 302
CORONA, CA 92879
(951)817-3542
REPRESENTATIVE: CHERRYL THOMPSON

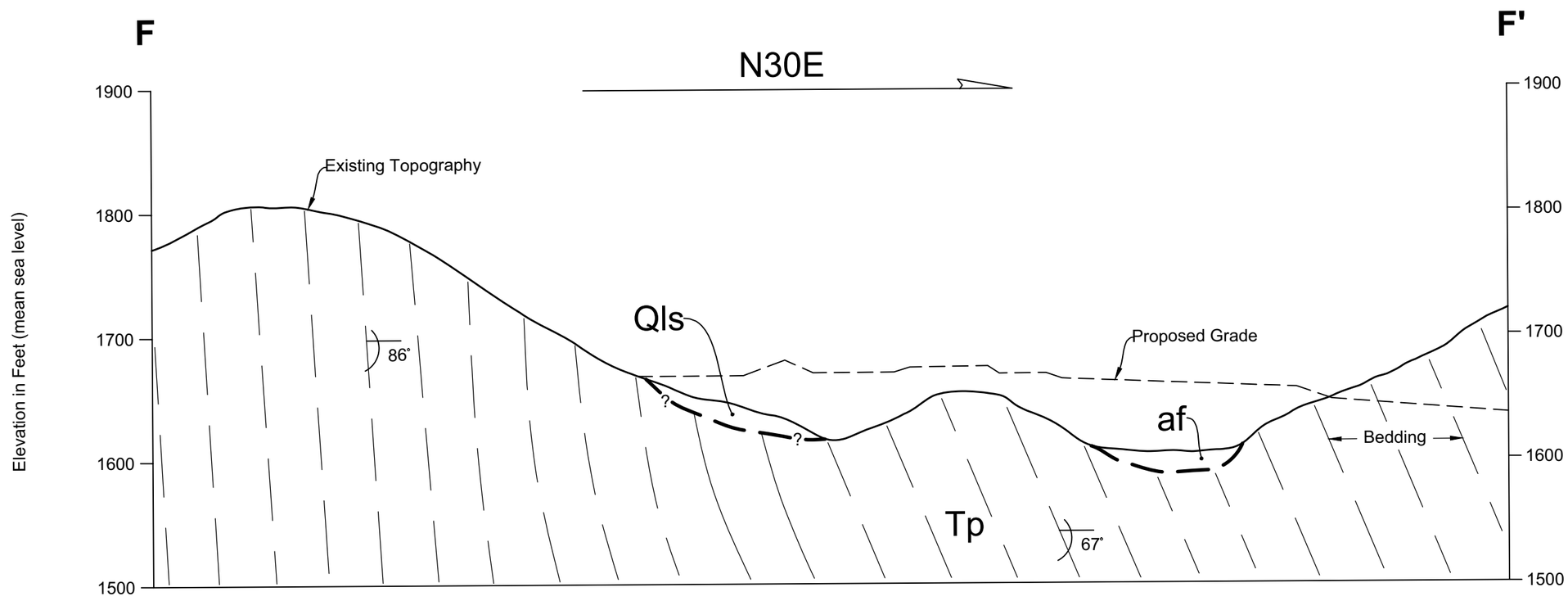
PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 7/22/14 DATE

REGISTERED PROFESSIONAL ENGINEER CRAIG M. WHITTEKER NO. 51929 EXP. 6-30-14 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

I:\CAD\1392\TENTATIVE MAP\1392_TENTATIVE-MAP_SHEET-02.dwg



Geologic Section

PREPARED FOR

Lennar Homes

Project Location

Vesting Tentative Tract No. 52796
Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
AS SHOWN	JH	TPL
DATE		JOB NO.
7-24-2014	Figure 2	2013-014-022

1329 SCOTT ROAD
BURBANK, CA, 91504
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RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Lennar Homes
July 24, 2014
2013-014-022

APPENDIX A

FIELD EXPLORATIONS

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

APPENDIX A

FIELD EXPLORATIONS

We explored the site by drilling four hollow-stem auger borings, designated HS-1 through HS-4. However HS-2 and HS-3 were terminated at very shallow depths and are not presented within this response. The locations of Borings HS-1 and HS-4 are shown on the attached Geotechnical Map, Figures 1.2. The soils/rock units encountered were classified in accordance with the Unified Soil Classification System. Rock types were identified using standard rock nomenclature. The boring logs are presented in this Appendix.

Undisturbed and bulk samples of the subsurface materials were collected for laboratory inspection and testing. The lined-barrel sampler used to take undisturbed samples has an external diameter of 3.25 inches and an internal diameter of 2.625 inches. The depths at which the undisturbed samples were obtained are indicated on the logs. The number of blows required to drive the sampler 12 inches with the hammer weight are also shown on the boring logs.

In addition to obtaining undisturbed and bulk samples, Standard Penetration Tests (SPT) were performed within the on-site borings. The results of the tests are indicated on the boring log. The standard penetration tests were performed in accordance with the ASTM Standard D1586 Test Method.

BORING HS-1

JOB NUMBER: 2013-014-022
DATE DRILLED: 6/20/14
EQUIPMENT USED: 8" Diameter Hollow-Stem Auger with Heavy Duty Sampler & SPT Sampler
ELEVATION: 1478'
DRILLING CO.: ACE
LOGGED BY: BKP
BORING DEPTH: 0-19.5'
HAMMER WEIGHT: 140 pounds; DROP: 30"

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							ML	**ALLUVIUM (Qal)** SILT: slightly clayey, damp to moist, olive gray
				5				
40	11.1	117	-	10			SM	SILTY SAND: fine to medium with occasional coarse sand, very dense, moist, light brown
-			19				ML	SILT: moderately firm, moist to very moist, medium brown to medium grayish brown
				15				
-			13					
-			*					(* 60 blows for the first 2 inches)
								PICO FORMATION (Tp) SILTSTONE
				20				Bottom of Boring at 19.5 feet. Could not advance auger. No groundwater. No caving.
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014-022.GPJ FRANKIAN.GDT 7/29/14

LOG OF BORING

R. T. Frankian & Associates

BORING HS-4

JOB NUMBER: 2013-014-022
DATE DRILLED: 6/20/14
EQUIPMENT USED: 8" Diameter Hollow-Stem Auger with Heavy Duty Sampler & SPT Sampler
ELEVATION: 1489'
DRILLING CO.: ACE
LOGGED BY: BKP
BORING DEPTH: 0-28'
HAMMER WEIGHT: 140 pounds; DROP: 30"

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	SOIL TYPE	
				ML	**ALLUVIUM (Qal)** CLAYEY SILT: damp to moist, olive gray
25	8.6	92	-		very firm, light brown to light grayish brown
					PICO FORMATION (Tp) SILTSTONE: weathered, calcium deposits, moderately soft, damp to moist, olive gray
-			46		
100/10"	8.7	107	-		with some sand, occasional gravel, moderately hard, mottled light gray and olive gray
75	6.7	107	-		SANDSTONE: fine to coarse, moderately soft, moist, light gray
-			32		SILTY SANDSTONE: fine with occasional coarse sand, moist to very moist, olive gray
100/6"	14.1	138	-		SANDY SILTSTONE: fine with cobble size clasts, moderately soft, moist to very moist, olive gray
			-		
100/5"	8.9	106	-		fine, moderately hard, moist, layers of dark gray and light gray
			-		
100/6"	9.1	124	-		
100/6"			-		
					Bottom of Boring at 28 feet. No groundwater. No caving.

DEPTH (FEET): 5, 10, 15, 20, 25, 30, 35, 40

SAMPLE LOCATION / GRAPHIC LOG

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014-022.GPJ FRANKIAN.GDT 7/29/14

LOG OF BORING

R. T. Frankian & Associates

Lennar Homes
July 24, 2014
2013-014-022

APPENDIX B

LABORATORY TESTING

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

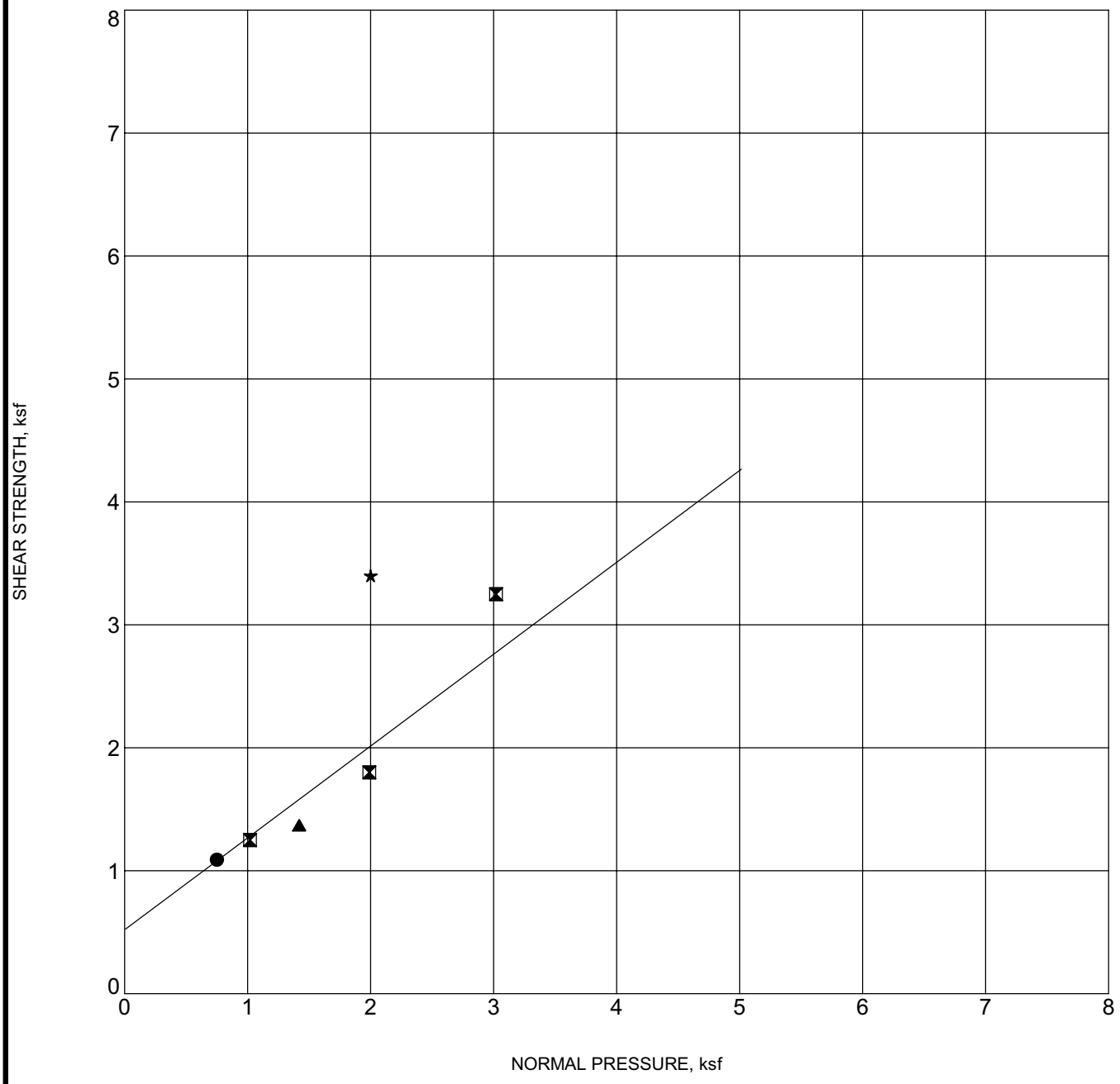
APPENDIX B

LABORATORY TESTING

Laboratory tests were performed on selected samples obtained from the borings to aid in the classification of the soils and to determine their engineering properties.

The field moisture content and dry density of the soils encountered were determined by performing tests on the undisturbed samples. The results of the tests are shown to the left of the boring logs in Appendix A.

Direct shear tests were performed on selected undisturbed samples to determine the strength of the soils. The tests were performed after soaking the samples to near-saturated moisture content and at various surcharge pressures. The direct shear tests are presented in this Appendix.



Specimen Identification			Classification
●	**HS-4**	**8.0'**	**Pico Formation**
⊠	**HS-4**	**11.0'**	**Pico Formation**
▲	**HS-4**	**24.0'**	**Pico Formation**
★	**HS-4**	**26.0'**	**Pico Formation**

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

DIRECT SHEAR TEST

JOB NUMBER: 2013-014-022

REPORT DATED: 07-24-2014

Lennar Homes
July 24, 2014
2013-014-022

APPENDIX C

LIQUEFACTION CALCULATION FOR HS-1

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

LIQUEFACTION POTENTIAL EVALUATION

R. T. Frankian & Associates 0

PROJECT: **Aidlin Hills** 0 Lennar

Job No.: **2013-014-022**

Calculated By.:	AWR	Date:	7/29/2014
Checked By:		Date:	

Borehole diameter (in)=	8	<<<PLEASE DO NOT TOUCH THIS CELL
Correction factor for borehole diameter(C_B) =	1.15	<<<PLEASE DO NOT TOUCH THIS CELL

Location HS-1

Layer No.	Mid Layer Depth (ft)	Elevation (ft. MSL)	Depth of layer below Ground Level (ft) Top	Bottom	Main soil USCS Symbol	Total Unit Wt. (kcf)	Total Stress (ksf)	Effective Stress (ksf)	Overburden Correction w/Eff.Strs.@ Drill. time (Cn)	Field Blow Count (w/borehole diam.factor) (blows/ft)	Sampler Type	Sampler & Hammer\drop combination factor	Short Rod Correction Factor, C_R	Hammer Energy ratio Factor C_E	$(N_1)_{60}$ (blows/ft)	Percent Fines, % Assigned for layer	Lab	Equivalent $(N_1)_{60cs}$ for Clean Sand	Cyclic Resistance Ratio M=7.5	Cyclic Resistance Ratio for M= M = **7.5** **7.5**	Cyclic Resistance (ksf)	Ind.stress Reduction Factor(r_d)	Induced Stress for Mag.= **7.5** (ksf)	Theoretical Factor of Safety
1	7.50	1470.5	0.0	15.0	SM	0.125	3.438	3.438	1.32	46	SPT	1.200	0.75	1	55	5	-	55	>0.6	>0.6	#N/A	0.984	1.927	Non Liq.
2	17.50	1460.5	15.0	20.0	ML	0.115	4.663	4.195	0.96	14.95	SPT	1.200	1	1	17	15	15	21	0.223	0.223	0.937	0.963	2.556	0.37
3	35.00	1443.0	20.0	50.0	Tp	0.130	6.900	6.588	0.68	46	SPT	1.200	1	1	37	5	-	37	>0.6	>0.6	>4.5	0.890	3.497	Non Liq.
4	#N/A	#N/A	50.0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
11	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
12	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
14	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
15	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
16	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
17	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
18	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
20	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
21	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
23	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
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27	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
28	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
29	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	1	#N/A	#N/A	-	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

SEISMIC SETTLEMENT EVALUATION

PROJECT: Aidlin Hills
Job No.: 2013-014-022

Calculated By.:	AWR	Date:	7/29/2014
Checked By:		Date:	

Location HS-1

EQ.Vol.Str.Factor For Dry Sands= 0.840

Layer No.	Layer Interval (ft) Top	Layer Interval (ft) Bottom	Mid-layer depth (ft)	Thickness (ft)	Vertical Effective Stress (psf)	$(N_1)_{60}$ (blows/ft)	Equiv. $(N_1)_{60cs}$ (Rounded)	Cyclic Str. Ratio M = 7.5 (induced) (Rounded)	Theoretical Factor of Safety	Dry Settlement a	b	Gmax (ksf)	Stress, (induced) (ksf)	Gama.eff X (Geff/Gmax) (5).	Gama.eff X 100 (%)	Volumetric Strain, % M = 7.5	Volumetric Strain, %, M= 6.7	Volumetric Strain (%) 3-D effect	Settlement (inches)	Wet Settlement Volumetric Strain %	Wet Settlement Settlement (Inches)	Cumulative Settlement (inches)
1	0.00	15.00	7.5	15.00	3437.50	55	55.0	0.550	Non Liq.	0.16880	6032	3639	1.927	5.30E-04	2.32E-01	0.069	0.058	0.117	0.210			0.210
2	15.00	20.00	17.5	5.00	4194.50	17	21.0	0.600	0.367											1.40	0.84	1.050
3	20.00	50.00	35.0	30.00	6588.00	37	37.0	0.525	Non Liq.											0.00	0.00	1.050
4	50.00	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
5	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
6	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
8	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
9	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
10	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
11	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
12	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
13	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
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19	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
20	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
21	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
22	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
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24	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
25	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
26	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
27	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
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29	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
30	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
31	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A

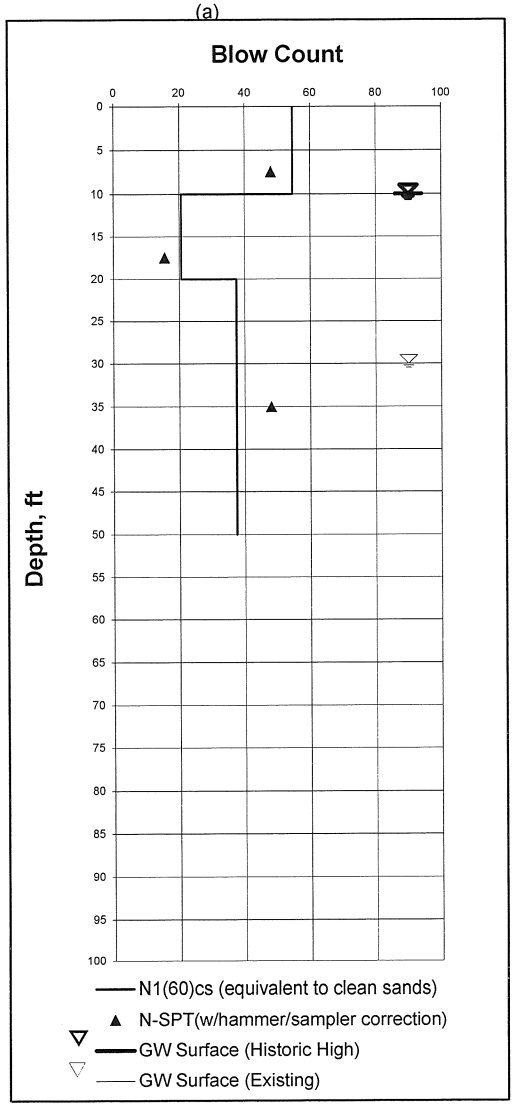
COMPUTER PROGRAM: "EQLique&Settle2"©

Location..... **HS-1** **Surcharge** 2.50 ksf

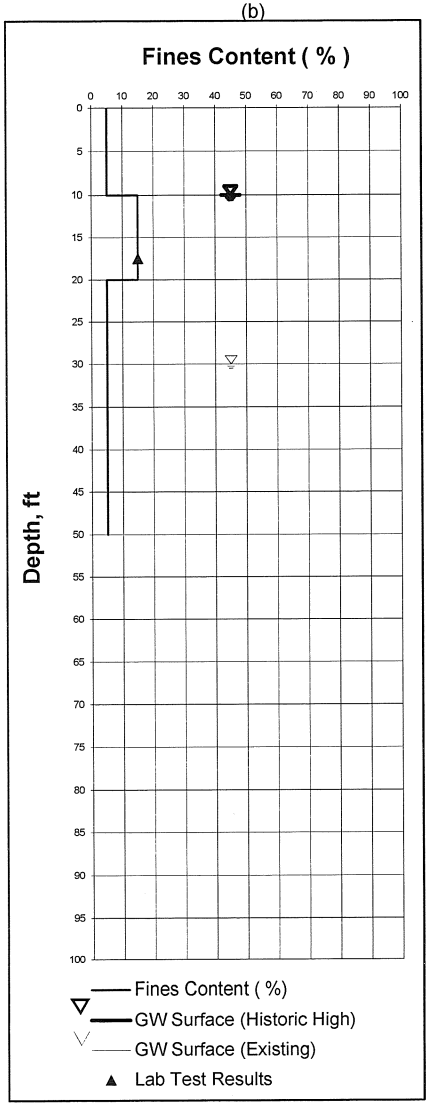
Elevation (MSL) (ft) 1478

NOTE: If the total settlement is very small (e.g.<0.05"), it will not be seen due to the scale used, and should be reported as "negligible".

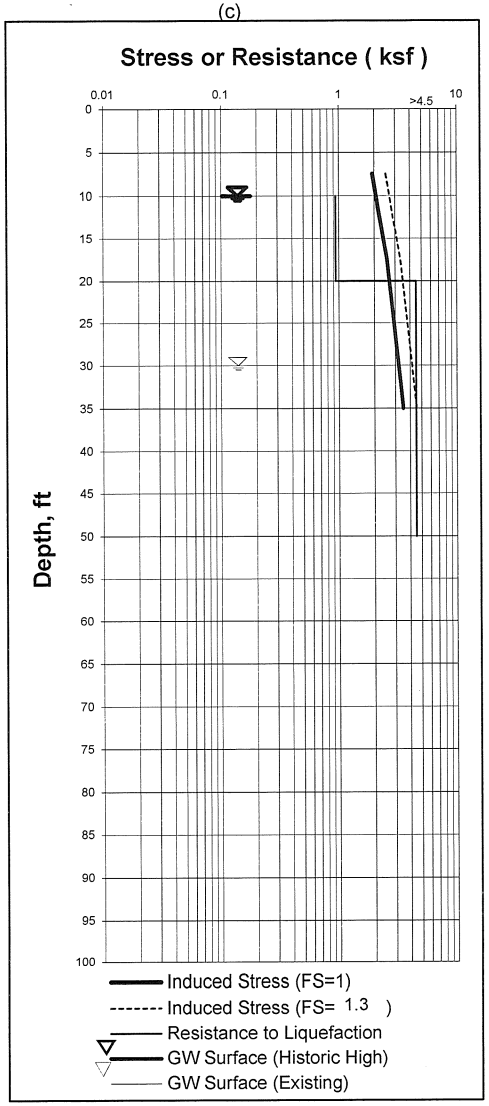
(a)



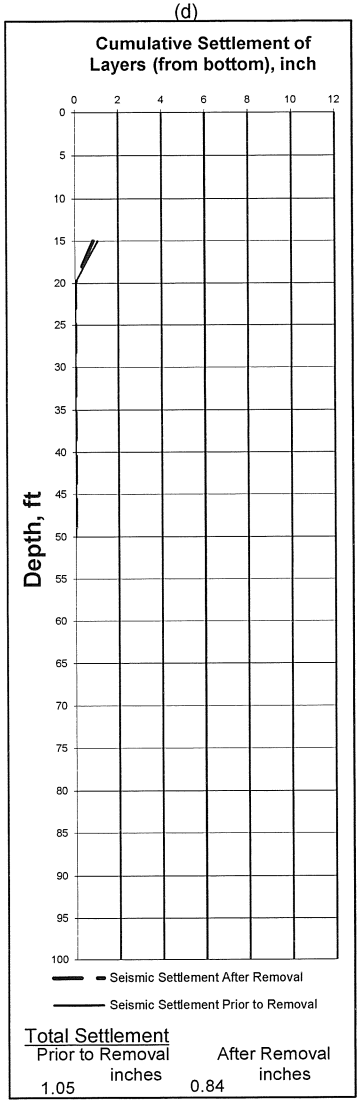
(b)



(c)



(d)



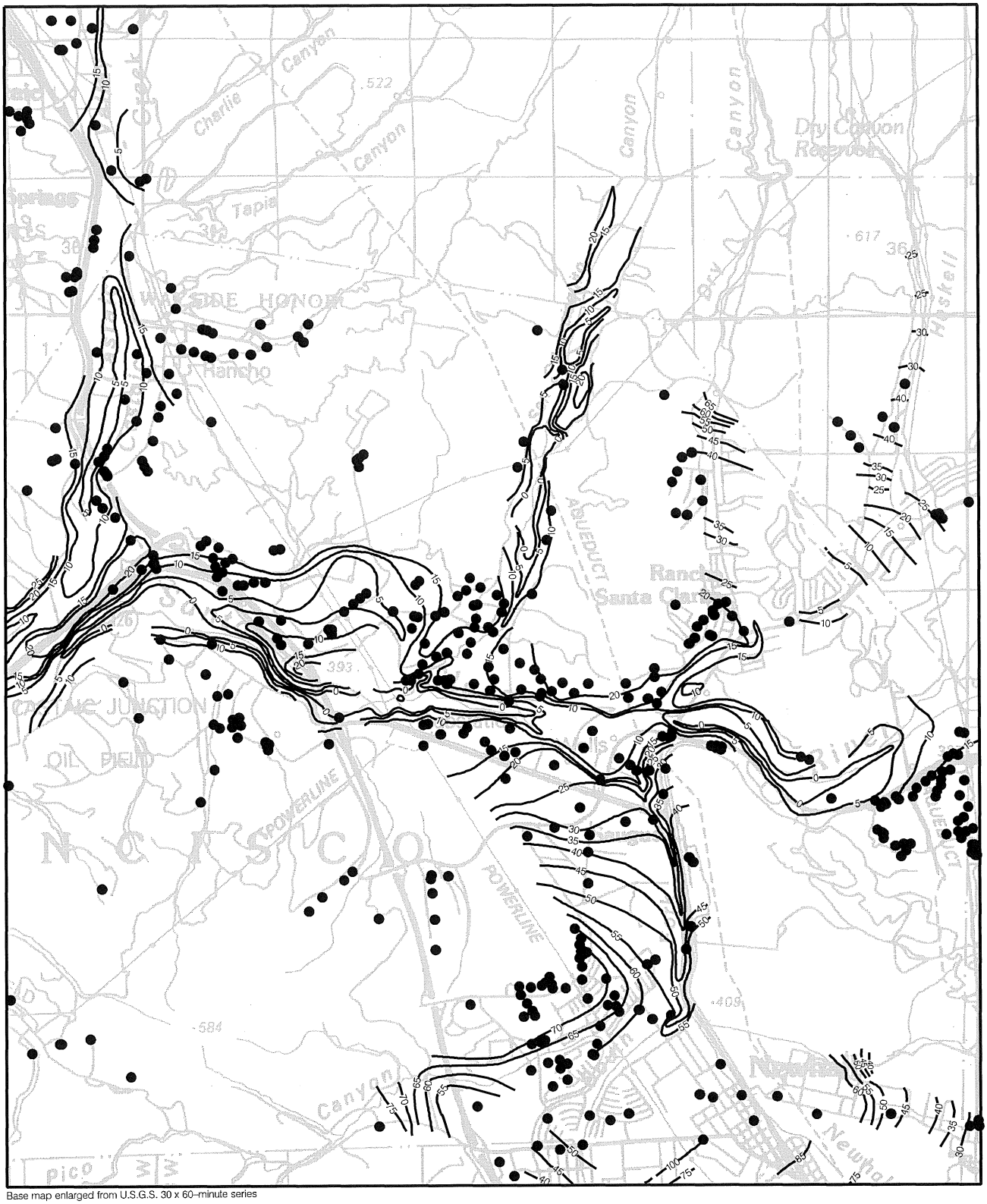
Total Settlement

Prior to Removal inches	After Removal inches
1.05	0.84

Removal & Recomp. Depth (ft) = 15

PROJECT: Aidlin Hills 0	Weighted Ground Accel. (M=7.5) = 0.88 g	**Liquefaction Potential and Seismic Settlements Based on Boring Data**
Lennar	Site Magnitude = 6.7	**R. T. Frankian & Associates** **Geotechnical Engineering Consultants**

Job No.:	2013-014-022
Date:	7-29-2014
Figure No.	C



Base map enlarged from U.S.G.S. 30 x 60–minute series

Plate 1.2 Historically Highest Ground Water Contours and Borehole Log Data Locations, Newhall Quadrangle.

● Borehole Site

30 Depth to ground water in feet

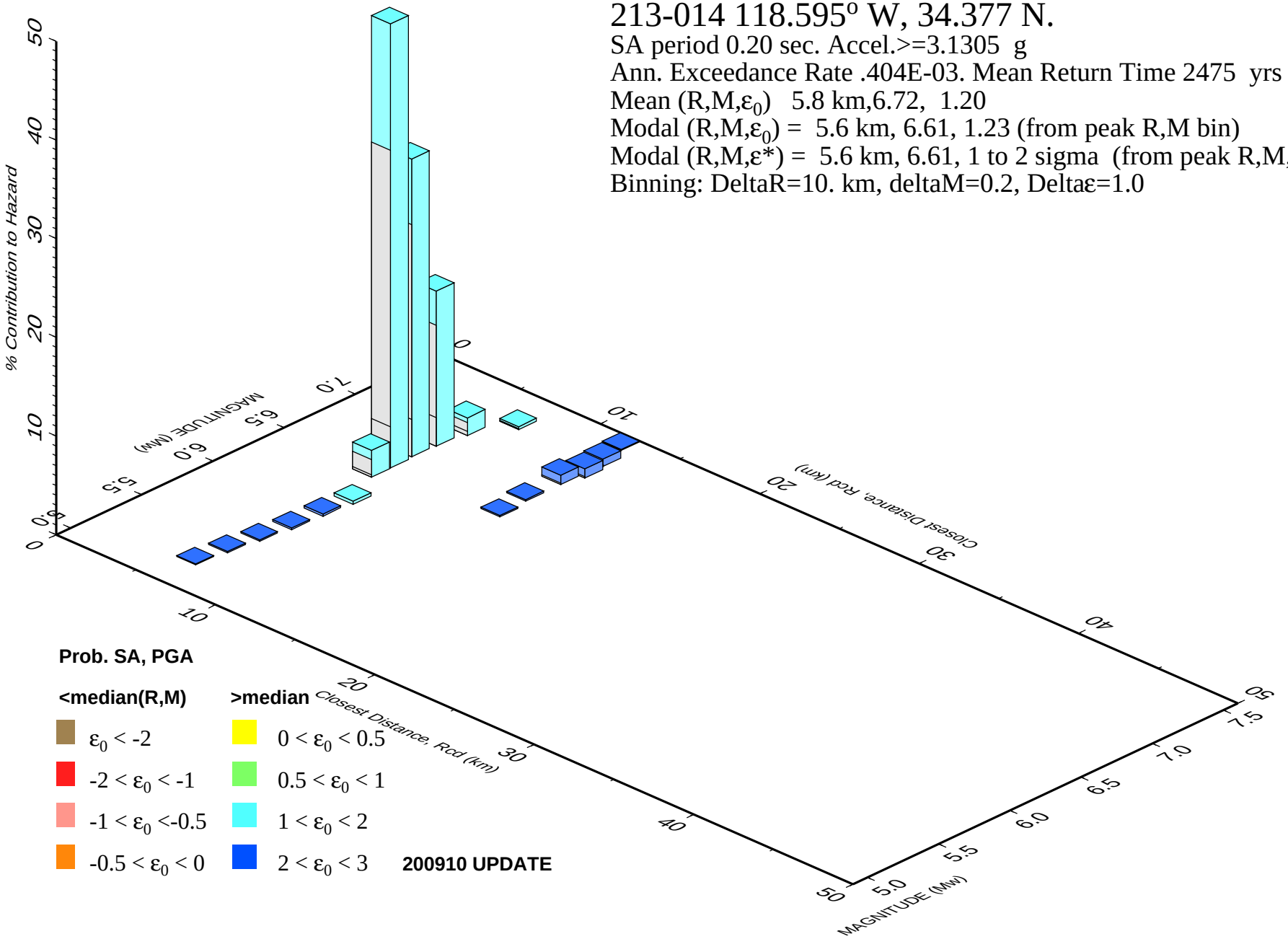
ONE MILE

SCALE

PSH Deaggregation on NEHRP C soil

213-014 118.595º W, 34.377 N.

SA period 0.20 sec. Accel.>=3.1305 g
Ann. Exceedance Rate .404E-03. Mean Return Time 2475 yrs
Mean (R,M,ε_0) 5.8 km,6.72, 1.20
Modal (R,M,ε_0) = 5.6 km, 6.61, 1.23 (from peak R,M bin)
Modal (R,M,ε*) = 5.6 km, 6.61, 1 to 2 sigma (from peak R,M,ε bin)
Binning: DeltaR=10. km, deltaM=0.2, Deltaε=1.0



USGS Design Maps Detailed Report

ASCE 7-10 Standard (34.37733°N, 118.5951°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1] S_S = 3.091 g

From Figure 22-2 [2] S_1 = 0.978 g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index PI > 20, • Moisture content w ≥ 40%, and • Undrained shear strength $\bar{s}_u$ < 500 psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk-Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4-1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = D and S_S = 3.091 g, F_a = 1.000

Table 11.4-2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1-s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.978 g, F_v = 1.500

Equation (11.4-1): $S_{MS} = F_a S_S = 1.000 \times 3.091 = 3.091$ g

Equation (11.4-2): $S_{M1} = F_v S_1 = 1.500 \times 0.978 = 1.467$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

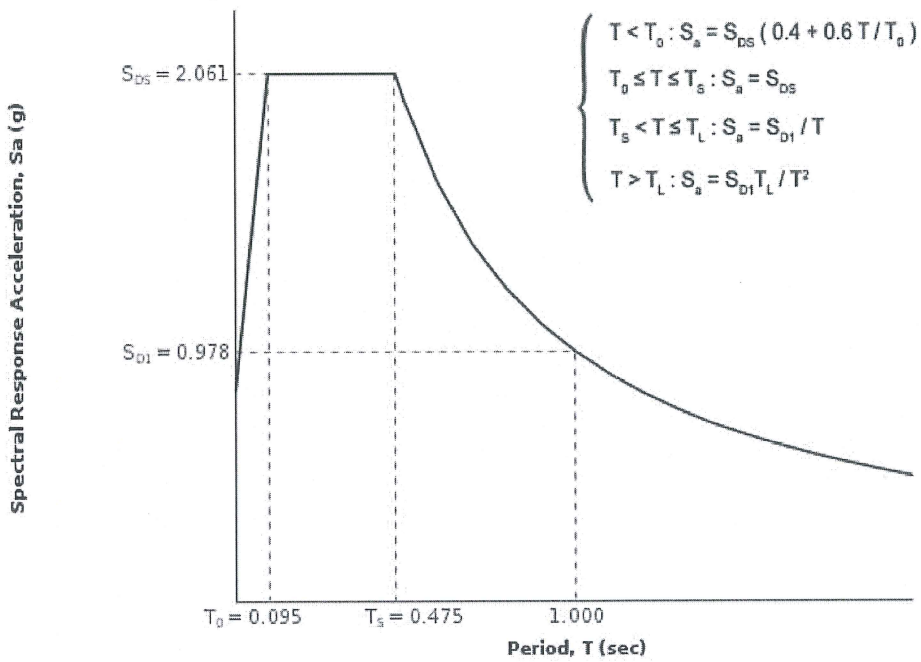
Equation (11.4-3): $S_{DS} = ⅔\ S_{MS} = ⅔ \times 3.091 = 2.061$ g

Equation (11.4-4): $S_{D1} = ⅔\ S_{M1} = ⅔ \times 1.467 = 0.978$ g

Section 11.4.5 — Design Response Spectrum

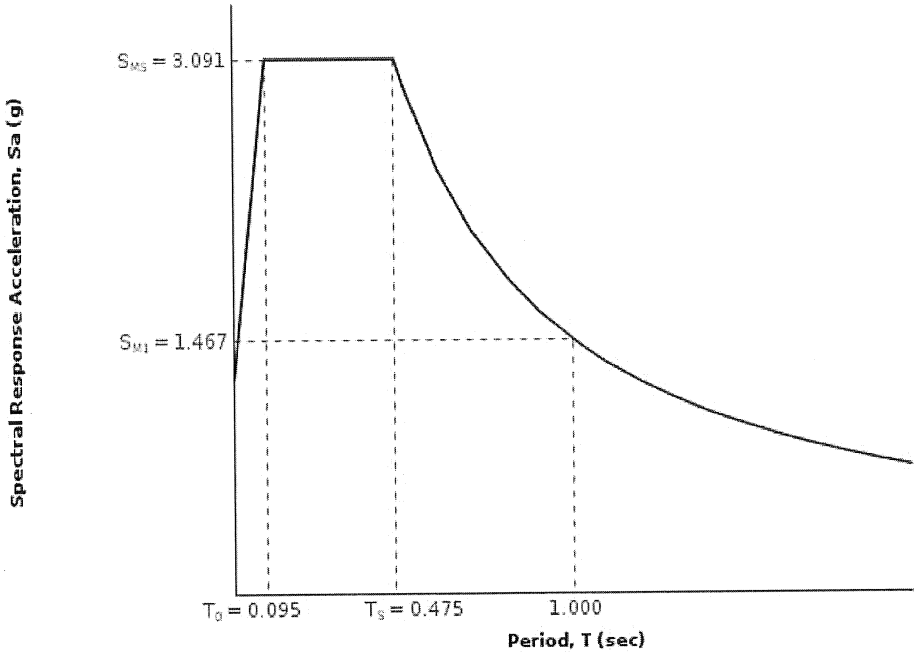
From Figure 22-12 [3] $T_L = 8$ seconds

Figure 11.4-1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 1.160

Equation (11.8–1): $PGA_M = F_{PGA}PGA = 1.000 \times 1.160 = 1.16$ g

Table 11.8–1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = D and PGA = 1.160 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 – Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 0.929

From Figure 22-18 [6] C_{R1} = 0.951

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 2.061 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	C
$0.133g \leq S_{D1} < 0.20g$	C	C	D
$0.20g \leq S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.978 g, Seismic Design Category = D

Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = E

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf

Lennar Homes
July 24, 2014
2013-014-022

APPENDIX D

REFERENCED PICO FORMATION STRENGTHS

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

ALLAN E. SEWARD
ENGINEERING GEOLOGY, INC.
Geological And Geotechnical Consultants

GEOLOGIC AND GEOTECHNICAL REPORT
Review of Vesting Tentative Tract Map 060678 (Dated 8/3/05)
Vesting Tentative Tract 060678
Homestead
Newhall Ranch, California

Prepared for:

The Newhall Land and Farming Company
23823 West Valencia Boulevard
Valencia, California 91355

Job No: 05-2062-4
Dated September 30, 2005

27825 Smyth Drive, Valencia, California 91355 661-294-0065 FAX 661-294-0833

APPENDIX F

SUMMARY OF DESIGN SHEAR STRENGTH VALUES

MATERIALS	PEAK		ULTIMATE		RESIDUAL		FIGURE REFERENCE
	PHI (DEG.)	COHESION (PSF)	PHI (DEG.)	COHESION (PSF)	PHI (DEG.)	COHESION (PSF)	
Bedrock (Tp), Cross bedding:							
• Homestead Central and Chiquito Canyon, East of Del Valle Fault	36	500	-	-	30	350	B6.1
• Homestead West and Central, West of Del Valle Fault	35	650	-	-	29	420	B6.2
• South of River	32	800	-	-	29	600	B6.3
• Potrero Ridge(site-specific sandstone stratigraphy)	37	500	37	400	-	-	B5.19
Bedrock (Tp), Along bedding:							
• Throughout Site (clay planes)	28	400	-	-	22	275	B6.4
Bedrock (TQs/TQs_L), Cross bedding:							
• Throughout Site	38	600	35	500	-	-	B6.5
Bedrock (TQs/TQs_L), Along bedding:							
• Throughout Site	29	500	-	-	20	200	B6.6
Terrace Deposits (Qt):							
• North of River, Potrero Ridge and Long Canyon	28	300	-	-	28	250	B6.7
• Mesas West	31	300	30	200	-	-	B6.8

THE J. BYER GROUP, INC.
A GEOTECHNICAL CONSULTING FIRM

RECEIVED
NOV 7 2000
PROCESSING CENTER
LAND DEVELOPMENT DIVISION

GEOLOGIC AND SOILS ENGINEERING EXPLORATION
PROPOSED HILLSIDE RESIDENTIAL SUBDIVISION
TENTATIVE TRACT 52796
26300 PICO CANYON ROAD
LOS ANGELES COUNTY, CALIFORNIA
FOR AIDLIN PROPERTIES

THE J. BYER GROUP, INC. PROJECT NUMBER JB 17826-B

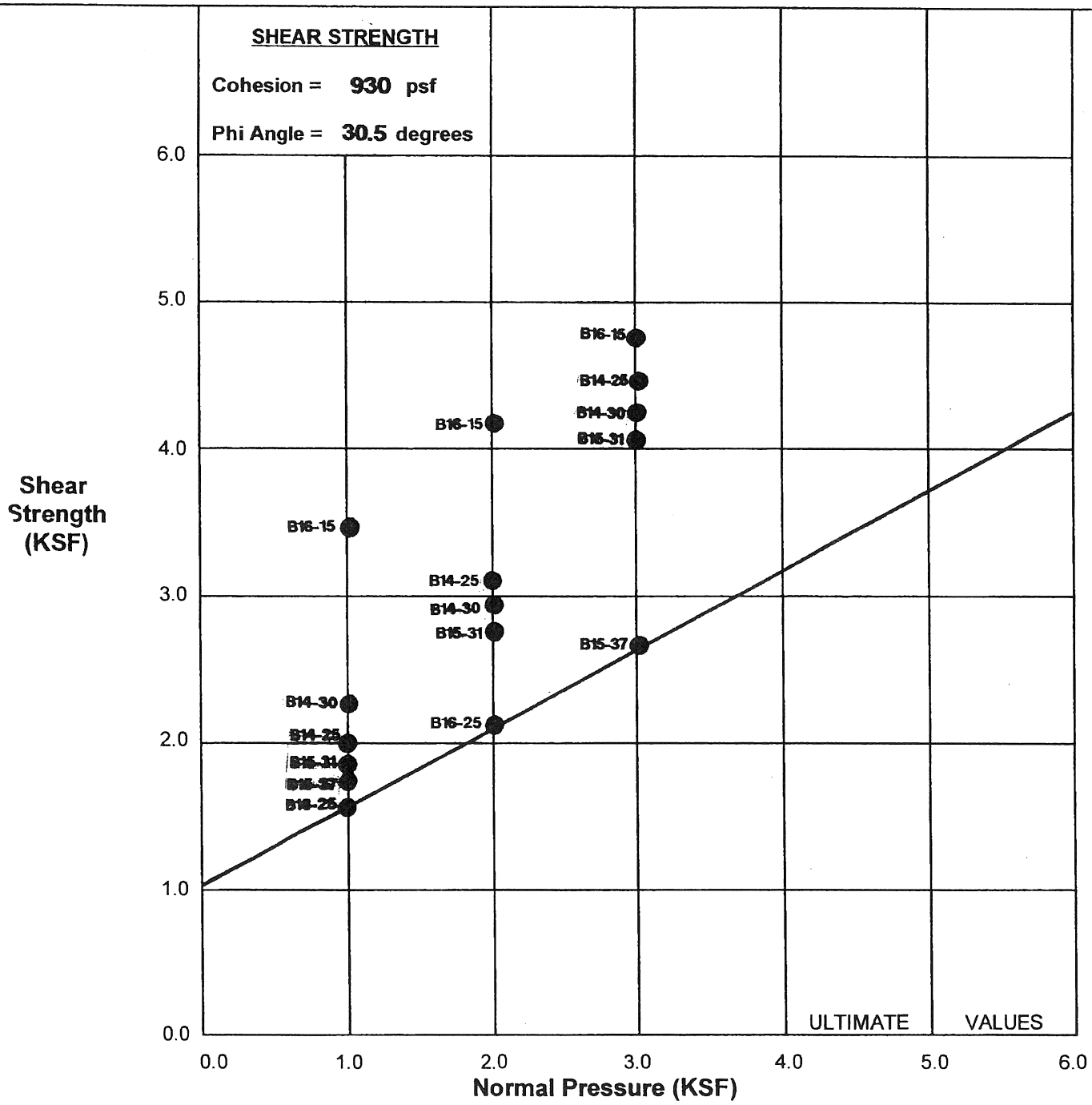
JUNE 5, 2000

THE J. BYER GROUP, INC.
A GEOTECHNICAL CONSULTING FIRM
512 E. WILSON AVENUE SUITE 201, GLENDALE, CA 91206
818•549•9959 Tel 818•543•3747 Fax

SHEAR TEST DIAGRAM #3

JB: 17826-B AIDLIN PROPERTIES

SAMPLE: **SILTSTONE**



○ Direct Shear (Field Moisture)

● Direct Shear (Saturated)

Moisture Content (%) = **13.6**

Dry Density (pcf) = **121.1**

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

July 22, 2013

Newhall Land and Farming Company
25124 Springfield Court, Suite 300
Valencia, California 91355

Job No. 94-501-021

Attention: Mr. Corey Harpole

Subject: Updated Geotechnical Plan Review and
Response to County of Los Angeles Review Sheets
Revised Vesting Tentative Tract Map No. 060678
Homestead South, Newhall Ranch
Los Angeles County, California

Reference: See Attached References

Ladies and Gentlemen:

We are pleased to present this updated geotechnical report addressing revisions to Vesting Tentative Tract Map No. 060678 (VTTM 060678), also referred to as the "Homestead South" project, Newhall Ranch, Los Angeles County, California. The revised vesting tentative tract map was prepared by Hunsaker and Associates (Hunsaker). This map was used as a base for our Geotechnical Map, attached as Figures 1.1 through 1.16. The purpose of this report is to evaluate proposed revisions to VTTM 060678 and provide geotechnical recommendations as required.

Allan E. Seward Engineering Geology, Inc. (AES) previously prepared a geologic and geotechnical review of VTTM 060687 in 2005. The AES report evaluated geologic/geotechnical conditions for the Homestead portion of Newhall Ranch, consisting of eight planning areas north and south of the Santa Clara River. The AES report was subsequently reviewed by the County

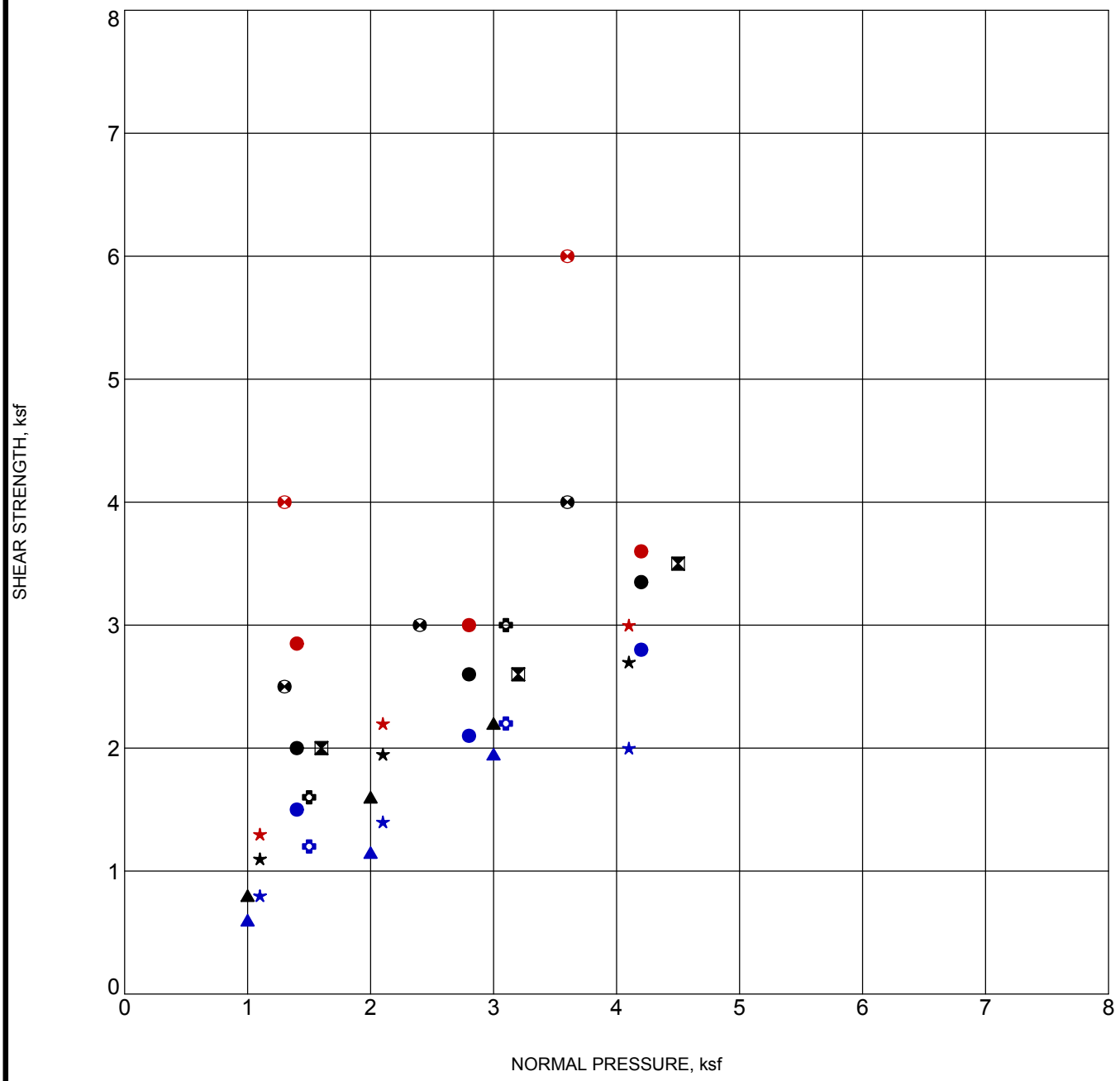
R. T. FRANKIAN & ASSOCIATES
1329 SCOTT ROAD BURBANK CALIFORNIA 91504
TEL. (818) 531-1501 FAX (818) 531-1511 WWW.RTFRANKIAN.COM

encountered within our exploratory borings. In addition, we also reviewed shear strength parameters presented in the referenced reports for the subject site and nearby vicinity. The plots of peak, single shear residual (SSR), and multi-shear residual (MSR), as appropriate, are presented on the attached direct shear test summaries. Presented below are the selected bedding plane shear strengths, as well as the cross-bedding and compacted fill shear strengths recommended for slope stability evaluation at the site.

SUMMARY OF SHEAR STRENGTH PARAMETERS

Material	**Cohesion (psf)**	**Angle of Internal Friction (degrees)**
Landslide Failure Plane	140	14
Landslide Mass	300	32
Terrace Deposit Material	300	30
Saugus Cross-Bedding	600	36
Saugus Along Bedding (static)	200	20
Saugus Along Bedding (pseudostatic)	500	29
Pico Cross Bedding	500	37
Pico Along Bedding (static)	275	22
Pico Along Bedding (pseudostatic)	400	28
Compacted Fill	300	30
Alluvium	300	29

The majority of the cut slopes proposed for the site are underlain by terrace deposits and bedrock units of the Pico and Saugus Formations. The bedrock units can range from massive to thinly bedded sedimentary rock units of sandstone, conglomerate, siltstone, and claystone/mudstone. Bedding planes within the Pico and Saugus Formations are poorly to moderately well-developed, and can constitute significant planes of weakness, particularly where sandstone/conglomerate beds are in contact with siltstone or claystone. Where bedding is adversely oriented, or “daylighted,” with respect to natural or cut slopes, potential for bedding plane, or “block-glide,” failure exists.



PICO FORMATION

TESTS PERFORMED ON SATURATED SAMPLES

Specimen Identification		Classification
▲	**B-1 @ 40'**	**MULTI SHEAR** **SINGLE SHEAR**
★	**B-1 @ 45'**	**MULTI SHEAR** **SINGLE SHEAR** **PEAK**
⊗	**B-2 @ 15'**	**SINGLE SHEAR** **PEAK**
⊠	**B-2 @ 85'**	**SINGLE SHEAR**
●	**B-3 @ 40'**	**MULTI SHEAR** **SINGLE SHEAR** **PEAK**
✿	**B-3 @ 60'**	**MULTI SHEAR** **SINGLE SHEAR**

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

DIRECT SHEAR TEST

JOB NUMBER: 94-501-021

REPORT DATED: 07-22-2013

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

November 12, 2014

Lennar Homes
980 Montecito Drive
Suite 302
Corona, California 92879

Job No. 2013-014-022

Attention: Ms. Denise Williams

Subject: Response to County of Los Angeles Review Sheet
Vesting Tentative Tract Map No. 52796
Aidlin Hills
Los Angeles County, California

Reference: See Attached References

Ladies and Gentlemen:

This submittal provides information requested by the County of Los Angeles Department of Public Works, Geotechnical and Materials Engineering Division (GMED), Geologic and Soils Engineering Sections. The information provided is in answer to the Geologic and Soils Engineering Review Sheet dated October 16, 2014. The GMED comments on the review sheet are shown below in bold type. Comments designated with a "G" indicate comments by the Geologic Section; comments designated by "S" constitute Soils Engineering Section comments. Our response follows each comment in regular type. A copy of the GMED Review Sheet is included at the end of this response report.

Alliance Land Planning & Engineering, Inc. (Alliance) has made some minor revisions to the Tentative Map, primarily to address potential debris flow concerns raised by GMED related to Lot Nos. 47 through 50 and Lot No. 82. The revised Tentative Map is dated November 10, 2014 and is attached as part of this response.

GMED REVIEW SHEET

G1. Provide a geotechnical map that complies with the provisions of the County of Los Angeles Department of Public Works *Manual for Preparation of Geotechnical Reports*. The geotechnical map shall be based on the Tentative Map.

The latest Tentative Map, dated November 10, 2014, is attached to this response as Geotechnical Map, Figures 1.1 and 1.2.

G2. Topography/Grading shown on the geotechnical map and tentative map/Exhibit "A" must conform.

Based on our discussions with Alliance, it is our understanding that the topography and grading depicted on the attached Geotechnical Map conforms with Exhibit "A".

G3. Evaluate debris flow potential for the building area located below the natural slope of lot 82. Provide mitigation recommendations as necessary. Show recommended mitigation on the geologic map.

The Tentative Map has been revised in the area of Lot No. 82. The previous Tentative Map indicated a natural slope descending directly to the rear of the lot, for the entire width of the lot. Based on the latest revision, the easterly two-thirds of the rear of Lot No. 82 will border on an ascending cut slope; the remaining one-third of the lot will be separated from the natural slope by a 10-foot-wide drainage swale that will direct water and debris to a debris basin (designated Lot No. 107) located west of Lot No. 82. It is our opinion that the combination of the cut slope (with the required drainage terraces) and drainage swale at the rear of Lot No. 82 will adequately protect Lot No. 82 from potential debris flows emanating from the natural slopes.

G4. It appears based on the design of the proposed debris flow channel south and east of lots 47-50 that this device most likely will contain debris derived from the ascending slopes, rather than being deflected and transported to the basins. Does it have sufficient drop to direct debris and accommodate the flow towards the natural drainage as shown on the geotechnical map? If not, the volume of debris required for containment must be determined, and the containment areas must be shown on the Tentative Map.

Based on discussions with Alliance and GMED, the debris channel below Lot Nos. 47 through 50 will consist of a debris-carrying concrete swale designed with self-cleaning velocity to direct debris to the debris basin located in Wickham Canyon, south of the Emergency Vehicle Access Road. The latest revisions to this drainage channel are reflected on the revised Tentative Map.

S1. Provide data and calculations to substantiate the infiltration rates presented on Page 4 of the infiltration evaluation report dated 4/2/14.

We took our field data and summarized it onto the Boring/Excavation Percolation Testing Field Log (BPTFL) in the Appendix. The BPTFL was provided by GMED as an example in the GMED GS200.1 Guidelines dated June 30, 2014 (GMED, 2014). At the time of the preparation of our reviewed report, the 2014 GS200.1 Guidelines were not yet released. In our April 2, 2014 report we made the borehole diameter correction CFt and recommended that appropriate reduction factors should be utilized by the infiltration designer. The calculations for the borehole diameter correction used for our April 2, 2014 report, based on GMED's 2011 Guidelines (2011) are also presented in the Appendix. The latest GS200.1 provides guidance in the selection of additional reduction factors. In accordance with the latest GS200.1, it is recommended that a factor of 2 be used for both CFv and CFs. This results in a recommended design infiltration rate of 0.47 inches per hour (in/hr) for PB-1 and 2.60 in/hr for PB-2 based on the calculations provided below.

PB-1 Design Infiltration Rate = 11.52/(CFt*CFv*CFs = 11.52/(6.08*2*2) = 0.47 in/hr.
PB-2 Design Infiltration Rate = 58.32/(CFt*CFv*CFs = 58.32/(5.54*2*2) = 2.63 in/hr.

S2. Show the following on the revised geotechnical map:

a. Existing and proposed grades
b. Approximate limits and depth of removal and recompaction of unsuitable soils
c. Location of "Restricted Use Areas"
d. All recommended mitigation measures, as necessary.

The requested data, including the locations of Restricted Use Areas, is shown on the Geotechnical Map (Figures 1.1 and 1.2).

The following are attached and complete this report.

- GMED Geologic and Soils Engineering Review Sheet dated October 16, 2014
- Geotechnical Map – Figures 1.1 and 1.2
- Appendix – Infiltration Evaluation Data

Respectfully submitted,

R. T. FRANKIAN & ASSOCIATES

by: Timothy P. Latiolait
Principal Engineering Geologist

and: Alan W. Rasplicka
Principal Geotechnical Engineer

TPL/AWR/eaw

PDF Distribution via Email:
Lennar Homes – Ms. Denise Williams
Alliance Land Planning & Engineering, Inc. – Mr. Craig Whitteker and Ms. Erin Stanley

Hard Copy Distribution:
Alliance Land Planning & Engineering, Inc.
Attn: Ms. Erin Stanley
2 wet-signed, stamped copies plus 1 CD of PDF file for submittal to GMED

REFERENCES

Frankian, R. T. & Associates, 2014a, "100-Scale Plan Review, Vesting Tentative Tract Map No. 52796, Los Angeles County, California," for Lennar Homes, dated March 27, 2014, Job No. 2013-014-021.

Frankian, R. T. & Associates, 2014b, "Infiltration Evaluation, Vesting Tentative Tract Map No. 52796, Los Angeles County, California," for Lennar Homes, dated April 2, 2014, Job No. 2013-014-052.

Frankian, R. T. & Associates, 2014c, "Response to County of Los Angeles Review Sheets, Vesting Tentative Tract Map No. 52796, Aidlin Hills, Los Angeles County, California," for Lennar Homes, dated July 24, 2014, Job No. 2013-014-022.

Los Angeles County Department of Public Works, Geotechnical and Materials Engineering Division, 2011, "Low Impact Development Best Management Practice Guideline for Design, Investigation, and Reporting," dated June 1, 2011, GS200.1.

Los Angeles County Department of Public Works, Geotechnical and Materials Engineering Division, 2014, "Guideline for Design, Investigation, and Reporting, Low Impact Development Stormwater Infiltration," dated June 30, 2014, GS200.1.

PCA GMTR
Telephone: (626) 458-4925

County of Los Angeles Department of Public Works
Geotechnical and Materials Engineering Division
GEOLOGIC AND SOILS ENGINEERING REVIEW SHEET
900 S. Fremont Avenue, Alhambra, CA 91803

Tentative Tract / Parcel Map	52796	**Tentative Map Dated**	1/29/14 (Rev.)	**Parent Tract**	
Grading By Subdivider? [Y] (Y or N)	1,600,000 yd^3	**Location**	Stevenson Ranch	**APN**	
Geologist	R. T. Frankian & Associates	**Subdivider**	Lennar Homes, Inc.		
Soils Engineer	R. T. Frankian & Associates	**Engineer/Arch.**	Alliance		

Review of:
Geologic Report(s) Dated:
Soils Engineering Report(s) Dated:
Geotechnical Report(s) Dated: **6/24/14, 6/6/14, 4/2/14**, 3/27/14
References: The J. Byer Group: 3/29/01, 6/5/00

TENTATIVE MAP FEASIBILITY IS NOT RECOMMENDED FOR APPROVAL. PRIOR TO RECOMMENDING APPROVAL OF THE TENTATIVE TRACT OR PARCEL MAP:

G1. Provide a geotechnical map that complies with the provisions of the County of Los Angeles Department of Public Works *Manual for Preparation of Geotechnical Reports*. The geotechnical map shall be based on the Tentative Map.

G2. Topography/Grading shown on the geotechnical map and tentative map/Exhibit "A" must conform.

G3. Evaluate debris flow potential for the building area located below the natural slope of lot 82. Provide mitigation recommendations as necessary. Show recommended mitigation on the geologic map.

G4. It appears based on the design of the proposed debris flow channel south and east of lots 47-50, that this device most likely will contain debris derived from the ascending slopes, rather than being deflected and transported to the basins. Does it have sufficient drop to direct debris and accommodate the flow towards the natural drainage as shown on the geotechnical map? If not, the volume of debris required for containment must be determined, and the containment areas must be shown on the Tentative Map.

S1. Provide data and calculations to substantiate the infiltration rates presented on Page 4 of the infiltration evaluation report dated 4/2/14.

S2. Show the following on the revised geotechnical map:
   a. Existing and proposed grades.
   b. Approximate limits and depth of removal and recompaction of unsuitable soils.
   c. Location of "Restricted Use Areas".
   d. All recommended mitigation measures, as necessary.

NOTE: Provide a copy of this review sheet with your resubmittal.

NOTE TO THE PLAN CHECKER/BUILDING AND SAFETY DISTRICT ENGINEER:
A. ON-SITE SOILS ARE CORROSIVE TO FERROUS METALS AND CONCRETE.
B. ON-SITE SOILS HAVE A MEDIUM EXPANSION POTENTIAL.

Prepared by

REGISTERED PROFESSIONAL ENGINEER JEREMY CHUN YIN WAN No. GE 2849 GEOTECHNICAL STATE OF CALIFORNIA

Jeremy Wan
Soils Section

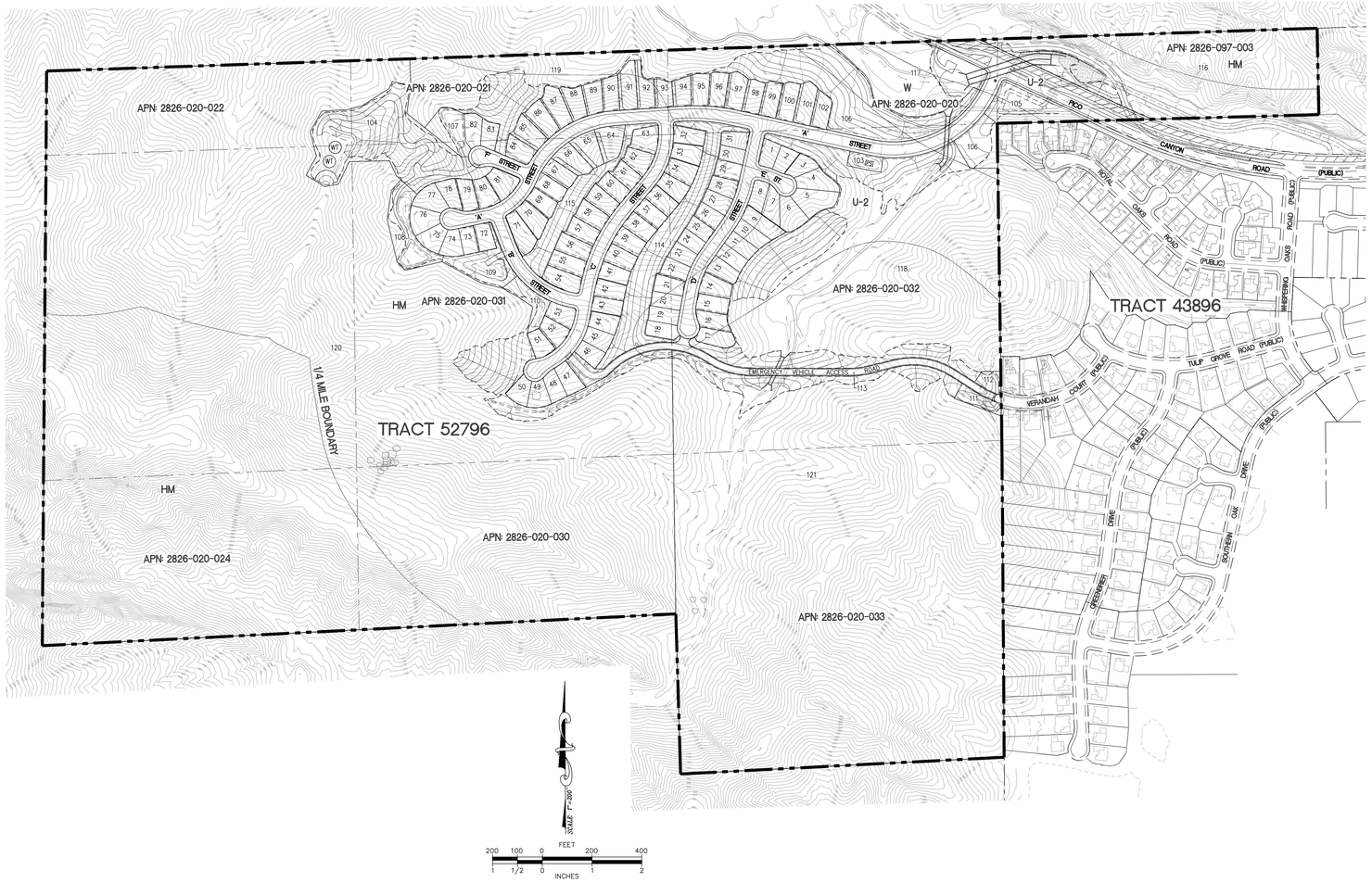
PROFESSIONAL GEOLOGIST Geir R. Mathisen No. 2376 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

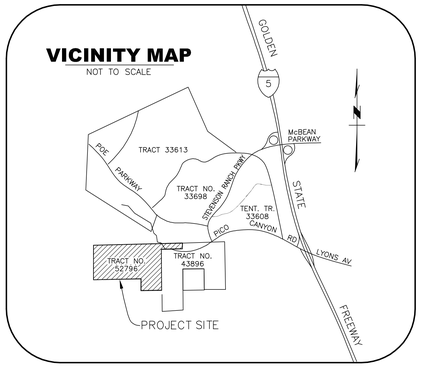
Geir Mathisen
Geology Section

Date 10/16/14

Please complete a Customer Service Survey at http://dpw.lacounty.gov/go/gmedsurvey
NOTICE: Public safety, relative to geotechnical subsurface exploration, shall be provided in accordance with current codes for excavations, inclusive of the Los Angeles County Code, Chapter 11.48, and the State of California, Title 8, Construction Safety Orders.
P:\gmepub\Development Review\!Combined Reviews\Tracts and Parcels\TR 052796, Stevenson Ranch, TTM-NA_11.docx

RTF&A JOB NO. 2013-014-022 RESPONSE DATED 11-12-2014





GENERAL NOTES

1. GRADE ELEVATIONS SHOWN ON THIS VTTM ARE APPROXIMATE. THE ELEVATIONS MAY CHANGE BY 3 FEET. ELEVATION CHANGES MAY BE GREATER THAN 3 FEET BUT ONLY IF DETERMINED BY DPW AND DRP THAT THE REVISIONS ARE CONSISTENT WITH THE INTENT OF THE SUBDIVISION MAP APPROVAL.
2. LOT LINES CAN BE ADJUSTED TO THE SATISFACTION OF DRP PROVIDED NO ADDITIONAL DEVELOPMENT LOTS ARE CREATED. THE DEGREE OF ADJUSTMENT SHALL BE CONSISTENT WITH THE INTENT OF THE SUBDIVISION MAP ACT.
3. ALIGNMENT AND GEOMETRICS OF STREETS AND TRAILS ARE APPROXIMATE. ADJUSTMENTS TO TRAILS CAN BE MADE WITH APPROVAL BY DRP AND THE PARKS AND RECREATION DEPARTMENT.
4. PERMISSION IS REQUESTED FOR UNIT PHASING.
5. PERMISSION IS REQUESTED TO COMBINE LOTS.
6. PERMISSION IS REQUESTED TO RECORD ADDITIONAL OPEN SPACE LOTS.
7. PERMISSION IS REQUESTED TO RECORD ADDITIONAL UTILITY LOTS AND PROVIDE MAINTENANCE EASEMENTS TO THE SATISFACTION OF THE DPW AND DRP.
8. PERMISSION IS REQUESTED TO MASS GRADE.
9. PROPOSED STREET GRADING IS APPROXIMATE ONLY AND SUBJECT TO ADJUSTMENTS PENDING DETERMINATION OF FINAL DEVELOPMENT LAYOUT AND PLANS.
10. PERMISSION IS REQUESTED TO PROVIDE RIGHT OF WAY RETURN RADII OF 15 FT. AT ALL LOCAL STREET INTERSECTIONS AND 27 FT WHERE ALL PLANNED HIGHWAYS INTERSECT OR WHERE ONE OF THE ROADS SERVES A COMMERCIAL OR INDUSTRIAL DEVELOPMENT.
11. ALL DIMENSIONS SHOWN ARE APPROXIMATE.
12. TOPO COMPILED FROM DATA FLOWN DECEMBER, 2013.
13. ADDITIONAL RIGHT OF WAY MAY BE DEDICATED AS REQUIRED TO THE SATISFACTION OF PUBLIC WORKS.
14. HOMEOWNERS ASSOCIATION TO BE ESTABLISHED TO MAINTAIN COMMON AREA OPEN SPACE.
15. TOTAL STREET FRONTAGE (A–F STREETS) IS 11,100 LF.

UTILITIES & SERVICES:

SEWER — L.A. COUNTY SANITARY DISTRICT #32
WATER — VALENCIA WATER COMPANY
GAS — SO. CALIFORNIA GAS CO.
ELECTRICAL — SO. CALIFORNIA EDISON CO.
TELEPHONE — AT&T
SCHOOLS — NEWHALL ELEMENTARY SCHOOL DISTRICT
HART HIGH SCHOOL DISTRICT
FIRE — L.A. COUNTY FIRE DEPARTMENT
POLICE — L.A. COUNTY SHERIFF
T.V. — STEVENSON RANCH CABLE

RECORD OWNER

ADLIN GENERAL TRUST
TRACY WOODFORD, TRUSTEE
5143 SUNSET BLVD.
LOS ANGELES, CA 90027–5715
323–666–1910
JA51438@ACBELL.NET

APPLICANT

LENNAR COMMUNITIES
980 MONTECITO DRIVE, SUITE 302
CORONA, CA 92879
(951)817–3542

ENGINEER:

ALLIANCE LAND PLANNING & ENGINEERING
2248 FARADAY AVENUE
CARLSBAD, CAO 92008
PHONE (760) 431–9896 FAX (760) 431–8802

LEGAL DESCRIPTION:

LOTS 1, 2, 3, 4, 5 AND A PORTION OF LOT 6, AND PORTIONS OF THE NORTHEAST QUARTER, SOUTHEAST QUARTER, NORTHWEST QUARTER AND SOUTHWEST QUARTER, ALL IN SECTION 6, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDAN, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SPECIAL NOTES

1. WATER QUALITY BASINS WILL PROVIDE FOR TREATMENT OF STORM WATER RUNOFF PER THE APPROVED DRAINAGE CONCEPT.

PROJECT SUMMARY:

GROSS AREA: 230.5 Acres
NET AREA= 228.8 Acres
(GROSS AREA–PICO CANYON ROAD AREA)
TOTAL LOTS: 121
TOTAL RESIDENTIAL D.U.: 102 DU
TOTAL OFFICE/COMMERCIAL: NONE

EXISTING ZONING: A–2–2
PROPOSED ZONING: A–2–2
EXISTING LAND USE: U–2, HM, W
PROPOSED LAND USE: U–2, HM, W
APN: 2826–020–020, 021, 022, 023, 024
2826–020–030, 031, 032, 033
2826–097–003

T.G. PAGE 4640, GRIDS A–1, A–2, B–1, B–2

ESTIMATED EARTHWORK: 1,300,000 CY CUT
1,300,000 CY FILL
OVEREXCAVATION: 300,000 CY

OAK TREES TO BE REMOVED: 1 TREE
OAK TREES TO BE ENCROACHED: 0 TREE
OAK TREES TO REMAIN: 14 TREES
TOTAL OAK TREES: 15

RELATED ENTITLEMENTS

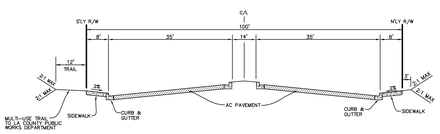
CONDITIONAL USE PERMIT NO. 00–136
OAK TREE PERMIT NO. 00–136

LOT SUMMARY

LOT NUMBERS	NO. OF LOTS	TYPE	TOTAL ACREAGE
1–102	102	SINGLE FAMILY	20.7 AC
103–104	2	WATER TANK/ PUMP STATION	3.9 AC
105–112	8	WQT BASINS	4.3 AC
113	1	FIRE ACCESS ROAD	1.4 AC
114–121	8	OPEN SPACE (LANDSCAPE & NATURAL)	190.6 AC
PUBLIC STREETS	N/A	N/A	9.6 AC
TOTAL	121		230.5 AC

LEGEND:

1 / PAD 1510 / 6,500 sf — LOT NO. / PAD ELEVATION / LOT AREA (SQUARE FEET)
PROJECT BOUNDARY
PROPOSED RIGHT OF WAY
PROPOSED EASEMENT
EXISTING EASEMENT
1000 — PROPOSED CONTOUR
DAYLIGHT — PROPOSED DAYLIGHT LINE
D — PROPOSED STORM DRAIN
SS — PROPOSED SANITARY SEWER
W — PROPOSED WATER
D — PROPOSED STORM DRAIN INLET/OUTLET (TO BE MAINTAINED BY LACFCD)
PROPOSED CATCH BASIN
SD — EXISTING STORM DRAIN LINE
S — EXISTING SEWER LINE
W — EXISTING WATER LINE
O — EXISTING OIL LINE
G — EXISTING GAS LINE
OE — EXISTING OVERHEAD POWER LINE
EXISTING POWER POLE
PROPOSED RETAINING WALL
6' HIGH MAX. RETAINING WALL
SEA — SEA LINE
FP — FEMA FLOODPLAIN
CDFG — CDFG LIMIT LINE
ACOE — ACOE LIMIT LINE
SLOPE PROTECTION (TRM) TURF REINFORCEMENT MAT
OAK NO. XX (TRE) — OAK TREE (TO BE ENCROACHED)
OAK NO. XX (TRM) — OAK TREE (TO BE REMOVED)
OAK NO. XX (TR) — OAK TREE (TO REMAIN)



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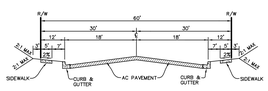
NO SCALE



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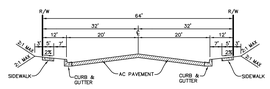
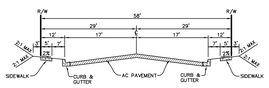
'B', 'C' & 'D' STREET
NOT TO SCALE



RESIDENTIAL COLLECTOR STREET (R/W= 64') PUBLIC
'A' STREET
NOT TO SCALE



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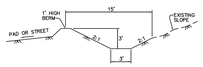
'E' & 'F' STREET
NOT TO SCALE



DEBRIS ZONE AT TOE OF EXISTING SLOPES DETAIL
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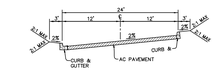

EMERGENCY VEHICLE ACCESS ROAD (PVT)
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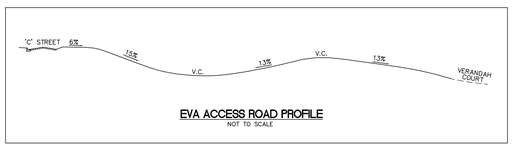

EVA ACCESS ROAD PROFILE
NOT TO SCALE

BENCHMARK

R.D.B.M. TAG IN S CB 8.2M W/O BCR @ SW CORN. LYONS AVE. & WILEY CANYON RD. 30.5M W/O & 12.2M S/O C/L INT (NR W END CB)

NEWHALL 1995 ELEV.= 1265.296

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

ALLIANCE LAND PLANNING & ENGINEERING INC.
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(951)817-3542
REPRESENTATIVE: CHERRYL THOMPSON

PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
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CARLSBAD, CA 92008
(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 — 11/10/14 DATE

REGISTERED PROFESSIONAL ENGINEER — CRAIG M. WHITTEKER — NO. 51929 EXP. 6-30-15 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

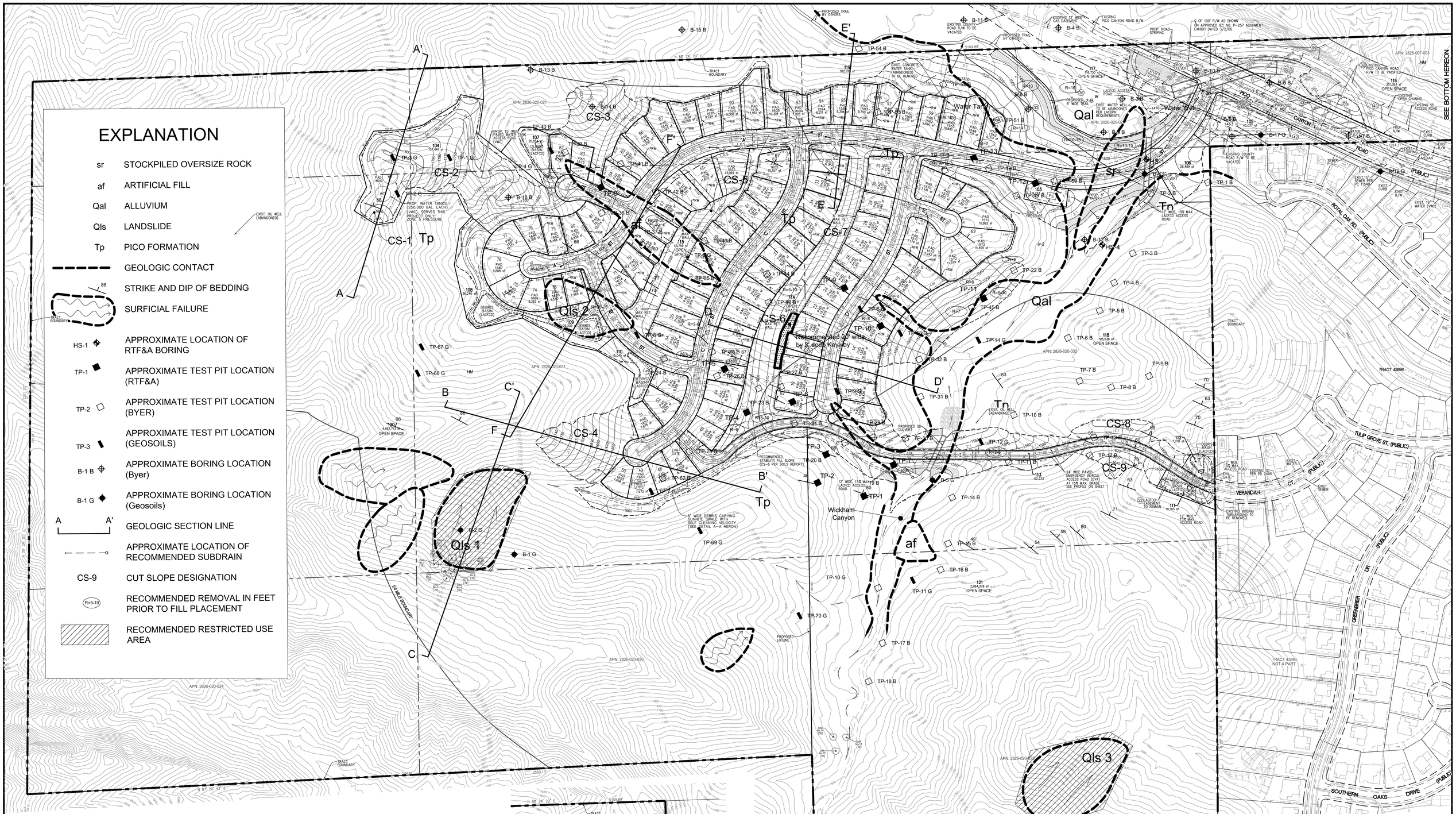
SHEET 1 — COUNTY OF LOS ANGELES — 2 SHEETS

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP
NO. 52796

LOCATED IN THE UNINCORPORATED AREA OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

I:\CAD\1352\TENTATIVE MAP\1352_TENTATIVE-MAP_SHEET-01.dwg

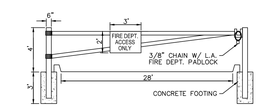
2013-014-022 11-12-2014 Figure 1.1



EASEMENTS:

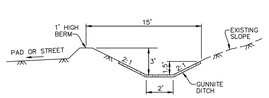
PRELIMINARY TITLE REPORT: NORTH AMERICAN TITLE COMPANY REPORT NO. 1224993 DATED JULY 18, 2013

TITLE REPORT ITEM NO.	OWER	PURPOSE	REFERENCE	FUTURE DISPOSITION	COMMENTS
14,18,24	UNITED STATES GOVERNMENT	DITECH/RESERVOIRS	BOOK 12, PAGE 104 OF PATENTS	TO REMAIN	NOT PLOTTABLE
19	UNITED STATES GOVERNMENT	DITECH/RESERVOIRS	BOOK 13, PAGE 295 BOOK 13, PAGE 287 OF PATENTS	TO REMAIN	NOT PLOTTABLE
22	L.A. COUNTY FLOOD CONTROL DISTRICT	FLOOD CONTROL/ACCESS	TRACT MAP 43896 BOOK 1260, PAGES 29–34 JUNE 20, 2001	TO REMAIN	
25	GEORGE WICKHAM	ROAD, ELEC. LINES	BOOK 17319, PAGE 381 DECEMBER 10, 1939	TO REMAIN	INDETERMINED LOCATION
32	LOS ANGELES COUNTY	ROADS	AP MAP 2826–97	TO BE VACATED WITH TRACT MAP	
33	STANDARD OIL COMPANY	PIPELINES	BOOK 666,, PAGE 121 APRIL 12, 1918		BLANKET EASEMENT NER LOT 2 NE 1/4 SECTION 6 T3N R16W
34	SOCAL GAS COMPANY	PIPELINES	BOOK 4489, PAGE 232 SEPTEMBER 1, 1925	TO REMAIN	
35	LOS ANGELES COUNTY	ROAD/HIGHWAY	BOOK 22073, PAGE 311 JUNE 28, 1743	TO BE VACATED	NOT PLOTTABLE
36	PACIFIC LIGHTING CORP.	PIPELINES	BOOK 32618, PAGE 336 MARCH 20, 1950	TO REMAIN	
37	SOCAL EDISON COMPANY	PIPELINES	BOOK 53600, PAGE 420 FEBRUARY 5, 1957	TO REMAIN	INDETERMINED LOCATION
38	SOCAL EDISON COMPANY	PIPELINES	INSTR. NO. 4521 OCTOBER 28, 1965	TO REMAIN	INDETERMINED LOCATION
42	SOCAL GAS COMPANY	PIPELINES	INSTR. NO. 01–2122764 NOVEMBER 6, 2001	TO REMAIN	
43	L.A. COUNTY FLOOD CONTROL DISTRICT	FLOOD CONTROL, DRAINAGE, ACCESS	TRACT MAP 43896–07 MB 1259, PAGES 60–67 MAY 30, 2001	PORTION TO BE CATED	
44	WILLIAMS HOMES, LLC	SLOPE MAINTENANCE	INSTR. NO. 04–1738068 JULY 8, 2004	TO REMAIN	
45	MULTIPLE	ACCESS, UTILITIES	INSTR. NO. 05–2793905 APRIL 6, 2005	TO REMAIN	BLANKET EASEMENT



EMERGENCY ACCESS GATE DETAIL

NOT TO SCALE



SECTION A-A

DEBRIS ZONE AT TOE OF EXSTING SLOPES DETAIL

NOT TO SCALE

Geotechnical Map

PREPARED FOR: Lennar

PROJECT LOCATION: Vesting Tentative Tract No. 52796, Los Angeles County, California

SCALE	DRAWN BY	DESIGNED BY
AS SHOWN	JH	TPL
11-12-2014	Figure 1.2	2013-014-022

2128 SCOTT ROAD BURBANK, CA. 91504 TEL: (818) 551-1005 FAX: (818) 551-1515 WWW.RTFANALYSIS.COM

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CARLSBAD, CA 92008
(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 — DATE 11/10/14

REGISTERED PROFESSIONAL ENGINEER CRAIG M. WHITTEKER NO. 51929 EXP. 6-30-16 CIVIL STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

SHEET 2 COUNTY OF LOS ANGELES 2 SHEETS

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP
NO. 52796

LOCATED IN THE UNINCORPORATED AREA OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

C:\Users\jwaldron\Documents\Jobs\2013-014\AVALON HILLS\AVALON HILLS\1352_TENTATIVE-MAP_SHEET-02 _1111141\1352_TENTATIVE-MAP_SHEET-02.dwg

2013-014-022 11-12-2014 Figure 1.2

Lennar Homes
November 12, 2014
2013-014-022

APPENDIX

INFILTRATION EVALUATION DATA

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Boring/Excavation Percolation Testing Field Log

Date 2/14/14

Project Location Rico Cyn 2013.014.021
Earth Description
Tested by SDR
Liquid Description TAP WATER
Measurement Method SOUNDER

Boring/Test Number PB-1
Diameter of Boring 4" Diameter of Casing 2"
Depth of Boring 5' 4"
Depth to Invert of BMP
Depth to Water Table
Depth to Initial Water Depth (d_1)

Time Interval Standard
Start Time for Pre-Soak 12:15 (2/13/14)
Start Time for Standard 8:05 (2/14/14)

Water Remaining In Boring (Y/N) Y
Standard Time Interval Between Readings 30 M

Reading Number	Time Start/End (hh:mm)	Elapsed Time Δtime (mins)	Water Drop During Standard Time Interval Δd (inches)	Percolation Rate for Reading (in/hr)	Soil Description/Notes/Comments
1	8:38 9:08	30	5.28	10.56	
2	9:09 9:40	31	5.76	11.15	
3	9:43 10:14	31	5.88	11.38	
4	10:16 10:46	30	5.76	11.52	
5	10:48 11:18	30	6.00	12.00	
6	11:22 11:52	30	5.76	11.52	
7	11:54 12:24	30	5.76	11.52	

Boring/Excavation Percolation Testing Field Log

Date 2/14/14

Project Location RCO GVN 2013.014.021
Earth Description
Tested by SDR
Liquid Description TAP WATER
Measurement Method SOUNDER

Boring/Test Number PB-2
Diameter of Boring 4" Diameter of Casing 2"
Depth of Boring 5'6"
Depth to Invert of BMP
Depth to Water Table
Depth to Initial Water Depth (d_1)

Time Interval Standard
Start Time for Pre-Soak 2:20 (2/13/14)
Start Time for Standard 8:20 (2/14/14)

Water Remaining In Boring (Y/N) N
Standard Time Interval Between Readings 10 M

Reading Number	Time Start/End (hh:mm)	Elapsed Time Δtime (mins)	Water Drop During Standard Time Interval Δd (inches)	Percolation Rate for Reading (in/hr)	Soil Description/Notes/Comments
1	8:51 9:01	10	11.88	71.28	
2	9:02 9:12	10	9.84	59.04	
3	9:14 9:24	10	9.60	57.60	
4	9:26 9:36	10	9.24	55.44	
5	9:36 9:46	10	9.24	55.44	
6	9:49 9:59	10	9.12	54.72	
7	10:00 10:10	10	9.72	58.32	
8	10:10 10:20	10	9.72	58.32	

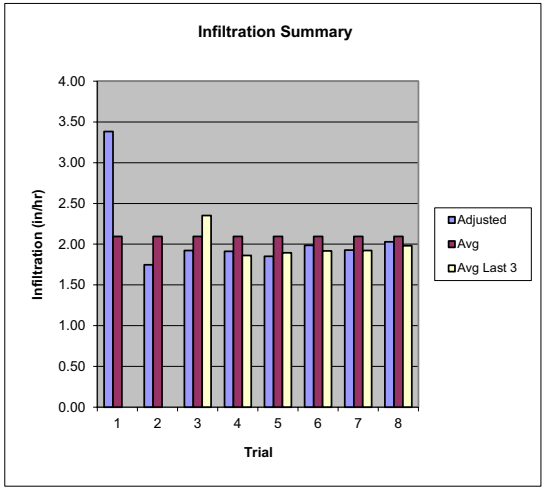
Project	Pico Canyon		Location	Boring PB-1				
Job No.	2013-014-021		Material					
# of Trials	8							
Hole diameter (inches)	4	2	3	4	5	6	7	8
Trial	1	2	3	4	5	6	7	8
Length of Pipe (ft)	5.27	5.27	5.27	5.27	5.27	5.27	5.27	5.27
Length of Pipe (in)	63.24	63.24	63.24	63.24	63.24	63.24	63.24	63.24
Start Height dt (ft)	4.22	4.21	4.23	4.20	4.16	4.18	4.20	4.25
Start Height dt (in)	50.64	50.52	50.76	50.40	49.92	50.16	50.40	51.00
Finish height (ft)	4.96	4.65	4.71	4.69	4.64	4.68	4.68	4.73
Start depth of water dt (in)	12.60	12.72	12.48	12.84	13.32	13.08	12.84	12.24
Finish depth of water (in)	3.72	7.44	6.72	6.96	7.56	7.08	7.08	6.48
Finish height (in)	59.52	55.80	56.52	56.28	55.68	56.16	56.16	56.76
Drop delta d (inch)	8.88	5.28	5.76	5.88	5.76	6.00	5.76	5.76
time (minutes)	31	30	31	31	30	30	30	30
time (hour)	0.5167	0.5000	0.5167	0.5167	0.5000	0.5000	0.5000	0.5000
dt (inches)	12.6	12.72	12.48	12.84	13.32	13.08	12.84	12.24
Field Infiltration Rate (in/hr)	17.1871	10.5600	11.1484	11.3806	11.5200	12.0000	11.5200	11.5200
Reduction Factor Pre Calc	4.08	5.04	4.8	4.95	5.22	5.04	4.98	4.68
Reduction Factor	5.08	6.04	5.8	5.95	6.22	6.04	5.98	5.68
Adjusted Infiltration Rate (in/hr)	3.38	1.75	1.92	1.91	1.85	1.99	1.93	2.03

Last 3 Average Determination

Average	3	4	5	6	7	8
12.10	12.965161	11.03	11.35	11.63	11.68	11.68
4.85	4.64	4.93	4.99	5.07	5.08	5.08
5.85	5.64	5.93	5.99	6.07	6.08	6.08
2.09	2.35	1.86	1.90	1.92	1.92	1.98

Average Field Infiltration (in/hr)	12.10452
Average Adjusted (in/hr)	2.09
Average field Last 3 cycles (in/hr)	11.67999
Avg Adjusted last 3 cycles (in/hr)	1.98

Trial	Field	Adjusted	Avg	Avg Last 3
1	17.19	3.38	2.09	0.00
2	10.56	1.75	2.09	0.00
3	11.15	1.92	2.09	2.35
4	11.38	1.91	2.09	1.86
5	11.52	1.85	2.09	1.90
6	12.00	1.99	2.09	1.92
7	11.52	1.93	2.09	1.92
8	11.52	2.03	2.09	1.98



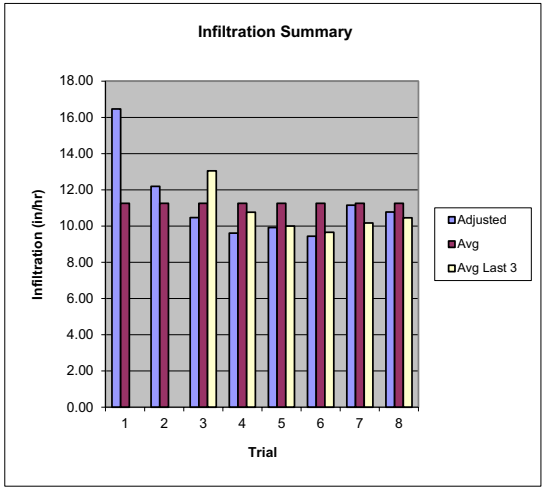
Project	Pico Canyon		Location	Boring PB-2				
Job No.	2013-014-021		Material					
# of Trials	8							
Hole diameter (inches)	4	2	3	4	5	6	7	8
Trial	1	2	3	4	5	6	7	8
Length of Pipe (ft)	4.40	4.40	4.40	4.40	4.40	4.40	4.40	4.40
Length of Pipe (in)	52.80	52.80	52.80	52.80	52.80	52.80	52.80	52.80
Start Height dt (ft)	3.35	3.35	3.25	3.22	3.25	3.22	3.29	3.26
Start Height dt (in)	40.20	40.20	39.00	38.64	39.00	38.64	39.48	39.12
Finish height (ft)	4.34	4.17	4.05	3.99	4.02	3.98	4.10	4.07
Start depth of water dt (in)	12.60	12.60	13.80	14.16	13.80	14.16	13.32	13.68
Finish depth of water (in)	0.72	2.76	4.20	4.92	4.56	5.04	3.60	3.96
Finish height (in)	52.08	50.04	48.60	47.88	48.24	47.76	49.20	48.84
Drop delta d (inch)	11.88	9.84	9.60	9.24	9.24	9.12	9.72	9.72
time (minutes)	10	10	10	10	10	10	10	10
time (hour)	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667	0.1667
dt (inches)	12.6	12.6	13.8	14.16	13.8	14.16	13.32	13.68
Field Infiltration Rate (in/hr)	71.2800	59.0400	57.6000	55.4400	55.4400	54.7200	58.3200	58.3200
Reduction Factor Pre Calc	3.33	3.84	4.5	4.77	4.59	4.8	4.23	4.41
Reduction Factor	4.33	4.84	5.5	5.77	5.59	5.8	5.23	5.41
Adjusted Infiltration Rate (in/hr)	16.46	12.20	10.47	9.61	9.92	9.43	11.15	10.78

Last 3 Average Determination

Average	3	4	5	6	7	8
58.77	62.64	57.36	56.16	55.20	56.16	56.16
4.31	3.89	4.37	4.62	4.72	4.54	4.54
5.31	4.89	5.37	5.62	5.72	5.54	5.54
11.25	13.04	10.76	10.00	9.65	10.17	10.46

Average Field Infiltration (in/hr)	58.77
Average Adjusted (in/hr)	11.25
Average field Last 3 cycles (in/hr)	56.15994
Avg Adjusted last 3 cycles (in/hr)	10.46

Trial	Field	Adjusted	Avg	Avg Last 3
1	71.28	16.46	11.25	0.00
2	59.04	12.20	11.25	0.00
3	57.60	10.47	11.25	13.04
4	55.44	9.61	11.25	10.76
5	55.44	9.92	11.25	10.00
6	54.72	9.43	11.25	9.65
7	58.32	11.15	11.25	10.17
8	58.32	10.78	11.25	10.46



GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

February 2, 2015

Lennar Homes
980 Montecito Drive
Suite 302
Corona, California 92879

Job No. 2013-014-022

Attention: Ms. Denise Williams

Subject: Response to County of Los Angeles Review Sheet
Dated January 6, 2015
Vesting Tentative Tract Map No. 52796
Aidlin Hills
Los Angeles County, California

Reference: See Attached References

Ladies and Gentlemen:

This submittal provides information requested by the County of Los Angeles Department of Public Works (County), Geotechnical and Materials Engineering Division (GMED), Geologic and Soils Engineering Sections. The information provided is in answer to the Geologic and Soils Engineering Review Sheet dated January 6, 2015. Comments designated with a "G" indicate comments by the Geologic Section; comments designated by "S" constitute Soils Engineering Section comments. The GMED comments on the review sheet are shown below in bold type. Our response follows each comment in regular type. A copy of the GMED Review Sheet is included at the end of this response report.

GMED REVIEW SHEET

G1. The natural slopes ascending south of lots 47-50 appear to be steeper than 2:1 gradient. Therefore, provide a geologic cross-section and static, seismic, and surficial slope stability analyses for the slopes. If grading is required to mitigate a potential

hazard, then the required grading must be depicted on the Tentative Map. If catchment areas are required, the volume of debris required for containment must be determined, and the containment area must be shown on the Tentative Map. Recommend mitigation if factors of safety are below the County's minimum standards.

R. T. Frankian & Associates (RTF&A) has prepared Sections G-G′ and H-H′, presented as Figure 2, for the purpose of analyzing static, seismic, and surficial stability of the ascending slope located south of Lot Nos. 47 through 50. Section G-G′ extends through the highest portion of the natural slope; Section H-H′ reflects the steepest portion of the slope. The locations of the two section lines are shown on the Geotechnical Map, Figure 1.1 and 1.2.

Bedding beneath the slope strikes west-northwest and dips 60 degrees (or greater) towards the north. This bedding orientation is favorable with respect to translation failure along a bedding surface. Accordingly, the natural slope was analyzed for potential circular failures rather than bedding plane failures. The analyses utilized shear strength parameters for Pico Formation cross bedding as previously presented in RTF&A's March 27, 2014 report (RTF&A, 2014a), with a cohesion of 500 pounds per square foot (psf) and an angle of shearing resistance of 37 degrees. The slope stability calculations meet Los Angeles County requirements of 1.5 for static conditions and 1.1 for seismic slope stability conditions, as indicated on the attached Geotechnical Sections presented in Figure 2. The static and seismic slope stability calculations are presented in the Appendix.

Surficial slope stability calculations for a 35-degree slope gradient with a 4-foot saturation depth using the Pico Formation cross bedding strengths meet the county factor of safety requirements for surficial stability. The surfical slope stability calculations are also presented in the Appendix.

RTF&A and Alliance Land Planning & Engineering, Inc., (Alliance) met with GMED personnel on January 26, 2015 to discuss the current design relative to control and containment of debris emanating from the natural slope south of Lot Nos. 47 through 50. As indicated on the October 28, 2014 Tentative Map, a debris channel will be constructed below (and south of) Lot Nos. 47 through 50. The channel will consist of a debris carrying concrete swale designed with self-cleaning velocity. As indicated on Detail A-A′ of the Alliance Tentative Map, the channel will measure 15 feet wide at the top and 2 feet wide at the bottom, with the slope at 2:1 (horizontal:vertical). The intent of the debris channel is not only to contain potential debris emanating from the ascending natural slope above the four lots, but also to carry the debris to the debris basin located in Wickham Canyon, south of the Emergency Vehicle Access Road. Construction of the proposed debris carrying concrete swale eliminates the hazard of debris flow to Lots 47 to 50.

S1. Show the following on the revised geotechnical map:

a. Existing and proposed grades
b. Approximate limits and depth of removal and recompaction of unsuitable soils.
c. All recommended mitigation measures, as necessary

The requested information is included on the attached Geotechnical Map (Figures 1.1 and 1.2). Addition of the requested information to the Tentative plan is referred to Alliance.

NOTE: Provide a copy of this review sheet with your response.

The Geologic and Soils Engineering Review Sheet is included at the end of this report.

The following are attached and complete this report.

- GMED Geologic and Soils Engineering Review Sheet dated January 6, 2015
- Geotechnical Map – Figures 1.1 and 1.2
- Geotechnical Sections – Figure 2
- Appendix – Slope Stability Calculations (5 pages)

PROFESSIONAL GEOLOGIST NO. 3749
TIMOTHY P. LATIOLAIT
#1140
CERTIFIED
ENGINEERING
GEOLOGIST
Expires: 12-31-15
STATE OF CALIFORNIA

Respectfully submitted,

R. T. FRANKIAN & ASSOCIATES

REGISTERED PROFESSIONAL ENGINEER
ALAN W. RASPLICKA
No. GE 2558
Exp. 6/30/15
GEOTECHNICAL
STATE OF CALIFORNIA

by: Timothy P. Latiolait
Principal Engineering Geologist

and: Alan W. Rasplicka
Principal Geotechnical Engineer

TPL/AWR/eaw

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– Lennar Homes, Attn: Ms. Denise Williams
– Alliance Land Planning & Engineering, Inc., Attn: Mr. Craig Whitteker and Ms. Erin Stanley
– Los Angeles County GMED, Attn: Mr. Jeremy Wan and Mr. Geir Mathisen

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

REFERENCES

Frankian, R. T. & Associates, 2014a, "100-Scale Plan Review, Vesting Tentative Tract Map No. 52796, Los Angeles County, California," for Lennar Homes, dated March 27, 2014, Job No. 2013-014-021.

Frankian, R. T. & Associates, 2014b, "Response to County of Los Angeles Review Sheets, Vesting Tentative Tract Map No. 52796, Aidlin Hills, Los Angeles County, California," for Lennar Homes, dated July 24, 2014, Job No. 2013-014-022.

Frankian, R. T. & Associates, 2014c, "Response to County of Los Angeles Review Sheet, Vesting Tentative Tract Map No. 52796, Aidlin Hills, Los Angeles County, California," for Lennar Homes, dated November 12, 2014, Job No. 2013-014-022.

PCA GMPH
Telephone: (626) 458-4925

County of Los Angeles Department of Public Works
Geotechnical and Materials Engineering Division
GEOLOGIC AND SOILS ENGINEERING REVIEW SHEET
900 S. Fremont Avenue, Alhambra, CA 91803

Tentative Tract / Parcel Map	52796	**Tentative Map Dated**	10/28/14 (Rev.)	**Parent Tract**	
Grading By Subdivider? [Y] (Y or N)	1,600,000 yd^3	**Location**	Stevenson Ranch	**APN**	
Geologist	R. T. Frankian & Associates	**Subdivider**	Lennar Homes, Inc.		
Soils Engineer	R. T. Frankian & Associates	**Engineer/Arch.**	Alliance		

Review of:
Geologic Report(s) Dated:
Soils Engineering Report(s) Dated:
Geotechnical Report(s) Dated: **11/12/14**, 6/24/14, 6/6/14, 4/2/14, 3/27/14
References: The J. Byer Group: 3/29/01, 6/5/00

TENTATIVE MAP FEASIBILITY IS NOT RECOMMENDED FOR APPROVAL. PRIOR TO RECOMMENDING APPROVAL OF THE TENTATIVE TRACT OR PARCEL MAP:

G1. The natural slopes ascending south of lots 47-50 appear to be steeper than 2:1 gradient. Therefore, provide a geologic cross-section and static, seismic, and surficial slope stability analyses for the slopes. If grading is required to mitigate a potential hazard, then the required grading must be depicted on the Tentative Map. If catchment areas are required, the volume of debris required for containment must be determined, and the containment area must be shown on the Tentative Map. Recommend mitigation if factors of safety are below the County's minimum standards.

S1. Show the following on the revised geotechnical map:
   a. Existing and proposed grades.
   b. Approximate limits and depth of removal and recompaction of unsuitable soils.
   c. All recommended mitigation measures, as necessary.

NOTE: Provide a copy of this review sheet with your resubmittal.

NOTE TO THE PLAN CHECKER/BUILDING AND SAFETY DISTRICT ENGINEER:
A. ON-SITE SOILS ARE CORROSIVE TO FERROUS METALS AND CONCRETE.
B. ON-SITE SOILS HAVE A MEDIUM EXPANSION POTENTIAL.

Prepared by

REGISTERED PROFESSIONAL ENGINEER
JEREMY CHUN YIN WAN
No. GE 2849
GEOTECHNICAL
STATE OF CALIFORNIA

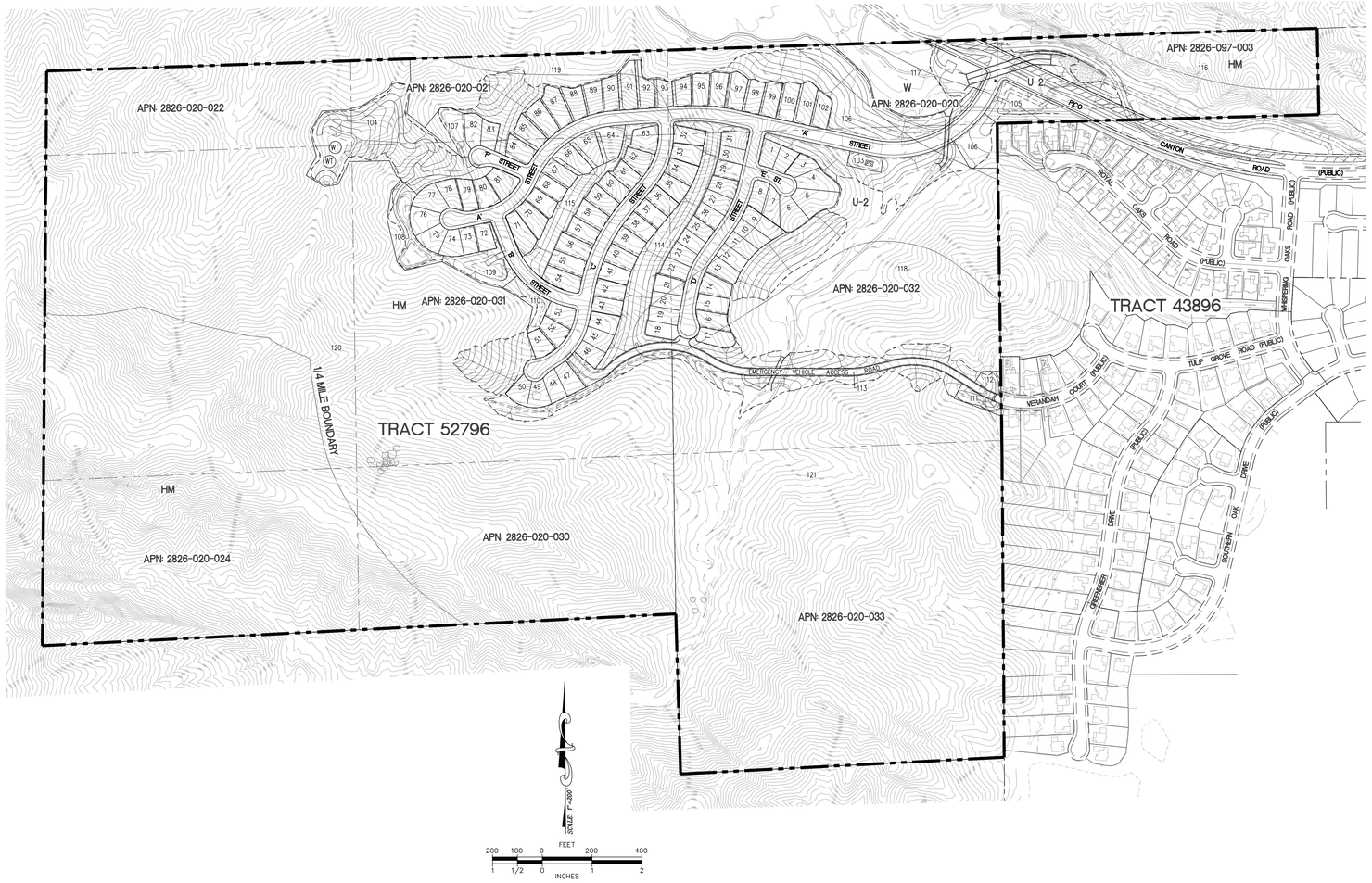
Jeremy Wan
Soils Section

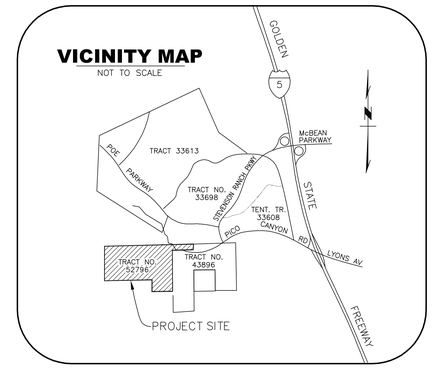
PROFESSIONAL GEOLOGIST
Geir R. Mathisen
No. 2376
CERTIFIED ENGINEERING GEOLOGIST
STATE OF CALIFORNIA

Geir Mathisen
Geology Section

Date 1/6/15

Please complete a Customer Service Survey at http://dpw.lacounty.gov/go/gmedsurvey
NOTICE: Public safety, relative to geotechnical subsurface exploration, shall be provided in accordance with current codes for excavations, inclusive of the Los Angeles County Code, Chapter 11.48, and the State of California, Title 8, Construction Safety Orders.
P:\gmepub\Development Review\!Combined Reviews\Tracts and Parcels\TR 052796, Stevenson Ranch, TTM-NA_13.docx
RTF&A JOB NO. 2013-014-022 RESPONSE DATED 2-2-2015





GENERAL NOTES

1. GRADE ELEVATIONS SHOWN ON THIS VTTM ARE APPROXIMATE. THE ELEVATIONS MAY CHANGE BY 3 FEET. ELEVATION CHANGES MAY BE GREATER THAN 3 FEET BUT ONLY IF DETERMINED BY DPW AND DRP THAT THE REVISIONS ARE CONSISTENT WITH THE INTENT OF THE SUBDIVISION MAP APPROVAL.
2. LOT LINES CAN BE ADJUSTED TO THE SATISFACTION OF DRP PROVIDED NO ADDITIONAL DEVELOPMENT LOTS ARE CREATED. THE DEGREE OF ADJUSTMENT SHALL BE CONSISTENT WITH THE INTENT OF THE SUBDIVISION MAP ACT.
3. ALIGNMENT AND GEOMETRICS OF STREETS AND TRAILS ARE APPROXIMATE. ADJUSTMENTS TO TRAILS CAN BE MADE WITH APPROVAL BY DRP AND THE PARKS AND RECREATION DEPARTMENT.
4. PERMISSION IS REQUESTED FOR UNIT PHASING.
5. PERMISSION IS REQUESTED TO COMBINE LOTS.
6. PERMISSION IS REQUESTED TO RECORD ADDITIONAL OPEN SPACE LOTS.
7. PERMISSION IS REQUESTED TO RECORD ADDITIONAL UTILITY LOTS AND PROVIDE MAINTENANCE EASEMENTS TO THE SATISFACTION OF THE DPW AND DRP.
8. PERMISSION IS REQUESTED TO MASS GRADE.
9. PROPOSED STREET GRADING IS APPROXIMATE ONLY AND SUBJECT TO ADJUSTMENTS PENDING DETERMINATION OF FINAL DEVELOPMENT LAYOUT AND PLANS.
10. PERMISSION IS REQUESTED TO PROVIDE RIGHT OF WAY RETURN RADII OF 15 FT. AT ALL LOCAL STREET INTERSECTIONS AND 27 FT WHERE ALL PLANNED HIGHWAYS INTERSECT OR WHERE ONE OF THE ROADS SERVES A COMMERCIAL OR INDUSTRIAL DEVELOPMENT.
11. ALL DIMENSIONS SHOWN ARE APPROXIMATE.
12. TOPO COMPILED FROM DATA FLOWN DECEMBER, 2013.
13. ADDITIONAL RIGHT OF WAY MAY BE DEDICATED AS REQUIRED TO THE SATISFACTION OF PUBLIC WORKS.
14. HOMEOWNERS ASSOCIATION TO BE ESTABLISHED TO MAINTAIN COMMON AREA OPEN SPACE.
15. TOTAL STREET FRONTAGE (A–F STREETS) IS 11,100 LF.

UTILITIES & SERVICES:

SEWER — L.A. COUNTY SANITARY DISTRICT #32
WATER — VALENCIA WATER COMPANY
GAS — SO. CALIFORNIA GAS CO.
ELECTRICAL — SO. CALIFORNIA EDISON CO.
TELEPHONE — AT&T
SCHOOLS — NEWHALL ELEMENTARY SCHOOL DISTRICT
HART HIGH SCHOOL DISTRICT
FIRE — L.A. COUNTY FIRE DEPARTMENT
POLICE — L.A. COUNTY SHERIFF
T.V. — STEVENSON RANCH CABLE

RECORD OWNER

ADLIN GENERAL TRUST
TRACY WOODFORD, TRUSTEE
5143 SUNSET BLVD.
LOS ANGELES, CA 90027–5715
323–666–1910
JA51438@ACBELL.NET

APPLICANT

LENNAR COMMUNITIES
980 MONTECITO DRIVE, SUITE 302
CORONA, CA 92879
(951)817–3542

ENGINEER:

ALLIANCE LAND PLANNING & ENGINEERING
2248 FARADAY AVENUE
CARLSBAD, CAO 92008
PHONE (760) 431–9896 FAX (760) 431–8802

LEGAL DESCRIPTION:

LOTS 1, 2, 3, 4, 5 AND A PORTION OF LOT 6, AND PORTIONS OF THE NORTHEAST QUARTER, SOUTHEAST QUARTER, NORTHWEST QUARTER AND SOUTHWEST QUARTER, ALL IN SECTION 6, TOWNSHIP 3 NORTH, RANGE 16 WEST, SAN BERNARDINO MERIDAN, ACCORDING TO THE OFFICIAL PLAT OF SAID LAND, IN THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA.

SPECIAL NOTES

1. WATER QUALITY BASINS WILL PROVIDE FOR TREATMENT OF STORM WATER RUNOFF PER THE APPROVED DRAINAGE CONCEPT.

PROJECT SUMMARY:

GROSS AREA: 230.5 Acres
NET AREA= 228.8 Acres
(GROSS AREA–PICO CANYON ROAD AREA)
TOTAL LOTS: 121
TOTAL RESIDENTIAL D.U.: 102 DU
TOTAL OFFICE/COMMERCIAL: NONE

EXISTING ZONING: A–2–2
PROPOSED ZONING: A–2–2
EXISTING LAND USE: U–2, HM, W
PROPOSED LAND USE: U–2, HM, W
APN: 2826–020–020, 021, 022, 023, 024
2826–020–030, 031, 032, 033
2826–097–003

T.G. PAGE 4640, GRIDS A–1, A–2, B–1, B–2

ESTIMATED EARTHWORK: 1,300,000 CY CUT
1,300,000 CY FILL
OVEREXCAVATION: 300,000 CY

OAK TREES TO BE REMOVED: 1 TREE
OAK TREES TO BE ENCROACHED: 0 TREE
OAK TREES TO REMAIN: 14 TREES
TOTAL OAK TREES: 15

RELATED ENTITLEMENTS

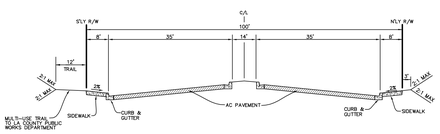
CONDITIONAL USE PERMIT NO. 00–136
OAK TREE PERMIT NO. 00–136

LOT SUMMARY

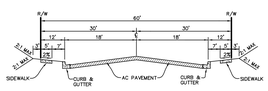
LOT NUMBERS	NO. OF LOTS	TYPE	TOTAL ACREAGE
1–102	102	SINGLE FAMILY	20.7 AC
103–104	2	WATER TANK/ PUMP STATION	3.9 AC
105–112	8	WQT BASINS	4.3 AC
113	1	FIRE ACCESS ROAD	1.4 AC
114–121	8	OPEN SPACE (LANDSCAPE & NATURAL)	190.6 AC
PUBLIC STREETS	N/A	N/A	9.6 AC
TOTAL	121		230.5 AC

LEGEND:

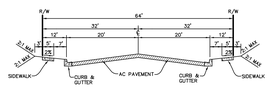
1 / PAD / 1510 / 6,500 sf — LOT NO. / PAD ELEVATION / LOT AREA (SQUARE FEET)
PROJECT BOUNDARY
PROPOSED RIGHT OF WAY
PROPOSED EASEMENT
EXISTING EASEMENT
1000 — PROPOSED CONTOUR
24W — PROPOSED DAYLIGHT LINE
D — PROPOSED STORM DRAIN
SS — PROPOSED SANITARY SEWER
W — PROPOSED WATER
D — PROPOSED STORM DRAIN INLET/OUTLET (TO BE MAINTAINED BY LACFCD)
PROPOSED CATCH BASIN
SD — EXISTING STORM DRAIN LINE
S — EXISTING SEWER LINE
W — EXISTING WATER LINE
O — EXISTING OIL LINE
G — EXISTING GAS LINE
OE — EXISTING OVERHEAD POWER LINE
EXISTING POWER POLE
PROPOSED RETAINING WALL
6' HIGH MAX. RETAINING WALL
SEA — SEA LINE
FP — FEMA FLOODPLAIN
CDFG — CDFG LIMIT LINE
ACOE — ACOE LIMIT LINE
SLOPE PROTECTION (TRM) TURF REINFORCEMENT MAT
OAK NO. XX (TRE) — OAK TREE (TO BE ENCROACHED)
OAK NO. XX (TRM) — OAK TREE (TO BE REMOVED)
OAK NO. XX (TR) — OAK TREE (TO REMAIN)



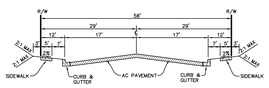
PICO CANYON ROAD (R/W= 100') PUBLIC
NO SCALE



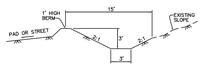
RESIDENTIAL CUL-DE-SAC STREET (R/W= 60') PUBLIC
'B', 'C' & 'D' STREET
NOT TO SCALE



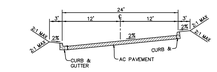
RESIDENTIAL COLLECTOR STREET (R/W= 64') PUBLIC
'A' STREET
NOT TO SCALE



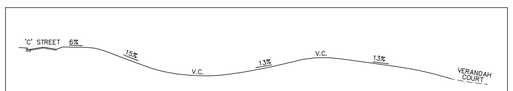
RESIDENTIAL CUL-DE-SAC STREET (R/W= 58') PUBLIC
'E' & 'F' STREET
NOT TO SCALE



DEBRIS ZONE AT TOE OF EXISTING SLOPES DETAIL
NOT TO SCALE



EMERGENCY VEHICLE ACCESS ROAD (PVT)
NOT TO SCALE



EVA ACCESS ROAD PROFILE
NOT TO SCALE

BENCHMARK

R.D.B.M. TAG IN S CB 8.2M W/O BCR @ SW CORN. LYONS AVE. & WILEY CANYON RD. 30.5M W/O & 12.2M S/O C/L INT (NR W END CB)

NEWHALL 1995 ELEV.= 1265.296

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

ALLIANCE LAND PLANNING & ENGINEERING INC.
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27451 TOURNEY ROAD
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VALENCIA, CA 91355
TEL: (661) 799-2760
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PREPARED FOR:
LENNAR HOMES
980 MONTECITO DRIVE, SUITE 302
CORONA, CA 92879
(951)817-3542
REPRESENTATIVE: CHERRYL THOMPSON

PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 — 11/10/14 DATE

REGISTERED PROFESSIONAL ENGINEER — CRAIG M. WHITTEKER — NO. 51929 EXP. 6-30-15 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR

SHEET 1 — COUNTY OF LOS ANGELES — 2 SHEETS

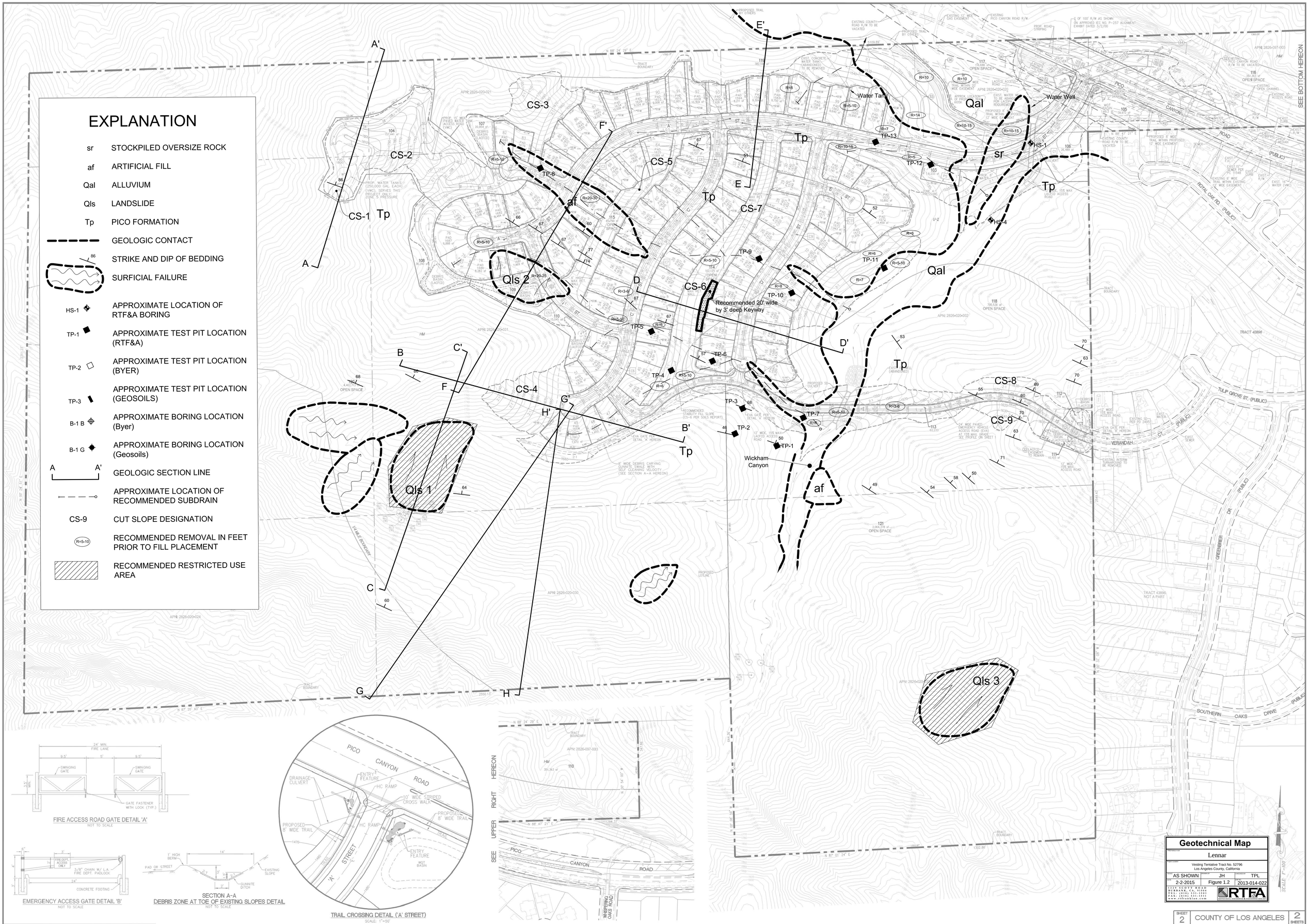
MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP
NO. 52796

LOCATED IN THE UNINCORPORATED AREA OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

I:\CAD\1352\TENTATIVE MAP\1352_TENTATIVE-MAP_SHEET-01.dwg

EXPLANATION

sr	STOCKPILED OVERSIZE ROCK
af	ARTIFICIAL FILL
Qal	ALLUVIUM
Qls	LANDSLIDE
Tp	PICO FORMATION
	GEOLOGIC CONTACT
86	STRIKE AND DIP OF BEDDING
	SURFICIAL FAILURE
HS-1	APPROXIMATE LOCATION OF RTF&A BORING
TP-1	APPROXIMATE TEST PIT LOCATION (RTF&A)
TP-2	APPROXIMATE TEST PIT LOCATION (BYER)
TP-3	APPROXIMATE TEST PIT LOCATION (GEOSOILS)
B-1 B	APPROXIMATE BORING LOCATION (Byer)
B-1 G	APPROXIMATE BORING LOCATION (Geosoils)
A A'	GEOLOGIC SECTION LINE
	APPROXIMATE LOCATION OF RECOMMENDED SUBDRAIN
CS-9	CUT SLOPE DESIGNATION
R=5-10	RECOMMENDED REMOVAL IN FEET PRIOR TO FILL PLACEMENT
	RECOMMENDED RESTRICTED USE AREA



Geotechnical Map

Lennar

Vesting Tentative Tract No. 52796
Los Angeles County, California

AS SHOWN	JH	TPL
2-2-2015	Figure 1.2	2013-014-022

1123 SCOTT ROAD
BURBANK, CA 91504
PH: (818) 841-1471
FAX: (818) 841-1561
www.rtfanation.com

RTFA ROBERT TAYLOR & ASSOCIATES

SCALE: 1"=400'

ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
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FAX: (760) 431-8802
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REPRESENTATIVE: CHERRYL THOMPSON

PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
2248 FARADAY AVE.
CARLSBAD, CA 92008
(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER — 2/4/15
CRAIG M. WHITTEKER R.C.E. 51929 DATE

REGISTERED PROFESSIONAL ENGINEER — CRAIG M. WHITTEKER — NO. 51929 — EXP. 6-30-16 — CIVIL — STATE OF CALIFORNIA

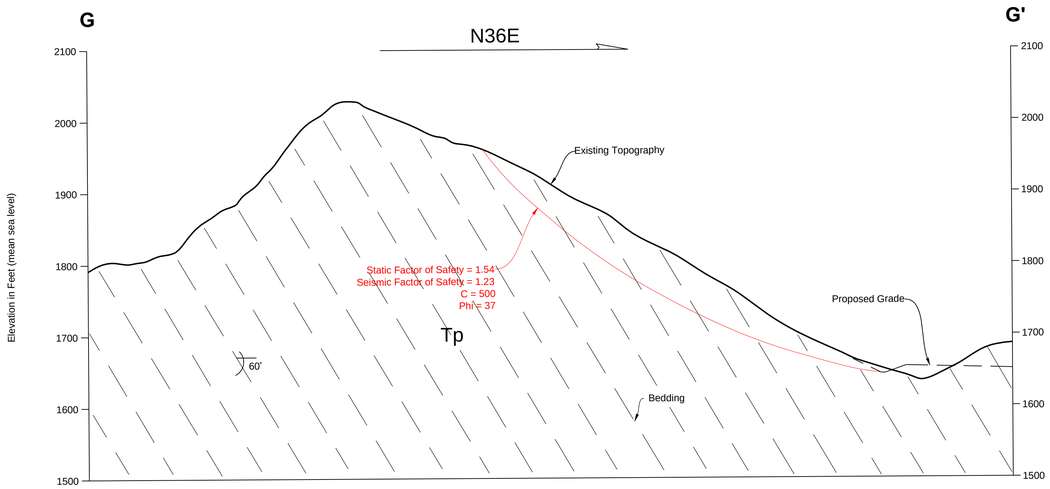
NO.	DATE	REVISIONS	BY	APPR

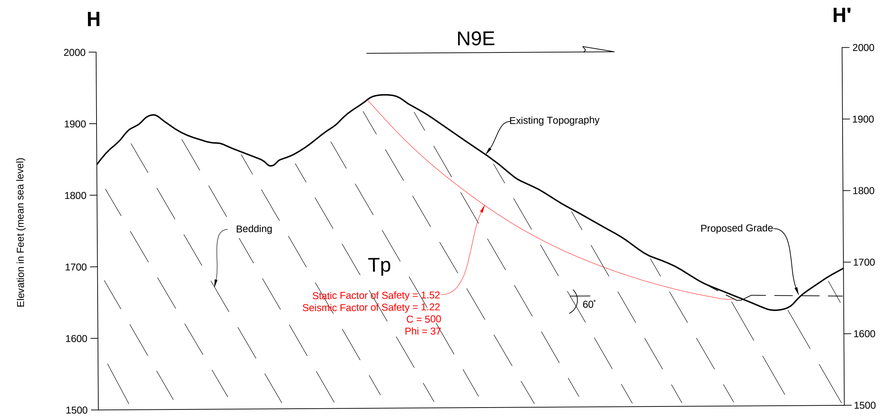
SHEET 2 — COUNTY OF LOS ANGELES — 2 SHEETS

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP
NO. 52796

LOCATED IN THE UNINCORPORATED AREA OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

I:\CAD\1352\TENTATIVE MAP\1352_TENTATIVE-MAP_SHEET-02.dwg





Geotechnical Sections

PREPARED FOR

Lennar Homes

Project Location

Vesting Tentative Tract No. 52796
Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
AS SHOWN	JH	TPL
DATE		JOB NO.
2-2-2015	Figure 2	2013-014-022

1329 SCOTT ROAD
BURBANK, CA, 91504
TEL: (818) 531-1501
FAX: (818) 531-1511
www.rtfrankian.com

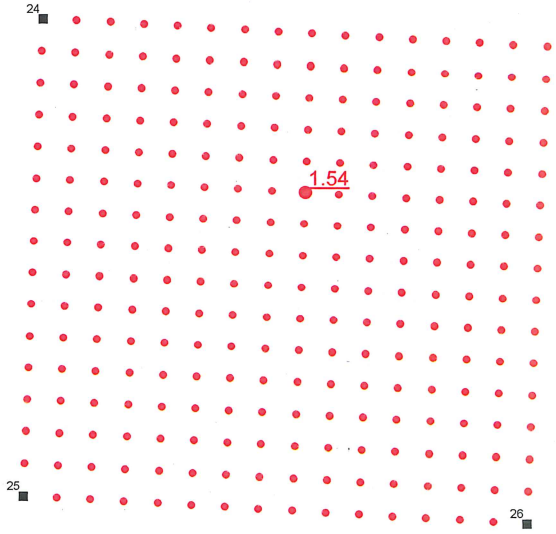
RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

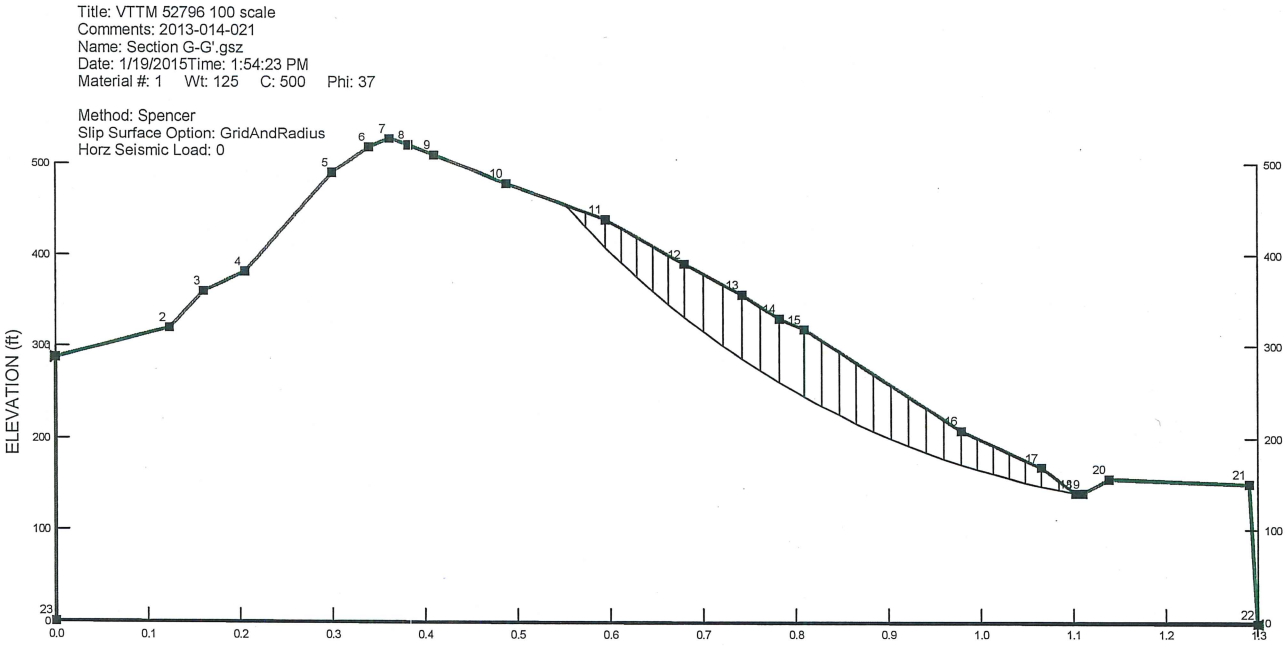
Lennar Homes
February 2, 2015
2013-014-022

APPENDIX

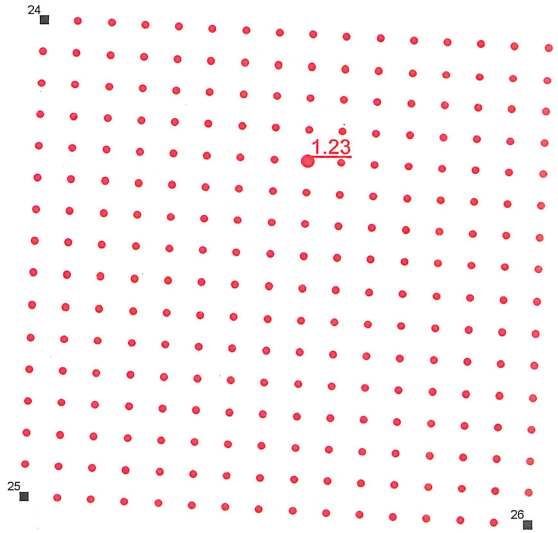
SLOPE STABILITY CALCULATIONS

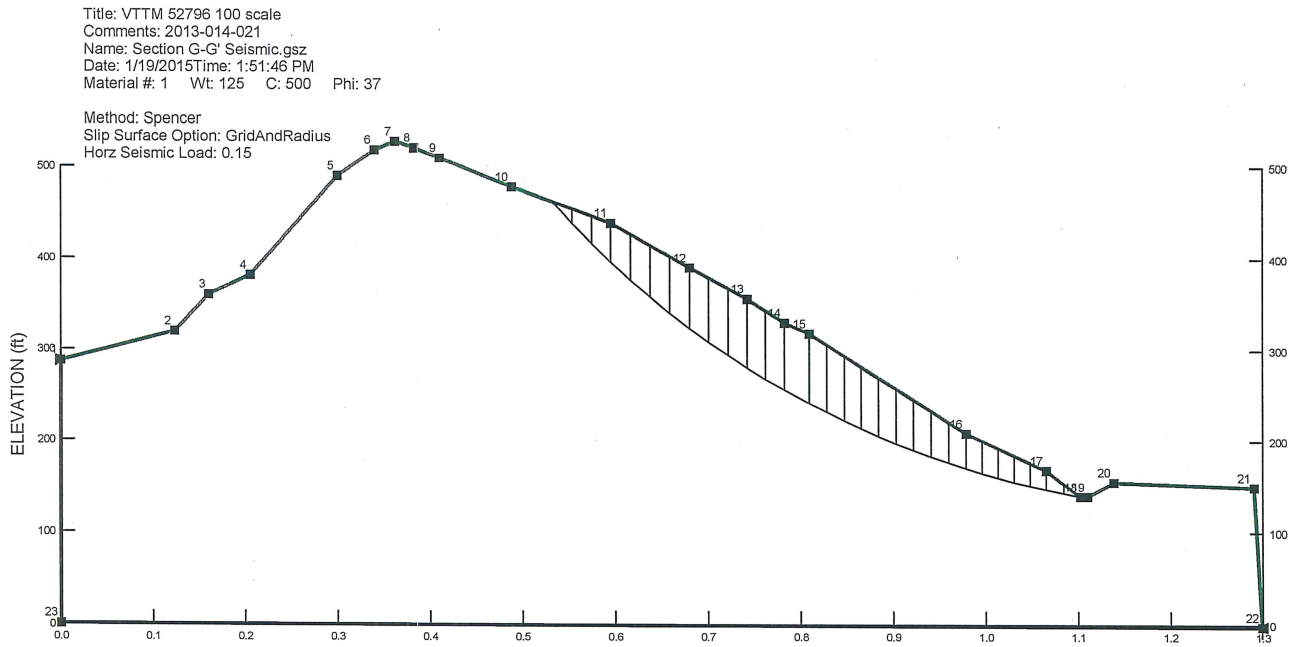
RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY





RTF&A JOB NO. 2013-014-022 RESPONSE DATED 2-2-2015





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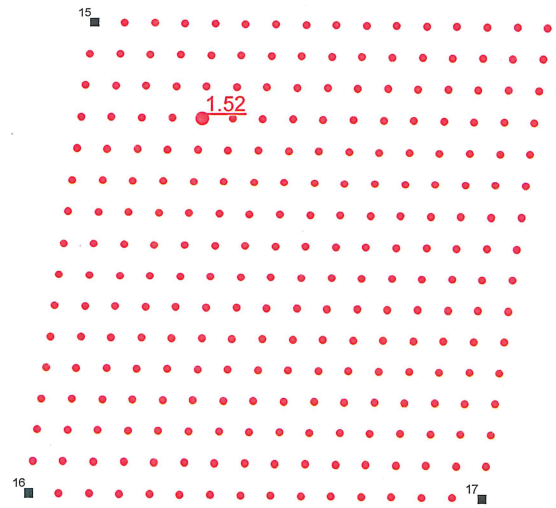

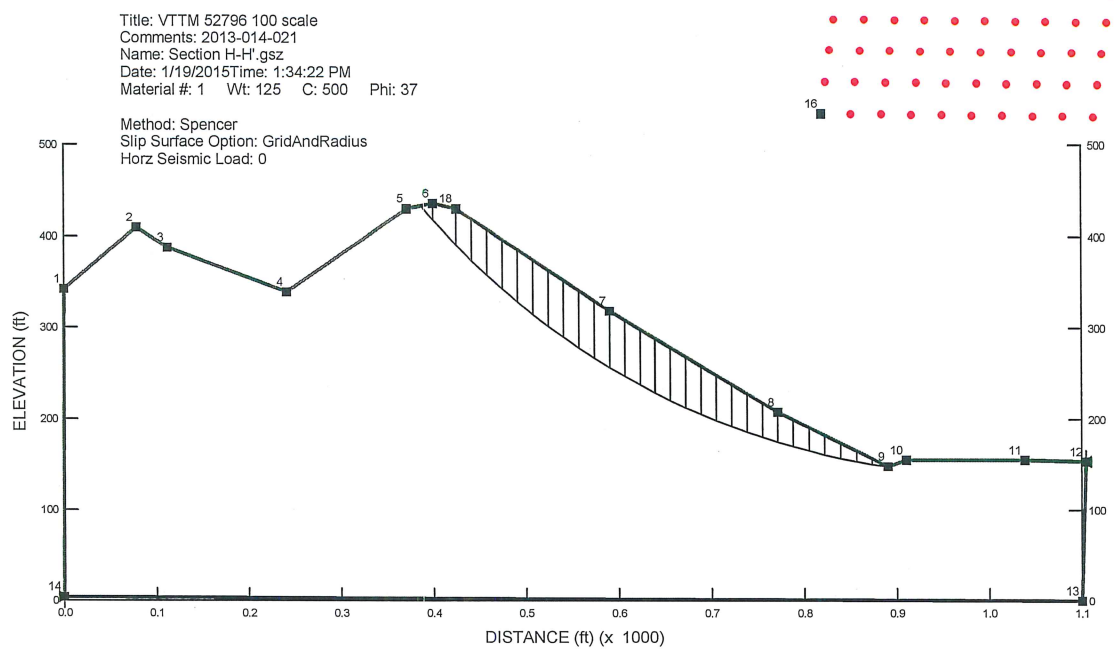

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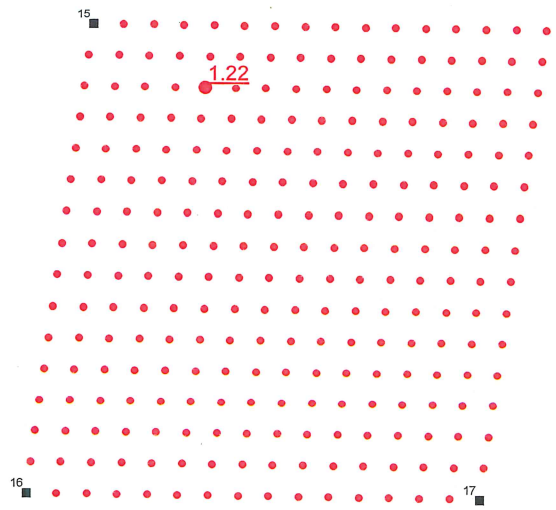
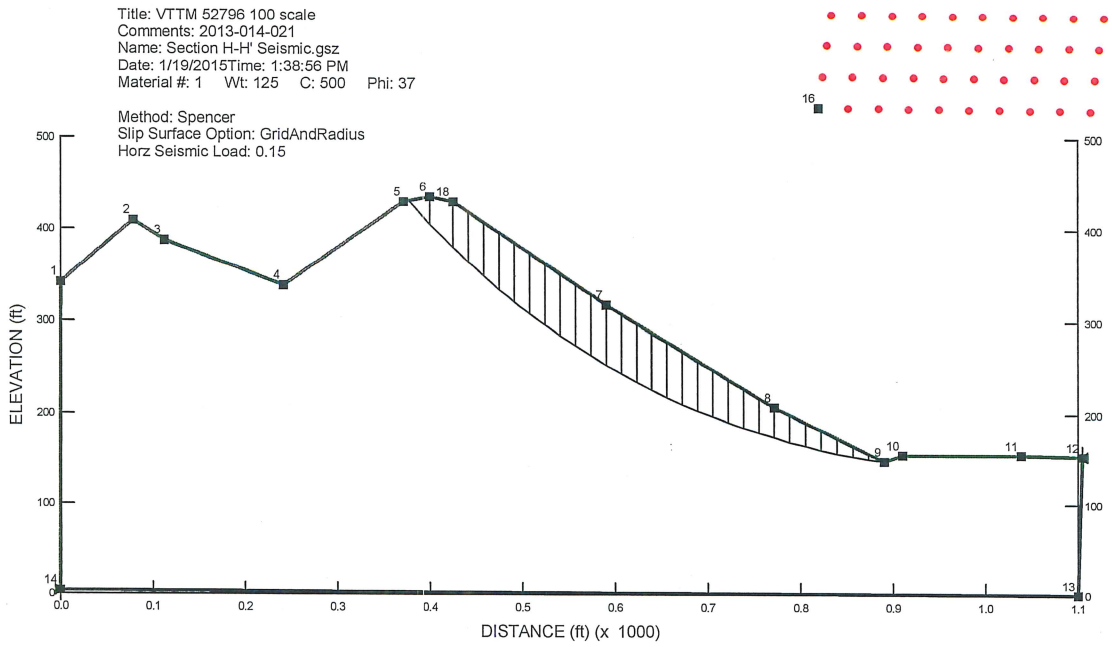
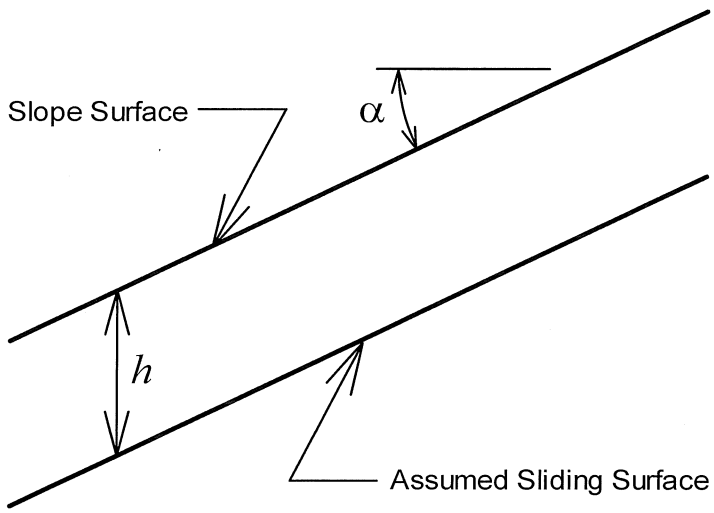




RTF&A JOB NO. 2013-014-022 RESPONSE DATED 2-2-2015

Client: Lennar
Job No.: 2013-014-021
Job Name:
By: AWR
Date: 01/26/15 Time: 08:02:50

Subject: Surficial Slope Stability



$$f.s. = \frac{C + h\left(\gamma_t - \gamma_w\right)\left(\cos^2\alpha\right)\left(\tan\phi\right)}{\gamma_t h\left(\sin\alpha\right)\left(\cos\alpha\right)}$$

$\alpha =$	35 degrees	0.611 radians	$\gamma =$	125 pcf (total)
$C =$	500 psf		$\gamma =$	62.4 pcf (water)
$\phi =$	37.0 degrees	0.646 radians		

	Depth of Saturation h (feet)	Factor of Safety $f.s.$	
	1	9.05	
	2	4.80	
	3	3.38	
>>>>>>	4	2.67	<<<<<<
	5	2.24	

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

March 27, 2014

Lennar Homes
980 Montecito Drive, Suite
Corona, California 92879

Job No. 2013-014-021

Attention: Ms. Cherryl Thompson

Subject: 100-Scale Plan Review
Vesting Tentative Tract Map No. 52796
Los Angeles County, California

References: See attached References

R. T. Frankian and Associates (RTF&A) are pleased to present this 100-scale plan review for Vesting Tentative Tract Map No. 52796 (VTTM 52796), Los Angeles County, California. The tentative tract map was prepared by Alliance Land Planning & Engineering, Inc. (Alliance) with a signature date of January 28, 2014. This map was used as a base for our Geotechnical Map, attached as Figure 1. The purpose of this report is to evaluate the proposed development of VTTM 52796 and provide geotechnical recommendations as required. Previous geotechnical studies conducted on the site were performed by GeoSoils, Inc. (GeoSoils) in 1989 and 1997 and The J. Byer Group, Inc. (J. Byer) in 2000. Data from these reports was reviewed and evaluated in preparation of this report.

The findings, conclusions, and recommendations presented in this report are based on data developed by RTF&A, GeoSoils, and J. Byer, as well as appropriate engineering and geologic analyses. The assessment of general site environmental conditions for the presence of contaminants in the soils and groundwater was beyond the scope of this investigation.

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Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical engineers and geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared for Lennar Homes and their design consultants, to be used solely for planning and design of VTTM 52796, and for CEQA compliance purposes.

SITE DESCRIPTION

VTTM 52796 consists of approximately 230 acres of hillside terrain located along the south side of Pico Canyon, within Los Angeles County, California. Topography at the site is characterized by a series of steep to moderately steep northwest-southeast trending ridges. These ridges descend towards intervening northwest-southeast trending drainage courses that flow towards the centrally located Wickham Canyon. Wickham Canyon, a northerly-draining tributary of Pico Canyon, essentially bisects the site. Elevations across the site range from approximately 1,470 feet above mean sea level, near the confluence of Wickham and Pico Canyons, to 2,000 feet in the southwest corner of the site. The natural slopes on-site exhibit gradients ranging from approximately 1½:1 to 3:1 (horizontal:vertical).

Development of VTTM 52796 will encompass approximately 120 of the 230 acres and will consist of cut and fill grading to create 102 single-family lots. The 102 lots will all be located west of Wickham Canyon. Included in the development will be realignment and widening of Pico Canyon Road, two water quality basins, and a private driveway/fire lane extending westerly from Tract No. 43896. Cut slopes are proposed at gradients of 2:1, with the maximum cut slope height approaching 120 feet. The maximum fill depth is approximately 70 feet.

SUBSURFACE EXPLORATIONS

Subsurface data was available for the site and adjacent areas from prior investigations conducted by GeoSoils (1989 and 1997) and J. Byer (2000). This data was supplemented by the excavation of an additional 13 exploratory test pits excavated by RTF&A in February, 2014. The logs of the RTF&A test pits are presented in Appendix A. Pertinent exploratory test pits and borings from J. Byer and GeoSoils are presented in Appendix B and Appendix C, respectively. Geologic structural data obtained from the various test pits and borings, as well as from reconnaissance geologic mapping of the site, is presented on the Geotechnical Map, Figure 1.

LABORATORY ANALYSES

We performed laboratory tests on selected samples obtained from the test pits to aid in the classification of the soils, and to determine the pertinent engineering properties of the foundation soils. The results of the tests are presented in Appendix D. The following tests were performed:

- consolidation tests;
- direct shear tests;
- maximum dry density tests;
- plasticity index; and
- expansion tests.

Corrosion testing on samples representative of the on-site soils at the site was previously performed by Environmental Geotechnology Laboratory (J. Byers, 2000). The results are presented in Appendix F. It is recommended that additional samples be obtained for corrosion testing at the completion of rough grading operations and that a corrosion expert be contacted for specific corrosion protection measures for the planned site improvements.

GEOLOGY

REGIONAL GEOLOGY

VTTM 52796 is located in the eastern Ventura basin, within the Transverse Ranges geomorphic province of California, along the northerly flank of the Santa Susana Mountains. The Ventura basin consists of a narrow, elongate sedimentary trough extending from the Santa Barbara Channel on the west, to the San Gabriel fault on the east. The axis of the trough trends east-west, reflecting the overall east-west trend of the Transverse Ranges, and generally coincides with the Santa Clara River Valley and the Santa Barbara Channel. The Ventura basin has been an area of subsidence and sediment accumulation since the beginning of the Tertiary period, with the present trough-like form developing near the beginning of the Miocene epoch (Winterer and Durham, 1962).

The structure of the basin is defined as a highly folded "synclinorium" formed by north-south compressional forces (Kew, 1924) and containing a maximum 50,000± feet of marine and nonmarine Tertiary through Quaternary age sediments (Bailey and Jahns, 1954). Two main periods of general deformation of the Ventura basin are indicated by the regional geologic structure: one in middle to late Miocene (represented by deposition of the Modelo Formation), and the other during the Pleistocene epoch, after deposition of the Plio-Pleistocene Saugus Formation (Kew, 1924; Winterer and Durham, 1962; Yeats et al., 1994). The flanks of the Ventura basin synclinorium are broken by a series of large reverse/thrust faults including the Santa Susana and Oak Ridge faults on the southern flank, and the Red Mountain and San Cayetano faults on the northern flank (Bailey and Jahns, 1954; Yeats et al., 1994). The San Gabriel fault, the dominant geologic feature in the Santa Clarita Valley, forms the eastern Ventura basin boundary, and separates the Ventura basin from the structurally similar Soledad basin.

Sedimentary rock units comprising the eastern Ventura basin include approximately 2,000 feet of undifferentiated middle to late Eocene age rocks, 1,000± feet of the middle Miocene age Topanga Formation, 5,000± feet of the late Miocene age Modelo Formation,

4,000± feet of the late Miocene to early Pliocene age Towsley Formation, 5,000± feet of the Pliocene age Pico Formation, and 7,000± feet of the Plio-Pleistocene Saugus Formation (Winterer and Durham, 1962). The undifferentiated Eocene units and the Topanga, Modelo, Towsley, and Pico Formations are composed of marine sediments; the Saugus Formation is composed of interfingering shallow-water marine, brackish water, and nonmarine units (Kew, 1924; Winterer and Durham, 1962). These Tertiary period rock units rest unconformably on pre-Cretaceous age metamorphic and igneous basement rocks of the San Gabriel Mountains.

SITE GEOLOGY

General: Geologic conditions within the boundaries of VTTM 52796 have been previously evaluated by GeoSoils (1989 and 1997) and J. Byer (2000). Additional geologic data was collected by RTF&A in February, 2014.

Geologic Units: The geologic units within VTTM 52796 consist of bedrock of the Pico Formation, landslides, slope wash deposits, alluvium, and man-made fill. The geologic units identified within VTTM 52796 are shown on the Geotechnical Map (Figure 1). A description of each unit is presented as follows:

Pico Formation (Tp): Marine sedimentary rock units of the Pliocene age Pico Formation (map unit "Tp") underlie VTTM 52796. These units are comprised of interbedded sandstone, conglomerate, and siltstone. Bed thickness ranges from massive (typically greater than 3 feet thick) to thickly bedded (1 to 3 feet thick). In general, sandstone and conglomerate beds are brown to orangish brown in color, hard to very hard, weakly cemented to cemented, and moderately to slightly weathered. Siltstone beds are grayish brown to greenish gray color, slightly hard to hard, fractured, and very weathered in the upper exposed portions of the rock.

The topography onsite is largely controlled by the geologic structure and bedrock resistivity to erosion inherent in the underlying Pico Formation units (GeoSoils, 1989). The northwest-southeast trending ridges and intervening drainages essentially parallel the strike of

the beds. Slopes underlain by the more resistant sandstone and conglomerate beds tend to form the steeper slopes onsite, and are generally mantled by a thin cover of residual soil. In contrast, slopes underlain by the siltstone exhibit more moderate gradients and are mantled by thick residual soil and slope wash cover.

Landslides (Qls): Three landslides have been mapped within the VTTM 52796 boundaries. The slides consist of disturbed bedrock materials, typically derived from siltstone units. The landslides have been observed to depths of approximately 30 feet below ground surface.

Numerous surficial failures are located on the steep natural slopes on-site. These deposits generally are composed of slope wash and/or weathered rock materials that failed during periods of heavy rainfall. For the most part these deposits are less than 10 feet thick.

Alluvium (Qal): Holocene age alluvium ("Qal") is present within Pico and Wickham Canyons and generally consists of mixtures of sand, silt , gravel, cobbles and boulders. The observed depths of alluvium in exploratory borings ranged from 26 feet in Pico Canyon and 15 feet in Wickham Canyon. The alluvium is generally loose to moderately dense and uncemented.

Slope Wash Deposits (Qsw): Slope wash deposits ("Qsw") are present in drainage swales and side canyons, and along the lower elevations of the natural slopes. The slope wash generally consists of poorly consolidated deposits of sand and silt mixtures.

Man-made Deposits (af and sr): Man-made deposits, associated with past grading activities within VTTM 52796, consist of artificial fill ("af") and stockpiled oversize rocks ("sr"). Artificial fill deposits are located along portions of the Pico Canyon flood plain, and within a secondary easterly-draining tributary canyon to Wickham Canyon. For the most part the materials have been derived from the immediately adjacent bedrock materials. The fill within Pico Canyon is generally less than 5 feet deep. The fill in the area east of Wickham Canyon (beneath future Lot Nos. 56, 57, 67, 68, and 82 through 84) is estimated to be approximately 28 feet deep (J. Byer, 2000). Test pits excavated within this fill by both GeoSoils

(1989) and RTF&A encountered discolored soils that were described as having a hydrocarbon odor.

Stockpiled oversize rock is present near the junction of Pico and Wickham Canyons. This material was presumably generated during grading of adjacent Tract No. 43896.

Geologic Structure: VTTM 52796 is located along the northerly limb of the asymmetrical Pico anticline. Within the VTTM 52796 boundaries, the beds forming the northerly limb strike west-northwest and dip 45 to 85 degrees to the north.

GROUNDWATER

Groundwater within VTTM 52796 occurs in the alluvial deposits within Pico Canyon and major tributary canyons. Data from the Water Resources Division of Los Angeles County Department of Public Works (LACDPW) indicates that one water well was located within the site boundaries. This well, designated as Well No. 5802, was located within the flood plain of Pico Canyon, south of Pico Canyon Road. The water level data from this well is limited to one measurement only, obtained on April 11, 1950. The water level at that time was measured at a depth of 22 feet below existing ground surface (corresponding to water surface elevation of approximately 1472 feet below mean sea level).

Exploration completed within VTTM 52796 by GeoSoils (1989) and J. Byer (2000) indicated groundwater within Pico Canyon at depths of 14 to 19 feet below existing ground surface. Groundwater was not encountered in any of the exploratory borings excavated within Wickham Canyon.

SLOPE STABILITY

General: The vesting tentative tract map for VTTM 52796 will include grading of nine cut slopes. For the purposes of this report, a cut slope is defined as a slope 10 feet or more in height. The cut slopes are designated CS-1 through CS-9 with locations shown on Figure 1.

Proposed cut slope gradients will range from 2:1 to 5:1. The maximum cut slope height is approximately 120 feet (Cut Slope CS-2). Data specific to all of the cut slopes, including slope height, gradient, and underlying geologic conditions are summarized below.

Natural slopes within the site are underlain by bedrock of the Pliocene age Pico Formation, composed of bedded sedimentary rock units. Bedding planes within the Pico Formation are poorly to moderately well developed. The bedding can constitute planes of weakness. Where bedding is adversely oriented, or "daylighted," with respect to natural or cut slopes, potential for "block-glide" failure exists.

STABILITY ANALYSES

Slope stability analyses were performed using the program Slope/W by GEO-SLOPE International Ltd., which utilized Bishop's Simplified Method or Spencer's Method.

GEOLOGIC SECTIONS AND ASSUMED CRITICAL FAILURE SURFACE

The analyses were based on subsurface conditions as depicted on the Geologic Sections (Figure 2). The existing ground surface, proposed grading scheme, and subsurface geologic structure are shown on the geologic sections. For analyses, where the location of weak bedding planes is unknown or uncertain, one is generally assumed to be located exactly at the critical location, typically near the toe of the slope. Although groundwater was not indicated on the Geologic Sections, the analyses generally assumed a phreatic surface above the critical failure surface for bedding plane failures. The critical failure surfaces, phreatic surfaces, factors of safety, and recommended mitigation measures (i.e. buttress fills, if necessary) are added to the Geologic Sections for presentation as Geotechnical Sections in this report. The Geotechnical Sections and Slope Stability Analysis results are presented in Figure 3 and the computer printouts are presented in Appendix E.

SHEAR STRENGTH PARAMETERS

The recommended shear strength parameters are based on the results of the direct shear test results, presented in Appendix D, performed on representative samples of the earth materials encountered within our exploratory borings. In addition, we also reviewed shear strength parameters presented in the referenced J. Byers and Geosoils reports for the subject site and an R. T. Frankian & Associates (RTF&A) report for the nearby vicinity (RTF&A, 2013).

Presented below are the recommended shear strengths for use at the subject site based on laboratory test results performed by RTF&A and direct shear test results presented in the referenced reports.

MATERIAL	COHESION (psf)	ANGLE OF SHEARING RESISTANCE (degrees)
Landslide Failure Plane (MSR)	140	14
Landslide Mass	300	32
Tp Bedding Plane Siltstone (MSR)	200	21
Tp Cross Bedding Siltstone (SSR)	500	37
Alluvium	110	32
Compacted Fill (SSR)	300	28

Cut Slope CS-1: Cut Slope CS-1 will consist of a north-facing 2:1 slope that will attain a height of approximately 30 feet. The cut slope, located along the south side of a proposed water tank site, will expose sedimentary rock units of the Pico Formation in which the underlying bedding strikes northwest and dips 86 degrees to the northeast. As indicated on Geologic Section A-A' (Figure 2), the bedding dips steeper than the cut slope gradient. Therefore, Cut Slope CS-1 is considered grossly stable from a geologic standpoint.

Cut Slope CS-2: Cut Slope CS-2 will be graded as a 120 feet high, 2:1 to 5:1 northeast-, east- and southeast-facing cut slope below the water tank site. The northeast-facing segment is shown on Geologic Section A-A' (Figure 2). The proposed cut slope is underlain by Pico

Formation units. Bedding in the Pico Formation strikes northwest, dipping greater than 80 degrees to the northeast. Due to the steeply dipping bedding the cut slope is considered grossly stable, from a geologic standpoint.

Cut Slope CS-3: Cut Slope CS-3 is proposed as a southeast-facing, 2:1 slope. The slope height is approximately 95 feet. The cut slope will encounter Pico Formation units in which the underlying bedding strikes northwest and dips greater than 60 degrees toward the northeast. This bedding orientation is favorable with respect to Cut Slope CS-3, and the cut slope is considered grossly stable from a geologic standpoint.

Cut Slope CS-4: Cut Slope CS-4 will consist of a 110 feet high, east-facing 2:1 slope underlain by Pico Formation units. Bedding beneath the proposed cut slope strikes northwest and dips greater than 45 degrees to the northeast. As depicted on Geologic Section B-B' (Figure 2), the apparent bedding orientation relative to the proposed cut slope face dips steeper than the cut slope gradient. Accordingly, the cut slope is considered grossly stable, from a geologic standpoint.

Cut Slope CS-5: Cut Slope CS-5 will consist of a southeast-facing 2:1 slope that will attain a maximum height of 30 feet. The cut slope will expose Pico Formation units in which the underlying bedding strikes northwest and dips greater than 45 degrees towards the northeast. This bedding orientation is favorable with respect to Cut Slope CS-5, and the cut slope is considered grossly stable from a geologic standpoint.

Cut Slope CS-6: Cut Slope CS-6 will constitute the lower 25± feet of a 2:1 fill over cut slope proposed upslope of Lot Nos. 20 through 22. The cut slope will face east-southeast and expose Pico Formation units. Bedding in the underlying Pico Formation strikes northwest and dips greater than 55 degrees towards the northeast. As depicted on Geologic Section D-D' (Figure 2), the apparent bedding orientation relative to the proposed cut slope face is near horizontal. Accordingly, the cut slope is considered grossly stable, from a geologic standpoint. However, due to a potential adverse fill over cut condition, it is recommended that the cut

portion of the slope be removed during grading and the entire slope constructed as a stability fill slope. The keyway for stability fill should measure a minimum of 20 feet wide, and be founded at least 3 feet into competent bedrock. Backdrains should be constructed at the fill/bedrock interface. The stability fill, and backdrains, should be constructed in accordance with the recommendations presented in this report and as shown on Figure 4 – Stability Fill Details for Grossly Stable Slopes.

Cut Slope CS-7: Cut Slope CS-7 is proposed as a east- to north-facing, 2:1 slope. The east-facing portion of the slope, below Lot Nos. 32 through 35, will attain a maximum height of approximately 35 feet; the north-facing portion, along future "A" Street, will be a maximum height of approximately 15 feet (see Geologic Section E-E', Figure 2). The cut slope will encounter Pico Formation units in which the underlying bedding strikes northwest and dips greater than 50 degrees toward the northeast. Due to the steep bedding dip, bedding is favorable with respect to both the east- and north-facing portions of Cut Slope CS-7, and the cut slope is considered grossly stable from a geologic standpoint.

Cut Slope CS-8: Cut Slope CS-8 will be graded as a south-facing, 25± feet high 2:1 slope along the north side of the future fire lane/private driveway. The cut slope will be underlain by Pico Formation sedimentary rock units The underlying Pico Formation bedding strikes northwest and dips greater than 55 degrees to the northeast. This northeast dipping bedding orientation is favorable with respect to south-facing cut slope, and the cut slope is considered grossly stable from a geologic standpoint.

Cut Slope CS-9: Cut Slope CS-9 will consist of a 40± feet high, north-facing 2:1 slope proposed along the south side of the future fire lane/private driveway. The cut slope is underlain by Pico Formation units. Bedding beneath the proposed cut slope strikes northwest and dips greater than 55 degrees to the northeast. This bedding orientation is favorable with respect to Cut Slope CS-9, and the cut slope is considered grossly stable from a geologic standpoint.

Existing Natural Slopes: The steepest natural slope will be about 80 feet high with gradients of up to almost 1.25:1 horizontal:vertical (H:V) which is indicated in Geologic Section E-E'. The existing slope is located below Lot 95 and the slope height will be significantly reduced as a result of the proposed grading as shown in Geologic Section E-E' (Figure 2). The bedding orientation is favorable. Stability analyses performed for potential circular failure indicates that the proposed cut slope meets the minimum County factor of safety requirements. Slope stability calculations were also performed for a proposed natural slope illustrated in Geologic Section F-F' (Figure 2). The natural slope will be about 150 feet high at about a 2:1 H:V gradient. The slope stability results are indicated on the Geotechnical Sections E-E' and F-F' (Figure 3). The slope stability calculations are presented in Appendix E.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

Based on our review of previous geotechnical reports prepared for the project, the additional subsurface exploration performed by RTF&A, and analyses completed as part of this work, it is our opinion that VTTM 52796 may be developed as planned, provided our recommendations are incorporated in the design of the project.

GEOLOGIC CONSIDERATIONS

Faulting: No active or potentially active faults are known to exist within VTTM 52796, and the site is not located within an Alquist-Priolo Earthquake Fault Zone. In our opinion, there is little probability of surface fault rupture occurring onsite.

Landslides: Three landslides have been mapped within VTTM 52796. The landslides are designated Qls 1 through Qls 3 on the Geotechnical Map (Figure 1).

Qls 1 is located outside the grading limits of VTTM 52796, approximately 200 feet upstream of a future debris basin and 300 feet from the nearest lot (Lot No. 49). Based on the

distance of the landslide from the development, the presence of Qls 1 does not adversely impact the proposed development.

Qls 2 is located entirely within the grading footprint. This entire landslide mass should be removed during the grading and replaced with engineered fill in accordance with the stability fill recommendations presented in this report and the stability fill details presented in Figure 4.

Qls 3 is located approximately 1000 feet south of the proposed future fire lane/private driveway. Based on the distance of the landslide from the site, Qls 3 will not impact the proposed development.

J. Byer identified a fourth landslide within the site boundaries during their investigation (2000). As mapped by J. Byer, the landslide was located just south of the "D" Street cul-de-sac and the future fire lane/private driveway, immediately west of Wickham Canyon. The previous mapping by GeoSoils (1989 and 1997) did not indicate a landslide in this area. J. Byer excavated two test pits (designated Test Pits #19 and #20) within their mapped landslide limits. Both test pits described the "slide debris" as "structureless" siltstone. To establish whether the GeoSoils or J. Byer interpretations were correct, RTF&A excavated three test pits within the area mapped by J. Byer as a landslide. All three test pits (designated as Test Pits TP-1 through TP-3), logged by a Certified Engineering Geologist, encountered slope wash in the upper 3.5 to 5.5 feet of the test pits. Underlying the slope wash are siltstone units of the Pico Formation, with the upper 1 to 3.5 feet of the siltstone being highly weathered. Below the weathered zone the rock appears to be relatively competent. Although the siltstone is fractured, the fractures diminish with depth. In contrast to the J. Byer observations, bedding was observed in the siltstone encountered in the three test pits. The strike and dip of bedding measured in the RTF&A test pits was consistent with the regional strike and dip observed in the remainder of the site. Based on our test pit findings RTF&A concluded that a landslide was not present in the area, and this "fourth" landslide has been removed from our Geotechnical Map (Figure 1).

Debris Flows: The potential for debris flows exist anywhere that a moderate to thick accumulation of residual soil, slope wash, or weathered bedrock materials occur on moderate to steep slopes. The potential debris flow hazard should be addressed as part of a review of 1" = 40' rough grading plans, when building lots and drainage features have been more clearly defined.

At the rough grading plan stage, possible mitigative measures could include, but not be limited to, one or more of the following:

- removal of potential debris material;
- building setbacks from ascending slopes;
- reduction and control of drainage onto the debris material;
- construction of debris basins; and
- construction of an impact wall designed for an equivalent fluid density of at least 125 pounds per cubic foot.

In general, building lots most susceptible to potential debris flow are those lots located directly below and adjacent to natural slopes. Based on our review of the Alliance plan, all future lots appear to be mitigated with either proposed debris basins or have acceptable separation, either vertical or horizontal, from natural slopes and potential debris flow source areas. Therefore, potential debris flow impacts are judged to be minimal. However, these opinions should be verified at the rough grading plan review stage.

Oil Wells: Data from the California Division of Oil, Gas and Geothermal Resources (DOGGR) indicates that two oil wells, designated Electrological Petroleum Corporation, Ltd. "Overman" 1 and NM Fraser "Gerard" 1, are located within the VTTM 52796 boundary. "Overman" 1 is located east of Wickham Canyon. Only limited data on this well exists in the DOGGR records. Based on the data, the well was drilled in 1931 to a depth of 1070

feet and left idle for several years. After DOGGR was unable to locate anyone associated with Electrological Petroleum Corporation, Ltd., the well records were closed and the oil well marked as abandoned on DOGGR maps in 1938.

"Gerard" 1, located in the western portion of the property, was drilled in 1936 for a total depth of 960 feet. The hole was dry and subsequently plugged and abandoned.

Based on the existing DOGGR maps, both oil wells appear to be located outside of the proposed grading footprint. It is recommended that prior to development the locations of the two wells be surveyed and staked in the field. The surveyed locations should be plotted on the current grading plan to determine the location relative to the grading footprint. Furthermore, DOGGR should be afforded the opportunity to review the site development plans to provide the necessary recommendations with respect to well abandonment. It is likely that reabandonment of both oil wells to current DOGGR standards will be required if the wells are found to lie within the grading footprint.

Water Well and Water Tank: A structure that appears to be a water well (see Photo Nos. 4 and 5 in Appendix G) is located in the northeastern portion of the site within the flood plain of Pico Canyon. The well falls within the grading footprint and should be abandoned in accordance with the requirements of the Los Angeles County Department of Public Health.

An abandoned concrete water tank (see Photo Nos. 6 through 10, Appendix G) is located within future Lot No. 99. This water tank will need to be removed during grading. The approximate locatins of the water well and water tank are shown on Figure 1.

Rockfalls: Future building pads within VTTM 52796 will not be located directly downslope of any potential rockfall areas.

Oversized Materials: Oversized materials composed of cobbles and boulders up to 3 feet in diameter (see Photo Nos. 1 through 3, Appendix G) have been stockpiled in the northeastern portion of the site, near the confluence of Pico and Wickham Canyons (see Geotechnical Map, Figure 1). The oversized material will require special segregation and

handling as outlined in the "Oversized Material" section of this report. The grading sequence should consider allowances for incorporating oversize material within windrows in the lower fill areas from the upper cut areas or it may not be possible to incorporate all of the oversized material within the proposed fill areas and export from the site may be required.

Rippability: The bedrock exposed within VTTM 52796 is weakly to moderately cemented and can likely be excavated with conventional grading equipment. Heavy single shank ripping may be needed for massive conglomerate or well-cemented sandstone units within the Pico Formation. Should a hard well-cemented layer be encountered, the use of breakers or jackhammers may be necessary.

Hydrocarbon-Impacted Fill Soil: Soils suspected to be impacted by hydrocarbons have been identified within the north-central portion of the site, beneath future Lot Nos. 56, 57, 67, 68, and 82 through 84. To RTF&A's knowledge, these soils have not been characterized relative to extent and levels of potential contamination. It is recommended that an environmental assessment of these materials be performed to determine future handling and/or treatment requirements. For planning purposes, and in lieu of chemical analytical characterization, it should be assumed that the impacted soils can not be incorporated in materials placed as engineered fill, and will need to be disposed of offsite.

Restricted Use Areas (RUAs): There are no proposed RUAs within VTTM 52796.

LIQUEFACTION

The State of California Seismic Hazard Map for the Newhall Quadrangle indicates that portions of the site are located within a potential liquefaction area. Liquefaction evaluation and calculations were previously performed for the site (J. Byers, 2000) which deteremined that none of the home sites will be located over alluvial soils and that home sites will not be subject to liquefaction. Within Pico Canyon, it was determined that total dynamic settlement would be less than 1 inch (J. Byers, 2000).

Liquefaction may occur when saturated, loose to medium dense, cohesionless soils are densified by ground vibrations. The densification results in increased pore water pressures if the soils are not sufficiently permeable to dissipate these pressures during, and immediately following, an earthquake. When the pore water pressure is equal to, or exceeds, the overburden pressure, liquefaction of the affected soil layers occurs. For liquefaction to occur, three conditions are required:

- ground shaking of sufficient magnitude and duration;
- soils that are susceptible to liquefaction; and
- a groundwater level at or above the level of the susceptible soils during the ground shaking.

For a site to be considered susceptible to liquefaction using the criteria and methodology initially developed by Seed and Idriss (1982), liquefaction of underlying soil layers must result in an observed surface effect such as sand boils, mud-spouts, surface water seepage, ground cracking, or quicksand-like conditions.

Lateral spreading can result in ground cracking and may occur when a site is sloped or is near a free-face and there is a sufficiently continuous liquefiable layer on which the overlying soils can move laterally.

Ground settlement may occur during seismic shaking of an area. The settlement can be caused by liquefaction of loose, granular soils and by compaction of loose, but not necessarily liquefiable, soils.

As a result of the existing and proposed grading, there will not be any soils potentially subject to liquefaction remaining within the proposed habitable areas of the project at the completion of grading operations. The site is also not subject to liquefaction related lateral spread. Within the proposed “A” Street as it approaches Pico Canyon, the upper loose alluvial soils to a depths of up to 10 to 15 feet will be removed and replaced with compacted fill soils. However, some alluvial soils

are proposed to remain in place below the existing groundwater elevation. The remaining alluvium will be mantled by certified engineered fill. The alluvial soils are underlain by bedrock materials. Accordingly, the portion of proposed "A" Street within a potential liquefiable area will be underlain by a combination of bedrock materials, denser alluvial deposits, and certified engineered fill. The proposed utilities and other improvements within "A" Street should be designed to resist the potential static and dynamic settlements presented in the recommendations section of this report.

GRADING

General: The following sections present recommendations for treatment of cut and fill slopes, and grading. The applicability of the preliminary recommendations given in the following sections for foundation and retaining wall design should be confirmed at the completion of grading. Paving studies and soil corrosivity tests should be performed at the completion of rough grading to develop detailed recommendations for protection of utilities, structures, and for construction of the proposed roads.

Site Preparation: Prior to performing earthwork, the existing vegetation and any deleterious debris should be removed from the site. All unsuitable soils in the areas of grading that are receiving fill should be removed to competent bedrock materials and replaced with engineered fill. The depth of removal and recompaction of unsuitable soils is noted on the Geotechnical Map. Any fill required to raise the site grades should be properly compacted.

Removal of the exposed natural soils should extend to at least the depths indicated on the Geotechnical Map.

Removal Depths: The alluvium within the proposed grading limits for "A" Street within Pico Canyon should be removed to depths ranging from 10 to 15 feet and replaced with compacted fill. Alluvium within Wickham Canyon and other secondary canyons should be completely removed to bedrock and replaced with compacted fill within the proposed development area. Colluvial soils and the upper portions of unsuitable weathered bedrock

should also be removed during canyon cleanouts and grading on the pads. The recommended depth of removal and recompaction is indicated on the Geotechnical Map. Deeper removals will be required if disturbed or unsuitable soils are encountered at specific locations. After excavation of the upper natural soils on hillsides and in canyons, further excavation should be performed, if necessary, to remove slope wash or other unsuitable soils.

The Geotechnical Consultant of Record may require that additional shallow excavations be made periodically in the exposed bottom to determine that sufficient removals have been made prior to recompacting the soil in-place. Deeper removals may be recommended by RTF&A based on observed field conditions during grading. During grading operations, the removal depths should be observed by a representative of RTF&A and surveyed by the Project Civil Engineer for conformance with the recommended removal depths shown on the grading plan.

Material for Fill: The on-site soils, less any debris or organic matter, may be used in the required fills. Any expansive clays should be mixed with non-expansive soils to result in a mixture having an expansion index less than 30 if they are to be placed within the upper eight feet of the proposed rough grades.

Rocks or hard fragments larger than eight inches may not be placed in the fill without special treatment. Rocks or hard fragments larger than four inches shall not be clustered or compose more than 25% by weight of any portion of the fill or a lift. Soils containing more than 25% rock or hard fragments larger than four inches must be removed or crushed with successive passes (e.g., with a sheepsfoot roller) until rock or hard fragments larger than four inches constitute less than 25% of the fill or lift.

Oversized Material: Rocks or material greater than eight inches in diameter, but not exceeding four feet in largest dimension, shall be considered oversized rock. The oversized rocks can be incorporated into deep fills where designated by the Geotechnical Consultant of Record. Rocks should be placed in the lower portions of the fill and should not be placed within

the upper 10 feet of compacted fill, or nearer than 15 feet to the surface of any fill slope. Windrows should be excluded from areas of proposed utilities, pools, and other types of future underground improvements. Additional costs and construction difficulties should be anticipated if future improvements are located in areas where there will be conflicts with existing windrows. Rocks between eight inches and four feet in diameter shall be placed in windrows or shallow trenches located so that equipment can build up and compact fill on both sides. The width of the windrows shall not exceed four feet. The windrows should be staggered vertically so that one windrow is not placed directly above the windrow immediately below. Rock greater than one foot in diameter shall not exceed 30% of the volume of the windrows. Granular fill shall be placed on the windrow, and enough water should be applied so that soil can be flooded into the voids. Fill should be placed along the sides of the windrows and compacted as thoroughly as possible. After the fill has been brought to the top of the rock windrow, additional granular fill should be placed and flooded into the voids. Flooding is not permitted in fill soils placed more than one foot above the top of the windrowed rocks.

Where utility lines or pipelines are to be located at depths greater than 15 feet, rock shall be excluded in that area. Excess rock that cannot be included in the fill, or that exceeds four feet in diameter, should be stockpiled for export or used for landscaping purposes.

The oversized material recommendations presented in this report provide for the geotechnical consultant to coordinate with the grading contractor to develop a procedure for construction of compacted fills that have a satisfactory fill performance for the intended use of the fill. It should be understood that it is not feasible and/or cost effective to eliminate all oversize material from constructed fills as part of a conventional grading operation. The exclusion of all oversize material is not necessary for satisfactory fill performance on the majority of projects.

Import Material: Import material should consist of relatively non-expansive soils with an expansion index less than 30. The imported materials should contain sufficient fines (binder

material) so as to be relatively impermeable, and result in a stable subgrade when compacted. The import material should be free of organic materials, debris, and rocks larger than 12 inches. A bulk sample of potential import material, weighing at least 25 pounds, should be submitted to the Geotechnical Consultant of Record at least 48 hours in advance of fill operations. All proposed import materials should be approved by the Geotechnical Consultant of Record prior to being placed at the site.

Compaction: After the site is cleared and excavated as recommended, the exposed soils should be carefully observed for the removal of all unsuitable material. Next, the exposed subgrade soils should be scarified to a depth of at least six inches, brought to above optimum moisture content, and rolled with heavy compaction equipment. The upper six inches of exposed soils should be compacted to at least 90% of the maximum dry density obtainable by the ASTM D 1557-02 Method of Compaction.

After compacting the exposed subgrade soils, all required fills should be placed in loose lifts, not more than eight inches in thickness, and compacted to at least 90% of their maximum density. For fills placed at depths greater than 40 feet below proposed finish grade, a minimum compaction of 93% of the maximum dry density is required. The moisture content of the fill soils at the time of compaction should be above the optimum moisture content. Compacted fill should not be allowed to dry out before subsequent lifts are placed.

Rough grades should be sloped so as not to direct water flow over slope faces. Finished exterior grades should be sloped to drain away from building areas to prevent ponding of water adjacent to foundations.

Shrinkage And Bulking: Shrinkage of about 12 to 18 percent is estimated for the on-site natural alluvial soils when removed and placed as compacted fill. A bulking value of about 2 to 6 percent is estimated for materials generated from Saugus Formation bedrock cut areas for use as compacted fill. The actual shrinkage and bulking will depend upon the relative

compaction obtained by the contractor during grading operations and would be expected to change on a daily basis.

Permanent Slopes: Permanent cut and fill slopes may be inclined at 2:1 or flatter. The current site plan indicates that the steepest slope to be constructed at the site during grading will be 2:1.

Proposed Cut Slopes: Cut slopes proposed for the rough grading of the project site have been designated, as shown on the Geotechnical Map. Each cut slope is discussed with specific recommendations presented in the "Slope Stability Analysis" section of this report. All grading should conform to the minimum recommendations presented in this report. If these slopes are modified from those that are discussed in this report, the modifications should be reviewed by RTF&A to ascertain the applicability of our recommendations.

Fill Slopes: Where the toe of a fill slope terminates on natural, fill, or cut materials, a keyway is required at the toe of the fill slope. The fill slope keyway should be a minimum width of 12 feet, be founded within competent material, and should extend a horizontal distance beyond the toe of the fill to the depth of the keyway. The keyway should be sloped back at a minimum gradient of two percent into the slope. The width of fill slopes shall be no less than eight feet, and under no circumstances should the fill widths be less than what the compaction equipment being used can fully compact. Benches should be cut into the existing slope to bind the fill to the slope. Benches should be step-like in profile, with each bench not less than four feet in height and established in competent material. Compressible or other unsuitable soils should be removed from the slope prior to benching. Competent material is defined as being essentially free of loose soil, heavy fracturing, or erosion-prone material and is established by the Geotechnical Consultant of Record during grading.

Where the top or toe of a fill slope terminates on a natural or cut slope and the natural or cut slope is steeper than a gradient of 3:1**,** a drainage terrace with a width of at least six feet is recommended along the contact. As an alternative, the natural or cut portion of the slope can be

excavated and reconstructed as a stability fill slope to provide an all-fill slope condition. Where the contact between the face of the fill slope and the face of a lower natural or cut slope is inclined at 45 degrees or steeper, a drainage terrace would not be required.

When constructing fill slopes, the grading contractor shall avoid spillage of loose material down the face of the slope during the dumping and rolling operations. Preferably, the incoming load shall be dumped behind the face of the slope and bladed into place. After a maximum of four feet of compacted fill has been placed, the contractor shall backroll the outer face of the slope by backing the tamping roller over the top of the slope, thoroughly covering all of the slope surface with overlapping passes of the roller. The foregoing should be repeated after the placement of each four-foot thickness of fill. As an alternative, the fill slope can be overbuilt and the slope cut back to expose a compacted core. If the required compaction is not obtained on the fill slope, additional rolling will be required prior to placement of additional fill, or the slope shall be overbuilt and cut back to expose the compacted core.

Stability Fills: A stability fill has been recommended for Cut Slope CS-17 to minimize the potential for erosion and to eliminate adverse fill-over-cut conditions. The stability fill slope should be constructed in accordance with Stability Fill Details for Grossly Stable Slopes (Figure 4). Backdrains should be installed at the backcut of the stability fill as recommended below.

DRAINAGE

Subdrains: Canyon subdrains are recommended to intercept and remove groundwater within canyon fill areas. All subdrains should extend up-canyon, with the drain inlet carried to within 15 feet of final pad grade. The approximate location for recommended subdrains are shown on the Geotechnical Map, Figure 1. Specific subdrain locations should be determined in the field during grading operations.

The subdrains should be surveyed by the Project Surveyor to establish line and grade during construction, and for future location reference. Subdrain and backdrain excavations should be observed by the Geotechnical Consultant.

The subdrains should be installed in accordance with the manufacturer's specifications. A minimum 2% gradient is to be maintained in the subdrain pipes and the pipe shall have at least 8 uniformly spaced narrow slots per foot. The width of the slots should not exceed 1/16 of an inch. If PVC pipe with drilled perforations is utilized, the diameter of the holes should not exceed 3/8 of an inch, if gravel and filter fabric is used or 1/8 inch diameter if Los Angeles County Flood Control District (LACFCD) Designation F-1 Filter Material is used. There should be at least 8 uniformly spaced sets of 2 perforations per lineal foot of pipe. When constructing the subdrain, the pipe should be placed so that the drilled perforations are positioned on the bottom half of the pipe. The upstream end of subdrains should be capped. The final 20 feet of pipe at the downstream end of canyon, stabilization, buttress, and side hill fills shall not be slotted or perforated. Provisions should be made at all times during construction to prevent damage to the subdrain from construction equipment, and to prevent soils from being washed into an exposed subdrain by surface waters.

For runs up to 500 feet, subdrains for the bottom of canyon fills should consist of at least 6-inch diameter pipe. For runs of 500 to 1,500 feet, 8-inch diameter pipe shall be used. For runs over 1,500 feet, 10-inch diameter pipe shall be used.

Canyon subdrains may be installed in a rectangular trench excavated to expose competent material and shall be approved by the Geotechnical Consultant. The subdrains should be surrounded by at least three cubic feet per lineal foot of granular filter material and there should be at least six inches of compacted granular filter material or gravel on all sides of the pipe. The granular filter material for subdrains should meet the F1 material criteria, or have a gradation approved by the Geotechnical Consultant prior to placement.

As an alternative to the granular filter material, 3/4-inch diameter gravel may be placed around the pipe. The gravel should be separated from the surrounding soils by a filter fabric such as Mirafi 140N, or equivalent, wrapped around the gravel ("burrito wrapped").

Backdrains: Backdrains are required for all stability fills or buttress fills, and should consist of 4-inch diameter perforated or slotted pipe. The vertical spacing of the backdrains should be a maximum of 15 feet, with a horizontal spacing of 100 feet. Backdrain outlets should consist of non-perforated pipe. The gradient should be at least 2% to the discharge end. The exact location of the backdrains should be determined in the field by the Geotechnical Consultant after the backcut has been made, so that it can be best positioned to intercept potential seepage.

Surface Drainage: All surface drainage should be directed away from proposed structures through non-erosive devices. The ponding of water must not be allowed, especially adjacent to foundations. The pad gradients should not slope toward any descending slopes in order to reduce the potential for surficial erosion. Water that flows towards slopes should be conducted to appropriate discharge locations via non-erodible drainage devices. Drainage devices, including drainage terraces on graded slopes should be inspected periodically and should be kept clear of debris. Drainage and erosion control should be designed in accordance with the standards set forth in the CBC.

Any modification of the grades of building pads, parking areas, etc., could adversely affect drainage at the site. Future landscaping, construction of walkways, planters and walls, etc. must never modify site drainage unless additional measures to enhance drainage (e.g. area drains, additional grading, etc.) are designed and constructed in accordance with the applicable Los Angeles County regulations.

Erosion Protection: In order to reduce the potential for erosion, all permanent cut-and-fill slopes on-site should be seeded or planted with lightweight, deep-rooting, drought-resistant vegetation. A landscaping expert should be consulted for ground cover recommendations. Excessive landscape irrigation or leakage from irrigation lines can cause localized slope failures.

Therefore, irrigation systems for slope vegetation should be designed and maintained to minimize leakage onto graded slopes. If automatic sprinkler systems are used, they should be adjusted for seasonal variations in rainfall. Vegetation on natural slopes should remain natural and not be landscaped or irrigated in the same manner as graded slopes.

Rodent burrows are known to provide direct conduits for water flow that can decrease slope stability. Therefore, in order to maintain the integrity of graded slopes, a rodent abatement program should be instituted.

Even with the implementation of these recommendations, it is not possible to eliminate erosion within hillside developments. Removal of debris from drainage devices, slope maintenance, and landscaping will be required, especially after periods of heavy rainfall.

GENERAL GRADING REQUIREMENTS

1. All fills, unless otherwise specifically designed, shall be compacted to at least 90 percent of the maximum dry unit weight as determined by ASTM D 1557-02 Method of Soil Compaction.

2. No fill shall be placed until the area to receive the fill has been adequately prepared, and subsequently approved by the Geotechnical Consultant of Record or his representative.

3. Fill soils should be kept free of debris and organic material.

4. Rocks or hard fragments larger than eight inches may not be placed in the fill without approval of the Geotechnical Consultant of Record or his representative, and in a manner specified for each occurrence.

5. Bedrock fragments larger than eight inches, or fill soils containing greater than 25 percent of bedrock fragments larger than four inches in diameter, must be removed or processed using successive passes of a sheepsfoot compactor until rock fragments constitute less than 25 percent of the fill material.

6. The fill material shall be placed in layers which, when compacted, shall not exceed eight inches per layer. Each layer shall be spread evenly and shall be mixed thoroughly during the spreading to ensure uniformity of material and moisture.

7. When moisture content of the fill material is too low to obtain adequate compaction, water shall be added and thoroughly dispersed until the soil is approximately two to four percent above optimum moisture content.

8. When the moisture content of the fill material is too high to obtain adequate compaction, the fill material shall be aerated by blading, or other satisfactory methods, until the soil is approximately two to four percent above optimum moisture content.

9. Fill and cut slopes should not be constructed at gradients steeper than 2:1 (horizontal:vertical).

GRADING OBSERVATION

Construction observation should be made by a Geotechnical Consultant of Record during any grading activities within the project site, to verify the findings within this report. Additional recommendations may be required for landfill design based on conditions uncovered during grading.

TEMPORARY EXCAVATIONS

Based on our review of the subject plans, it does not appear that significant temporary excavations will be required during the construction of the proposed development. However, the following recommendations are applicable in areas where excavations are to be made.

Temporary excavations are not expected to stand vertically in cuts that exceed four feet in height. Temporary excavations in excess of four feet may be sloped at a gradient of ¾:1, to a maximum height of 15 feet. By temporary, we mean a period not exceeding 60 days. All regulations of State or Federal OSHA should be followed.

If excavations are made during the rainy season (normally from November through April), particular care should be taken to protect slopes against erosion. Measures to help mitigate erosion, such as the installation of berms, plastic sheeting, or other devices, may be warranted. Surface water should be prevented from flowing over or ponding at the top of excavations.

EXPANSIVE SOILS

Samples of the on-site soils were obtained during the investigation of the site for laboratory expansion index testing. The tests were performed to determine the expansion potential of the soils. The results of the tests performed are presented in Appendix B. The result of the testing indicates that the compacted fill generated from the on-site soils will have a low to medium potential for expansion that varied from 46 to 75. The site soils can be classified as having a very low to medium potential for expansion.

FOUNDATIONS

General: Buildings may be supported on continuous or individual spread footings established in properly compacted fill soils. Foundations and floor slabs should be designed by a structural engineer, in accordance with the minimum requirements of the CBC.

Design Criteria: The recommendations presented in this section are based on the assumption that the proposed structures will have column loads not exceeding approximately 100 kips and continuous foundation loads not exceeding 3 kips per lineal foot. A bearing value of 2,000 pounds per square foot (psf) may be used in the design of spread foundations. This value can be increased by one-third when considering seismic and wind forces. The bearing material should consist of compacted fill soil. Individual column pads and continuous wall footings should be designed to meet the minimum width and depth requirements, as set forth in the CBC. Foundation depths should be measured from the lowest adjacent final grade.

Building setbacks for structures located adjacent to either ascending or descending slopes should be in accordance with the standards set forth in the CBC. All foundation excavations should be observed and approved by a representative from our firm prior to placement of reinforcing steel. Foundations should be deepened, where necessary, to prevent surcharge loads from being imposed on adjacent foundations or utilities. Observation of foundation excavations may also be required by the appropriate reviewing governmental agencies. The contractor should be familiar with the requirements of the governing reviewing agencies.

Lateral Design: Lateral restraint at the base of footings or slabs may be assumed to be the product of the dead load and a coefficient of friction of 0.4. Passive pressure on the face of footings may also be used to resist lateral forces. A passive pressure of zero at the surface of finished grade, increasing at the rate of 250 psf per foot of depth, to a maximum value of 2,500 psf, may be used at this site. The passive pressure and friction may be combined without reduction when evaluating lateral resistance.

Settlement: Provided that the proposed buildings are supported on shallow foundations established in compacted fill soils, as recommended, column loads do not exceed 100 kips, and continuous footings do not exceed 3 kips per lineal foot, we estimate that the maximum static settlement will be about 1.25 inches. It is further estimated that static and seismic differential settlements will be less than 1.0 inches of vertical movement across a horizontal distance of 30 feet. Our firm should review the foundation loads after plans are developed to verify the applicability of our recommendations to the proposed structures.

FLOOR SLAB SUPPORT

General: The floor slab design recommendations presented in this section are based upon the assumption that the soil subgrade in proposed floor slab areas will consist of compacted fill soil and that floor slabs will be subjected to normal loads with no special requirements. Any surficial soils that become dried or disturbed during the course of construction should be moisture-conditioned and compacted prior to casting the floor slab.

Conventional floor slabs may be utilized at the subject development, provided the subgrade soils consist of compacted fill soils with a very low (Expansion Index of 0 to 20) potential for expansion. If the subgrade soils are determined to have an expansion potential in the low or higher range (Expansion Index greater than 21), post-tensioned floor slabs, as indicated below, are recommended.

Conventional Floor Slabs: Conventional slabs-on-grade should be designed per the recommendations of the CBC. However, as a minimum, the building floor slabs should have a nominal thickness of at least 4 inches and should be reinforced with a No. 4 rebar spaced at 18 inches on center, in each direction, or equivalent. Thicker slabs may be required depending on the floor loads and the structural requirements; we defer to the Project Structural Engineer for design of the floor slabs.

Post-Tensioned Floor Slabs: Post-tensioned floor slabs should be designed per the recommendations of the CBC. The design values, presented following this paragraph, assume that the proposed floor slabs will be poured monolithic with continuous perimeter edge footings. Perimeter edge footings should have a minimum depth of 12 inches. Footing depths should be measured from the lowest adjacent grade for perimeter footings or the top of slab for interior footings.

Net Bearing Value:	An allowable net bearing value of 2,500 psf for footings with a minimum width of 12 inches and a minimum depth of 18 inches below the top of slab or 12 inches below the lowest adjacent grade may be used.
Coefficient of Friction:	0.75
Passive Pressure:	250 pcf for level ground condition
Modulus of Subgrade Reaction (K):	150 pounds per cubic inch (pci) for a footing width of one foot. For larger footings or floor slabs, this value should be reduced using the following equation:

$$Kr = K\left[\frac{(B+1)}{2B}\right]^2$$

where:

Kr = Reduced Modulus Value

K = Modulus of Subgrade Reaction for a One-Foot-Wide Plate
B = Width of Large Footing or Slab

Modulus of Elasticity:	1,000 pounds per square inch (psi)	
Edge Moisture Variation Distance		
Me (Center Lift):	5.25 feet	
Me (Edge Lift):	2.5 feet	
Estimated Differential Movement	Low	Medium
My (swelling):	0.4	0.9
My (shrink):	0.3	0.7

Water Vapor Mitigation: Water vapor transmitted through floor slabs is a common cause of floor covering problems. An impermeable membrane "vapor barrier" should be installed to reduce excess vapor drive through the floor slab. The function of the impermeable membrane is to reduce the amount of water vapor transmitted through the floor slab. Vapor-related impacts should be expected in areas where a vapor barrier is not installed.

Floor slabs should be underlain by a vapor barrier surrounded by 2 inches of sand above and below it. The membrane should be at least 10 millimeters thick; care should be taken to preserve the continuity and integrity of the membrane beneath the floor slab. The sand should be sufficiently moist to remain in place and be stable during construction; however, if the sand above the membrane becomes saturated before placing concrete, the moisture in the sand can become a source of water vapor.

Another factor affecting vapor transmission through floor slabs is a high water-to-cement ratio in the concrete used for the floor slab. A high water-to-cement ratio increases the porosity of the concrete, thereby facilitating the transmission of water and water vapor through the slab. The Project Structural Engineer or a concrete mix specialist should provide recommendations for design of concrete for footings and floor slabs in accordance with CBC, with consideration of the above comments.

RETAINING WALLS

General: A bearing value of 2,000 psf may be used in the design of retaining wall footings. Backfill placed behind retaining walls should be compacted to a minimum of 90 percent of the maximum dry density, as determined by ASTM D 1557-07. When backfilling, walls should be braced. Heavy compaction equipment should not be used any closer to the back of the wall than the height of the wall. Soils that have an expansion index in excess of 50 should not be utilized for backfill behind walls that are greater than 3 feet in height. The backs of retaining walls should be water-proofed where aesthetics are concerned.

Lateral Earth Pressure: Cantilevered retaining walls separate and independent of buildings, where the surface of the backfill is level and the retained height of soils is less than 20 feet, may be designed assuming that drained non-expansive soils will exert a lateral pressure equal to that developed by a fluid with a density of 30 pounds per cubic foot (pcf). The indicated pressure assumes that a lateral deflection of up to about one percent of the wall height is acceptable at the top of the wall. If it is desired to decrease the amount of potential wall deflection, a greater lateral pressure could be used in the wall design.

Where the surface of the backfill is inclined at 2:1, it may be assumed that drained soils will exert a lateral pressure equal to that developed by a fluid with a density of 45 pcf.

For the design of a rigid wall where rotation and lateral movement are not acceptable, as in the case of buildings, it may be assumed that drained, non-expansive soils will exert a rectangular lateral pressure with a maximum pressure equal to 22H psf, where “H” is the wall height in feet. The pressure value and distribution may vary significantly when considering wall rigidity and restraining conditions. The structural characteristics of the wall are referred to the Project Structural Engineer. If requested, we can provide additional geotechnical design parameters for specific restrained conditions.

In addition to the recommended earth pressure, walls should be designed to resist any lateral surcharges due to nearby buildings, storage, or traffic loads. A drainage system should be provided behind the walls to reduce the potential for development of hydrostatic pressure (see the following "Retaining Wall" section of this report under "Drainage"). If a drainage system is not installed, walls should be designed to resist an additional hydrostatic pressure equal to that developed by a fluid with a density of 55 pcf for the full height of the wall.

Seismic Lateral Earth Pressure: The preceding recommended values indicate earth pressures for conventional static loading conditions. Ground shaking associated with earthquakes may cause additional pressure on walls. In addition to the previously mentioned lateral earth pressures, it is recommended that all rigid (building) walls of any height, and cantilevered retaining walls greater than 6 feet in height, be designed to support an additional seismic earth pressure equal to an inverted equivalent fluid pressure of 29 pcf.

Density of Backfill: When designing retaining walls to resist over-turning, it can be assumed that compacted, on-site soils will have a density of 125 pcf.

SEISMIC DESIGN

Under Section 1613 Earthquake Loads of the CBC, the following coefficients and factors apply to seismic force design of structures at the subject siteThe parameters were determined using the U. S. Seismic Design Maps at the United States Geological Survey (USGS) Earthquakes Hazard website. The output from the USGS Earthquake Hazard website is presented in Appendix C.

Site Class	C
Ss	3.092
S1	0.979
SMs	3.092
SM1	1.273
SDs	2.061
SD1	0.849

PAVEMENT DESIGN

Samples of the on-site soil should be obtained from near final grade elevation in proposed pavement areas, following the grading operations, to perform R-value tests. The R-value test results would be used to prepare pavement section recommendations. The preliminary pavement section recommendations presented below are based on the assumption that the on-site soils have an R-value of at least 20. The final pavement section recommendations could vary depending on the results of the actual R-value tests. We would be pleased to provide pavement section recommendations for alternative Traffic Index values upon request.

Traffic Index	Asphalt Thickness (Inches)	(CAB) Base Course Thickness (Inches)
4	3	5
6	4	9
8	5	14

Base course material should consist of crushed aggregate base (CAB), as defined by Section 200-2.2 of the Standard Specifications for Public Works Construction ("Greenbook"), or crushed miscellaneous base (CMB), as defined by Section 200-2.4 of the Greenbook. Base course material should be compacted to at least 95% of the maximum dry density of that material.

Base course material should be purchased from a supplier who will certify that it will meet or exceed the specifications in the Greenbook, as indicated. We could, upon request, perform sieve analysis and sand equivalency tests on material delivered to the site that appears suspect. Additional tests could be performed, upon request, to determine if the material is in compliance with the remainder of the specifications indicated in the Greenbook.

The pavement section recommendations presented above are based upon assumed Traffic Index values. RTF&A does not take responsibility for the numerical determination of the Traffic Index values nor the areas where they apply within the site.

RETAINING WALLS

For design of cantilevered retaining walls where the retained height of soils is less than 15 feet, and the walls are structurally independent from the proposed building, it may be assumed that drained soils will exert a lateral pressure equal to that developed by a fluid with a density of 30 pounds per cubic foot (pcf) where the backfill is level, and 45 pcf where the backfill is inclined at 2:1.

In addition to the recommended earth pressures, the retaining walls should be designed to resist any applicable surcharges due to storage or traffic loads. A drainage system should be provided behind the walls to prevent the development of hydrostatic pressure behind the walls. If a drainage system is not installed, the walls should be designed to resist an additional hydrostatic pressure equal to that developed by a fluid with a density of 55 pcf against the full height of the wall.

In addition to the recommended earth and hydrostatic pressures, the upper ten feet of walls adjacent to vehicular traffic areas should be designed to resist a uniform lateral pressure of 100 psf, acting as a result of an assumed 300 psf surcharge behind the walls due to normal traffic. If the traffic is kept back at least ten feet from the walls, the traffic surcharge may be neglected.

The back of retaining walls should be water-proofed where aesthetics are concerned. Backfill placed behind retaining walls should be compacted to a minimum of 90% of the maximum dry density as determined by ASTM D 1557-02. When backfilling behind walls, it is recommended that the walls be braced, and heavy compaction equipment not be used closer to the back of the wall than the height of the wall. Soils which have a potential for expansion in

excess of five percent should not be utilized for backfill behind walls which are greater than three feet in height.

Drainage: A drainage system should be provided behind retaining walls, or the walls should be designed to resist hydrostatic pressures. The drainage system could consist of a four-inch diameter perforated pipe placed six inches from the base of the wall, with the perforations down, and connected to an outlet device. The pipe should be sloped at least 1 inch per 50 feet and surrounded on all sides by at least six inches of clean gravel. The gravel should be "burrito-wrapped" with filter fabric, such as Mirafi 140N, or equivalent. As an alternative to the gravel and filter fabric, filter material meeting the requirements of LACFCD Designated F-1 Filter Material, and slotted pipe, may be used. The backside of the wall should be water-proofed.

A vertical six-inch-wide gravel chimney drain, or a drainage geocomposite such as Miradrain, should be placed against and behind retaining walls that are higher than three feet. The top of the back drain should be capped with 18 inches of on-site soils.

The installed drainage system should be observed by the Geotechnical Consultant of Record prior to backfilling the system. Inspection of the drainage system may also be required by the reviewing governmental agencies.

OBSERVATION AND TESTING

This report has been prepared assuming that RTF&A will perform all geotechnically-related field observations and testing. If the recommendations presented in this report are utilized, and observation and testing of the geotechnical work is performed by others, the party performing the observation and testing must review this report and assume responsibility for the recommendations contained herein. That party would then assume the title "Geotechnical Consultant of Record."

A representative of the Geotechnical Consultant of Record of Record should be present to observe all grading operations, as well as all footing excavations. A report presenting the results of the observations and related testing should be issued upon completion of those operations.

LOS ANGELES COUNTY SECTION 111 STATEMENT

Based on the findings summarized in this submittal, it is our professional opinion that the proposed grading, and any proposed structures at the site, will be safe from hazards of settlement, slippage, or landslide, provided that the recommendations of this submittal, and those of the Los Angeles County Code, are incorporated into the proposed construction. Additionally, the proposed site grading will not adversely affect the geotechnical conditions on adjacent properties.

LIMITATIONS

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical engineers and engineering geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared for Lennar Homes and their design consultants, to be used solely for planning and design. The report has not been prepared for use by other parties and may not contain sufficient information for purposes of other parties or other uses.

-oOo-

The following are attached and complete this report.

- References
- Geotechnical Map – Figure 1 (in pocket)
- Geologic Sections – Figure 2 (in pocket)
- Geotechnical Sections – Figure 3 (in pocket)
- Stability Fill Details for Grossly Stable Slopes – Figure 4
- Appendix A – RTF&A Field Explorations
- Appendix B – Field Investigations by J. Byer Group
- Appendix C – Field Investigations by Geosoils, Inc.
- Appendix D – Laboratory Testing
- Appendix E – Slope Stability Calculations
- Appendix F – Corrosion Test Results
- Appendix G – Site Photographs

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2 wet-signed, stamped copies plus 1 CD of PDF file for submittal to the Geotechnical and Materials Engineering Division

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

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Geotechnical Map

PREPARED FOR: Lennar Homes

PROJECT LOCATION: Vesting Tentative Tract No. 52796, Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
AS SHOWN	JH	TPL
DATE: 3-27-2014	Figure 1	JOB NO.: 2013-014-021

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PREPARED FOR:
LENNAR HOMES
980 MONTECITO DRIVE, SUITE 302
CORONA, CA 92879
(951)817-3542
REPRESENTATIVE: CHERRYL THOMPSON

PLANS PREPARED BY:
ALLIANCE LAND PLANNING & ENGINEERING INC.
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(760) 431-9896

PLANS PREPARED UNDER THE DIRECTION OF:
CRAIG M. WHITTEKER R.C.E. 51929 — 1/28/14 DATE

REGISTERED PROFESSIONAL ENGINEER — CRAIG M. WHITTEKER — NO. 51929 — EXP. 6-30-14 — CIVIL — STATE OF CALIFORNIA

NO.	DATE	REVISIONS	BY	APPR.

SHEET 2 OF 2 SHEETS

COUNTY OF LOS ANGELES

MAJOR LAND DIVISION
VESTING TENTATIVE TRACT MAP
NO. 52796

LOCATED IN THE UNINCORPORATED AREA OF THE COUNTY OF LOS ANGELES, STATE OF CALIFORNIA

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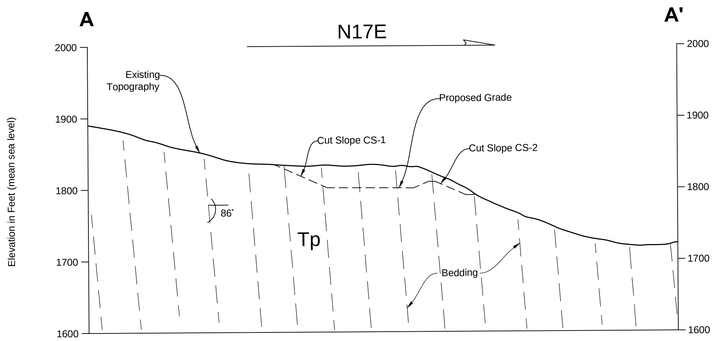

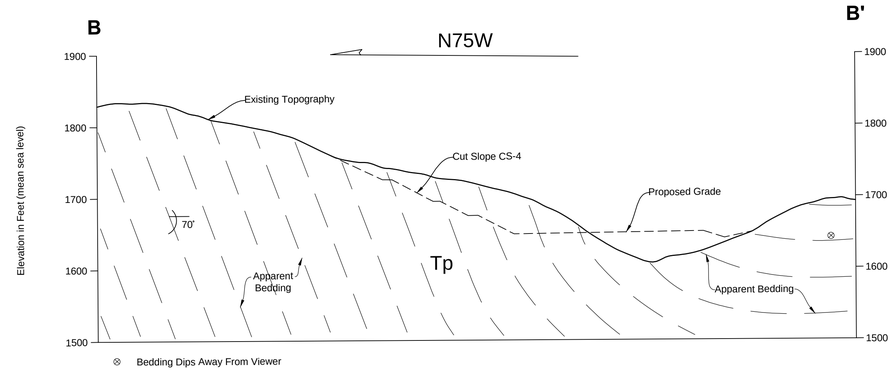

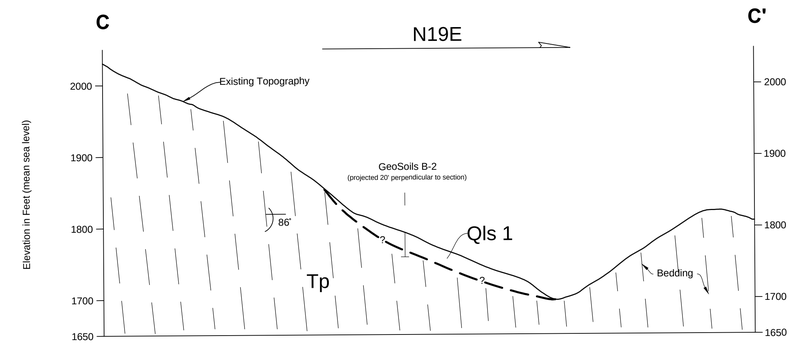

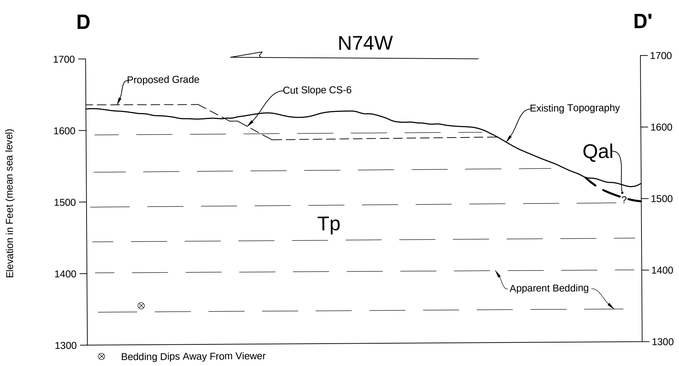

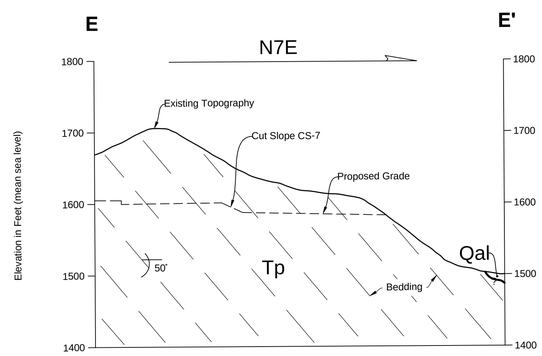

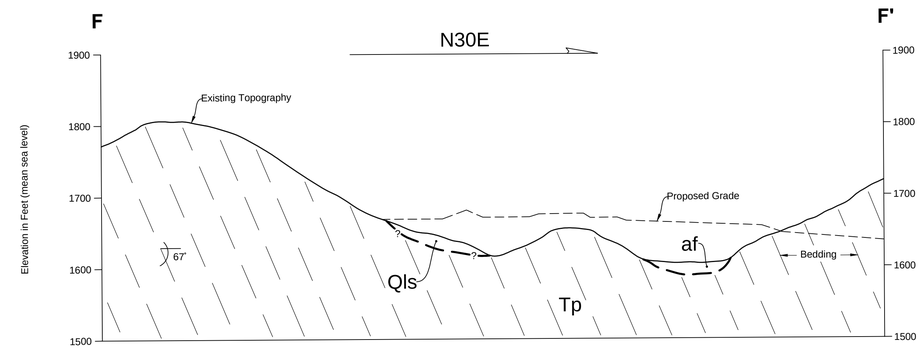

Geologic Sections

PREPARED FOR

Lennar Homes

Project Location

Vesting Tentative Tract No. 52796
Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
AS SHOWN	JH	TPL
DATE		JOB NO.
3-27-2014	Figure 2	2013-014-021

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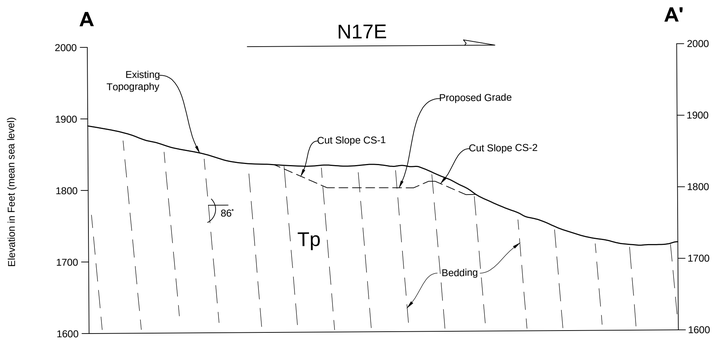

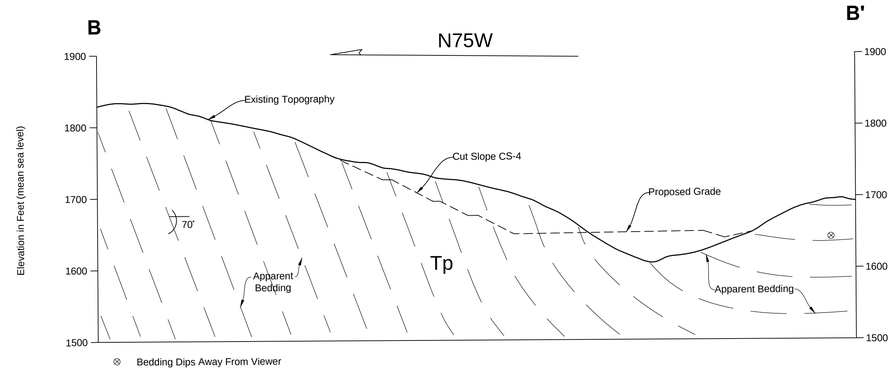

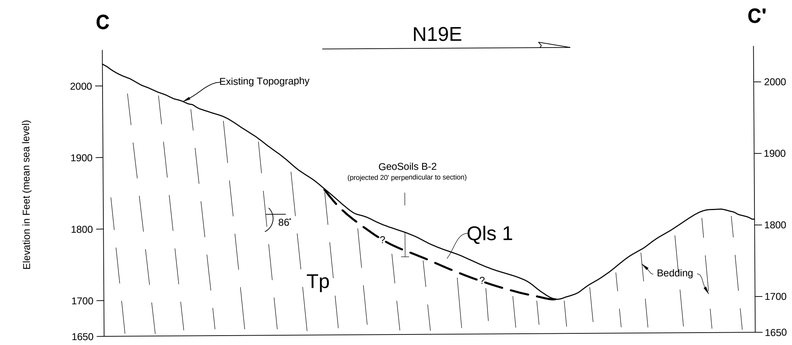

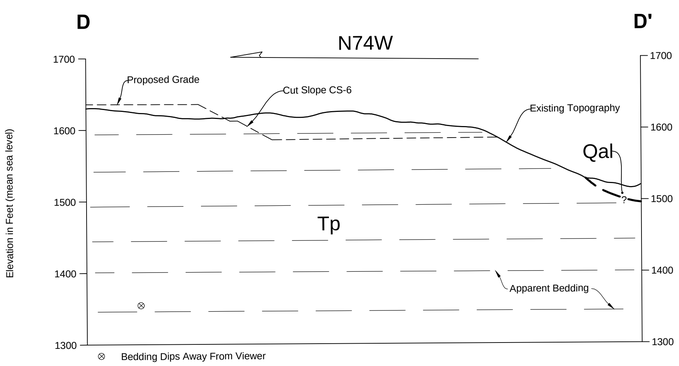

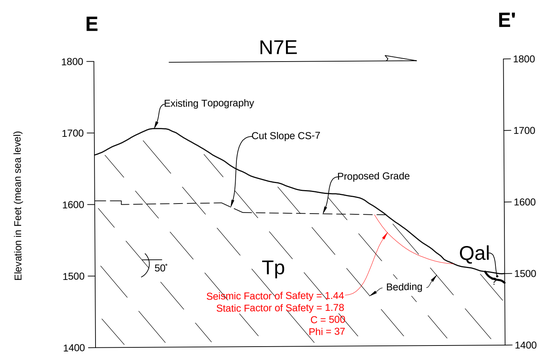

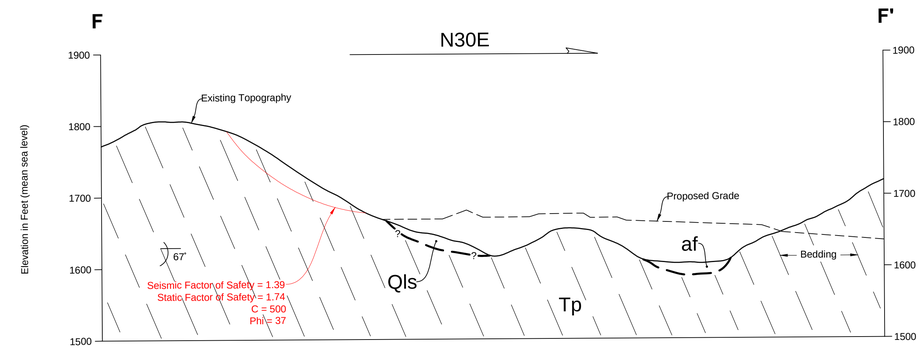

Geotechnical Sections

PREPARED FOR

Lennar Homes

Project Location

Vesting Tentative Tract No. 52796
Los Angeles County, California

SCALE	DRAWN BY	CHECKED BY
AS SHOWN	JH	TPL
DATE		JOB NO.
3-27-2014	Figure 3	2013-014-021

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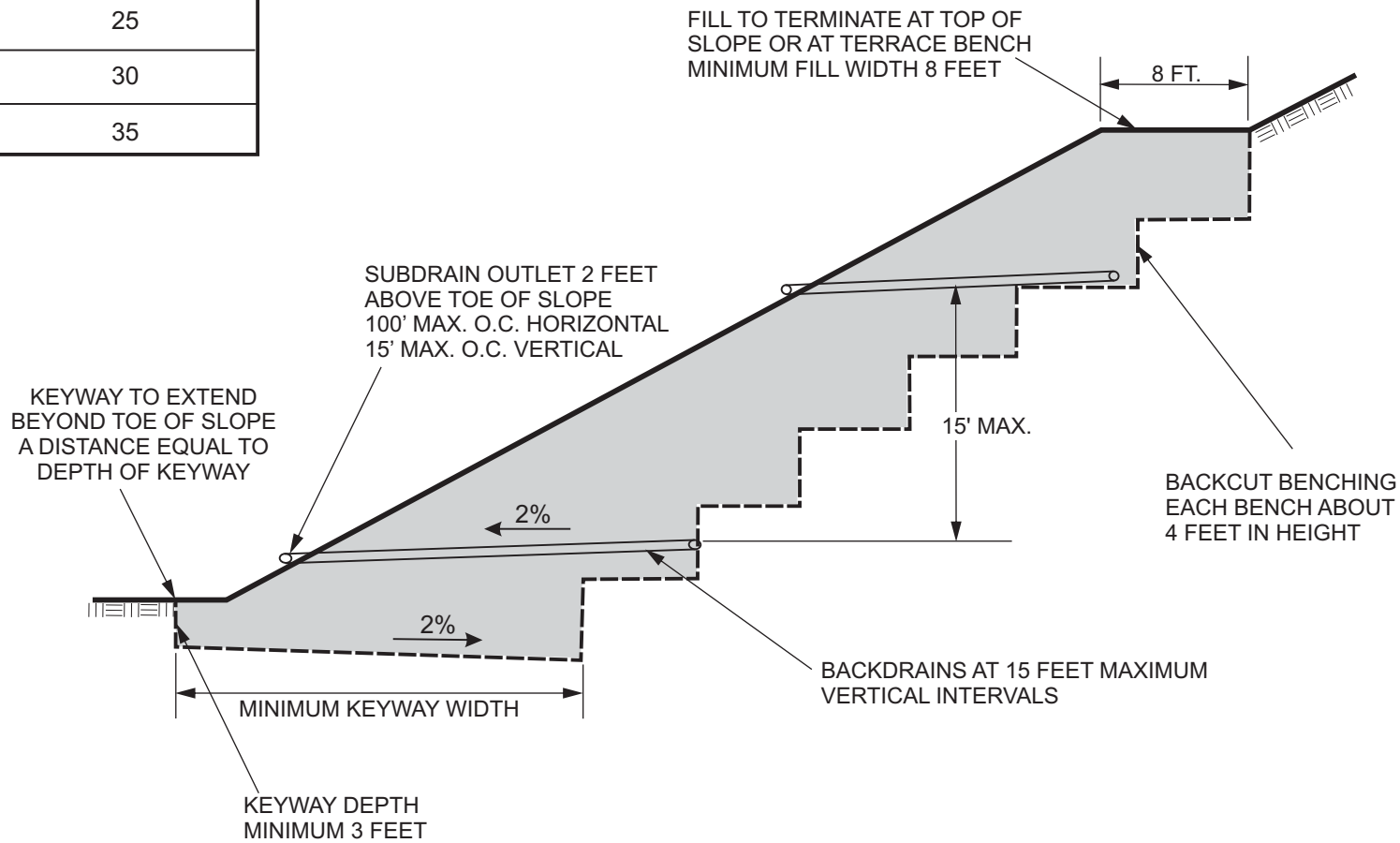
STABILITY FILL HEIGHT (FEET)	MINIMUM WIDTH OF KEYWAY (FEET)
0 - 20	15
20 - 30	20
30 - 50	25
50 - 75	30
75 - 100	35



STABILITY FILL DETAILS FOR GROSSLY STABLE SLOPES

N.T.S.

Lennar Homes
March 27, 2014
2013-014-021

APPENDIX A

RTF&A FIELD EXPLORATIONS

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

APPENDIX A

RTF&A FIELD EXPLORATION

RECONNAISSANCE GEOLOGIC MAPPING

During geologic mapping, local surficial deposits (both natural and man-made) and bedrock units were mapped on a 1 inch = 100 feet topographic base map prepared Alliance. Geologic structural features, including bedding, were observed, measured, and plotted on the base map.

GEOLOGIC LOGGING OF EXPLORATORY TEST PITS

Geologic logging was performed for 13 exploratory test pits (TP-1 through TP-13) excavated at selected locations within the site. Test pits were excavated to observe the geologic materials and structural elements. The test pits were excavated using a track-mounted backhoe, equipped with a 2-foot wide bucket. Test pits varied in depth to approximately 5.5 feet to 14 feet. Test pits TP-1 through TP-3 were logged by a Certified Engineering Geologist. The locations of the test pits are indicated on the Geotechnical Map, Figure 1.

LOG OF TEST PIT TP-1

JOB NUMBER 2013-014-021 **CLIENT** LENNAR **LOGGED BY** BKP/TPL

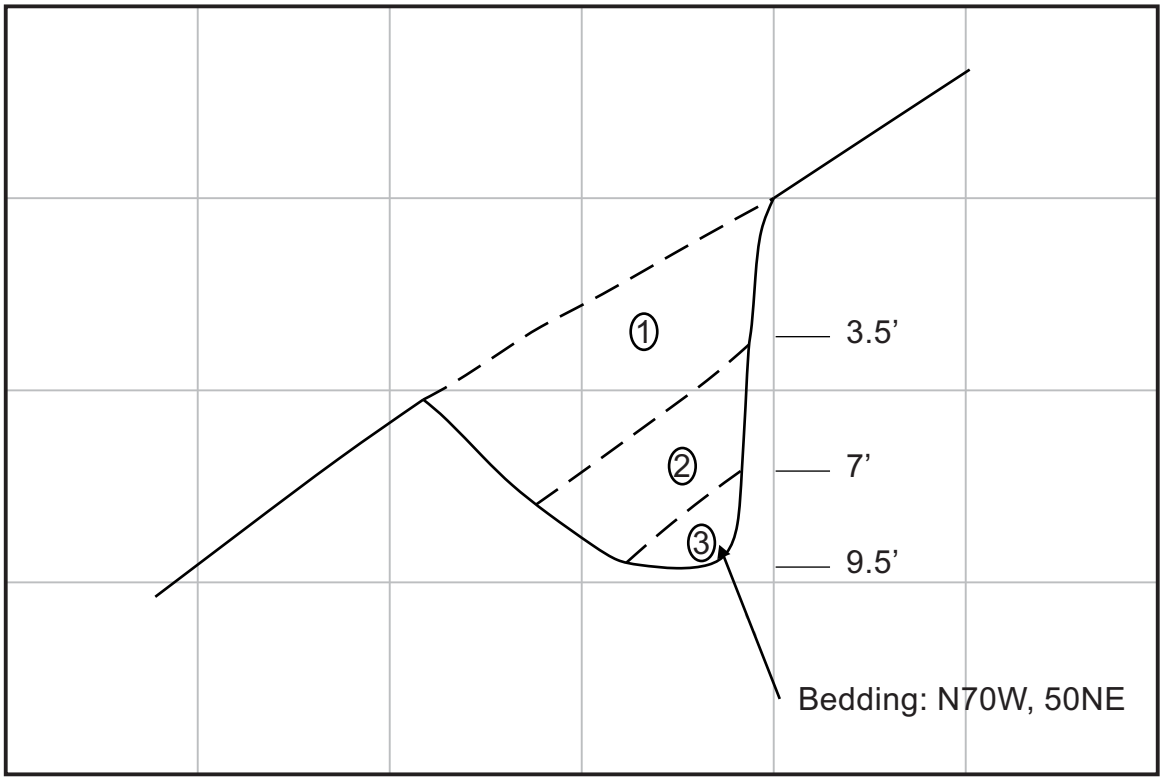
LOCATION PICO CANYON **ELEVATION** ~1560' **DATE LOGGED** 2-3-14

① SLOPEWASH: SANDY SILT, FINE, ROOTS, POROUS, OCCASIONAL COBBLES, VERY SOFT TO SOFT, DAMP, LIGHT TO MEDIUM BROWN

② WEATHERED BEDROCK: SILTSTONE, HIGHLY WEATHERED, OCCASIONAL SMALL ROOTS, HIGHLY FRACTURED

③ PICO FORMATION (Tp): SILTSTONE, MODERATELY FRACTURED WITH FRACTURING DIMINISHING WITH DEPTH, LOW HARDNESS, OLIVE BROWN TO BROWNISH GRAY
BEDDING @ 9': N70W, 50NE

BEARING:



SCALE: 1'' = 5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-2

JOB NUMBER 2013-014-021 **CLIENT** LENNAR **LOGGED BY** BKP/TPL

LOCATION PICO CANYON **ELEVATION** ~1630' **DATE LOGGED** 2-3-14

① SLOPEWASH: SANDY SILT (ML), FINE, SOME ROOTS, POROUS, VERY SOFT TO SOFT, MOIST, LIGHT TO MEDIUM BROWN

② SLOPEWASH: SANDY SILT (ML), LESS POROUS, VERY SOFT, DAMP TO MOIST, GRAYISH BROWN

③ WEATHERED BEDROCK: SILT (ML) GRADING TO SILTSTONE AT DEPTH, FIRM TO STIFF, GRAYISH BROWN

④ PICO FORMATION (Tp): SILTSTONE, HIGHLY FRACTURED IN UPPER FOOT WITH FRACTURING DIMINISHING AT DEPTH, FRIABLE TO LOW HARDNESS, OLIVE GRAY TO BROWNISH GRAY
BEDDING @ 8.5': N76W, 46NE

BULK SAMPLE TAKEN @ 5'

BEARING:

SCALE: 1'' = 5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

LOG OF TEST PIT TP-3

JOB NUMBER 2013-014-021 **CLIENT** LENNAR **LOGGED BY** BKP/TPL

LOCATION PICO CANYON **ELEVATION** ~1595' **DATE LOGGED** 2-3-14

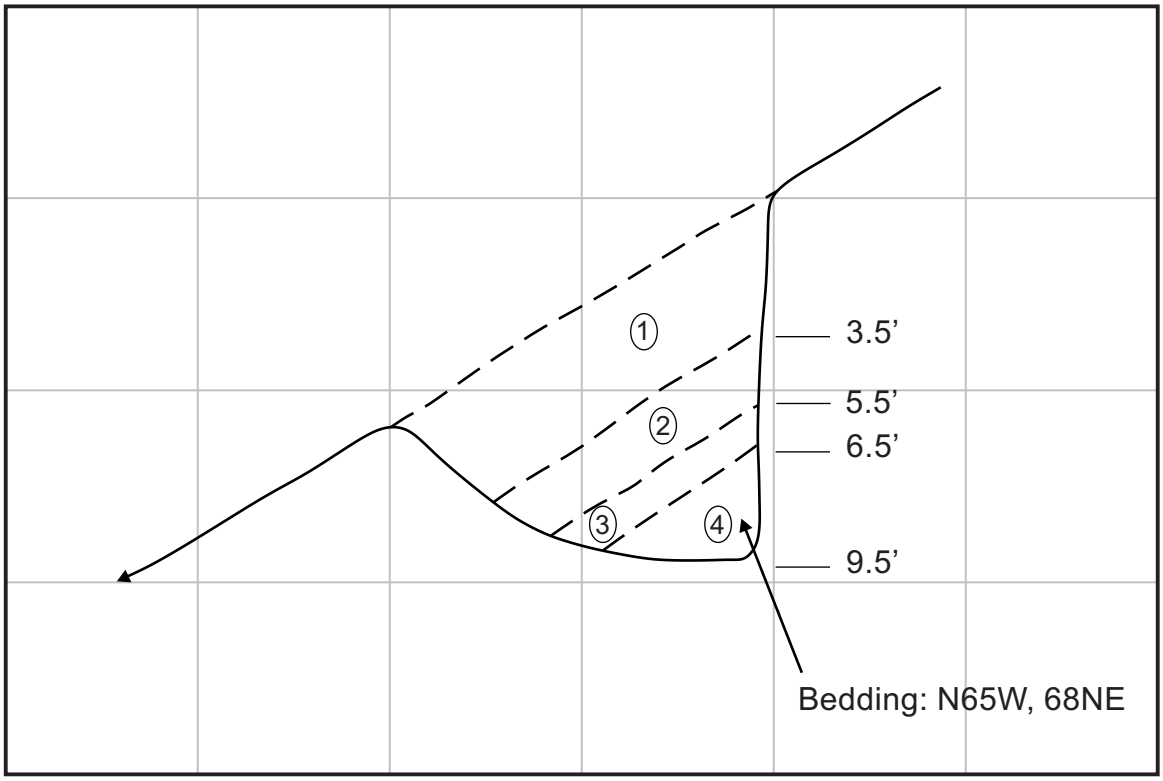
① SLOPEWASH: SANDY SILT (ML), FINE, ROOTS, SLIGHTLY POROUS, SOFT TO FIRM, MOIST, DARK GRAYISH BROWN

② SLOPEWASH: SANDY SILT (ML), FINE, ABUNDANT ROOTS, LESS POROUS FIRM, DAMP TO MOIST, LIGHT GRAYISH BROWN

③ WEATHERED BEDROCK: SILTSTONE, HIGHLY FRACTURED, FRIABLE BROWNISH GRAY

④ PICO FORMATION (Tp): SILTSTONE, OCCASIONAL ROOTS, LOW HARDNESS MOIST, BROWNISH GRAY TO OLIVE GRAY
BEDDING: N68W, 65NE

BEARING:



SCALE: 1'' = 5'

NOTE:
THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC TEST PIT LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

TEST PIT TP-4

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1585
LOGGED BY: BKP
BORING DEPTH: 0-7'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							CL	**SLOPE WASH** SILTY CLAY: slightly porous, occasional roots, firm, moist, dark brown
			-		X		CL	SILTY CLAY: occasional cobble and boulder, caliche, firm to stiff, moist, dark grayish brown to dark brown
				5				**PICO FORMATION (Tp)** SILTSTONE: weathered in upper 6", low hardness, moist
								Bottom of Test Pit at 7 feet.
				10				
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

TEST PIT TP-5

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1580
LOGGED BY: BKP
BORING DEPTH: 0-8'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							CL	**SLOPE WASH** SILTY CLAY: porous, occasional roots, moderately firm, damp to moist, medium grayish brown to dark brown
				5			CL	SILTY CLAY: occasional roots, occasional large gravel, firm to stiff, moist, dark grayish brown, grades more dense with depth
								PICO FORMATION (Tp) SILTSTONE: low hardness, moist, grayish brown
								Bottom of Test Pit at 8 feet.
				10				
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

TEST PIT TP-6

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1560
LOGGED BY: BKP
BORING DEPTH: 0-8'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							CL	**SLOPE WASH** SILTY CLAY: occasional roots, porous, firm, damp to moist, grayish brown
				5			CL	SILTY CLAY: occasional gravel, caliche, soft to firm, moist, dark gray to dark grayish brown, becoming stiff
								PICO FORMATION (Tp) SILTSTONE: low hardness, moist, grayish brown
				10				Bottom of Test Pit at 8 feet.
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

TEST PIT TP-7

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1540
LOGGED BY: BKP
BORING DEPTH: 0-11.5'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							CL	**ALLUVIUM (Qal)** SILTY CLAY: porous, occasional roots, soft to firm, damp to moist, grayish brown
				5			CL	SILTY CLAY: firm to stiff, moist, dark grayish brown
							CL	SILTY CLAY: abundant boulders and cobbles
				10				**PICO FORMATION (Tp)** SILTSTONE: low hardness, moist, olive gray
								Bottom of Test Pit at 11.5 feet.
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

TEST PIT TP-8

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1618
LOGGED BY: BKP
BORING DEPTH: 0-14'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							ML	**ARTIFICIAL FILL (af)** CLAYEY SILT: soft, damp, light olive gray
				5 10			SM	SILTY SAND: very loose, very moist, black, strong petroleum odor, occasional layer of greenish gray soil
				15 20 25 30 35 40				Bottom of Test Pit at 14 feet.

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

TEST PIT TP-9

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1538
LOGGED BY: BKP
BORING DEPTH: 0-5.5'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							ML	**SLOPE WASH** CLAYEY SILT: porous, occasional roots, soft to firm, damp, grayish brown
			-					**PICO FORMATION (Tp)** SILTSTONE: slightly weathered, low hardness, moist, brownish gray, becomes less weathered with depth
				5				
								Bottom of Test Pit at 5.5 feet.
				10				
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

TEST PIT TP-10

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1545
LOGGED BY: BKP
BORING DEPTH: 0-11.5'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							ML	**SLOPE WASH** CLAYEY SILT: porous, abundant roots, soft to medium firm, damp, light grayish brown
				5			ML	**WEATHERED BEDROCK** SILT: highly weathred, occasional roots, grading to siltstone, soft to low hardness, moist
				10				**PICO FORMATION (Tp)** SILTSTONE: low hardness
								Bottom of Test Pit at 11.5 feet.
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

TEST PIT TP-11

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1520
LOGGED BY: BKP
BORING DEPTH: 0-12'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							ML	**ALLUVIUM (Qal)** CLAYEY SILT: slightly porous, occasional roots, very soft to soft, damp, light grayish brown
				5			CL	SILTY CLAY: occasional small cobble, firm, moist, dark gray to grayish brown
				10				
								Bottom of Test Pit at 12 feet.
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

TEST PIT TP-12

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1505
LOGGED BY: BKP
BORING DEPTH: 0-9'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							ML	**SLOPE WASH** CLAYEY SILT: porous, occasional roots, soft to firm, damp, light grayish brown
				5				**PICO FORMATION (Tp)** SILTSTONE: low hardness, moist, dark grayish brown
								becoming moderately hard @9'
				10				Bottom of Test Pit at 9 feet.
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

R.T. FRANKIAN & ASSOCIATES

TEST PIT TP-13

JOB NUMBER: 2013-014-021
DATE DRILLED: 2/3/14
ELEVATION: ~1528
LOGGED BY: BKP
BORING DEPTH: 0-8.5'

BLOWS PER FOOT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (LBS. PER CU. FT.)	N-VALUE	DEPTH (FEET)	SAMPLE LOCATION	GRAPHIC LOG	SOIL TYPE	
							ML	**SLOPE WASH** CLAYEY SILT: porous, roots, soft to firm, damp, light gray to light grayish brown
				5				**WEATHERED BEDROCK** SILTSTONE: occasional roots, soft, moist, light gray, gets harder with depth
								PICO FORMATION (Tp) SILTSTONE: low hardness, moist, light brownish gray
				10				Bottom of Test Pit at 8.5 feet.
				15				
				20				
				25				
				30				
				35				
				40				

Note: The log of subsurface conditions shown hereon is approximate and applies only at the specific location and date indicated. It is not warranted to be representative of subsurface conditions at other locations or times.

BOREHOLE LOG 2013-014.GPJ FRANKIAN.GDT 3/25/14

LOG OF TEST PIT

R.T. FRANKIAN & ASSOCIATES

Lennar Homes
March 27, 2014
2013-014-021

APPENDIX B

FIELD INVESTIGATIONS BY J. BYER GROUP

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 1

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1467	0	Ground Surface									
		ALLUVIUM Silty Sand, light brown, dry, loose									
1466	1										
1465	2										
1464	3										
1463	4										
1462	5	Sandy Silt with cobbles, light brown, slightly moist		GM/ML	R	12	4.2	94.5			
1461	6										
1460	7										
1459	8										
1458	9										
1457	10	Gravelly Sand, slightly moist, mottled yellow and brown		GM/SM	R	50	—	—			No Recovery
1456	11										
1455	12										
1454	13										
1453	14										
1452	15	Gravelly Sand, yellow brown, slightly moist		GM/SM	R	37	6.5	111.8			
1451	16										
1450	17										
1449	18										
1448	19	groundwater									
1447	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1467.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 1

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		Gravelly Sand, saturated, coarse, poorly sorted		—	R	29					No Recovery
1446	21										
1445	22										
1444	23			GM							
1443	24										
1442	25			—	SPT	19					
1441	26	BEDROCK Siltstone, dark gray, unoxidized, massive, hard									
1440	27										
1439	28										
1438	29										
1437	30	End at 30 Feet; Water at 18½ Feet.		—	R	50	18.3	119.2			
1436	31										
1435	32										
1434	33										
1433	34										
1432	35										
1431	36										
1430	37										
1429	38										
1428	39										
1427	40										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1467.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 2

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data					
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1475	0	Ground Surface									
		ALLUVIAL Sandy Silt/Silty Sand, light brown, slightly moist									
1474	1										
1473	2			GM/SM							
1472	3										
1471	4										
1470	5	Sandy Silt, light brown, slightly moist, medium dense, rock fragments to 1 inch		—	R	44	—	—			No Recovery
1469	6										
1468	7			GM							
1467	8										
1466	9										
1465	10	Gravelly Sand, light brown, loose, slightly moist, rock fragments to 1 inch		—	R	28	6.8	105.9			
1464	11			GM							
1463	12										
1462	13										
1461	14	groundwater									
1460	15			—	R	25	—	—			No Recovery
1459	16										
1458	17										
1457	18										
1456	19										
1455	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1475.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 2

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		Coarse Sand, light brown, poorly sorted, loose		—	SPT	48					
1454	21	**BEDROCK** Siltstone, dark gray, moderately hard									
1453	22										
1452	23										
1451	24	Siltstone, gray, hard, dry, massive, slightly weathered									
1450	25	End at 25 Feet; Water at 14 Feet; No Caving		—	R	50	11.0	120.4			
1449	26										
1448	27										
1447	28										
1446	29										
1445	30										
1444	31										
1443	32										
1442	33										
1441	34										
1440	35										
1439	36										
1438	37										
1437	38										
1436	39										
1435	40										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1475.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 3

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1473	0	Ground Surface									
		ALLUVIUM Silty Sand, medium dense, slightly moist		SM							
1472	1										
1471	2										
1470	3										
1469	4										
1468	5	Silt, light brown, loose to very loose, slightly moist, rock fragments to ¼ inch		—	R	8	6.5	88.9			
1467	6			ML							
1466	7										
1465	8										
1464	9										
1463	10	Silty Sand, brown, loose to medium dense, slightly moist to moist, rock fragments to ¼ inch		—	R	28	12.3	106.3			
1462	11										
1461	12			SM							
1460	13										
1459	14										
1458	15	Gravelly Sand, light brown, loose, slightly moist, rock fragments to ¼ inches		—	R	50	4.6	95.6			Large granitic boulder encountered in sampler tip
1457	16										
1456	17			GM							
1455	18										
1454	19	groundwater									
1453	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/28/98

Size: 8 Inch

Elevation: 1473.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 3

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		Gravelly Sand, light brown, loose, saturated, rock fragments to 1 inch, poorly sorted		—	R	37	14.3	119.0			
1452	21										
1451	22			GM							
1450	23										
1449	24										
1448	25	**BEDROCK** Siltstone, gray, hard, dry, moderately weathered End at 25 Feet; Water at 19 Feet; No Caving		—	SPT	50					
1447	26										
1446	27										
1445	28										
1444	29										
1443	30										
1442	31										
1441	32										
1440	33										
1439	34										
1438	35										
1437	36										
1436	37										
1435	38										
1434	39										
1433	40										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/28/98

Size: 8 Inch

Elevation: 1473.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 4

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1480	0	Ground Surface									
		ALLUVIUM Silty Sand, tan to gray brown, slightly moist, slightly dense									
1479	1										
1478	2			SM							
1477	3										
1476	4										
1475	5			—	R	13					Rock fragment stuck in sampler tip - no recovery
1474	6										
1473	7										
1472	8			SM							
1471	9										
1470	10	Gravelly Sand, brown, loose, slightly moist, rock fragments to 1½ inches		—	R	41	5.9	111.5			
1469	11										
1468	12										
1467	13			GM							
1466	14	Gravelly Sand, brown, loose, moist, rock fragments to 1 inch									
1465	15	End at 15 Feet; No Water; No Caving		GM	R	50	15.8	117.3			Hit refusal in hard boulders and cobbles
1464	16										
1463	17										
1462	18										
1461	19										
1460	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1480.0

Sheet: 1 of 1

Project No: JB 17826-B

Log of Boring

Client: AIDLIN

Location: PICO CANYON

By: JAI

SUBSURFACE PROFILE

Elevation	Depth	Description	Symbol	USCS	Type	Blow Count	Moisture Content (%)	Dry Density (pcf)		
1463	0	Ground Surface								
		ALLUVIUM Silty Sand, tan, slightly moist, slightly dense								
1462	1									
1461	2									
1460	3									
1459	4									
1458	5	Silt, brown, firm, slightly moist, no gravel or rock fragments		---	R	9	15.8	83.1		
1457	6									
1456	7			ML						
1455	8									
1454	9									
1453	10	Clayey Sand, brown to reddish brown, slightly moist, firm, rock fragments to ¼ inch		---	R	19				No Recovery Too Rocky
1452	11									
1451	12			SC						
1450	13									
1449	14									
1448	15	Gravelly Sand, light brown, loose, slightly moist, rock fragments to 1½ inches		---	R	41	8.2	113.8		
1447	16			GM						
1446	17									
1445	18	groundwater								
1444	19									
1443	20									

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1463.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 5

By: JAI

The J. Byer Group, Inc.
1461 E. Chevy Chase Dr., Suite 200
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE

Elevation	Depth	Description	Symbol	USCS	Type	Blow Count	Moisture Content (%)	Dry Density (pcf)	% Saturation	Remarks
		Gravelly Sand, light brown to gray, loose, saturated, rock fragments to 1 inch		---	R	28				No Recovery Too Rocky
1442	21									
1441	22			GM						
1440	23									
1439	24									
1438	25	Gravelly Sand, light brown, loose, saturated, rock fragments to ½ inch		---	SPT	15				
1437	26			GM						
1436	27									
1435	28									
1434	29									
1433	30	**BEDROCK** Siltstone, gray, hard, dry End at 30 Feet; Water at 18 Feet; No Caving		---	SPT	50				
1432	31									
1431	32									
1430	33									
1429	34									
1428	35									
1427	36									
1426	37									
1425	38									
1424	39									
1423	40									

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1463.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 6

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1462	0	Ground Surface									
		ALLUVIUM Silty Sand, light gray, brown, slightly moist									
1461	1										
1460	2										
1459	3			SM							
1458	4										
1457	5	Silty Sand, light brown, loose, dry, no rock fragments		---	R	14	4.3	100.9			Tested Moisture 23.6%
1456	6										
1455	7			SM							
1454	8										
1453	9										
1452	10	Gravelly Sand, light brown, loose, slightly moist, rock fragments to 1¼ inches		—	R	30	—	—			Too Rocky
1451	11										
1450	12			GM							
1449	13										
1448	14										
1447	15	Gravelly Sand, light brown to gray, medium dense, slightly moist, rock fragments to 1½ inches		—	R	50	—	—			Too Rocky
1446	16	End boring due to hard cobbles and boulders		GM							
1445	17										
1444	18										
1443	19										
1442	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1462.0

Sheet: 1 of 1

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 7

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1455	0	Ground Surface									
		ALLUVIUM Silty Sand, gray-brown, slightly moist									
1454	1										
1453	2			SM							
1452	3										
1451	4										
1450	5	Sandy Silt, light brown, medium dense, moist, no rock fragments		---	R	9	6.8	93.1			
1449	6										
1448	7										
1447	8			ML							
1446	9										
1445	10	Gravelly Sand, light brown to reddish brown, loose, dry, rock fragments to 1¼ inches		---	R	50					Too rocky to sample
1444	11										
1443	12			GM							
1442	13										
1441	14	groundwater									
1440	15			---	R	9	12.8	108.4			
1439	16										
1438	17										
1437	18										
1436	19										
1435	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1455.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 7

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		Gravelly Sand, light brown, loose, saturated		GM	SPT	39					
1434	21	Gravelly Sand, light brown to red, medium dense, moist, rock fragment to 3/4 inches									
1433	22			GM							Refusal in hard cobbles and boulders
1432	23	Gravelly Sand, light brown, saturated, rock fragments to ½ inch End at 22½ Feet; Water at 14 Feet; No Caving									
1431	24										
1430	25										
1429	26										
1428	27										
1427	28										
1426	29										
1425	30										
1424	31										
1423	32										
1422	33										
1421	34										
1420	35										
1419	36										
1418	37										
1417	38										
1416	39										
1415	40										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 9/29/98

Size: 8 Inch

Elevation: 1455.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 8

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1477	0	Ground Surface									
		ALLUVIUM Silty Sand with cobbles, gray, tan, slightly moist, slightly dense									
1476	1										
1475	2			SM							
1474	3			—	R	14					
1473	4										
1472	5										
1471	6	Gravelly Sand with cobbles, gold brown		—	R	29	6.1	103.7			
1470	7										
1469	8			GM							
1468	9			—	R	30	6.0	103.0			
1467	10										
1466	11										
1465	12			—	R	50					Too rocky - no recovery
1464	13										
1463	14	groundwater									
1462	15										
1461	16										
1460	17	Gravelly Sand, mottled gray, brown, orange, saturated		—	SPT	21					
1459	18										
1458	19										
1457	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 10/1/98

Size: 8 Inch

Elevation: 1477.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 8

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		BEDROCK									
1456	21	Conglomerate, gray, yellow-brown, hard, massive		—	SPT	43					
1455	22										
1454	23										
		Siltstone, dark gray, hard, massive									
1453	24										
		End at 24 Feet; Water at 14 Feet.									
1452	25										
1451	26										
1450	27										
1449	28										
1448	29										
1447	30										
1446	31										
1445	32										
1444	33										
1443	34										
1442	35										
1441	36										
1440	37										
1439	38										
1438	39										
1437	40										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 10/1/98

Size: 8 Inch

Elevation: 1477.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 9

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1473	0	Ground Surface									
		ALLUVIUM Silty Sand with Gravel and cobbles, dry, slightly dense									
1472	1			SM							
				GM							
1471	2										
1470	3	Gravelly Sand		—	R	36	5.8	123.3			
1469	4			GM							
1468	5										
1467	6			—	R	50	6.0	115.4			
1466	7			GM							
1465	8										
1464	9	Cobbly Sand/Gravelly Sand, difficult drilling		—	R	50	5.3	107.2			
1463	10			GM							
1462	11										
1461	12	End at 12 Feet; No Water; No Caving.		—	R	50	3.1	112.4			Refusal 12 Feet due to hard cobbles and boulders
1460	13										
1459	14										
1458	15										
1457	16										
1456	17										
1455	18										
1454	19										
1453	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 10/1/98

Size: 8 Inch

Elevation: 1473.0

Sheet: 1 of 1

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 10

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1490	0	Ground Surface									
		ALLUVIUM Gravelly Sand, tan, dry, loose									
1489	1			GM							
1488	2										
1487	3			---	R	39	2.4	—			Too rocky
1486	4										
1485	5										
1484	6			GM	R	49					
1483	7										
1482	8										
1481	9			GM	R	50					
1480	10										
1479	11										
1478	12			GM	R	50	5.9	122.3			Tested Moisture 13.0%
1477	13										
1476	14			GM	R	50	8.7	121.5			
1475	15										
1474	16										
1473	17										
1472	18	**BEDROCK** Siltstone, moderately hard, massive		---	R	50	10.9	121.7			
1471	19										
1470	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 10/1/98

Size: 8 Inch

Elevation: 1490.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 10

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1469	21	Siltstone, dark gray to black, massive, moderately hard		—	R	50	15.1	115.6			
1468	22										
1467	23										
1466	24	End at 24 Feet; No Water; No Caving.		—	R	50	10.3	109.7			
1465	25										
1464	26										
1463	27										
1462	28										
1461	29										
1460	30										
1459	31										
1458	32										
1457	33										
1456	34										
1455	35										
1454	36										
1453	37										
1452	38										
1451	39										
1450	40										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 10/1/98

Size: 8 Inch

Elevation: 1490.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 11

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1474	0	Ground Surface									
		Silty Sand, medium dense, gray, dry									
1473	1			SM							
1472	2										
1471	3	Silty Sand with Gravel, yellow-brown		—	R	22	3.5	110.3			
1470	4			SM							
				GM							
1469	5										
1468	6			—	R	50	3.3	124.9			
1467	7										
1466	8										
1465	9	Gravelly Silt, mottled gray and yellow brown		—	R	15	21.3	103.6			
1464	10			GM							
1463	11										
1462	12			—	R	17	23.4	99.9			
1461	13										
1460	14										
1459	15	**BEDROCK**		—	R	50	14.7	116.8			
1458	16	Siltstone, gray-brown, moderately hard to hard massive End at 15 Feet; No Water No Caving									
1457	17										
1456	18										
1455	19										
1454	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 10/1/98

Size: 8 Inch

Elevation: 1474.0

Sheet: 1 of 1

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 12

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
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SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1485	0	Ground Surface									
		ALLUVIUM Silty Sand, mottled tan and brown, dry, slightly dense									
1484	1			SM							
1483	2										
1482	3			—	R	45					
		Gravel and Sandstone boulders									
1481	4										
1480	5			GM							
1479	6			—	R	36	3.8	121.8			
1478	7										
1477	8										
1476	9			—	R	50	7.4	106.2			
1475	10										
1474	11										
1473	12			—	R	26	—	—			No Recovery
1472	13										
1471	14										
1470	15			—	R	33	14.0	116.0			
		BEDROCK Conglomerate, brown, hard, massive									
1469	16										
1468	17	End at 17 Feet; No Water; No Caving.		—	R	25	8.4	125.0			Tested Moisture 12.1%
1467	18										
1466	19										
1465	20										

Surface: Alluvial Valley

Drill Method: Hollow-Stem Auger

Drill Date: 10/1/98

Size: 8 Inch

Elevation: 1485.0

Sheet: 1 of 1

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 13

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
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SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1785	0	Ground Surface									
		BEDROCK Conglomerate, green, brown, moderately hard, fractured, very weathered, roots, rounded clasts up to 4 inches of mudstone, quartz and granite									
1784	1										
1783	2										
1782	3										
1781	4										
1780	5			---	R	13	11.4	108.2			
1779	6										
1778	7										
1777	8										
1776	9										
1775	10	Conglomerate, green, brown, moderately hard, fractured, weakly cemented, rounded clasts up to 4 inches, boulders up to 1½ feet									
1774	11										
1773	12										
1772	13										
1771	14										
1770	15										
1769	16			---	R	26	9.1	122.4			Tested Moisture 12.8%
1768	17										
1767	18										
1766	19										
1765	20										

Surface: Dozer Road

Drill Method: Bucket Auger

Drill Date: 9/24/98

Size: 24 Inch

Elevation: 1785.0

Sheet: 1 of 3

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 13

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
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SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1764	21	Conglomerate, green, brown, moderately hard, fractured, weakly cemented, rounded clasts up to 4 inches, boulders up to 1½ feet									
1763	22										
1762	23	Conglomerate, dark gray brown, moderately hard, gypsum veins, clasts up to 4 inches N26W; 49NE fracture									
1761	24										
1760	25										
1759	26										
1758	27			—	R	32	14.7	114.2			
1757	28	Siltstone, dark green and gray, orange, gypsum veins									
1756	29										
1755	30										
1754	31										
1753	32										
1752	33										
1751	34										
1750	35			—	R	47	2.8	115.6			Tested Moisture 13.7%
1749	36	Conglomerate, brown, green, white, tan, orange, abundant gypsum, hard, fractured, moderately weathered, clasts up to 4 inches									
1748	37										
1747	38										
1746	39										
1745	40										

Surface: Dozer Road

Drill Method: Bucket Auger

Drill Date: 9/24/98

Size: 24 Inch

Elevation: 1785.0

Sheet: 2 of 3

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 13

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		Conglomerate, moderately weathered, weakly bedded, N47W; 44SW fracture		—	R	89	8.1	110.2			
1744	41										
1743	42										
1742	43	End at 43 Feet; No Water; No Caving.									
1741	44										
1740	45										
1739	46										
1738	47										
1737	48										
1736	49										
1735	50										
1734	51										
1733	52										
1732	53										
1731	54										
1730	55										
1729	56										
1728	57										
1727	58										
1726	59										
1725	60										

Surface: Dozer Road

Drill Method: Bucket Auger

Drill Date: 9/24/98

Size: 24 Inch

Elevation: 1785.0

Sheet: 3 of 3

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 14

By: JAI

The J. Byer Group, Inc.
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SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1745	0	Ground Surface									
		BEDROCK Siltstone, gray-green, moderately hard, gypsum veins, fractured, slightly weathered									
1744	1										
1743	2										
1742	3										
1741	4										
1740	5			—	R	16	11.8	109.5			
1739	6										
1738	7	Siltstone, dark gray, moderately hard, fractured, gypsum veins N65W; 61S fracture N49W; 44S fracture									
1737	8										
1736	9										
1735	10	Siltstone, green gray, moderately hard, fractured, gypsum veins N82W; 49N bedding		—	R	22	11.9	122.2			
1734	11										
1733	12	N87E; 55N Bedding									
1732	13										
1731	14										
1730	15										
1729	16										
1728	17										
1727	18	Siltstone, dark green, dark brown, moderately hard, fractured, gypsum veins		—	R	71	13.7	120.0			
1726	19										
1725	20										

Surface: Dozer Road

Drill Method: Bucket Auger

Drill Date: 9/25/98

Size: 24 Inch

Elevation: 1745.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 14

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
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SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		Siltstone, gray brown, orange, moderately hard, gypsum veins, fractured		—	R	75	13.4	120.5			
1724	21										
1723	22										
1722	23										
1721	24	N75W; 65N Bedding									
1720	25	Siltstone, dark gray, orange, brown, white, moderately hard, fractured, gypsum veins		—	R	115	12.8	121.7			Tested Moisture 12.8%
1719	26										
1718	27										
1717	28										
1716	29										
1715	30	Siltstone, dark gray, dark brown, moderately hard, fractured, gypsum veins, moderately weathered		—	R	107	13.1	119.4			Tested Moisture 14.1%
1714	31	End at 31 Feet; No Water; No Caving.									
1713	32										
1712	33										
1711	34										
1710	35										
1709	36										
1708	37										
1707	38										
1706	39										
1705	40										

Surface: Dozer Road

Drill Method: Bucket Auger

Drill Date: 9/25/98

Size: 24 Inch

Elevation: 1745.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 15

By: JAI

The J. Byer Group, Inc.
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SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1630	0	Ground Surface									
		BEDROCK Siltstone, dark gray, orange, white, moderately hard, very fractured, weathered, gypsum deposits, roots									
1629	1										
1628	2										
1627	3										
1626	4										
1625	5			—	R	18	9.3	124.1			
1624	6										
1623	7	N15W; 88S fracture									
1622	8										
1621	9										
1620	10	Siltstone, dark gray green, white, moderately hard, fractured, gypsum deposits, slightly weathered, occasional fossils up to ¼ inch		—	R	27	10.5	123.2			
1619	11										
1618	12										
1617	13										
1616	14										
1615	15	Siltstone, dark gray, green, moderately hard, fractured, gypsum deposits		—	R	45	11.2	124.2			
1614	16										
1613	17										
1612	18										
1611	19	N61W; 59S fracture									
1610	20										

Surface: Dozer Road

Drill Method: Bucket Auger

Drill Date: 9/28/98

Size: 24 Inch

Elevation: 1630.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 15

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
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SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		Siltstone, dark gray green, moderately hard, fractured, gypsum deposits		—	R	66	11.4	127.2			
1609	21										
1608	22										
1607	23										
1606	24										
1605	25										
		occasional fossil up to ¼ inch									
1604	26	orange, rounded clasts of mudstone up to 1½ inches									
1603	27										
1602	28										
1601	29										
1600	30	Siltstone, charcoal, dark gray, massive, moderately hard, contorted bedding									
1599	31			—	R	166	16.0	117.7			Tested Moisture 15.2%
1598	32										
1597	33										
1596	34	charcoal gray, massive, moderately hard to hard, slightly weathered									
1595	35										
1594	36										
1593	37	End at 37 Feet; No Water; No Caving.		—	R	100	10.4	127.9			Tested Moisture 10.8%
1592	38										
1591	39										
1590	40										

Surface: Dozer Road

Drill Method: Bucket Auger

Drill Date: 9/28/98

Size: 24 Inch

Elevation: 1630.0

Sheet: 2 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 16

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
1760	0	Ground Surface									
		BEDROCK									
1759	1	Siltstone, dark brown, fractured, weathered, traces of CaCo3, occasional fossil up to ¼ inch, moderately hard									
1758	2										
1757	3										
1756	4										
1755	5	Siltstone, dark brown, gray, moderately hard, fractured, weathered, CaCo3 deposits		—	R	100	13.6	117.3			
1754	6	Siltstone, dark brown, gray, moderately hard, fractured, gypsum, moderately bedded, occasional fossil up to 1/8 inch									
1753	7	N22W; 61NE fracture									
1752	8										
1751	9	N84W; 35N bedding		—	R	100	13.2	116.4			
1750	10										
1749	11										
1748	12										
1747	13										
1746	14										
1745	15	Siltstone, brown, gray, white, moderately hard fractured, gypsum veins		—	R	100	13.9	120.3			Tested Moisture 13.7%
1744	16										
1743	17										
1742	18										
1741	19	occasional fossil up to 1 inch									
1740	20										

Surface:

Drill Method: Bucket Auger

Drill Date: 9/30/98

Size: 24 Inch

Elevation: 1760.0

Sheet: 1 of 2

Project No: JB 17826-B

Client: AIDLIN

Location: PICO CANYON

Log of Boring 16

By: JAI

The J. Byer Group, Inc.
512 East Wilson Ave., Suite 201
Glendale, CA 91206
(818) 549-9959

SUBSURFACE PROFILE				SAMPLE			Lab Data				
Elevation	Depth	Description	Symbol	USCS	Type	Blow Count Per Foot	Moisture Content (%)	Dry Density (pcf)	PHI Angle (degrees)	Cohesion (psf)	Remarks
		Siltstone, gray, occasional brown and white, moderately hard, massive									
1739	21	Siltstone, charcoal gray, moderately hard, fractured, trace gypsum, massive, occasional fossil up to 1 inch		—	R	100	10.7	117.1			
1738	22										
1737	23										
1736	24										
1735	25	Siltstone, charcoal gray, moderately hard, fractured, massive, slightly weathered		—	R		10.7	119.6			Tested Moisture 13.7%
1734	26	End at 25 Feet; No Water; No Caving.									
1733	27										
1732	28										
1731	29										
1730	30										
1729	31										
1728	32										
1727	33										
1726	34										
1725	35										
1724	36										
1723	37										
1722	38										
1721	39										
1720	40										

Surface:

Drill Method: Bucket Auger

Drill Date: 9/30/98

Size: 24 Inch

Elevation: 1760.0

Sheet: 2 of 2

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A GEOTECHNICAL CONSULTING FIRM
512 E. WILSON AVENUE SUITE 201, GLENDALE, CA 91206
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LOG OF TEST PITS

JB: 17826-B CLIENT: AIDLIN

GEOLOGIST: JAI DATE LOGGED: 9/22/98

REPORT DATE: 11/6/98

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
TEST PIT #1			Surface Conditions: Near toe of slope along east P/L
	0 - 2¼	**COLLUVIUM:**	Sandy Silt, light brown, slightly moist, firm, porous, abundant roots
	2¼ - 4	**WEATHERED BEDROCK**	Admixture of soil and bedrock
	4 - 6	**BEDROCK:**	Siltstone, gray-brown, moderately hard, weakly bedded, fractured, very weathered
			End at 6 Feet; No Water; No Caving; No Fill. *N78E 52N Bedding*
TEST PIT #2			Surface Conditions: Toe of Slope
	0 - 10	**COLLUVIUM:**	Silt, yellow-brown, very porous, slightly dense
	10 - 16		grades from medium dense to dense, light yellow-brown, porous
			End at 16 Feet; No Water; No Caving; No Fill.
TEST PIT #3			Surface Conditions: Toe of Slope
	0 - 1½	**COLLUVIUM:**	Silt, light brown, slightly moist to dry, porous, roots
	1½ - 4		Silt/Gravelly Silt, tan with secondary carbonate, bioturbated
	4 - 7	**BEDROCK:**	Siltstone, gray-brown, massive to weakly bedded, very to moderately weathered
			End at 7 Feet; No Water; No Caving; No Fill. *Bedding: E-W; 57N*

NOTE: The stratification depths shown on the Log of Test Pits are approximate and are based upon visual classification of samples and cuttings. The actual depths may vary. Variations between test pits may also occur.

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LOG OF TEST PITS

JB: 17826-B CLIENT: AIDLIN

GEOLOGIST: JAI DATE LOGGED: 9/22/98

REPORT DATE: 11/6/98

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
TEST PIT #4			Surface Conditions: Toe of Slope
	0 - 15	**COLLUVIUM:**	Silt, light brown, porous, secondary carbonate, slightly moist, slightly dense
	15 - 16		Silt, moist, rounded fragments of Siltstone, slightly porous, dense, sandstone boulders up to 9 inches
			End at 16 Feet; No Water; No Caving; No Fill.
TEST PIT #5			Surface Conditions: Toe of Slope
	0 - 4	**COLLUVIUM:**	light brown, porous, rounded rock fragments up to 4 inches, boulders up to 2½ feet, aboundant roots, slightly moist
	4 - 6	**WEATHERED BEDROCK:**	Admixture Soil/Bedrock, secondary carbonate, occasional roots
	6 - 8	**BEDROCK:**	Siltstone, tan, gray, black, mottled, moderately hard, massive, fractured, contorted
			End at 8 Feet; No Water; No Caving; No Fill. *Bedding: N35W; 75N*
TEST PIT #6			Surface Conditions: Toe of Slope
	0 - 4½	**COLLUVIUM:**	Silt, light brown, porous, roots, secondary carbonate, rock fragments up to 4 inches, dense, slightly moist
	4½ - 6½	**BEDROCK:**	Siltstone, gray brown, secondary carbonate, very weathered, fractured
	6½ - 8		Siltstone, moderately fissile, moderately hard, thinly to thickly bedded
			End at 8 Feet; No Water; No Caving; No Fill. *Bedding: N50E; 30W*

NOTE: The stratification depths shown on the Log of Test Pits are approximate and are based upon visual classification of samples and cuttings. The actual depths may vary. Variations between test pits may also occur.

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LOG OF TEST PITS

JB: 17826-B CLIENT: AIDLIN

GEOLOGIST: JAI DATE LOGGED: 9/22/98

REPORT DATE: 11/6/98

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
TEST PIT #7			Surface Conditions: Slope
	0 - 3½	**COLLUVIUM:**	Sandy Silt, tan, dry, medium dense, porous, roots
	3½ - 5	**WEATHERED BEDROCK:**	Admixture of Bedrock and Soil, secondary carbonate, roots
	5 - 8½	**BEDROCK:**	Sandstone and Siltstone, tan, gray, brown, moderately hard, thinly bedded, moderately fissile, moderately weathered
			End at 8½ Feet; No Water; No Caving; No Fill. *Bedding: N33W; 42N*
TEST PIT #8			Surface Conditions: Slope
	0 - 4	**COLLUVIUM:**	Silt, light brown, slightly moist, porous, roots, slightly dense
	4 - 6	**WEATHERED BEDROCK:**	Admixture of Soil and Weathered Bedrock, light brown, secondary carbondate, roots
	6 - 8	**BEDROCK:**	Siltstone, black, secondary carbonate, fractured, fissile, moderately hard, massive
			End at 8 Feet; No Water; No Caving; No Fill. *Bedding: N75E; 50N*
TEST PIT #9			Surface Conditions: Near Slope Top
	0 - 2½	**COLLUVIUM**	Silt, light brown, porous, slightly dense, slightly moist, roots
	2½ - 5		rock fragments up to 4 inches, tan to gray, porous
	5 - 5½	**WEATHERED BEDROCk:**	admixture of Soil and Weathered Bedrock, secondary carbonate, rock fragments up to 4 inches
	5½	**BEDROCK:**	Siltstone, gray, brown, black, moderately weathered
			End at 5½ Feet; No Water; No Caving; No Fill.

NOTE: The stratification depths shown on the Log of Test Pits are approximate and are based upon visual classification of samples and cuttings. The actual depths may vary. Variations between test pits may also occur.

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LOG OF TEST PITS

JB: 17826-B CLIENT: AIDLIN

GEOLOGIST: JAI DATE LOGGED: 9/22/98

REPORT DATE: 11/6/98

TEST PIT #10 Surface Conditions: Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 2½	**COLLUVIUM:**	Silt, tan, light brown, porous, slightly dense, slightly moist, abundant roots
	2½ - 4½	**BEDROCK:**	Siltstone, light gray, structureless, secondary carbonate, roots
	4½ - 7½	**BEDROCK:**	Siltstone, gray brown, deposits of secondary carbonate, moderately hard, fractured, fissile N2E; 36W Joint; N40E; 40NW distorted bedding

End at 7½ Feet; No Water; No Caving; No Fill.

TEST PIT #11 Surface Conditions: Slope

	0 - 4	**COLLUVIUM:**	Silt, light brown, slightly dense, porous, roots, sandstone fragments up to 6 inches
	4 - 5		abundant sandstone fragments up to 12 inches with silt matrix
	5 - 9	**BEDROCK:**	Siltstone, gray, orange, green, tan, vertical bedding, interbedded sandstone and Siltstone, moderately hard, folded, very weathered

End at 9 Feet; No Water; No Caving; No Fill.

TEST PIT #12 Surface Conditions: Slope

	0 - 6	**COLLUVIUM:**	Silt, tan, light brown, slightly dense, slightly moist, porous, secondary carbonate, roots
	6 - 7	**WEATHERED BEDROCK:**	Admixture Colluvium/Bedrock, slightly moist
	7 - 10	**BEDROCK:**	Siltstone, gray brown, moderately hard, fractured, secondary carbonate

End at 10 Feet; No Water; No Caving; No Fill.

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SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
TEST PIT #13			Surface Conditions: Slope
	0 - 2½	**COLLUVIUM:**	Silty Sand, tan, light brown, dry, medium dense
	2½ - 5½	**BEDROCK:**	Siltstone, gray brown, moderately hard, thickly bedded, secondary carbonate
			End at 5½ Feet; No Water; No Caving; No Fill. *Bedding: N70W; 60N*
TEST PIT #14			Surface Conditions: Toe of Slope
	0 - 2½	**COLLUVIUM:**	Silty Sand, mottled tan and gray, slightly moist to dry, medium dense, roots, bioturated
	2½ - 5		cobbles and boulders - 5 to 12 inches in diameter
	5 - 9	**BEDROCK:**	Siltstone with thin sandstone interbeds, thickly bedded, very to moderately weathered
			End at 9 Feet; No Water; No Caving; No Fill. *Bedding: N65E; 85N*
TEST PIT #15			Surface Conditions: Toe of Slope
	0 - 2	**COLLUVIUM/ SOIL:**	Silty Sand, gray and brown, dry, medium dense
	2 - 4½	**WEATHERED BEDROCK:**	Admixture of Soil and discontinuous Bedrock, secondary carbonate
	4½ - 7	**BEDROCK:**	Siltstone, dark gray and orange brown, moderately hard, very fractured, very weathered, structureless
			End at 7 Feet; No Water; No Caving; No Fill.

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TEST PIT #16

Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 3½	**COLLUVIUM:**	Silty Sand, mottled gray-brown, dry, secondary carbonate, roots
	3½ - 5	**WEATHERED BEDROCK/SOIL:**	Admixture of Soil/Bedrock, roots, secondary carbonate
	5 - 8	**BEDROCK:**	Siltstone, moderately hard, gray brown, weakly bedded, moderately to very weathered

End at 8 Feet; No Water; No Caving; No Fill.
Bedding: N37E; 51W

TEST PIT #17

Surface Conditions: Toe of Slope

	0 - 1½	**COLLUVIUM:**	Silty Sand with Clay binder, dark brown, slightly moist
	1½ - 5		Silty Sand, yellow-brown, tan, orange, porous
	5 - 6½	**WEATHERED BEDROCK:**	Admixture Soil/Bedrock, roots
	6½ - 9	**BEDROCK:**	Siltstone with occasional sandstone interbeds, moderately hard, brown, orange, gray, very weathered, contorted N60W, 75N Bedding; N50E; 40N Bedding

End at 9 Feet; No Water; No Caving; No Fill.

TEST PIT #18

Surface Conditions: Toe of Slope

	0 - 8	**COLLUVIUM:**	Silt, light brown, tan, porous, roots
	8 - 12		cobbles and boulders between 6 to 30 inches, silt matrix
	12 - 14	**BEDROCK:**	Siltstone, gray brown, moderately hard, massive, very weathered

End at 14 Feet; No Water; No Caving; No Fill.

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TEST PIT #19

Surface Conditions: Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 4	COLLUVIUM:	Silty Sand, tan, light brown, slightly moist, medium dense, porous, roots
	4 - 7½		secondary carbonate, no roots, moist, dense
	7½ - 9½		boulders 18 to 36 inches in diameter with Sandy Silt matrix, medium dense
	9½ - 12	SLIDE DEBRIS:	Siltstone, dark gray-brown, very fractured, structureless

End at 12 Feet; No Water; No Caving; No Fill.

TEST PIT #20

Surface Conditions: Toe of Slope

	0 - 3	COLLUVIUM:	Silty Sand/Gravelly Silt, mottled tan, brown, dry, medium dense
	3 - 7½		Silty Sand, gray and brown, secondary carbonate, medium dense, cobbles up to 8 inches in diameter , roots
	7½ - 10	SLIDE DEBRIS:	Siltstone, dark brown and gray, moderately hard, structureless, secondary carbonate

End at 10 Feet; No Water; No Caving; No Fill.

TEST PIT #21

Surface Conditions: Toe of Slope

	0 - 10½	COLLUVIUM:	Silt, medium brown, porous
	10½ - 13		zone of carbonate accumulation
	13 - 15	BEDROCK:	Siltstone, gray green, thinly bedded, secondary gypsum, weak layering

End at 15 Feet; No Water; No Caving; No Fill.

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TEST PIT #22

Surface Conditions: Drainage Course

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 3½	COLLUVIUM:	Silt, medium brown, dense, moist, secondary carbonate, roots, porous
	3½ - 4½		Silt, light brown gray, very moist, dense, abundant quartz and sandstone fragments up to 6 inches
	4½ - 5½		Silt, light green gray, rock fragments up to 1 inch, very moist, stiff
	5½ - 7½	BEDROCK:	Siltstone, dark gray, dark brown, black, very weathered, fractured, contorted, veins of gypsum, moderately hard

End at 7½ Feet; No Water; No Caving; No Fill.

TEST PIT #23

Surface Conditions: Toe of Slope

	0 - 5½	COLLUVIUM:	Silt, light brown, tan, dense, slightly moist, secondary carbonate, roots, bioturbated
	5½ - 6½		Silt, tan, light brown, dense, porous, slightly moist, roots, veins of secondary carbonate
	6½ - 8	WEATHERED BEDROCK:	Siltstone, dark gray, dark brown, orange, moderately hard, veins of gypsum fractured
	8 - 10	BEDROCK:	Siltstone, dark gray and orange, moderately hard, massive, gypsum

End at 10 Feet; No Water; No Caving; No Fill.
Bedding N65W; 52N

TEST PIT #24

Surface Conditions: Toe of Slope

	0 - 2½	COLLUVIUM:	Silt, medium brown, tan, dense, slightly moist, porous, roots
	2½ - 4		medium brown, gray green, dense, porous, roots, secondary carbonate
	4 - 7	WEATHERED BEDROCK:	Admixture of Soil/Siltstone, dark gray, white, orange, brown, moderately hard, fractured, very weathered, gypsum
	7 - 9	BEDROCK:	Siltstone, dark gray orange, dark brown, veins of gypsum, moderately hard, fractured, weathered

End at 9 Feet; No Water; No Caving; No Fill.

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SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
TEST PIT #25			Surface Conditions: Toe of Slope
	0 - 5	**COLLUVIUM:**	Silt, medium brown, dense, moist, porous, rock fragments up to 5 inches
	5 - 7	**WEATHERED BEDROCK:**	Siltstone, dark green, gray, moderately hard, fractured, very weathered
	7 - 10	**BEDROCK:**	Siltstone and conglomerate, dark gray, orange, dark brown, moderately hard, fractured, gypsum N75W; 55N Bedding; N82E; 45S Shear: N50W; 49N Shear
			End at 10 Feet; No Water; No Caving; No Fill.
TEST PIT #26			Surface Conditions: Toe of Slope
	0 - 6	**COLLUVIUM:**	Silt, light brown, dense, slightly moist, porous, abundant roots
	6 - 9	**WEATHERED BEDROCK:**	Siltstone, dark green, dark brown, moderately hard, roots, fractured, very moist
	9 - 11	**BEDROCK:**	Siltstone, dark gray orange, moderately hard, veins of gypsum, massive, occasional rounded clasts up to 2 inches
			End at 11 Feet; No Water; No Caving; No Fill.
TEST PIT #27			Surface Conditions: Toe of Slope
	0 - 3	**COLLUVIUM:**	Silt, tan, dense, slightly moist, porous, abundant roots
	3 - 5½		Silt, tan, gray, dense, slightly moist, secondary carbonate deposits, porous
	5½ - 7½	**WEATHERED BEDROCK:**	Siltstone, dark gray, orange, moderately hard, very fractured, occasional rock fragments up to 2 inches
	7½ - 9½	**BEDROCK:**	Siltstone, dark gray, dark brown, moderately hard, fractured, veins of gypsum N51E; 44S; Shear
			End at 9½ Feet; No Water; No Caving; No Fill.

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TEST PIT #28

Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 3½	COLLUVIUM:	Silt, tan, dense, slightly moist, porous, roots
	3½ - 4		layer of sandstone rock fragments up to 3 inches
	4 - 6	WEATHERED BEDROCK:	Siltstone, light gray white, silt, dense, slightly moist, abundant roots, secondary carbonate
	6 - 9	BEDROCK:	Siltstone, dark gray, dark brown, wite, orange, moderately hard, fractured, thinly bedded, gypsum

End at 9 Feet; No Water; No Caving; No Fill.
N31E; 23S Shear

TEST PIT #29

Surface Conditions: Toe of Slope

	0 - 4½	COLLUVIUM:	Silt, tan, dense, slightly moist, porous
	4½ - 5½		Silt, gray orange, dense, moist
	5½ - 7		Sandy Silt, rust color, moist, dense
	7 - 9	BEDROCK:	Siltstone, dark gray orange, moderately hard, fractured, traces of gypsum

End at 9 Feet; No Water; No Caving; No Fill.
Bedding: N63W; 74N

TEST PIT #30

Surface Conditions: Toe of Slope

	0 - 2½	COLLUVIUM:	Silt, tan, light brown, dense, slightly moist, porous, roots
	2½ - 4½		light brown, dense, slightly moist, porous, secondary carbonate
	4½ - 9½	BEDROCK:	Siltstone, gray, brown, orange, moderately hard, fractured, thinly bedded, gypsum

End at 9½ Feet; No Water; No Caving; No Fill.
N57W; 68N Bedding

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TEST PIT #31 Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 2	**COLLUVIUM:**	Silty Sand, tan, slightly moist, medium dense, roots
	2 - 4		Secondary Carbonate porous, moist, dense
	4 - 8	**ALLUVIUM:**	Silty Sand, medium dense to dense, hard, rock fragments 6 to 24 inches
	8 - 10	**BEDROCK:**	Siltstone, dark brown, moderately hard, massive, fractured, moderately weathered

End at 10 Feet; No Water; No Caving; No Fill.

TEST PIT #32 Surface Conditions: Toe of Slope

	0 - 2	**COLLUVIUM:**	Silt, tan, dense, slightly moist, porous, rock fragments up to 3 inches
	2 - 3½		calcium carbonate
	3½ - 4½		Sandy Silt, dense, slightly porous
	4½ - 6	**WEATHERED BEDROCK:**	Siltstone, medium gray, orange, dense, moist, weathered, fractured
	6 - 8½	**BEDROCK:**	Siltstone, charcoal gray, orange, moderately hard, thinly bedded, fractured

End at 8½ Feet; No Water; No Caving; No Fill.

TEST PIT #33 Surface Conditions: Toe of Slope

	0 - 3	**COLLUVIUM:**	Silt, tan, dense, slightly moist, roots
	3 - 7		calcium carbonate veins
	7 - 9		Sandy Silt, dense, slightly moist, porous
	9 - 13	**WEATHERED BEDROCK:**	Siltstone, dark gray, orange, brown, gypsum, fragments of mudstone up to 1 inch, occasional roots
	13 - 14	**BEDROCK:**	Siltstone, dark gray, dark brown, white, moderately hard, veins of gypsum

End at 14 Feet; No Water; No Caving; No Fill.
N80W; 68N Bedding

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SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
TEST PIT #34			Surface Conditions: Toe of Slope
	0 - 7	**COLLUVIUM:**	Silt, tan, dense, slightly moist, porous
	7 - 10		Silty Sand, medium brown, gray, dense, slightly moist, calcium carbonate deposits, occasional roots
	10 - 13	**WEATHERED BEDROCK:**	Siltstone, green-gray and brown, dense, gypsum, moist
	13 - 15	**BEDROCK:**	Siltstone, dark gray, dark brown, moderately hard, fractured, veins of gypsum
			End at 15 Feet; No Water; No Caving; No Fill.
TEST PIT #35			Surface Conditions: Toe of Slope
	0 - 5	**COLLUVIUM:**	Sandy Silt, light gray, brown, slightly moist, medium dense, roots
	5 - 8		secondary carbonate, moist, stiff
	8 - 12	**WEATHERED BEDROCK:**	Admixture of Bedrock/Soil, moist to very moist, firm, gypsum
	12 - 14	**BEDROCK:**	Siltstone, soft, very fractured, gypsum veins, massive
			End at 14 Feet; No Water; No Caving; No Fill.
TEST PIT #36			Surface Conditions: Toe of Slope
	0 - 3½	**COLLUVIUM:**	Silt, tan, dense, slightly moist, roots
	3½ - 5½	**WEATHERED BEDROCK:**	Siltstone, gray brown, fractured, weathered, abundant roots
	5½ - 7½	**BEDROCK:**	Siltstone, dark gray, fractured, spheroidal weathering, moderately hard
			End at 7½ Feet; No Water; No Caving; No Fill.

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TEST PIT #37

Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 3	COLLUVIUM:	Silt, tan, firm, slightly moist, porous, roots
	3 - 5½		Sandy Silt, firm, dense, slightly moist, roots
	5½ - 7	WEATHERED BEDROCK:	Silt, gray brown, veins of gypsum
	7 - 10	BEDROCK:	Siltstone, charcoal gray, moderately hard, fractured, veins of gypsum

End at 10 Feet; No Water; No Caving; No Fill.
N55W; 53N Bedding

TEST PIT #38

Surface Conditions: Toe of Slope

	0 - 6	COLLUVIUM:	Silt, tan, dense, slightly moist, bioturbated, porous, sparse roots
	6 - 7½	WEATHERED BEDROCK:	Siltstone, gray brown, fractured, weathered, veins of gypsum
	7½ - 10	BEDROCK:	Siltstone, dark gray, dark brown, moderately hard, thinly bedded, fractured, contorted

End at 10 Feet; No Water; No Caving; No Fill.
N51W; 44N Bedding; N54W; 65N fracture; N54E; 65W

TEST PIT #39

Surface Conditions: Toe of Slope

	0 - 7	COLLUVIUM:	Silty Clay, dark gray, slightly moist to moist, stiff, roots, dessicated
	7 - 10	WEATHERED BEDROCK:	Siltstone and Conglomerate, medium gray-brown, slightly hard, structureless, very moist
	10 - 13	BEDROCK:	Siltstone, dark gray, moderately hard, moderately weathered

End at 13 Feet; No Water; No Caving; No Fill.

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TEST PIT #40

Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 4	COLLUVIUM:	Clayey Silt/Sandy Silt, light gray-brown, contains bedrock fragments, slightly moist, no roots, medium dense
	4 - 8		Clayey Silt with cobbles and bedrock fragments, moist, medium dense
	8 - 12	WEATHERED BEDROCK:	Admixture of Soil and Siltstone, secondary gypsum, soft
	12 - 14	BEDROCK:	Siltstone, dark brown, moderately hard, massive, fractured, moderately weathered

End at 14 Feet; No Water; No Caving; No Fill.

TEST PIT #41

Surface Conditions: Toe of Slope

	0 - 3½	COLLUVIUM:	Silt, tan, light brown, dense, moist, porous
	3½ - 5½		2-3 inch zone of angular rock fragments up to 2 inches, silt matrix
	5½ - 7½	WEATHERED BEDROCK:	Siltstone, dark gray, orange, dense, moist, fractured, weathered
	7½ - 10	BEDROCK:	Siltstone, dark gray, orange, moderately hard, fractured, occasional clasts of siltstone up to 2½ inches, gypsum veins,

End at 10 Feet; No Water; No Caving; No Fill.
N67W; 53N Bedding; N75W; 34S Shear

TEST PIT #42

Surface Conditions: Toe of Slope

	0 - 2½	COLLUVIUM:	Silt with rock fragments, tan, dense, slightly moist, roots
	2½ - 4	WEATHERED BEDROCK:	Siltstone, dark gray, brown, moderately hard, very fractured, very weathered, roots
	4 - 7½	BEDROCK:	Siltstone, dark gray, orange, moderately hard, very fractured, gypsum veins, massive

End at 7½ Feet; No Water; No Caving; No Fill.
N24W; 22S Shear; N27W; 30S Shear

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TEST PIT #43

Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 4½	**COLLUVIUM:**	Silt, tan, dense, slightly moist, porous
	4½ - 7	**WEATHERED BEDROCK:**	Admixture Soil and Siltstone, gray brown, fractured, weathered
	7 - 11	**BEDROCK:**	Siltstone, dark brown, gray, hard, gypsum veins

End at 11 Feet; No Water; No Caving; No Fill.
N76W; 30S Shear

TEST PIT #44

Surface Conditions: Toe of Slope

	0 - 2	**COLLUVIUM:**	Silt, tan, dense, slightly moist, porous, roots
	2 - 4½	**WEATHERED BEDROCK:**	Siltstone, dark gray, deposits of calcium carbonate, bioturbated
	4½ - 6½	**BEDROCK:**	Siltstone, dark gray, orange, hard, traces of gypsum

End at 6½ Feet; No Water; No Caving; No Fill.
N80W; 59N Bedding

TEST PIT #45

Surface Conditions: Toe of Slope

	0 - 2	**COLLUVIUM:**	Gravelly Silt, light brown, dry, roots, bioturbated
	2 - 7	**SLIDE DEBRIS:**	Siltstone, light gray-brown, very fractured and broken, moderately hard
	7 - 9	**BEDROCK:**	Siltstone, dark brown, moderately hard, massive, moderately weathered

End at 9 Feet; No Water; No Caving; No Fill.

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TEST PIT #46

Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 4	COLLUVIUM:	Gravelly Sand/Silty Sand, tan, dry, medium dense, roots
	4 - 5	SOIL/WEATHERED BEDROCK:	Clayey Sand with bedrock fragments, roots
	5 - 8	BEDROCK:	Conglomerate, moderately hard to hard, massive, moderately weathered

End at 8 Feet; No Water; No Caving; No Fill.

TEST PIT #47

Surface Conditions: Slope

	0 - 3½	COLLUVIUM:	Silty Sand, light gray, brown, dry, medium dense, roots
	3½ - 6	BEDROCK:	Siltstone with thin sandstone interbeds, dark brown, moderately hard, thickly bedded, moderately weathered

End at 6 Feet; No Water; No Caving; No Fill.
Bedding: N78W; 65N

TEST PIT #48

Surface Conditions: Slope

	0 - 4	COLLUVIUM:	Silty Sand, tan, light gray, dry to slightly moist, medium dense
	4 - 8		Gravelly Silt, gray-brown, slightly moist, medium dense, porous
	8 - 11	WEATHERED BEDROCK:	Admixture Soil/Siltstone, structureless
	11 - 13	BEDROCK:	Siltstone, dark gray-brown, moderately hard, massive, moderately weathered

End at 13 Feet; No Water; No Caving; No Fill.

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LOG OF TEST PITS

JB: 17826-B CLIENT: AIDLIN

GEOLOGIST: JAI DATE LOGGED: 9/24/98

REPORT DATE: 11/6/98

TEST PIT #49

Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 2	COLLUVIUM:	Silty Sand, tan, gray-brown, dry to slightly moist, roots
	2 - 6		Clayey Silt/Clayey Sand, light gray-brown, secondary carbonate, medium dense, bedrock fragments up to 4 inches in diameter, roots
	6 - 7½	WEATHERED BEDROCK:	Admixture of Soil/Weathered Bedrock, gray-brown, moist
	7½ - 10	BEDROCK:	Siltstone, gray-brown, moderately hard, massive, moderately weathered

End at 10 Feet; No Water; No Caving; No Fill.

TEST PIT #50

Surface Conditions: Toe of Slope

	0 - 1½	COLLUVIUM:	Silty Sand/Gravelly Silt, gray-brown, dry, medium dense, roots
	1½ - 4	WEATHERED BEDROCK	Admixture Soil/Siltstone, roots
	4 - 7	BEDROCK:	Siltstone, dark brown, moderately hard, fractured, tight, massive, moderately weathered

End at 7 Feet; No Water; No Caving; No Fill.

TEST PIT #51

Surface Conditions: Toe of Slope

	0 - 3	COLLUVIUM:	Sandy Silt, light gray-brown
	3 - 8	ALLUVIUM:	Silt, olive brown, moist, porous, medium dense
	8 - 14		Silt with bedrock fragments up to 4 inches in diameter, moist, medium dense
	14 - 16	BEDROCK:	Siltstone, gray-brown, olive brown, massive, moderately hard, moderately weathered

End at 16 Feet; No Water; No Caving; No Fill.

NOTE: The stratification depths shown on the Log of Test Pits are approximate and are based upon visual classification of samples and cuttings. The actual depths may vary. Variations between test pits may also occur.

THE J. BYER GROUP, INC.
A GEOTECHNICAL CONSULTING FIRM
512 E. WILSON AVENUE SUITE 201, GLENDALE, CA 91206
818-549-9959 Tel 818-543-3747 Fax

LOG OF TEST PITS

JB: 17826-B CLIENT: AIDLIN

GEOLOGIST: JAI DATE LOGGED: 9/24/98

REPORT DATE: 11/6/98

TEST PIT #52

Surface Conditions: Toe of Slope

SAMPLE DEPTH (feet)	DEPTH INTERVAL (feet)	EARTH MATERIAL	LITHOLOGIC DESCRIPTION
	0 - 6	COLLUVIUM:	Silty Sand, light brown, slightly moist, medium dense, roots
	6 - 8	WEATHERED BEDROCK:	Admixture of Soil/Weathered Bedrock
	8 - 11	BEDROCK:	Siltstone, orange-brown, gray-brown, moderately hard, massive, concoidal fractures, moderately weathered

End at 11 Feet; No Water; No Caving; No Fill.

TEST PIT #53

Surface Conditions: Slope

	0 - 6	COLLUVIUM:	Silty Sand, mottled gray, yellow and brown, dry, medium dense, abundant roots
	6 - 7		cobbles up to 6 inches in diameter with Silty Sand matrix
	7 - 10	WEATHERED BEDROCK:	Siltstone, gray and brown, massive, very fractured, very weathered, roots
	10 - 12	BEDROCK:	Siltstone, dark gray, massive, moderately weathered

End at 12 Feet; No Water; No Caving; No Fill.

TEST PIT #54

Surface Conditions: Toe of Slope

	0 - 9	COLLUVIUM:	Silty Sand, yellow-brown, slightly moist to moist, medium dense, porous
	9 - 13		cobbles with Silty Sand matrix
	13 - 16		Sandy Silt, porous, firm, moist

End at 16 Feet; No Water; No Caving; No Fill.

NOTE: The stratification depths shown on the Log of Test Pits are approximate and are based upon visual classification of samples and cuttings. The actual depths may vary. Variations between test pits may also occur.

Lennar Homes
March 27, 2014
2013-014-021

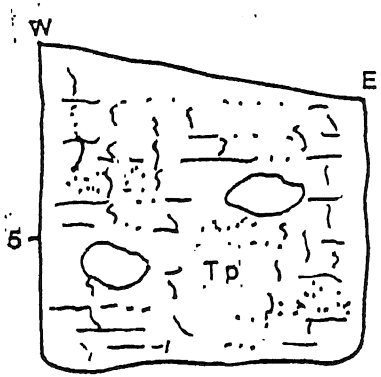
APPENDIX C

FIELD INVESTIGATIONS BY GEOSOILS, INC.

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

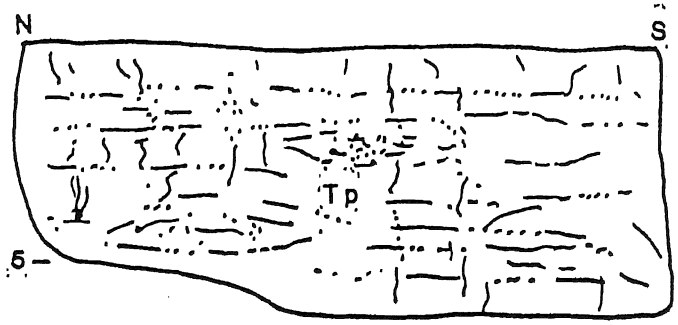
TEST PIT LOGS

W.O. 3062-A-VN

Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-1	0-7'	BEDROCK: (Tp) PICO FM	Brown and gray-brown, sandy SILTSTONE with lenticular, well cemented concretions, intensly fractured, highly weathered, rootlets friable. No bedding. Shears N75°W, 45°S N70°E, 45°N 	

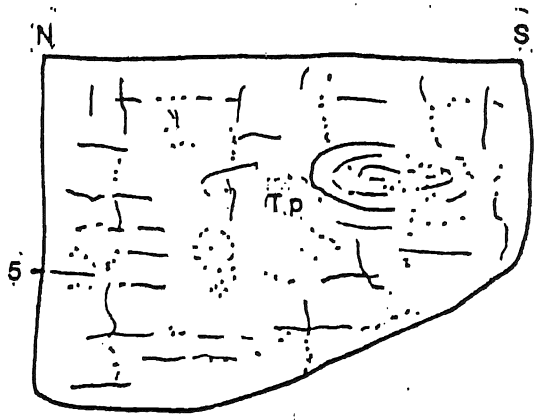
TEST PIT LOGS

W.O. 3062-A-VN

Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-2	0-6'	BEDROCK: (TP) PICO FM	Brown to olive, concretionary SILTSTONE, friable peeling around concretions, white caliche along random shears, highly fractured, weathered, slight caving. Shears N80°E, 55°S N75°E, 63°S 	

TEST PIT LOGS

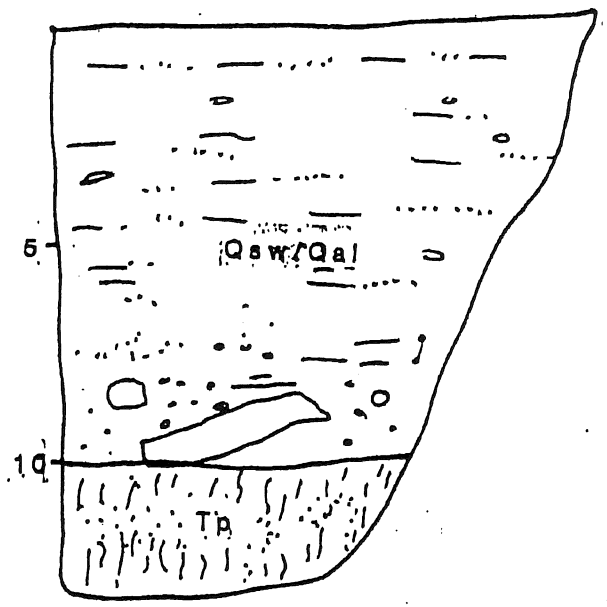
W.O. 3062-A-VN

Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-3	0-8'	BEDROCK: (Tp) PICO FM	Brown to olive, concretionary SILTSTONE, friable peeling around concretions, white caliche along random shears, highly fractured, weathered, slight caving. Shear NS70°N Possible bedding N60°W, 86°W 	

TEST PIT LOGS

W.O. 3062-A-VN

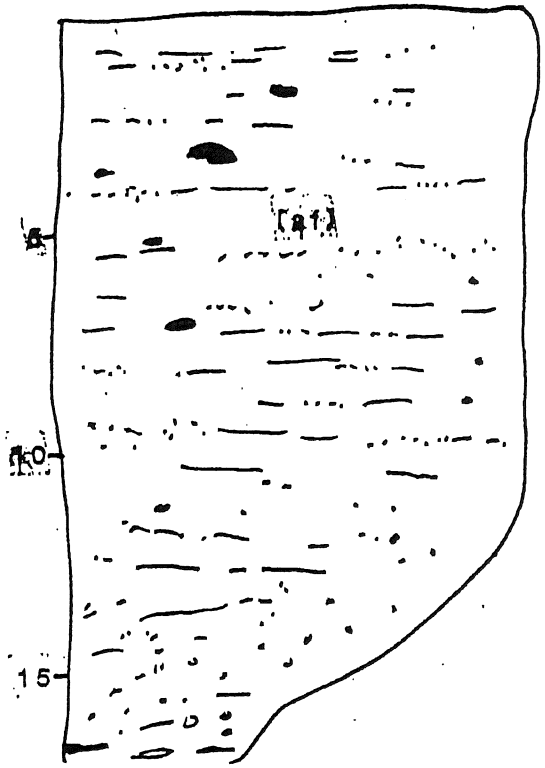
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-4	0-6½'	SLOPEWASH ALLUVIUM (QSW/QAL)	Light brown to gray-brown, SILT with siltstone fragments, moist, porous, moderately dense.	
	6½-10'		Brown, sandy SILT with gravels, cobbles, 3' diameter, shale fragments at 9', moist, moderately dense.	
	10-13	BEDROCK:(Tp) Pico FM	Olive gray SILTSTONE, highly weathered, random caliche, very moist.	



TEST PIT LOGS

W.O. 3062-A-VN

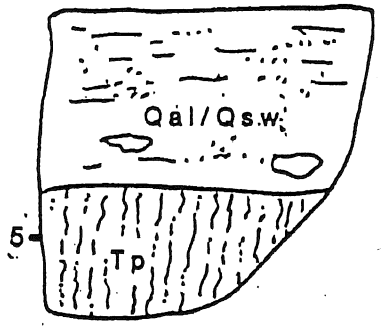
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-5	0-10'	FILL: (af)	Brown, slightly clayey SILT, moist, poorly compacted, solidified hydrocarbon fragments scattered in fill sticks, abundant tiny siltstone fragments.	
	10'		Faint odor (hydrocarbon).	
	16-17'		Green, clayey SILT with abundant hydrocarbon residue, strong odor.	



TEST PIT LOGS

W.O. 3062-A-VN

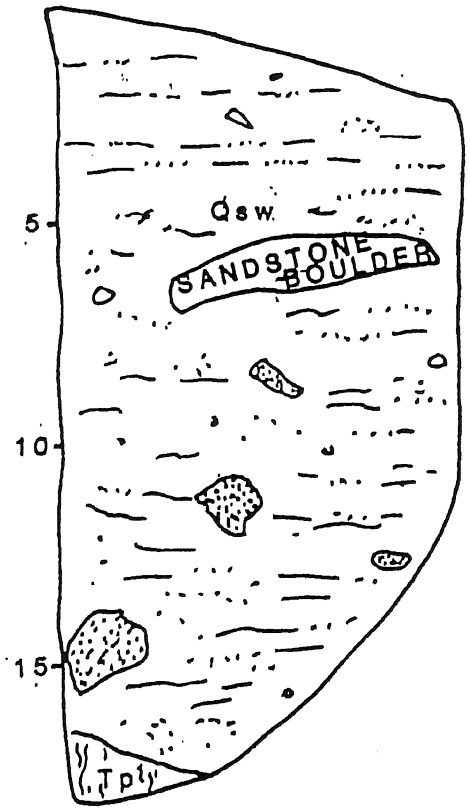
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-6	0-4'	SLOPEWASH ALLUVIUM (QSW/QAL)	Light brown to brown, SILT with siltstone fragments, moist, soft increases to sandy with rock fragments from 2-4'.	
	4-7'	BEDROCK: (Tp) PICO FM	Gray SILTSTONE, highly weathered, friable, fractured, caliche in fractures, moist, dense.	



TEST PIT LOGS

W.O. 3062-A-VN

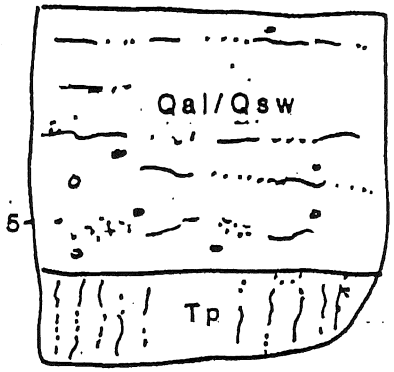
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-7	0-16½'	SLOPEWASH: (QSW)	Light brown to brown, fine sandy SILT with scattered rock fragments from gravel to 4' long sandstone boulder at 6', slightly moist to moist, porous to highly porous with rootlets, loose to moderately dense	
	16½-18'	BEDROCK: (Tp) PICO FM	Greenish-gray SILTSTONE, highly weathered, very moist, caliche along fractures, dense.	



TEST PIT LOGS

W.O. 3062-A-VN

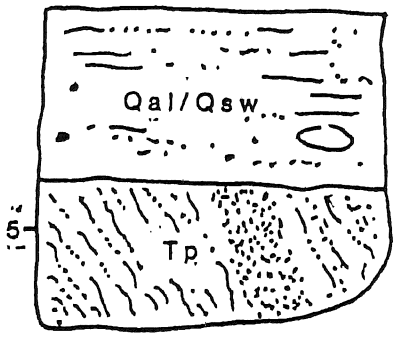
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-8	0-6'	ALLUVIUM: SLOPEWASH (QAL/QSW)	Brown, fine sandy SILT with tiny siltstone fragments, moist, porous, moderately dense.	
	6-8'	BEDROCK: (Tp) PICO FM	Gray, fine sandy SILTSTONE, weathered, dense, moist, random caliche.	



TEST PIT LOGS

W.O. 3062-A-VN

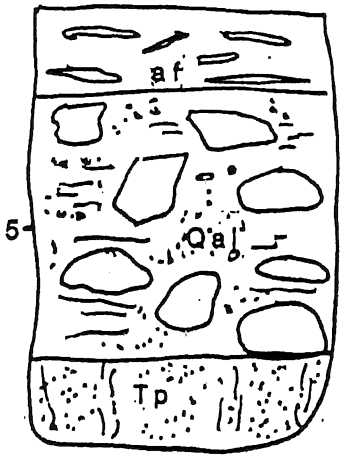
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-9	0-4'	ALLUVIUM: SLOPEWASH (QAL/QSW)	Brown, fine sandy SILT with tiny siltstone fragment, moist, porous, moderately dense.	
	4-7'	BEDROCK: (Tp) PICO FM	Gray SILTSTONE with a yellowish- brown fine sandstone bed, weathered, dense. Bedding N68°W, 69°N	



TEST PIT LOGS

W.O. 3062-A-VN

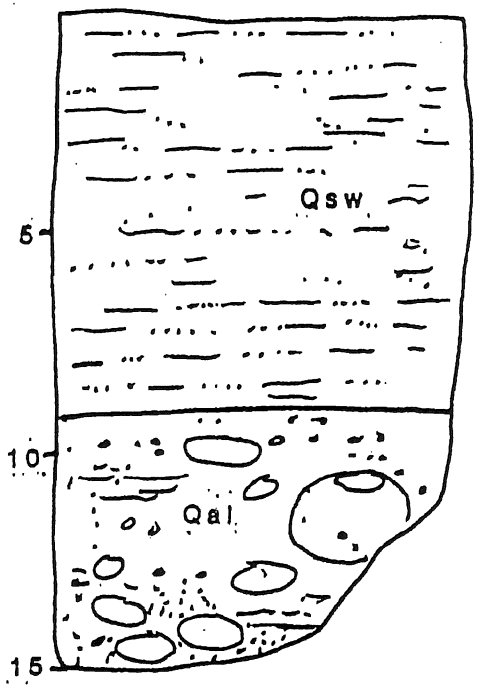
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-10	0-2'	FILL: (af)	Decomposing organics, branches, in a silty SAND, tires.	
	2-8'		Large boulders in silt and sand with gravel, heavy seepage at 3' filling hole.	
	8-10'	BEDROCK: (Tp) Pico FM	Thinnly bedded light-brown SANDSTONE and gray SILTSTONE, dense, water level drops as hole is deepened to top or rock.	



TEST PIT LOGS

W.O. 3062-A-VN

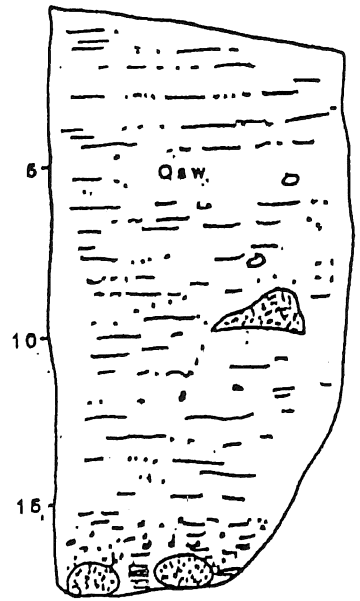
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-11	0-9½'	SLOPEWASH: (QSW)	Dark brown, slightly organic SILT, moist porous, rootlets, soft, change to light brown with slight increase in moisture at 6', and becomes sandy, porous, moderately dense.	
	9½-15'	ALLUVIUM: (QAL)	Stratified gravelly SANDS with varying amounts of silt, pebbles and cobbles, large sandstone boulders, moist, moderately dense, backhoe refused by boulders at 15'.	



TEST PIT LOGS

W.O. 3062-A-VN

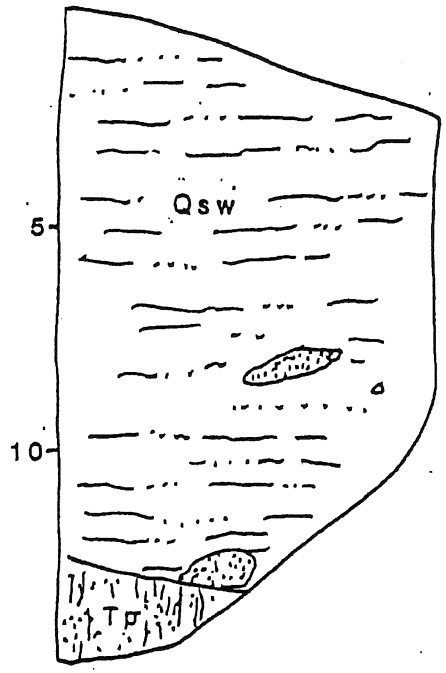
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-12	0-5'	SLOPEWASH: (QSW)	Light brown SILT and fine sandy SILT, moist, porous, rootlets, loose to moderately dense.	
	5'		Scattered pebbles and gravels	
	9'		Large angular sandstone boulder	
	15'		Brown, slightly clayey SILT with abundant siltstone fragments, moist, porous, moderately dense.	
	16½-17½'		Brown, slightly clayey, sandy SILT with large boulders moist, slightly porous, moderately dense.	



TEST PIT LOGS

W.O. 3062-A-VN

Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-13	0-12½'	SLOPEWASH: (QSW)	Light brown, slightly clayey SILT, moist, varying porosity, moderately dense.	
	12½-15'	BEDROCK: (Tp) PICO FM	Gray SILTSTONE with abundant caliche, moist, weathered.	



Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-14	6' 10'	SLOPEWASH/ ALLUVIUM QSW/QAL	Light brown to olive-green, clayey SILT, moist, porous rootlets, moderately dense. Abundant caliche. Sandy layers with large cobbles and boulders, seeping water fills hole at 12.5'. Caving below water	

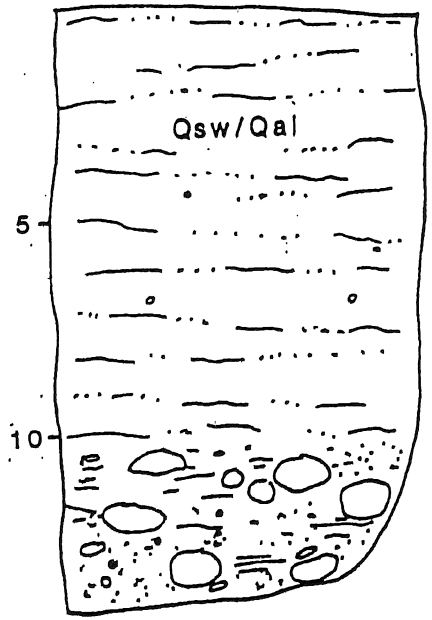
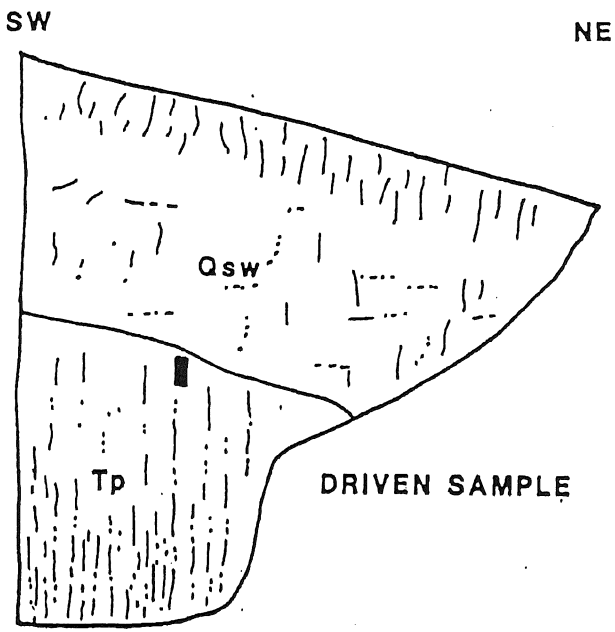


PLATE TP-14

TEST PIT LOGS

W.O. 3062-A-VN

Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-67	0-2'	SLOPEWASH:	Darkbrown, slightly clayey SILT, trace organics, moist, abundant rootlets, porous, loose.	
	2-6'		Light brown to gray SILT with abundant tiny siltstone fragments, moist, loose to moderately dense, rootlets, porous.	
	6-8½'	BEDROCK:(Tp) PICO FORMATION	Grayish-brown, deeply weathered SILTSTONE, moist, dense.	Sample 6' 102.0 pcf 12.0% moisture
	8½-13'		Gray to rusty SILTSTONE, massive, fine, sandy, white caliche, moist, dense, fractured.	



TEST PIT LOGS

W.O. 3062-A-VN

Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-68	0-2'	SLOPEWASH:	Fine, sandy SILT, moist, moderately dense, rootlets.	
	2-8'	BEDROCK: PICO FORMATION	Gray SILTSTONE with scattered, white specs, highly fractured, weathered, moist. Bedding: N80°W, 82°N	

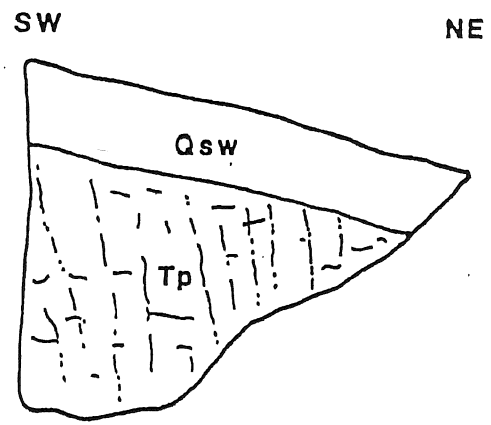


PLATE TP-68

TEST PIT LOGS

W.O. 3062-A-VN

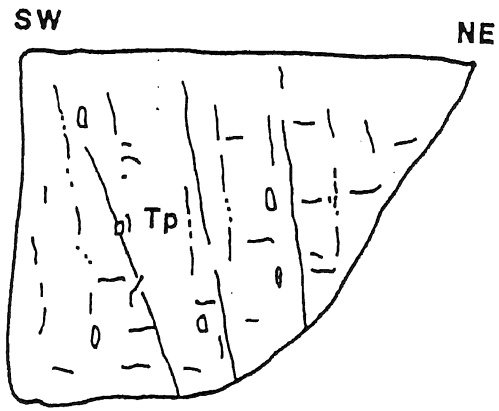
Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-69	0-8'	BEDROCK: PICO FORMATION	Massive, gray, concretionary SILTSTONE, weathered, moist, dense, white specs, highly fractured. Shears: N5°E, 75°N N25°E, 72°N N50°E, 75°N  	Concretions elongate in near vertical position.

PLATE TP-69

Test Pit No.	Depth Below Surface (FT.)	Material Type	Material Description	Comments
TP-70	0-1.5'	SLOPEWASH: (Qsw)	Light brown sandy SILT. Moist, rootlets, porous, loose to moderately dense.	
	1.5-9.0'	BEDROCK: (Tp) PICO FORMATION	Gray to rusty brown concretionary SILTSTONE, moist weathered dense, fractured. Bedding: N35°-55°W50°-60°N.	

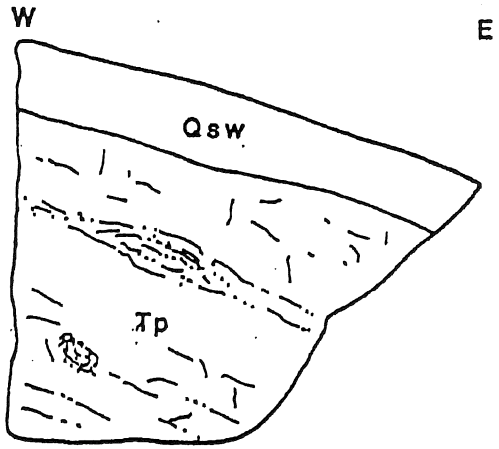


PLATE TP-70

GEOSOILS, INC.
BORING LOG

CLIENT DALE POE DEVELOPMENT

WORK ORDER NO. 3062-A-VN

DATE EXCAVATED 4/27/89

SAMPLE METHOD 24" Bucket Rig Kelly Weight 2500 # To 23'; 1550-43; 750-65

BORING NO. B-1

SHEET 1 OF 1

DEPTH (FT.)	SAMPLE: BULK	SAMPLE: UNDISTURBED	BLOWS/FT.	Lithologic SYMBOL	DRY UNIT WT. (pcf)	MOISTURE (%)	DESCRIPTION OF MATERIAL
							BEDROCK: (Tp) Pico Formation Light brown to brown, fine sandy SILTSTONE and silty fine SANDSTONE, highly weathered, fractured, very fine white sand in fractures, moist, oxidized, moderately dense to dense. @ 4' Bedding N65°W,66°S
		8			122.0	9.2	@ 10' Bedding N65°W,70°S @ 12' SILTSTONE turning gray in color with sandy parts oxidized orange, less fractured, dense.
		12			128.1	9.9	@ 19' Jointing N10°E,83°W @ 20' Bedding N63°W,77°S @ 20-34' Well bedded sequence of gray, fine sandy SILTSTONE to a 3" hard silicious shale to a 6-8" coarse friable SANDSTONE. Oxidation in sandstone and between beds, moist, dense. Bedding N70°W,82°S -sandstone contains siltstone rip up clast. -noticable increase in density.
		15			120.7	11.4	@ 34' Gray SILTSTONE with white fine sands and orangish white sandstone clast that are oxidized. Gray fine SANDSTONE, moist very dense. @ 38' Bedding in siltstone N80°W,64°N
		40			13.9	8.3	Total Depth 43' No Ground Water No Caving Note: Approximately 3 feet of slopewash removed by drill pad excavation..

RM 88/9

PLATE A-1

GEOSOILS, INC.
BORING LOG

CLIENT DALE POE DEVELOPMENT

WORK ORDER NO. 3062-A-VN

DATE EXCAVATED 4/27/89

SAMPLE METHOD 24" Bucket Rig Kelly Weight 2550 # to 23'; 1550 to 43; 750 to 65

BORING NO. B-2 SHEET 1 OF 1

DEPTH (FT.)	SAMPLE: BULK	SAMPLE: UNDISTURBED	BLOWS/FT.	SYMBOL	DRY UNIT WT. (pcf)	MOISTURE (%)	DESCRIPTION OF MATERIAL
							LANDSLIDE DEBRIS (Qls) 0-10' Light brown fine sandy SILT, very porous, rootlets, white caliche, soft, moist.
							@ 5' 2' boulder.
			3		94.9	8.6	@ 10-19' Brown, gray, orangish-brown clayey SILT, increase to moderately dense, porous, gray siltstone fragments, white caliche, trace organics.
			3		119.4	8.9	@ 19-20' Light brown, fine to medium SANDSTONE, fractured, disrupted.
							@ 23' Slide plane along a dark brown clayey bed. Bedding N60°W,27°N
							BEDROCK: (Tp) Pico Formation
			40		128.9	7.9	@ 25' Brown and dary gray SILTSTONE and fine to medium SANDSTONE with varying amounts of silt and clay, moist, dense, well bedded with some caliche along bedding. Bedding N75°W,54°N @ 29' Bedding N55°W,48°N @ 32' Bedding N60°W,56°N
							Total Depth 35' No Ground Water No Caving

PLATE A-2

RM 88/9

GEOSOILS, INC.
BORING LOG

CLIENT DALE POE

WORK ORDER NO. 3062-A VN

DATE EXCAVATED 5-2-89

24" Bucket Rig
SAMPLE METHOD Kelly Weight 2500# BORING NO. B-5 SHEET 1 OF 1
To 23'; 1550-43; 750-65

DEPTH(FT.)	SAMPLE: BULK	SAMPLE: UNDISTURBED	BLOWS/FT.	SYMBOL	DRY UNIT WT. (pcf)	MOISTURE (%)	DESCRIPTION OF MATERIAL
							ALLUVIUM: (Qal) 0-3' Brown to light brown fine sandy SILT with a slight amount of clay, moist, porous, loose to moderately dense. 3'-7' Brown SILT with scattered siltstone and sandstone fragments, moist, soft, porous.
5			1		102.2	20.3	7' Brown SILT with sandy layers and cobbles, very moist, moderately dense.
							9' Groundwater
0			1 for 6"		112.2	17.0	BEDROCK: Pico Formation 10' Gray clayey SILTSTONE, moist, dense.
							Total Depth 11' Groundwater 9' NO caving
5							
0							
5							
0							
5							
0							

Plate A-5

ORM 88/9

GEOSOILS, INC.
BORING LOG

CLIENT Dale Poe

WORK ORDER NO. 3062-A_VN

DATE EXCAVATED 5-2-89

SAMPLE METHOD 24" Bucket Rig Kelly Weight 2500# To 23'; 1550-43'; 750-43

BORING NO. B-6

SHEET 1 OF 1

DEPTH (FT.)	SAMPLE: BULK	SAMPLE: UNDISTURBED	BLOWS/FT.	SYMBOL	DRY UNIT WT. (pcf)	MOISTURE (%)	DESCRIPTION OF MATERIAL
							ALLUVIUM: (Qal) 0-7' Light brown fine sandy SILT with conglomerate cobbles, slightly moist, soft, porous, rootlets.
							7-8.5' Brown slightly clayey SANDS moist, moderately dense.
		3		111.5	8.2		8.5-14' Scattered gravel, pebbles, cobbles and silty coarse SAND
		4		disturbed	8.2		14-16' Brown slightly clayey SAND with some sandstone and siltstone and scattered gravel, pebbles and cobbles, moist to water @ ± 15'
							16' Brown fine sandy SILT past water table very wet with small sandstone and siltstone pieces with cobbles.
		7		112.2	16.8		16' Water filling hole, moderate caving
							Total Depth 18' Ground water 16' Caving 16'

Plate A-6

RM 88/9

GEOSOILS, INC.
BORING LOG

CLIENT Dale Poe Development

WORK ORDER NO. 3062-A-VN

DATE EXCAVATED 2-13-90

SAMPLE METHOD Hollow Stem

BORING NO. B-17

SHEET 1 OF 1

Depth (ft.)	SAMPLE Bulk	SAMPLE Undis-turbed	SAMPLE Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	DESCRIPTION OF MATERIAL
							ALLUVIUM: (Qal)
5		▨	12/43		102.6	4.7	@ 4' Brown sandy SILT with gravel
10		▨ ▨	8/13 /18				@ 8' Brown silty SAND with gravel
15		▨	27/22			4.4	@ 12' Brown sandy GRAVEL
		▨	24/50 /6"				@ 16' Rock
20		▨	28/41			11.4	@ 20' Brown wet sandy GRAVEL, silty
25		▨ ▨	24/50 /2"				BEDROCK: (Tp) Pico Fm. @ 24' Gray brown weathered SILTSTONE, moist, dense.
		▨	50/5"				
30		▨	50/6"		112.2	9.5	Total Depth 30' No Groundwater No Caving
35							

Plate A-17

FORM 88/9

GEOSOILS, INC.
BORING LOG

CLIENT Dale Poe Development
WORK ORDER NO. 3062-A-VN
DATE EXCAVATED 2-13-90
SAMPLE METHOD Hollow Stem
BORING NO. B-18
SHEET 1 OF 1

Depth (ft.)	SAMPLE Bulk	SAMPLE Undis-turbed	SAMPLE Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	DESCRIPTION OF MATERIAL
							ALLUVIUM: (Qal)
5		▨	35/50 /5"		127.5	3.4	@ 4' Brown silty SAND with gravel
		▨ ▨	24/50 /6"				@ 8' Medium brown SAND sandstone
10	■						
		▨	18/20		116.8	5.9	@ 12' Brown sandy GRAVEL
15		▨ ▨	8/9 /8				@ 16' No recovery @ 17 1/2 Seeping Water
20		▨	8/30		109.7	17.8	BEDROCK: (Tp) Pico Formation @ 20' Gray brown sandy SILTSTONE, moist, dense
25		▨ ▨	50/6"				Total Depth 24' Ground Water 17 1/2' No Caving
30							
35							

Plate A-18

FORM 88/9

GEOSOILS, INC.
BORING LOG

CLIENT: Dale Poe Development

WORK ORDER NO. 3062-A-VN

DATE EXCAVATED 2-13-90

SAMPLE METHOD: Hollow Stem

BORING NO. B-19

SHEET 1 OF 1

Depth (ft.)	SAMPLE Bulk	SAMPLE Undis-turbed	SAMPLE Blows/ft.	USCS Symbol	Dry Unit Wt. (pcf)	Moisture (%)	DESCRIPTION OF MATERIAL
5		▨	9/23		114.0	11.0	@ 4' Brown sandy SILT with gravel
10		▨ ▨	5/5 /6				@ 8' Brown sandy SILT with gravel
15		▨	13/10		116.6	4.9	@ 12' Brown silty SAND with gravel
		▨ ▨	24 37/33 /3"				@ 16' Brown silty SAND with gravel to medium brown silty SAND/SANDSTONE
20		▨	26/36		121.2	5.0	@ 20' Brown sandy GRAVEL
25		▨ ▨	35/50 /3"				BEDROCK: (Tp) Pico Formation @ 24' Gray and brown SILTSTONE moist, dense
30							Total Depth 24' No Groundwater No Caving
35							

Plate A-19

FORM 88/9

Lennar Homes
March 27, 2014
2013-014-021

APPENDIX D

LABORATORY TESTING

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

APPENDIX D

LABORATORY TESTING

Laboratory tests were performed on selected samples obtained from the test pits to aid in the classification of the soils and to determine their engineering properties.

The optimum moisture content and maximum dry density of the upper soils were determined by performing compaction tests on three samples. The tests were performed in accordance with the ASTM Designation D1557-91 Method of Compaction. The results of the tests are presented below. The test results are presented in the following table.

Test Pit No. and Sample Depth	Maximum Dry Density (pcf)	Optimum Moisture Content (%)
TP-2 @ 5 to 6‘	118.0	12.5
TP-9 @ 2 to 3’	119.0	12.5
TP-13 @ 2 to 3’	120.5	12.5

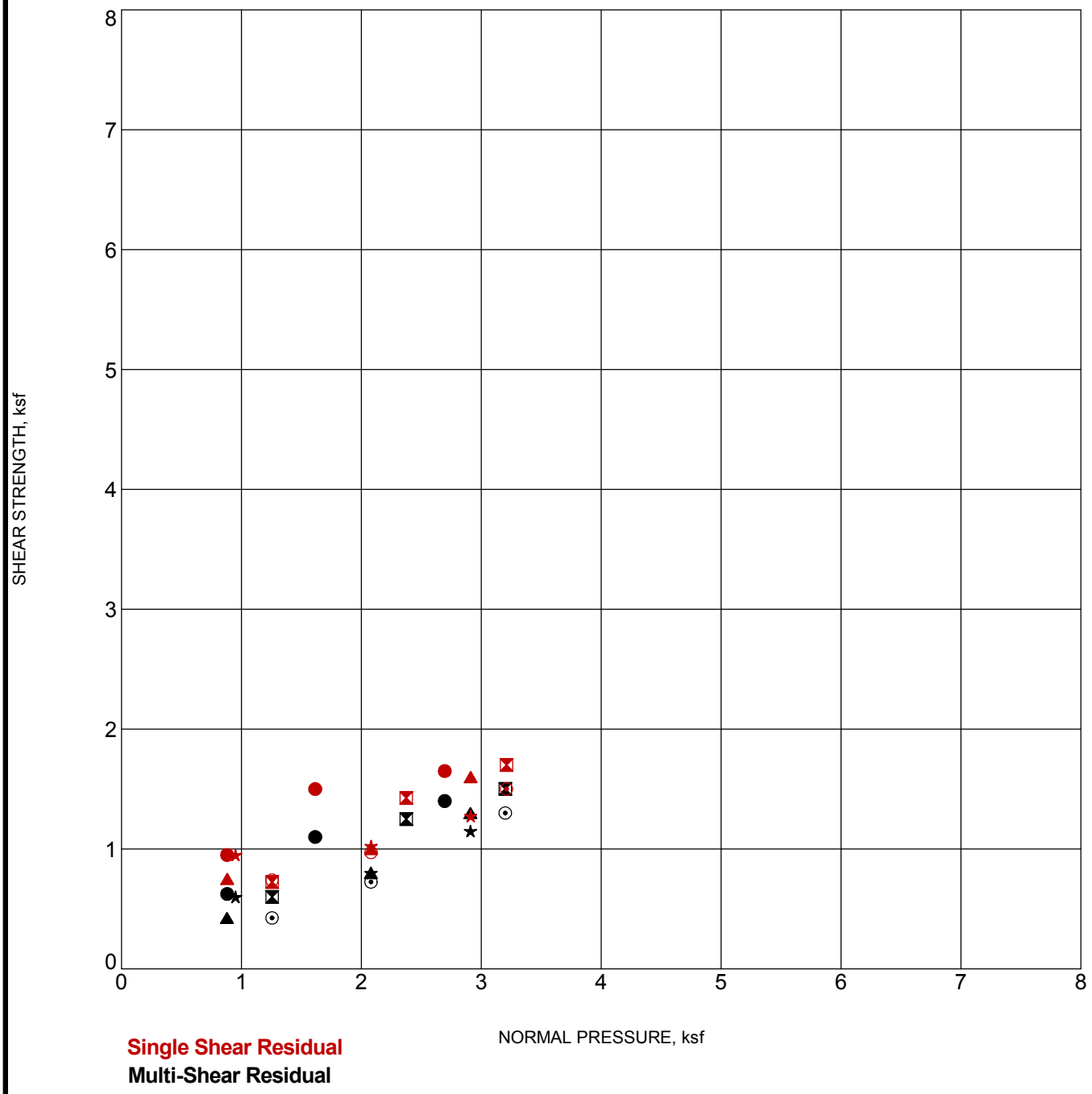
Direct shear tests were performed on selected undisturbed samples to determine the strength of the soils. The tests were performed after soaking the samples to near-saturated moisture content and at various surcharge pressures. The strength values determined from the direct shear tests are presented on the Shear Test Data page.

Confined consolidation tests were performed on remolded samples. Water was added during the tests to each of the samples to illustrate the effect of moisture on the compressibility. The results of the tests are presented on the Consolidation Test Data pages.

Atterberg limits (liquid and plastic limit) tests were conducted on selected samples to aid in classifying the soils and determining index properties. Test results are presented on the attached graphic, “Atterberg Limit’s Test Data.”

Expansion Index tests provided an index to the expansion potential of soils when inundated with water. This test method controls variables that influence the expansive characteristics of soils. The tests were performed in accordance with the ASTM D 4829 method, and the results of the tests are presented below:

Sample(feet)	Expansion Index	Expansion Potential
TP-4 @ 3.5’	66	Medium
TP-5 @ 3’	75	Medium
TP-11 @ 3’	46	Low



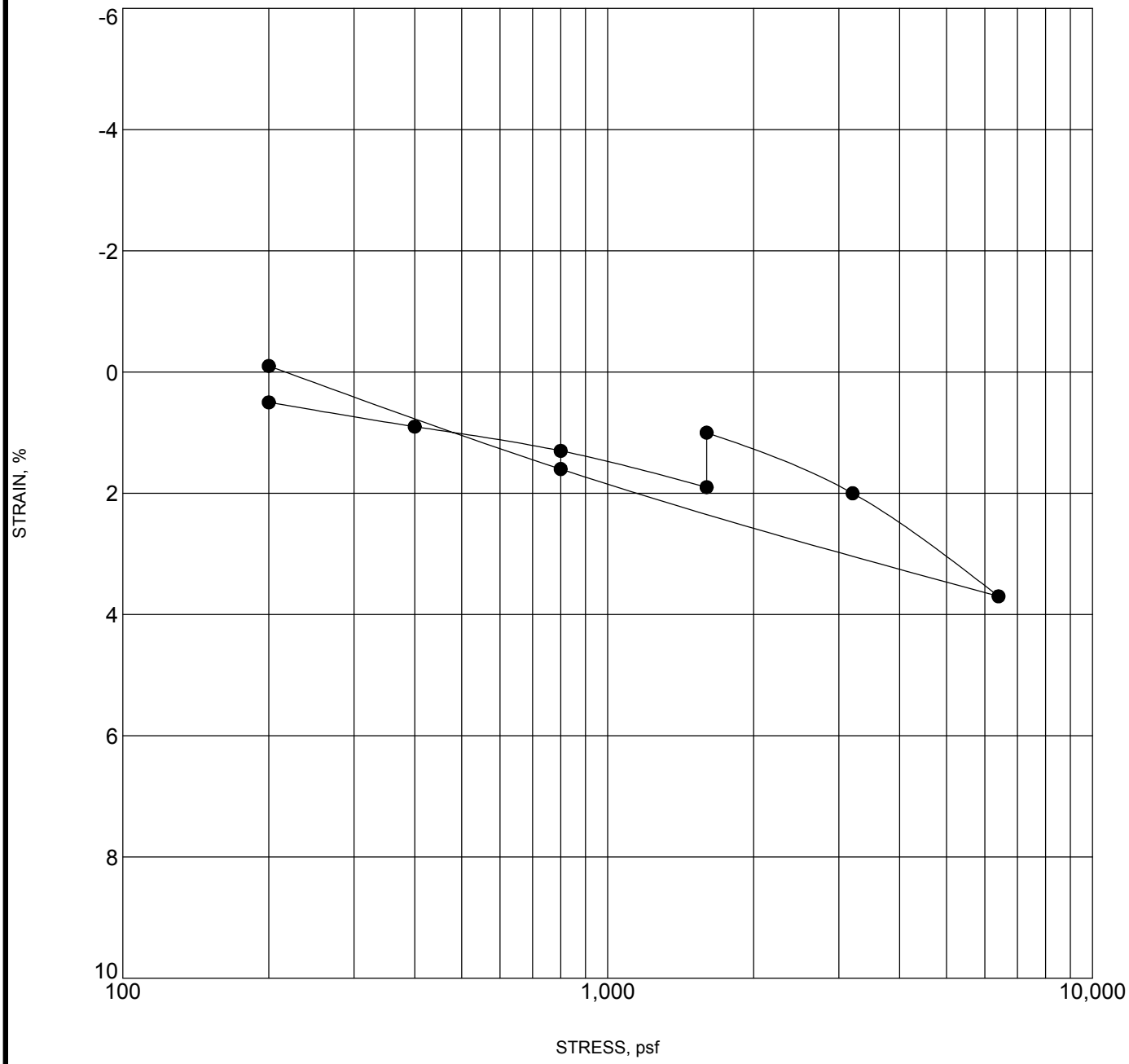
Specimen Identification			Classification				
●	TP-11	3'					
⊠	TP-13	2.5'					
▲	TP-2	5'					
★	TP-5	3'					
⊙	TP-9	2'					

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

DIRECT SHEAR TEST

JOB NUMBER: 2013-014-021

REPORT DATED: 03-27-2014



Water added at 1600 psf

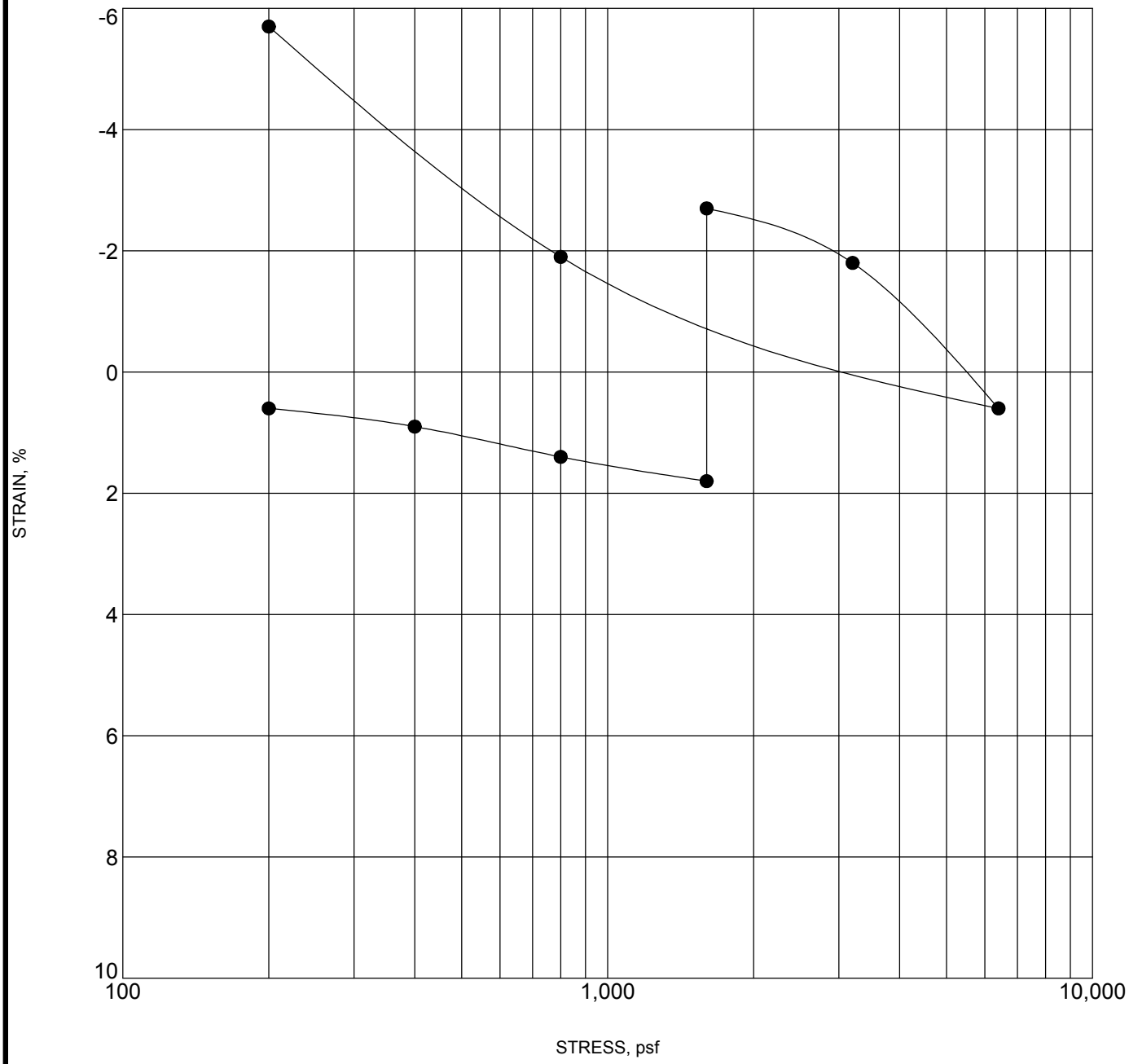
Specimen Identification		Classification		
●	**TP-2 5.0'**			

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

CONSOLIDATION TEST

JOB NUMBER: 2013-014-021

REPORT DATED: 03-27-2014



Water added at 1600 psf

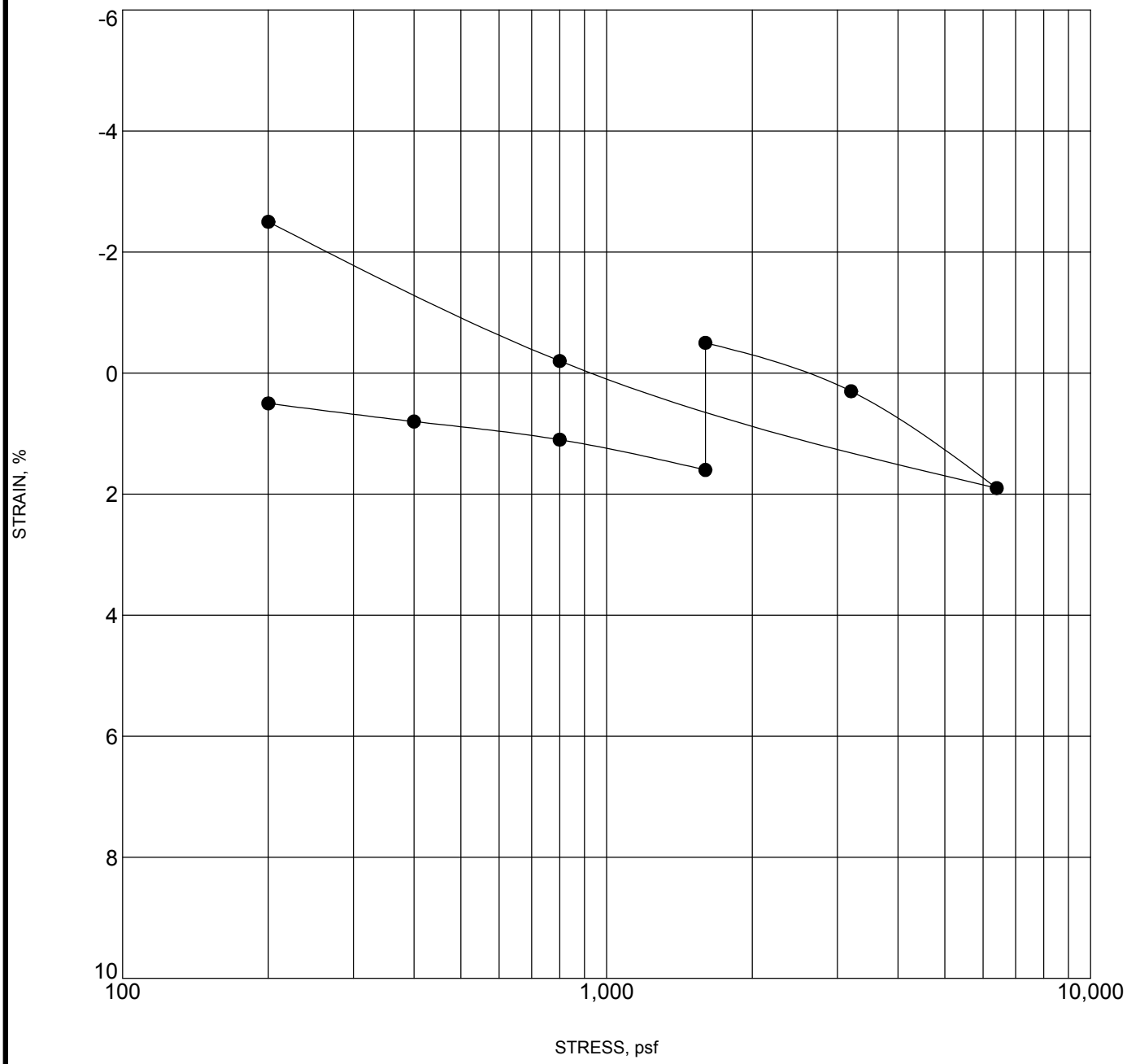
Specimen Identification		Classification		
●	**TP-5 3.0'**			

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

CONSOLIDATION TEST

JOB NUMBER: 2013-014-021

REPORT DATED: 03-27-2014



Water added at 1600 psf

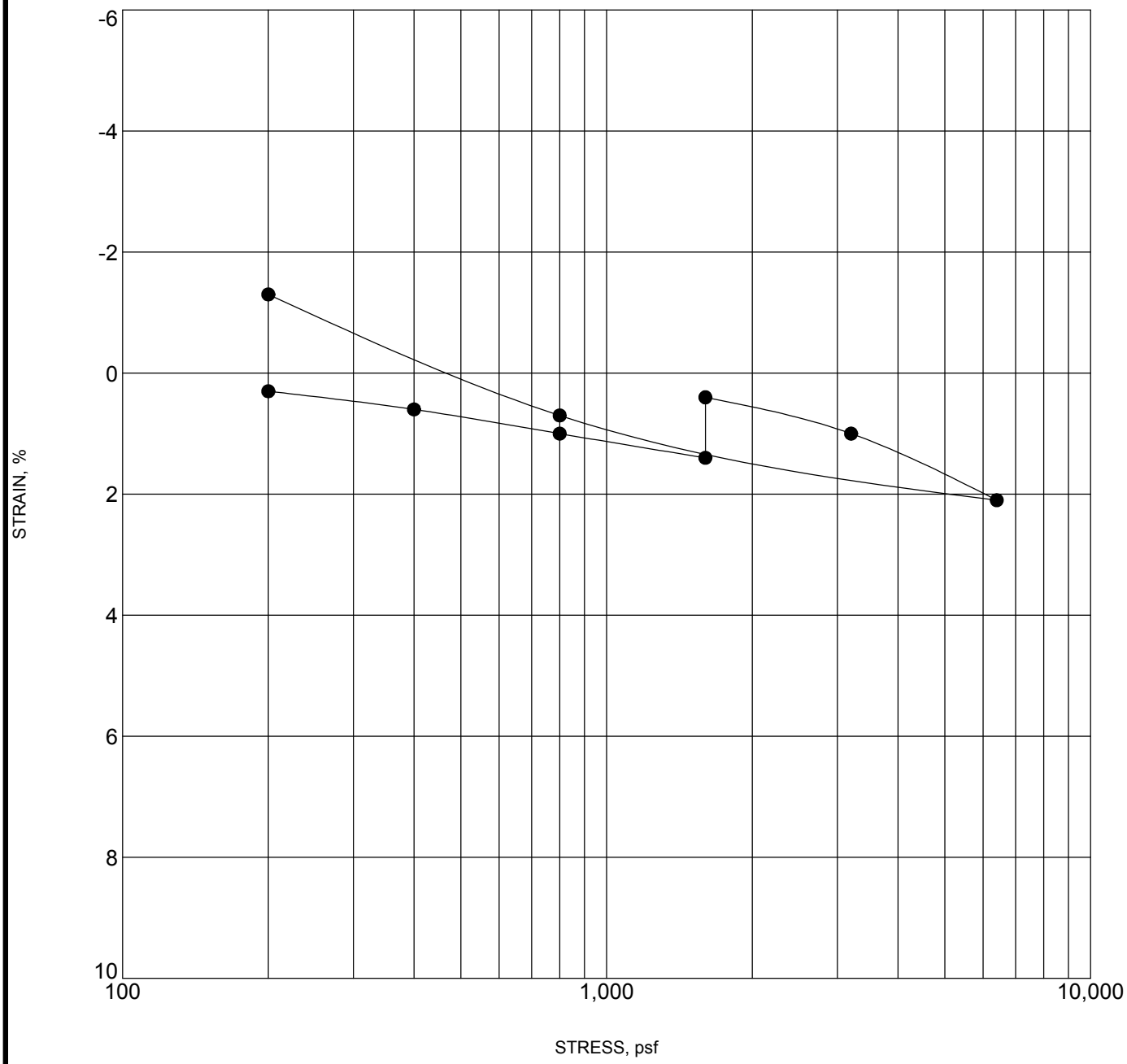
Specimen Identification		Classification		
●	**TP-9 2.0'**			

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

CONSOLIDATION TEST

JOB NUMBER: 2013-014-021

REPORT DATED: 03-27-2014



Water added at 1600 psf

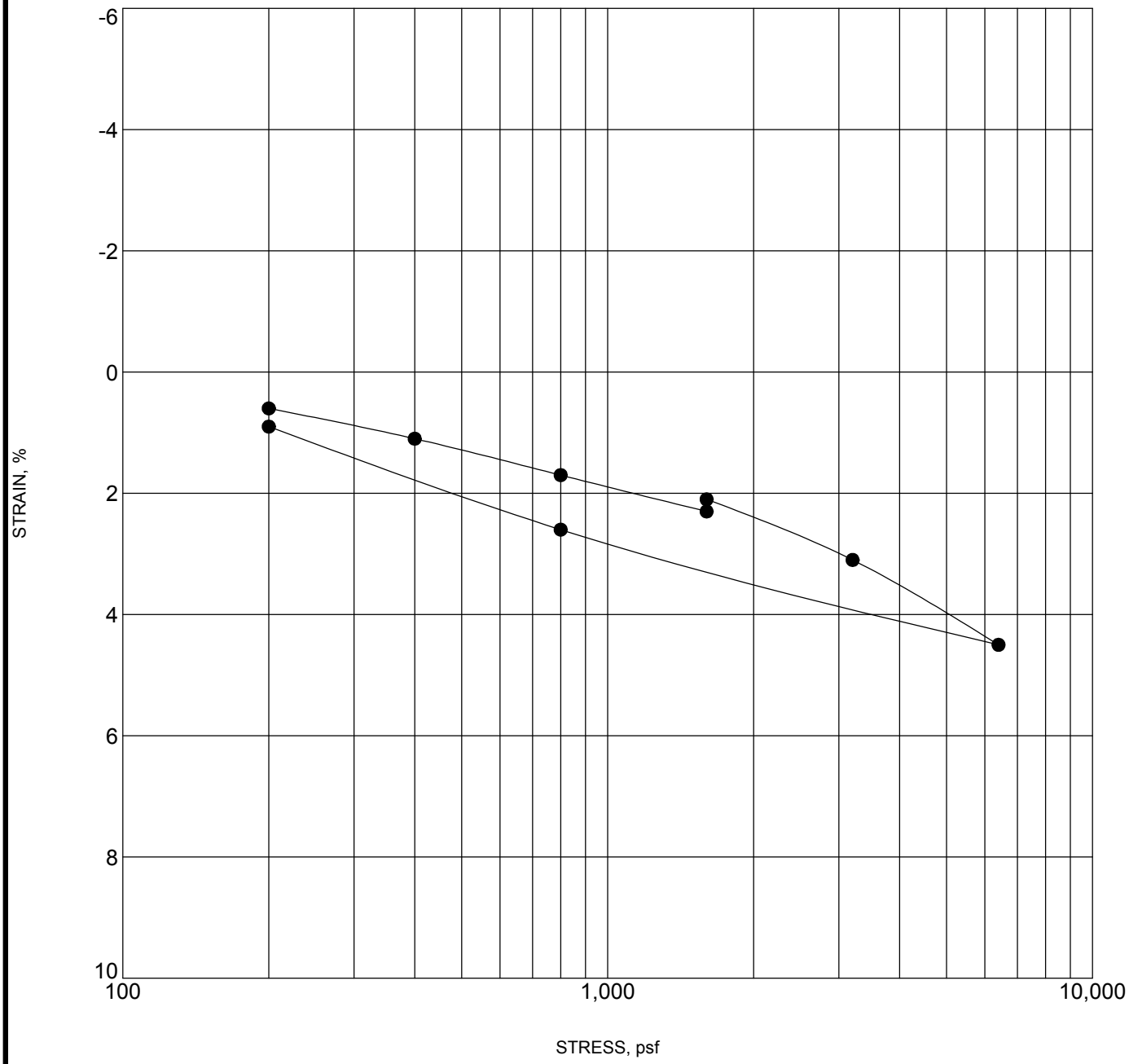
Specimen Identification		Classification		
●	**TP-11 3.0'**			

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

CONSOLIDATION TEST

JOB NUMBER: 2013-014-021

REPORT DATED: 03-27-2014



Water added at 1600 psf

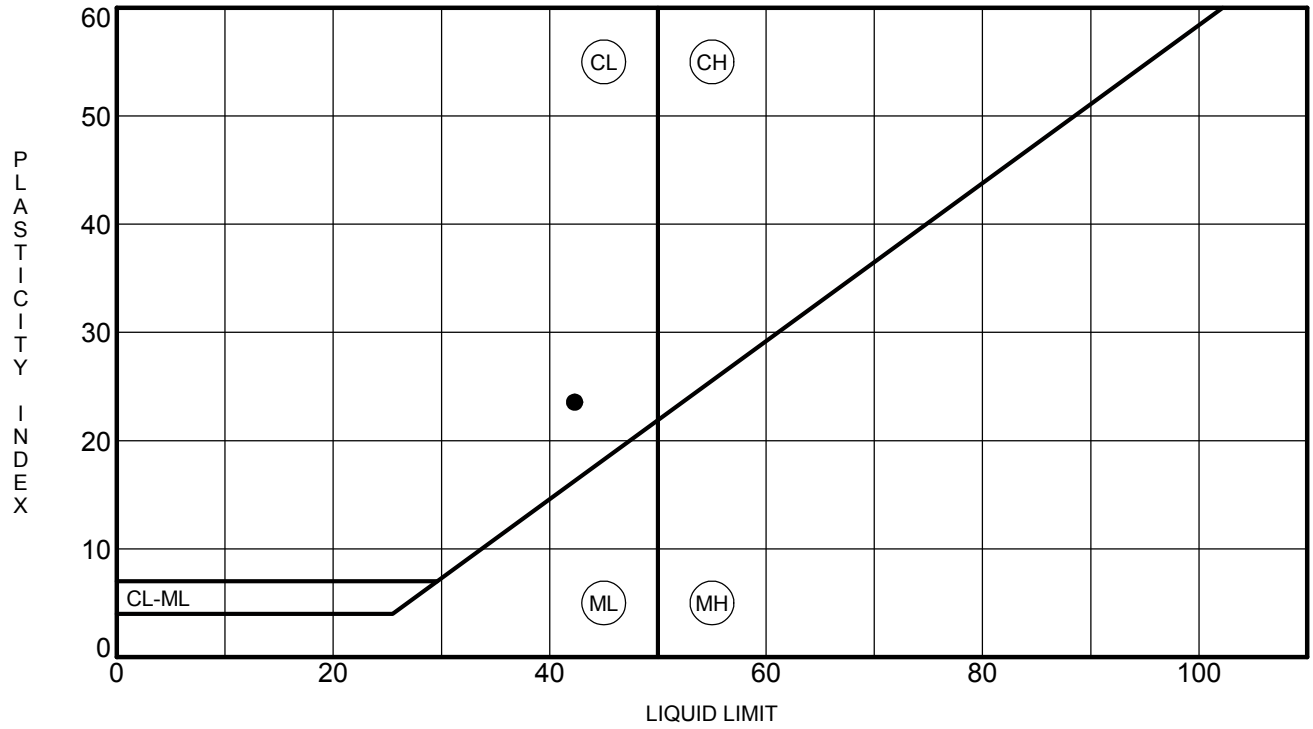
Specimen Identification		Classification		
●	**TP-13 2.5'**			

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

CONSOLIDATION TEST

JOB NUMBER: 2013-014-021

REPORT DATED: 03-27-2014



	Specimen Identification		LL	PL	PI	Fines	Classification
●	**TP-4**	**3.5**	**42**	**19**	**23**		

R. T. Frankian & Associates
1329 Scott Road
Burbank, Ca 91504
Telephone: (818) 531-1501
Fax: (818) 531-1511

ATTERBERG LIMITS' RESULTS

JOB NUMBER: 2013-014-021

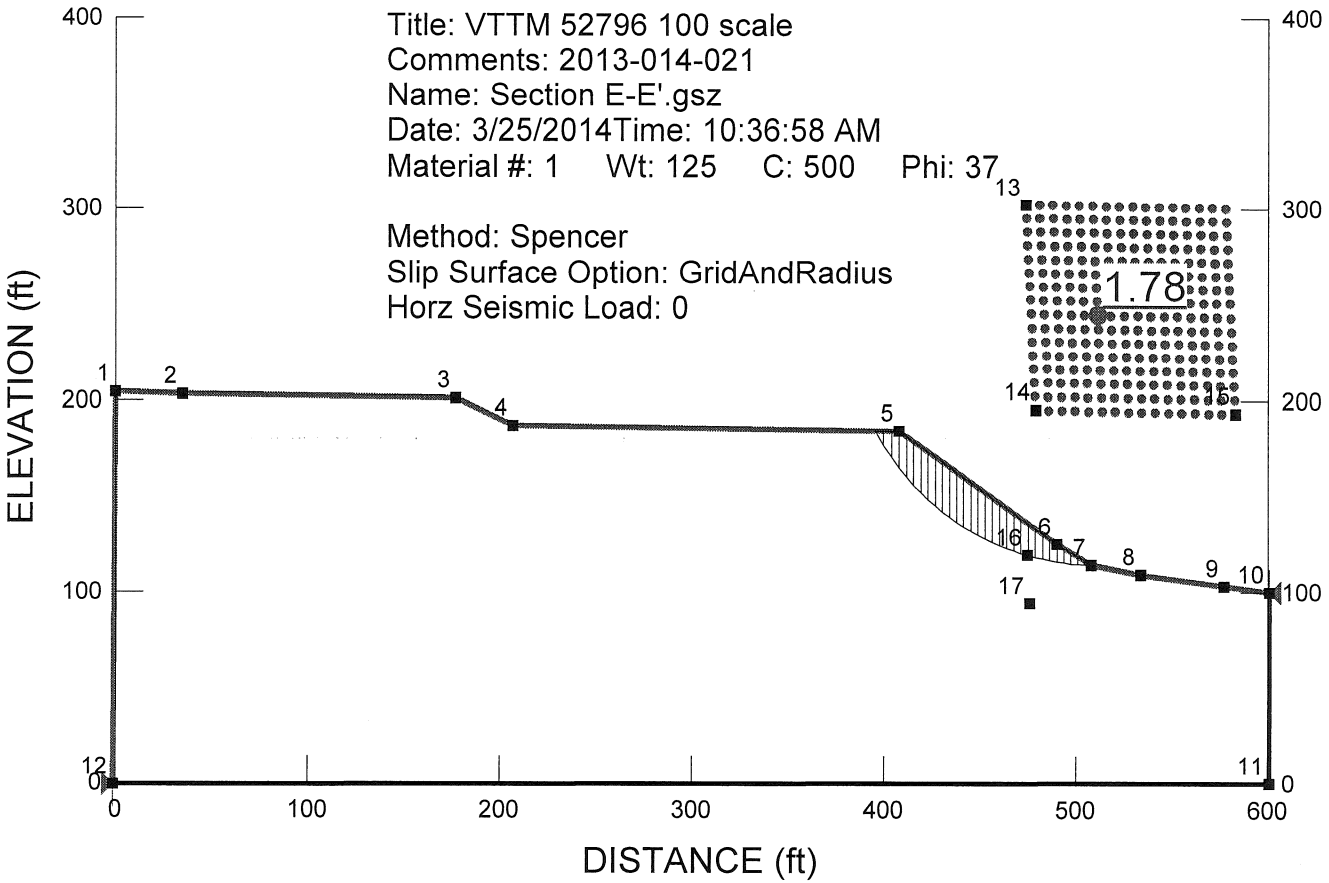
REPORT DATED: 03-27-2014

Lennar Homes
March 27, 2014
2013-014-021

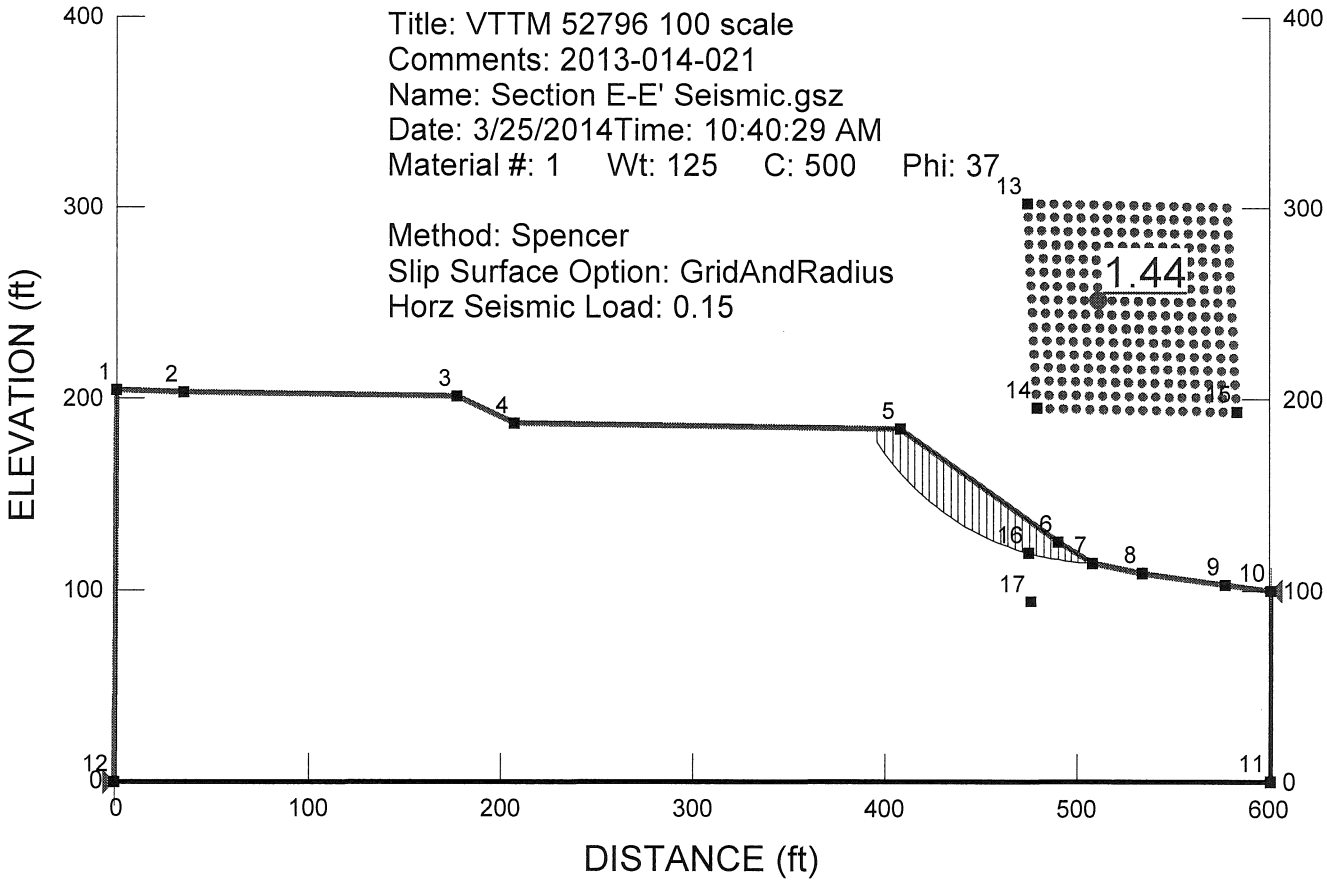
APPENDIX E

SLOPE STABILITY CALCULATIONS

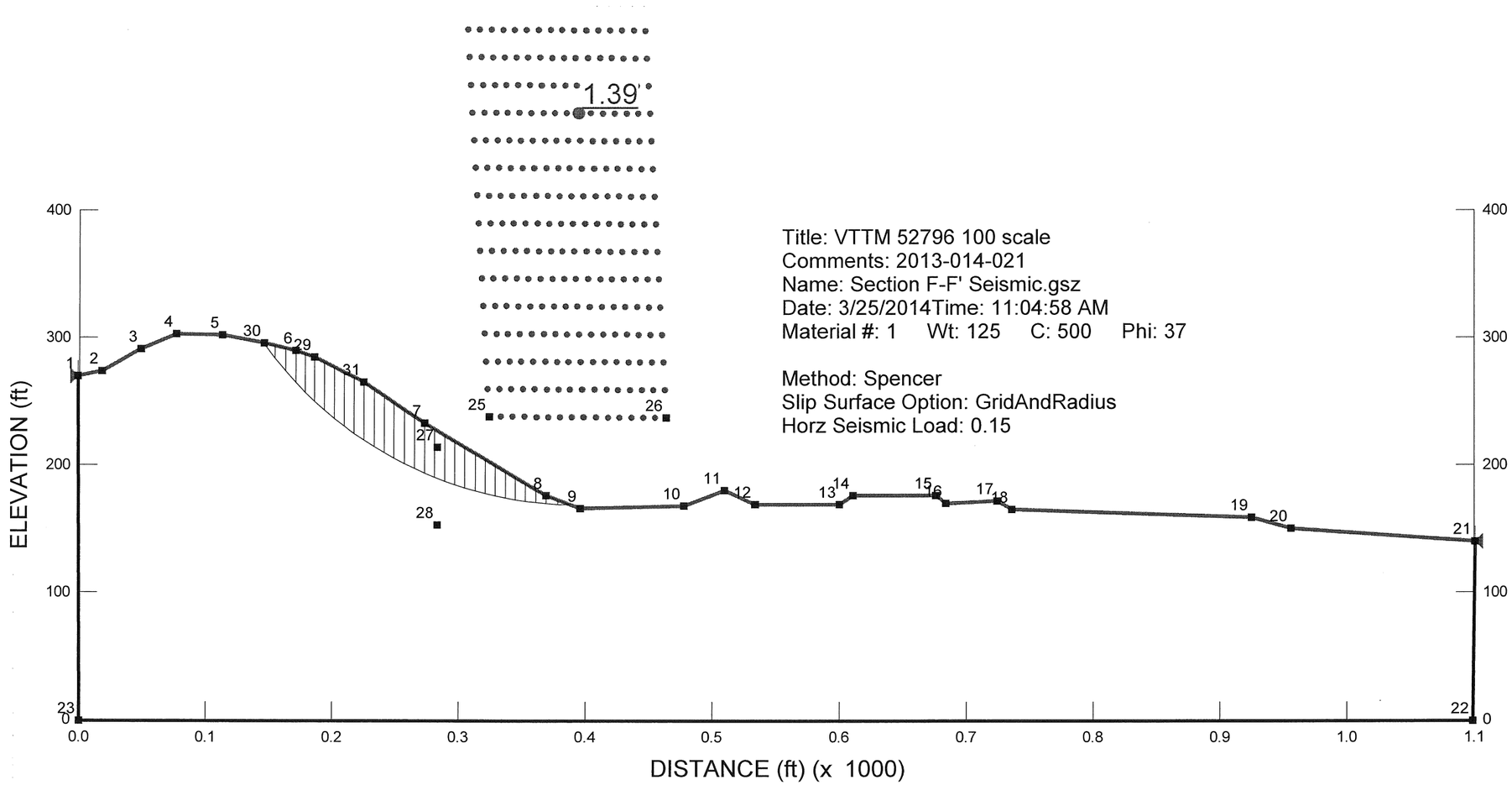
RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY



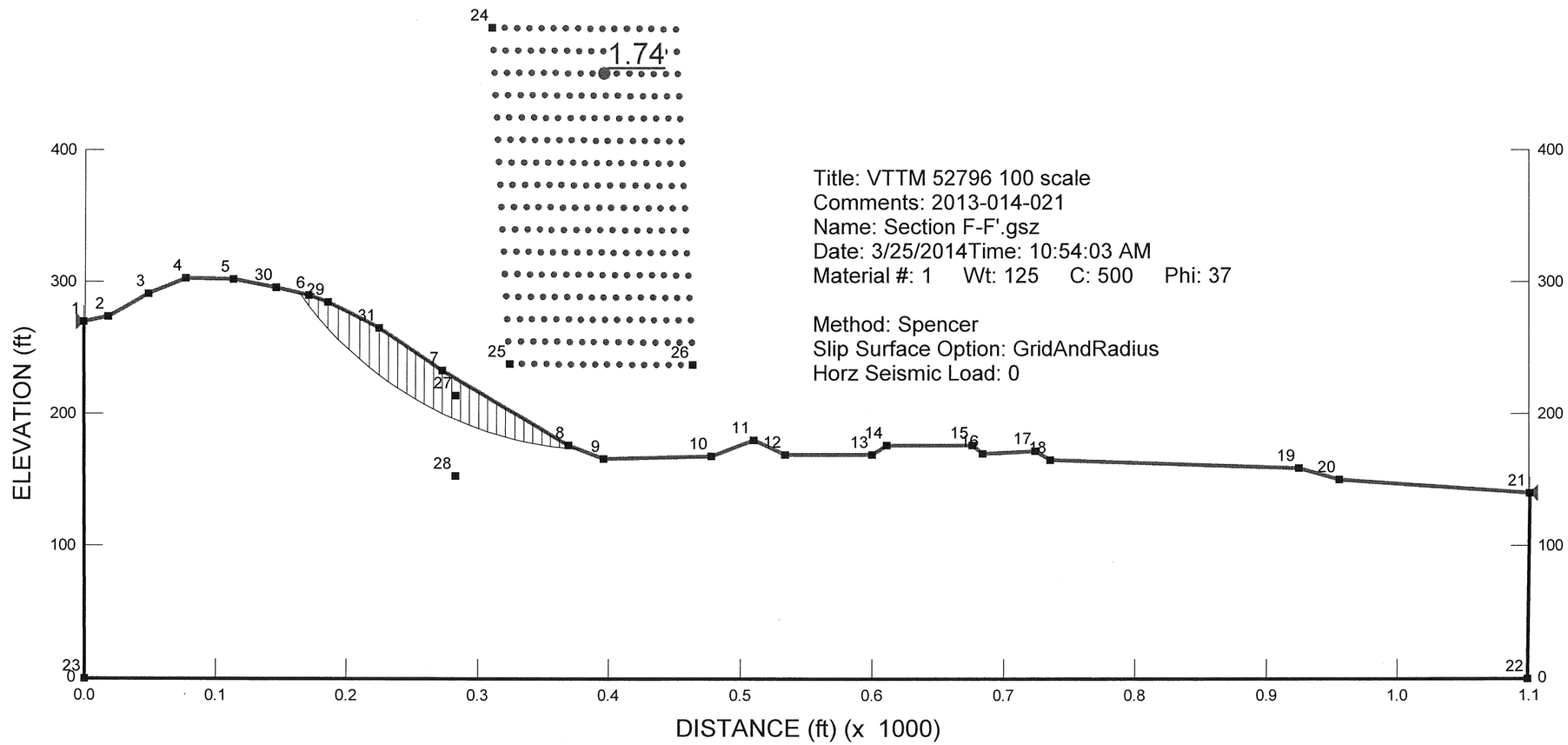
RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY



RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY



RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY



RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Lennar Homes
March 27, 2014
2013-014-021

APPENDIX F

CORROSION TEST RESULTS

GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

Environmental Geotechnology Laboratory

November 23, 1998

The J. Byer Group Inc.
512 E. Wilson Ave., Suite 201
Glendale, CA 91206

Attn: Mr. Jon A. Irvine

RE: LABORATORY TEST RESULTS/REPORT
Project Name: Byer-Aldlin
Project No.: JB-17626
EGL Job No.: 98-AA-037

Dear Mr. Irvine:

We have completed the testing program conducted on samples from the Byer-Aldlin project. The tests were performed in accordance with testing procedures as follows:

TEST	METHOD
Chloride Content	CT-422
Sulfate Content	CT-417
Minimum Resistivity	CT-532

Enclosed is Summary of Corrosion Test Results.

We appreciate the opportunity to provide testing services to The J. Byer Group, Inc. Should you have any questions, please call the undersigned.

Sincerely yours,
Environmental Geotechnology Laboratory, Inc.

Jack C. Lee, PE, GE
Manager

Enclosure

11823 Slauson Avenue, Unit 18, Santa Fe Springs, CA 90670 • Tel.: (562) 945-0689, Fax: (562) 945-0364

Environmental Geotechnology Laboratory

SUMMARY OF CORROSION TEST RESULTS

PROJECT NAME: BYER-ALDLIN

EGL JOB NO.: 98-AA-037

PROJECT NO.:JB-17626

CLIENT: THE J. BYER GROUP

DATE: 11-18-98

SUMMARIZED BY: M. TAN

BORING NO	SAMPLE NO	DEPTH (FT)	pH	CHLORIDE CONTENT OF SOILS CT-422 (PPM)	SULFATE CONTENT OF SOILS CT-417 (PPM)	MINIMUM RESISTIVITY CT-532 (OHM-CM)
B-1	10	10	7.85	42	150	2600
B-5	5	5	8.00	46	20	1780
B-15	31	31	7.36	70	8320	279
B-14	20	20	7.35	46	825	550

11823 Slauson Avenue, Unit 18, Santa Fe Springs, CA 90670 • Tel.: (562) 945-0689, Fax: (562) 945-0364

Lennar Homes
March 27, 2014
2013-014-021

APPENDIX G

SITE PHOTOGRAPHS

RTF&A
GEOTECHNICAL ENGINEERING & ENGINEERING GEOLOGY

RTF&A Job No. 2013-014-021 Report Dated 3/27/2014

RTF&A Job No. 2013-014-021 Report Dated 3/27/2014

RTF&A Job No. 2013-014-021 Report Dated 3/27/2014

RTF&A Job No. 2013-014-021 Report Dated 3/27/2014

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RTF&A Job No. 2013-014-021 Report Dated 3/27/2014

RTF&A Job No. 2013-014-021 Report Dated 3/27/2014

RTF&A Job No. 2013-014-021 Report Dated 3/27/2014

Appendix F

Greenhouse Gas Worksheets

Aidlin Hills
Draft EIR
Appendix F, Greenhouse Gas Emission Worksheets

F.1 CalEEMod Output - Construction (Annual)

F.2 CalEEMod Output - Operations (Annual)

F.3 Project GHG Emissions (Solid Waste and Water Inputs)

F.4 Residential Waste Disposal Rates

Appendix F.1
CalEEMod Output - Construction (Annual)

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□□□ □ro□ect □haracteri□tic□

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Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	3.00	1000sqft	3.90	3,000.00	0
Other Asphalt Surfaces	11.00	Acre	11.00	479,160.00	0
User Defined Recreational	1.00	User Defined Unit	1.50	0.00	0
Single Family Housing	102.00	Dwelling Unit	20.80	357,000.00	306

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□r□ani□ation	Urban	□ ind □peed □□ □□□	2.2	□recipitation □re□ □□a□□□	31
□li□ ate □one	9			□perational □ear	2019
□tilit□ □o□ pan□	Southern California Edison				
□□□ □nten□it□ □l□M□ hr□	630.89	□□□ □nten□it□ □l□M□ hr□	0.029	□□□ □nten□it□ □l□M□ hr□	0.006

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Project Characteristics -

Land Use - Floor area based on avg sf of 3,500 per DU (range of 2,700-4,300 sf); Pop. based on 3 residents/household in LA County; 3.9 acres for 2 H2O tanks/1 pump station; 1.5 acres for H2O quality basins; 11 acres streets (fire access & public).

Construction Phase - Refer to "Construction Schedule and California Emissions Estimator Model (CalEEMod) Inputs" worksheet in Appendix.

Off-road Equipment - Refer to "Construction Equipment and California Emissions Estimator Model (CalEEMod) Inputs" worksheet in Appendix.

Off-road Equipment - Refer to "Construction Equipment and California Emissions Estimator Model (CalEEMod) Inputs" worksheet in Appendix.

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Off-road Equipment - Refer to "Construction Equipment and California Emissions Estimator Model (CalEEMod) Inputs" worksheet in Appendix.

Off-road Equipment - Refer to "Construction Equipment and California Emissions Estimator Model (CalEEMod) Inputs" worksheet in Appendix.

Trips and VMT -

Grading - Acres disturbed: 37.2

Architectural Coating - Residential coating area based on 357,000 sf total floor area for 102 DUs; Non-residential coating for streets based on 6% of 11 acres per CalEEMod User's Guide, Appendix E (479160 * 0.06 = 28,750 sf).

Construction Off-road Equipment Mitigation - Water exposed area 3 times daily (61% reduction PM10 and PM2.5); Limit vehicle speeds to 15 mph on unpaved roads.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	241,080.00	28,750.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	723,240.00	0.00
tblConstructionPhase	NumDays	55.00	586.00
tblConstructionPhase	NumDays	740.00	773.00
tblConstructionPhase	NumDays	75.00	180.00
tblConstructionPhase	NumDays	55.00	71.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	PhaseEndDate	5/12/2021	6/28/2019
tblConstructionPhase	PhaseEndDate	7/11/2019	6/28/2019
tblConstructionPhase	PhaseEndDate	4/24/2017	1/20/2017
tblConstructionPhase	PhaseEndDate	3/22/2017	1/31/2017
tblConstructionPhase	PhaseStartDate	6/29/2019	8/15/2017
tblConstructionPhase	PhaseStartDate	1/21/2017	1/9/2017
tblConstructionPhase	PhaseStartDate	2/1/2017	10/31/2016
tblConstructionPhase	PhaseStartDate	6/21/2016	5/2/2016
tblGrading	AcresOfGrading	450.00	37.20
tblLandUse	LandUseSquareFeet	183,600.00	357,000.00
tblLandUse	LotAcreage	0.07	3.90
tblLandUse	LotAcreage	0.00	1.50

tblLandUse	LotAcreage	33.12	20.80
tblLandUse	Population	292.00	306.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblProjectCharacteristics	OperationalYear	2014	2019

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	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					
2015	0.1777	2.0451	1.2372	1.8700e-003	0.5668	0.0941	0.6609	0.3014	0.0866	0.3880	0.0000	177.3255	177.3255	0.0518	0.0000	178.4122
2016	1.0740	11.2442	7.3910	0.0116	0.6037	0.5778	1.1815	0.3112	0.5374	0.8486	0.0000	1,073.3547	1,073.3547	0.2894	0.0000	1,079.4318
2017	1.1521	6.3056	7.1499	0.0135	0.5205	0.3541	0.8746	0.1399	0.3327	0.4726	0.0000	1,117.4242	1,117.4242	0.1330	0.0000	1,120.2167
2018	1.5933	5.6284	7.0546	0.0142	0.5795	0.3026	0.8820	0.1556	0.2856	0.4412	0.0000	1,146.6878	1,146.6878	0.1273	0.0000	1,149.3611
2019	0.7460	2.5091	3.3180	6.9800e-003	0.2851	0.1288	0.4139	0.0766	0.1216	0.1981	0.0000	551.3478	551.3478	0.0609	0.0000	552.6270
□otal	□□□□□□	□□□□□□□	□□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□□□□□□□□	□□□□□□□□□□	□□□□□□	□□□□□□	□□□□□□□□□

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					
2015	0.1777	2.0450	1.2372	1.8700e-003	0.2241	0.0941	0.3183	0.1184	0.0866	0.2050	0.0000	177.3253	177.3253	0.0518	0.0000	178.4120
2016	1.0740	11.2442	7.3910	0.0116	0.2611	0.5778	0.8388	0.1282	0.5374	0.6655	0.0000	1,073.3535	1,073.3535	0.2894	0.0000	1,079.4305
2017	1.1521	6.3056	7.1499	0.0135	0.5205	0.3541	0.8746	0.1399	0.3327	0.4726	0.0000	1,117.4236	1,117.4236	0.1330	0.0000	1,120.2161
2018	1.5933	5.6284	7.0546	0.0142	0.5795	0.3026	0.8820	0.1556	0.2856	0.4412	0.0000	1,146.6873	1,146.6873	0.1273	0.0000	1,149.3606
2019	0.7459	2.5091	3.3180	6.9800e-003	0.2851	0.1288	0.4139	0.0766	0.1216	0.1981	0.0000	551.3475	551.3475	0.0609	0.0000	552.6267
Total																

	TOG	**ROG**	**NOx**	**CO**	**SO2**	**Fugitive PM10**	**Exhaust PM10**	**PM10 Total**	**Fugitive PM2.5**	**Exhaust PM2.5**	**PM2.5 Total**	**Bio- CO2**	**NBio- CO2**	**Total CO2**	**CH4**	**N2O**	**CO2e**
Percent Reduction																	

Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	11/24/2015	6/20/2016	6	180	
2	Utilities	Trenching	5/2/2016	1/31/2017	6	236	
3	Streets	Paving	10/31/2016	1/20/2017	6	71	
4	Building Construction	Building Construction	1/9/2017	6/28/2019	6	773	
5	Architectural Coating	Architectural Coating	8/15/2017	6/28/2019	6	586	

Acres of Grading (Site Preparation Phase):

Acres of Grading (Grading Phase):

Acres of Paving:

□e□idential □ndoor□□□□□□□□□□e□idential □ □tdoor□□□□□□□□□□on□□e□idential □ndoor□□□□on□□e□idential □ □tdoor□□□□□□□ □□rchitect□ral

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Excavators	3	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Off-Highway Trucks	3	8.00	400	0.38
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Scrapers	2	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Utilities	Generator Sets	1	8.00	84	0.74
Utilities	Pumps	1	8.00	84	0.74
Utilities	Rough Terrain Forklifts	1	8.00	100	0.40
Utilities	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Utilities	Trenchers	1	8.00	80	0.50
Streets	Pavers	2	8.00	125	0.42
Streets	Paving Equipment	2	8.00	130	0.36
Streets	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	8.00	226	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	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	8.00	78	0.48

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Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Grading	11	28.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Utilities	5	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Streets	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	239.00	90.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	48.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

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	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					0.5617	0.0000	0.5617	0.3001	0.0000	0.3001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1756	2.0420	1.2059	1.8100e-003		0.0941	0.0941		0.0866	0.0866	0.0000	172.4066	172.4066	0.0515	0.0000	173.4875
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□	□□□□□□	□□□□□□□□

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	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	2.0600e-003	3.0200e-003	0.0313	6.0000e-005	5.0700e-003	5.0000e-005	5.1100e-003	1.3500e-003	4.0000e-005	1.3900e-003	0.0000	4.9189	4.9189	2.8000e-004	0.0000	4.9247
□otal	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□	□□□□□	□□□□□	□□□□□e□ □□□	□□□□□	□□□□□

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	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					0.2191	0.0000	0.2191	0.1170	0.0000	0.1170	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1756	2.0420	1.2059	1.8100e-003		0.0941	0.0941		0.0866	0.0866	0.0000	172.4064	172.4064	0.0515	0.0000	173.4873
□otal	□□□□□	□□□□□	□□□□□	□□□□□e□ □□□	□□□□□	□□□□□	□□□□□	□□□□□	□□□□□	□□□□□	□□□□□	□□□□□□	□□□□□□	□□□□□	□□□□□	□□□□□□

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	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	2.0600e-003	3.0200e-003	0.0313	6.0000e-005	5.0700e-003	5.0000e-005	5.1100e-003	1.3500e-003	4.0000e-005	1.3900e-003	0.0000	4.9189	4.9189	2.8000e-004	0.0000	4.9247
□otal	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□	□□□□□	□□□□□	□□□□□e□ □□□	□□□□□	□□□□□

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	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					0.5617	0.0000	0.5617	0.3001	0.0000	0.3001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.7375	8.4566	5.1553	8.0600e-003		0.3882	0.3882		0.3571	0.3571	0.0000	759.4040	759.4040	0.2291	0.0000	764.2143
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□	□□□□□□	□□□□□□□□

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	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	8.2500e-003	0.0121	0.1261	2.8000e-004	0.0226	1.9000e-004	0.0228	6.0000e-003	1.8000e-004	6.1700e-003	0.0000	21.1541	21.1541	1.1400e-003	0.0000	21.1781
□otal	□□□□□□e□□□□	□□□□□□	□□□□□□	□□□□□□e□□□□	□□□□□□	□□□□□□e□□□□	□□□□□□	□□□□□□e□□□□	□□□□□□e□□□□	□□□□□□e□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□□	□□□□□□	□□□□□□

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	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					0.2191	0.0000	0.2191	0.1170	0.0000	0.1170	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.7375	8.4566	5.1553	8.0600e-003		0.3882	0.3882		0.3571	0.3571	0.0000	759.4030	759.4030	0.2291	0.0000	764.2134
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□	□□□□□□	□□□□□□□□

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					
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	8.2500e-003	0.0121	0.1261	2.8000e-004	0.0226	1.9000e-004	0.0228	6.0000e-003	1.8000e-004	6.1700e-003	0.0000	21.1541	21.1541	1.1400e-003	0.0000	21.1781
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Utilities [illegible]

Non-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	0.2538	2.1606	1.6012	2.4300e-003		0.1552	0.1552		0.1486	0.1486	0.0000	217.8655	217.8655	0.0411	0.0000	218.7284
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Non-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					
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	5.4700e-003	8.0400e-003	0.0836	1.8000e-004	0.0150	1.3000e-004	0.0151	3.9800e-003	1.2000e-004	4.0900e-003	0.0000	14.0308	14.0308	7.6000e-004	0.0000	14.0467
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	0.2538	2.1606	1.6012	2.4300e-003		0.1552	0.1552		0.1486	0.1486	0.0000	217.8653	217.8653	0.0411	0.0000	218.7281
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	5.4700e-003	8.0400e-003	0.0836	1.8000e-004	0.0150	1.3000e-004	0.0151	3.9800e-003	1.2000e-004	4.0900e-003	0.0000	14.0308	14.0308	7.6000e-004	0.0000	14.0467
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Utilities [illegible]

Un-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	0.0288	0.2491	0.1968	3.0000e-004		0.0174	0.0174		0.0167	0.0167	0.0000	26.7785	26.7785	4.9300e-003	0.0000	26.8820
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	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	6.1000e-004	9.0000e-004	9.3400e-003	2.0000e-005	1.8500e-003	2.0000e-005	1.8700e-003	4.9000e-004	1.0000e-005	5.1000e-004	0.0000	1.6705	1.6705	9.0000e-005	0.0000	1.6723
□otal	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□	□□□□□	□□□□□	□□□□□e□ □□□	□□□□□	□□□□□

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	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	0.0288	0.2491	0.1968	3.0000e-004		0.0174	0.0174		0.0167	0.0167	0.0000	26.7784	26.7784	4.9300e-003	0.0000	26.8820
□otal	□□□□□	□□□□□	□□□□□	□□□□□e□ □□□		□□□□□	□□□□□		□□□□□	□□□□□	□□□□□	□□□□□	□□□□□	□□□□□e□ □□□	□□□□□	□□□□□

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	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	6.1000e-004	9.0000e-004	9.3400e-003	2.0000e-005	1.8500e-003	2.0000e-005	1.8700e-003	4.9000e-004	1.0000e-005	5.1000e-004	0.0000	1.6705	1.6705	9.0000e-005	0.0000	1.6723
□otal	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□e□ □□□	□□□□□	□□□□□	□□□□□	□□□□□e□ □□□	□□□□□	□□□□□

[illegible] [illegible]treet[illegible] [illegible]

[illegible]n[illegible]iti[illegible]ated [illegible]on[illegible]tr[illegible]ction [illegible]n[illegible]ite

	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	0.0564	0.6044	0.4001	6.0000e-004		0.0341	0.0341		0.0313	0.0313	0.0000	56.7373	56.7373	0.0171	0.0000	57.0967
Paving	0.0110					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
[illegible]otal	[illegible]	[illegible]	[illegible]	[illegible]e[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]n[illegible]iti[illegible]ated [illegible]on[illegible]tr[illegible]ction [illegible]ite

	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	1.6200e-003	2.3800e-003	0.0248	5.0000e-005	4.4400e-003	4.0000e-005	4.4800e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	4.1630	4.1630	2.2000e-004	0.0000	4.1677
[illegible]otal	[illegible]e[illegible]	[illegible]e[illegible]	[illegible]	[illegible]e[illegible]	[illegible]e[illegible]	[illegible]e[illegible]	[illegible]e[illegible]	[illegible]e[illegible]	[illegible]e[illegible]	[illegible]e[illegible]	[illegible]	[illegible]	[illegible]	[illegible]e[illegible]	[illegible]	[illegible]

Miti[illegible]ated [illegible]on[illegible]tr[illegible]ction [illegible]n[illegible]ite

	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	0.0564	0.6044	0.4001	6.0000e-004		0.0341	0.0341		0.0313	0.0313	0.0000	56.7372	56.7372	0.0171	0.0000	57.0966
Paving	0.0110					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
[illegible]otal	[illegible]	[illegible]	[illegible]	[illegible]e[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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					
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	1.6200e-003	2.3800e-003	0.0248	5.0000e-005	4.4400e-003	4.0000e-005	4.4800e-003	1.1800e-003	3.0000e-005	1.2100e-003	0.0000	4.1630	4.1630	2.2000e-004	0.0000	4.1677
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Street [illegible]

Un-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	0.0162	0.1725	0.1252	1.9000e-004		9.6800e-003	9.6800e-003		8.9000e-003	8.9000e-003	0.0000	17.5894	17.5894	5.3900e-003	0.0000	17.7026
Paving	3.4500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Un-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					
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	4.6000e-004	6.8000e-004	7.0500e-003	2.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2603	1.2603	7.0000e-005	0.0000	1.2616
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	0.0162	0.1725	0.1252	1.9000e-004		9.6800e-003	9.6800e-003		8.9000e-003	8.9000e-003	0.0000	17.5894	17.5894	5.3900e-003	0.0000	17.7026
Paving	3.4500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	4.6000e-004	6.8000e-004	7.0500e-003	2.0000e-005	1.4000e-003	1.0000e-005	1.4100e-003	3.7000e-004	1.0000e-005	3.8000e-004	0.0000	1.2603	1.2603	7.0000e-005	0.0000	1.2616
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Building Construction [illegible]

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	0.5052	4.3618	2.9638	4.3900e-003		0.2922	0.2922		0.2741	0.2741	0.0000	392.9837	392.9837	0.0983	0.0000	395.0484
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	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	0.1121	1.1377	1.5208	2.9900e-003	0.0848	0.0174	0.1022	0.0242	0.0160	0.0402	0.0000	267.2147	267.2147	1.9200e-003	0.0000	267.2549
Worker	0.1314	0.1944	2.0209	4.9300e-003	0.4012	3.2900e-003	0.4045	0.1066	3.0300e-003	0.1096	0.0000	361.4417	361.4417	0.0187	0.0000	361.8338
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□ □□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□□	□□□□□□□	□□□□□□	□□□□□□	□□□□□□□

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	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	0.5052	4.3618	2.9638	4.3900e-003		0.2922	0.2922		0.2741	0.2741	0.0000	392.9832	392.9832	0.0983	0.0000	395.0480
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□ □□□		□□□□□□	□□□□□□		□□□□□□	□□□□□□	□□□□□□	□□□□□□□	□□□□□□□	□□□□□□	□□□□□□	□□□□□□□

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	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	0.1121	1.1377	1.5208	2.9900e-003	0.0848	0.0174	0.1022	0.0242	0.0160	0.0402	0.0000	267.2147	267.2147	1.9200e-003	0.0000	267.2549
Worker	0.1314	0.1944	2.0209	4.9300e-003	0.4012	3.2900e-003	0.4045	0.1066	3.0300e-003	0.1096	0.0000	361.4417	361.4417	0.0187	0.0000	361.8338
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□ □□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□□	□□□□□□□	□□□□□□	□□□□□□	□□□□□□□

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	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	0.4442	3.9252	2.9293	4.4900e-003		0.2504	0.2504		0.2351	0.2351	0.0000	397.2776	397.2776	0.0990	0.0000	399.3566
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□		□□□□□□	□□□□□□		□□□□□□	□□□□□□	□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□	□□□□□□	□□□□□□□□

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	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	0.1072	1.0681	1.4904	3.0500e-003	0.0867	0.0168	0.1035	0.0247	0.0154	0.0402	0.0000	268.7420	268.7420	1.9500e-003	0.0000	268.7829
Worker	0.1207	0.1804	1.8721	5.0400e-003	0.4104	3.2700e-003	0.4136	0.1090	3.0300e-003	0.1120	0.0000	355.9104	355.9104	0.0177	0.0000	356.2826
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□	□□□□□□	□□□□□□□□

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	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	0.4442	3.9252	2.9293	4.4900e-003		0.2504	0.2504		0.2351	0.2351	0.0000	397.2771	397.2771	0.0990	0.0000	399.3562
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□		□□□□□□	□□□□□□		□□□□□□	□□□□□□	□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□	□□□□□□	□□□□□□□□

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					
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	0.1072	1.0681	1.4904	3.0500e-003	0.0867	0.0168	0.1035	0.0247	0.0154	0.0402	0.0000	268.7420	268.7420	1.9500e-003	0.0000	268.7829
Worker	0.1207	0.1804	1.8721	5.0400e-003	0.4104	3.2700e-003	0.4136	0.1090	3.0300e-003	0.1120	0.0000	355.9104	355.9104	0.0177	0.0000	356.2826
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] Building Construction [illegible]

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	0.1925	1.7384	1.4064	2.2100e-003		0.1059	0.1059		0.0994	0.0994	0.0000	193.2102	193.2102	0.0480	0.0000	194.2173
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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					
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	0.0499	0.4845	0.7084	1.5000e-003	0.0427	7.8300e-003	0.0505	0.0122	7.2000e-003	0.0194	0.0000	129.6459	129.6459	9.4000e-004	0.0000	129.6656
Worker	0.0545	0.0814	0.8446	2.4700e-003	0.2019	1.5800e-003	0.2035	0.0536	1.4700e-003	0.0551	0.0000	168.4478	168.4478	8.1600e-003	0.0000	168.6192
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	0.1925	1.7384	1.4064	2.2100e-003		0.1059	0.1059		0.0994	0.0994	0.0000	193.2100	193.2100	0.0480	0.0000	194.2170
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	0.0499	0.4845	0.7084	1.5000e-003	0.0427	7.8300e-003	0.0505	0.0122	7.2000e-003	0.0194	0.0000	129.6459	129.6459	9.4000e-004	0.0000	129.6656
Worker	0.0545	0.0814	0.8446	2.4700e-003	0.2019	1.5800e-003	0.2035	0.0536	1.4700e-003	0.0551	0.0000	168.4478	168.4478	8.1600e-003	0.0000	168.6192
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Architectural Coating

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	0.3173					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.1734	0.1482	2.4000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	20.2558	20.2558	2.1400e-003	0.0000	20.3007
Total	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	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	0.0103	0.0152	0.1578	3.8000e-004	0.0313	2.6000e-004	0.0316	8.3200e-003	2.4000e-004	8.5600e-003	0.0000	28.2298	28.2298	1.4600e-003	0.0000	28.2604
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□e□□□	□□□□□□e□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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	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	0.3173					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.1734	0.1482	2.4000e-004		0.0138	0.0138		0.0138	0.0138	0.0000	20.2558	20.2558	2.1400e-003	0.0000	20.3007
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□		□□□□□□	□□□□□□		□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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	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	0.0103	0.0152	0.1578	3.8000e-004	0.0313	2.6000e-004	0.0316	8.3200e-003	2.4000e-004	8.5600e-003	0.0000	28.2298	28.2298	1.4600e-003	0.0000	28.2604
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□e□□□	□□□□□□e□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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	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	0.8347					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0623	0.4185	0.3869	6.2000e-004		0.0314	0.0314		0.0314	0.0314	0.0000	53.2780	53.2780	5.0600e-003	0.0000	53.3843
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□		□□□□□□	□□□□□□		□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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	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	0.0242	0.0362	0.3760	1.0100e-003	0.0824	6.6000e-004	0.0831	0.0219	6.1000e-004	0.0225	0.0000	71.4799	71.4799	3.5600e-003	0.0000	71.5547
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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	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	0.8347					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0623	0.4185	0.3869	6.2000e-004		0.0314	0.0314		0.0314	0.0314	0.0000	53.2779	53.2779	5.0600e-003	0.0000	53.3842
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□		□□□□□□	□□□□□□		□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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	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	0.0242	0.0362	0.3760	1.0100e-003	0.0824	6.6000e-004	0.0831	0.0219	6.1000e-004	0.0225	0.0000	71.4799	71.4799	3.5600e-003	0.0000	71.5547
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□□	□□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□□

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	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	0.4107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0274	0.1884	0.1890	3.1000e-004		0.0132	0.0132		0.0132	0.0132	0.0000	26.2134	26.2134	2.2100e-003	0.0000	26.2599
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□		□□□□□□	□□□□□□		□□□□□□	□□□□□□	□□□□□□	□□□□□□□	□□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□□

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	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	0.0110	0.0164	0.1696	5.0000e-004	0.0406	3.2000e-004	0.0409	0.0108	2.9000e-004	0.0111	0.0000	33.8305	33.8305	1.6400e-003	0.0000	33.8650
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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	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	0.4107					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0274	0.1884	0.1890	3.1000e-004		0.0132	0.0132		0.0132	0.0132	0.0000	26.2134	26.2134	2.2100e-003	0.0000	26.2599
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□		□□□□□□	□□□□□□		□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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	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	0.0110	0.0164	0.1696	5.0000e-004	0.0406	3.2000e-004	0.0409	0.0108	2.9000e-004	0.0111	0.0000	33.8305	33.8305	1.6400e-003	0.0000	33.8650
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

Appendix F.2
CalEEMod Output - Operations (Annual)

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Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	102.00	Dwelling Unit	20.80	357,000.00	306

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□r□ani□ation	Urban	□ ind □peed □□ □□□	2.2	□recipitation □re□ □□a□□□	31
□li□ ate □one	9			□perational □ear	2019
□tilit□ □o□ pan□	Southern California Edison				
□□□ □nten□it□ □l□M□ hr□	630.89	□□□ □nten□it□ □l□M□ hr□	0.029	□□□ □nten□it□ □l□M□ hr□	0.006

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Project Characteristics -

Land Use - Total floor area based on the average square foot of 3,500 per dwelling unit (range of 2,700 sf to 4,300 sf); Population based on 3 residents per household in Los Angeles County.

Vehicle Trips - Trip Rate: Institute of Transportation Engineers, Trip Generation Manual, 9th Ed., (2012).

Woodstoves - Assumes natural gas hearth in each dwelling unit.

Water And Wastewater - Based on 900 gallons per day (data provided by Valencia Water Company).

Solid Waste - Based on CalRecycle residential disposal factor of 0.41 tons/capita/year for Los Angeles County, 306 residents, and the County's required 50% waste diversion factor (= 63 tons per year).

Area Mitigation - Natural Gas Hearths; Low VOC Interior Paints.

Energy Mitigation - According to the CEC, Title 24 (2013) is 25% more efficient than Title 24 (2008). Energy efficienct appliances (e.g., ENERGY STAR qualified).

Water Mitigation - Low flow faucets; Water-efficient irrigation.

Operational Off-Road Equipment - Two 253,000 gallon water storage tanks and a pump station with one 20 hp unit for each tank.

Table Name	Column Name	Default Value	New Value
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	86.70	102.00
tblFireplaces	NumberNoFireplace	10.20	0.00
tblFireplaces	NumberWood	5.10	0.00
tblLandUse	LandUseSquareFeet	183,600.00	357,000.00
tblLandUse	LotAcreage	33.12	20.80
tblLandUse	Population	292.00	306.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	100.00
tblOperationalOffRoadEquipment	OperHorsePower	84.00	20.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	2.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	2.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblSolidWaste	SolidWasteGenerationRate	125.46	63.00
tblVehicleTrips	ST_TR	10.08	9.52
tblVehicleTrips	SU_TR	8.77	9.52
tblVehicleTrips	WD_TR	9.57	9.52
tblWater	IndoorWaterUseRate	6,645,710.61	20,551,027.00
tblWater	OutdoorWaterUseRate	4,189,687.13	12,955,973.00
tblWoodstoves	NumberCatalytic	5.10	0.00
tblWoodstoves	NumberNoncatalytic	5.10	0.00
tblWoodstoves	WoodstoveDayYear	25.00	0.00
tblWoodstoves	WoodstoveWoodMass	999.60	0.00

2.0 Emissions Summary

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	1.4645	0.0122	1.0572	6.0000e-005		7.5000e-003	7.5000e-003		7.4800e-003	7.4800e-003	0.0000	26.2122	26.2122	2.1600e-003	4.5000e-004	26.3967
Energy	0.0164	0.1401	0.0596	8.9000e-004		0.0113	0.0113		0.0113	0.0113	0.0000	375.1364	375.1364	0.0129	5.0000e-003	376.9569
Mobile	0.5334	1.6940	6.3171	0.0184	1.2576	0.0255	1.2831	0.3365	0.0235	0.3600	0.0000	1,336.5009	1,336.5009	0.0486	0.0000	1,337.5223
Offroad	4.7700e-003	0.0300	0.0163	5.0000e-005		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003	0.0000	3.3643	3.3643	3.9000e-004	0.0000	3.3725
Waste						0.0000	0.0000		0.0000	0.0000	12.7884	0.0000	12.7884	0.7558	0.0000	28.6597
Water						0.0000	0.0000		0.0000	0.0000	6.5199	117.7679	124.2878	0.6751	0.0169	143.7132
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	1.4645	0.0122	1.0572	6.0000e-005		7.5000e-003	7.5000e-003		7.4800e-003	7.4800e-003	0.0000	26.2122	26.2122	2.1600e-003	4.5000e-004	26.3967
Energy	0.0131	0.1119	0.0476	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	331.4389	331.4389	0.0118	4.3000e-003	333.0176
Mobile	0.5334	1.6940	6.3171	0.0184	1.2576	0.0255	1.2831	0.3365	0.0235	0.3600	0.0000	1,336.5009	1,336.5009	0.0486	0.0000	1,337.5223
Offroad	4.7700e-003	0.0300	0.0163	5.0000e-005		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003	0.0000	3.3643	3.3643	3.9000e-004	0.0000	3.3725
Waste						0.0000	0.0000		0.0000	0.0000	12.7884	0.0000	12.7884	0.7558	0.0000	28.6597
Water						0.0000	0.0000		0.0000	0.0000	5.9331	108.3633	114.2965	0.6143	0.0154	131.9688
Total	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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	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	0.5334	1.6940	6.3171	0.0184	1.2576	0.0255	1.2831	0.3365	0.0235	0.3600	0.0000	1,336.5009	1,336.5009	0.0486	0.0000	1,337.5223
Unmitigated	0.5334	1.6940	6.3171	0.0184	1.2576	0.0255	1.2831	0.3365	0.0235	0.3600	0.0000	1,336.5009	1,336.5009	0.0486	0.0000	1,337.5223

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	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	971.04	971.04	971.04	3,318,191	3,318,191
Total	971.04	971.04	971.04	3,318,191	3,318,191

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	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
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.511108	0.059746	0.180859	0.139188	0.042462	0.006666	0.016153	0.032295	0.001940	0.002496	0.004377	0.000582	0.002128

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Historical Energy Use: N

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Exceed Title 24

Install Energy Efficient Appliances

	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	201.8117	201.8117	9.2800e-003	1.9200e-003	202.6014
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	212.9266	212.9266	9.7900e-003	2.0300e-003	213.7599
NaturalGas Mitigated	0.0131	0.1119	0.0476	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	129.6273	129.6273	2.4800e-003	2.3800e-003	130.4162
NaturalGas Unmitigated	0.0164	0.1401	0.0596	8.9000e-004		0.0113	0.0113		0.0113	0.0113	0.0000	162.2098	162.2098	3.1100e-003	2.9700e-003	163.1969

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	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					
Single Family Housing	3.0397e+006	0.0164	0.1401	0.0596	8.9000e-004		0.0113	0.0113		0.0113	0.0113	0.0000	162.2098	162.2098	3.1100e-003	2.9700e-003	163.1969
□otal		□□□□□	□□□□□	□□□□□	□□□□□e□□□		□□□□□	□□□□□		□□□□□	□□□□□	□□□□□	□□□□□□□	□□□□□□□	□□□□□e□□□	□□□□□e□□□	□□□□□□□

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	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					
Single Family Housing	2.43E+06	0.0131	0.1119	0.0476	7.1000e-004		9.0500e-003	9.0500e-003		9.0500e-003	9.0500e-003	0.0000	129.6273	129.6273	2.4800e-003	2.3800e-003	130.4162
□otal		□□□□□	□□□□□	□□□□□	□□□□□e□□□		□□□□□e□□□	□□□□□e□□□		□□□□□e□□□	□□□□□e□□□	□□□□□	□□□□□□□	□□□□□□□	□□□□□e□□□	□□□□□e□□□	□□□□□□□

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	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	744065	212.9266	9.7900e-003	2.0300e-003	213.7599
□otal		□□□□□□□□	□□□□□□e□ □□□	□□□□□□e□ □□□	□□□□□□□□

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	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	705224	201.8117	9.2800e-003	1.9200e-003	202.6014
□otal		□□□□□□□□	□□□□□□e□ □□□	□□□□□□e□ □□□	□□□□□□□□

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Use Low VOC Paint - Residential Interior

Use only Natural Gas Hearths

	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	1.4645	0.0122	1.0572	6.0000e-005		7.5000e-003	7.5000e-003		7.4800e-003	7.4800e-003	0.0000	26.2122	26.2122	2.1600e-003	4.5000e-004	26.3967
Unmitigated	1.4645	0.0122	1.0572	6.0000e-005		7.5000e-003	7.5000e-003		7.4800e-003	7.4800e-003	0.0000	26.2122	26.2122	2.1600e-003	4.5000e-004	26.3967

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	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	0.1396					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2900					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.4800e-003	0.0000	1.4000e-004	0.0000		1.7100e-003	1.7100e-003		1.6900e-003	1.6900e-003	0.0000	24.4940	24.4940	4.7000e-004	4.5000e-004	24.6431
Landscaping	0.0324	0.0122	1.0571	6.0000e-005		5.7900e-003	5.7900e-003		5.7900e-003	5.7900e-003	0.0000	1.7183	1.7183	1.6900e-003	0.0000	1.7537
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□ □□□		□□□□□□e□ □□□	□□□□□□e□ □□□		□□□□□□e□ □□□	□□□□□□e□ □□□	□□□□□□	□□□□□□□	□□□□□□□	□□□□□□e□ □□□	□□□□□□e□ □□□	□□□□□□□

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	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					
Consumer Products	1.2900					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	2.4800e-003	0.0000	1.4000e-004	0.0000		1.7100e-003	1.7100e-003		1.6900e-003	1.6900e-003	0.0000	24.4940	24.4940	4.7000e-004	4.5000e-004	24.6431
Landscaping	0.0324	0.0122	1.0571	6.0000e-005		5.7900e-003	5.7900e-003		5.7900e-003	5.7900e-003	0.0000	1.7183	1.7183	1.6900e-003	0.0000	1.7537
Architectural Coating	0.1396					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
□otal	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□ □□□		□□□□□□e□ □□□	□□□□□□e□ □□□		□□□□□□e□ □□□	□□□□□□e□ □□□	□□□□□□	□□□□□□□	□□□□□□□	□□□□□□e□ □□□	□□□□□□e□ □□□	□□□□□□□

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Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	114.2965	0.6143	0.0154	131.9688
Unmitigated	124.2878	0.6751	0.0169	143.7132

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	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	20.551 / 12.956	124.2878	0.6751	0.0169	143.7132
□otal		□□□□□□□	□□□□□	□□□□□	□□□□□□□

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	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	18.7014 / 12.1657	114.2965	0.6143	0.0154	131.9688
□otal		□□□□□□□	□□□□□	□□□□□	□□□□□□□

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	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	12.7884	0.7558	0.0000	28.6597
Unmitigated	12.7884	0.7558	0.0000	28.6597

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	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	63	12.7884	0.7558	0.0000	28.6597
□otal		□□□□□□□	□□□□□□	□□□□□□	□□□□□□□

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	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	63	12.7884	0.7558	0.0000	28.6597
□otal		□□□□□□□	□□□□□□	□□□□□□	□□□□□□□

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Generator Sets	2	2.00	100	20	0.74	Diesel

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	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
Equipment Type	tons/yr										MT/yr					
Generator Sets	4.7700e-003	0.0300	0.0163	5.0000e-005		1.4000e-003	1.4000e-003		1.4000e-003	1.4000e-003	0.0000	3.3643	3.3643	3.9000e-004	0.0000	3.3725
□otal	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□e□□□		□□□□□□e□□□	□□□□□□e□□□		□□□□□□e□□□	□□□□□□e□□□	□□□□□□	□□□□□□	□□□□□□	□□□□□□e□□□	□□□□□□	□□□□□□

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Appendix F.3
Project GHG Emissions (Solid Waste and Water Inputs)

Project Solid Waste Disposal Rates

Land Use	Project Units	Waste Generation Factor[1]	Waste Before Diversion (tons/year)	Waste Diversion Rate[2] (%)	Waste Disposal Rate after Diversion (tons/year)
	(Pop.)	(tons/capita/year)			
Residential	306	0.41	125	50%	63

Notes:

1. CalRecycle, Residential Waste Disposal Rates (Los Angeles County), http://www.calrecycle.ca.gov/WASTECHAR/ResDisp.htm. Accessed 2014.
2. AB 939 and the County of Los Angeles source reduction and recycling element (SRRE) requires implementation of programs to recycle and reduce refuse at the source, to achieve a 50 percent reduction in solid waste being taken to landfills.

Source: PCR Services Corporation, 2014.

Project Solid Waste Greenhouse Gas Emissions

Refer to CalEEMod output files.

Project Water Demand Rates

		Default Rates in CalEEMod			Percent of Total	
Land Use	**Units (DU or 1000 sqft)**	**Based on CalEEMod Land Use Type**	**Indoor Water Demand Rate[1] (gal/unit/year)**	**Outdoor Water Demand Rate[1] (gal/unit/year)**	**Indoor Water Demand (%)**	**Outdoor Water Demand (%)**
Residential	102	Single-Family	65,154	41,075	61.3%	38.7%

		Project-Specific Water Demand Rates				
Land Use	**Units (DU or 1000 sqft)**	**Wastewater Generation[2] (gal/DU or 1000 sqft/day)**	**Water Demand[2] (gal/day)**	**Total Water Demand Rate[2] (gal/unit/year)**	**Indoor Water Demand Rate[3] (gal/year)**	**Outdoor Water Demand Rate[3] (gal/year)**
Residential/Common	102	900	91,800	328,500	20,551,027	12,955,973
Total Water Demand					**20,551,027**	**12,955,973**

Notes:

1. Gleick, P.H.; Haasz, D.; Henges-Jeck, C.; Srinivasan, V.; Cushing, K.K.; Mann, A. 2003. Waste Not, Want Not: The Potential for Urban Water Conservation in California. Published by the Pacific Institute for Studies in Development, Environment, and Security. Full report available online at: http://www.pacinst.org/reports/urban_usage/waste_not_want_not_full_report.pdf. Appendices available online at: http://www.pacinst.org/reports/urban_usage/appendices.htm. Accessed March 2014.
2. Based on 900 gallons per day (data provided by Valencia Water Company).
3. Indoor and outdoor water demand rates are derived based on the ratio of indoor to outdoor water demand in CalEEMod.

Source: PCR Services Corporation, 2014.

Project Water and Wastewater Greenhouse Gas Emissions

Refer to CalEEMod output files.

Appendix F.4
Residential Waste Disposal Rates

Solid Waste Characterization Database

Residential Waste Disposal Rates

The table below contains values for residential waste disposal rates computed as part of the 1999 Statewide Waste Characterization Study. Per capita disposal rates were estimated for each of the five regions defined in the study--see the study for an explanation of how the regions were selected. A single statewide disposal rate for multifamily units (MFU) of 0.46 tons/unit/year was also computed. This rate should be used for all jurisdictions.

The table lists the counties and the regions to which each county was assigned, along with the estimated per capita disposal rates. Disposal rates are affected by a number of factors. Thus, these rates should only be used for planning purposes to aid in the design and development of solid waste programs. They should not be used as a measurement tool--see data limitations for more information.

County	Region	Per Capita Disposal Rate tons/res/year
Alameda	Bay Area	0.42
Alpine	Mountain	0.25
Amador	Mountain	0.25
Butte	Central Valley	0.36
Calaveras	Mountain	0.25
Colusa	Central Valley	0.36
Contra Costa	Bay Area	0.42
Del Norte	Coastal	0.44
El Dorado	Mountain	0.25
Fresno	Central Valley	0.36
Glenn	Central Valley	0.36
Humbolt	Coastal	0.44
Imperial	Southern	0.41
Inyo	Mountain	0.25
Kern	Southern	0.41
Kings	Central Valley	0.36
Lake	Central Valley	0.36
Lassen	Mountain	0.25
Los Angeles	Southern	0.41
Madera	Central Valley	0.36
Marin	Bay Area	0.42
Mariposa	Mountain	0.25
Mendocino	Coastal	0.44
Merced	Central Valley	0.36
Modoc	Mountain	0.25
Mono	Mountain	0.25
Monterey	Coastal	0.44
Napa	Bay Area	0.42
Nevada	Mountain	0.25
Orange	Southern	0.41
Placer	Central Valley	0.36
Plumas	Mountain	0.25
Riverside	Southern	0.41
Sacramento	Central Valley	0.36
San Benito	Coastal	0.44
San Bernardino	Southern	0.41
San Diego	Southern	0.41

San Francisco	Bay Area	0.42
San Joaquin	Central Valley	0.36
San Luis Obispo	Southern	0.41
San Mateo	Bay Area	0.42
Santa Barbara	Southern	0.41
Santa Clara	Bay Area	0.42
Santa Cruz	Coastal	0.44
Shasta	Mountain	0.25
Sierra	Mountain	0.25
Siskiyou	Mountain	0.25
Solano	Bay Area	0.42
Sonoma	Coastal	0.44
Stanislaus	Central Valley	0.36
Sutter	Central Valley	0.36
Tehama	Central Valley	0.36
Trinity	Mountain	0.25
Tulare	Central Valley	0.36
Tuolumne	Mountain	0.25
Ventura	Southern	0.41
Yolo	Central Valley	0.36
Yuba	Central Valley	0.36

Also, please see average or estimated waste **generation** rates for businesses and residences. (Different than disposal rates.)

Last updated: October 17, 2002
Solid Waste Characterization, http://www.calrecycle.ca.gov/WasteChar/
Nancy Carr: Nancy.Carr@calrecycle.ca.gov (916) 341-6216

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Appendix G

Phase 1 Environmental Site Assessment/ Subsurface Investigation

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AEC Project No. 14-031SD
March 26, 2014

Prepared for:

Alliance Land Planning & Engineering
2248 Faraday Avenue
Carlsbad, CA 92008

Prepared by:

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ADVANTAGE
ENVIRONMENTAL
CONSULTANTS, LLC.

March 26, 2014

Shannyn Henkel
Alliance Land Planning & Engineering
2248 Faraday Avenue
Carlsbad, CA 92008

Subject: **□ha□e □□n□iron□ental □ite □□□e□□□ent**
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Dear Ms. Henkel:

Advantage Environmental Consultants, LLC (AEC) has performed a Phase I Environmental Site Assessment (ESA) in conformance with the scope and limitations of American Society for Testing and Materials Practice E 1527-13 and 40 Code of Federal Regulations Part 312, of the above-referenced property. This ESA included public environmental agency and historical record reviews, interviews, site observations, and report preparation. This report includes AEC's findings, conclusions, recommendations, and supporting documentation.

We appreciate the opportunity to be of service to you on this project. If you should have any questions regarding this report, or if we can be of further assistance, please contact us at (760) 744-3363.

Sincerely,

ADVANTAGE ENVIRONMENTAL CONSULTANTS, LLC

Daniel Weis, R.E.H.S.
Branch Manager
Western Regional Office

Todd Jacquay
Project Manager
Western Regional Office

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At the request of Alliance Land Planning & Engineering, Advantage Environmental Consultants, LLC (AEC) conducted a Phase I Environmental Site Assessment (ESA) for the approximately 230 acre property identified as Tentative Tract Map No. 52796, located in unincorporated Los Angeles County, California (Site). The Site is situated along Pico Canyon Road to the south of Stevenson Ranch and is further identified by Los Angeles County Assessor's Parcel Numbers 2826-097-003 and 2826-020-020, -021, -022, -023, -024, -030, -031, -032 and -033. The Phase I ESA was conducted in conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Practice E 1527-13, 40 Code of Federal Regulations (CFR) Part 312, and the Scope of Work proposed by AEC dated March 4, 2014 as agreed upon by the client. Any exceptions to, or deletions from, this practice are described in Section 9.0 of this report.

The Site is generally located south of Pico Canyon Road in an area comprised of naturally vegetated hillsides and canyons. The adjacent/nearby properties are comprised of similar undeveloped hillsides with the exception of a single-family residential development located east of the Site. The majority of the Site is currently vacant and includes Pico Canyon Road and a concrete-lined drainage channel in the northeast portion. Improvements on the Site were generally limited to gates located along an unimproved road which traverses the eastern portion of the Site in a general north-to-south orientation (along Wickham Canyon).

According to online resources provided by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources, the Site is not located in an oil field. Two plugged oil wells are identified on the Site as "dry holes" and labeled Gerald 1, API 03705406 (western well) and Overman 1, API 03705378 (eastern well). Based on the location of the inactive oil wells, it appears each former well is located over 300 feet from the proposed residential pads planned for construction in the future, and therefore, are not considered to be an environmental concern to the Site. AEC observed a potential water supply well in the northeastern portion of the Site and an apparent plugged/abandoned oil well located adjacent to the Site's unimproved road. These wells appeared to be capped within 10 feet of the ground surface. The presence of these wells is not considered to be a significant environmental concern. It should be noted that the Los Angeles County Department of Public Works may require additional information regarding the abandoned oil wells and their proximity to proposed residential pads as part of project approval. In addition, the developer may wish to formerly abandon the water supply well at the Site if it is not going to be utilized in the future.

AEC noted an area of what appeared to be disturbed soil with petroleum staining and odors located west of Wickham Canyon. At the time of the Site reconnaissance, the lateral extent of the stained and odorous soil appeared to be approximately 400 square feet in size. The stained and odorous soil appeared to be surficial in nature. Given the apparent limited extent of the petroleum hydrocarbon impacted soil, this area is not considered to be a significant environmental concern. Such soil can be removed from the Site during the course of future mass grading activities for the proposed development.

AEC reviewed standard regulatory record sources which included Federal, State and local environmental databases provided by Environmental Data Resources (EDR) for information pertaining to documented and/or suspected releases of regulated hazardous substances and/or petroleum products within specified search distances. The Site was not listed on any of the

databases reviewed by EDR. Properties in the vicinity of the Site are listed on various regulatory databases. However, such properties are not considered to be environmental concerns to the Site.

AEC reviewed historic aerial photographs, historic topographic maps, and a prior Phase I ESA conducted for the Site. According to the historic resources reviewed by AEC, the majority of the Site has historically been vacant and undeveloped. The Site was previously used as a honey bee ranch with evidence of structures on the Site dating back to 1943. No historical land uses of the Site were noted as being of significant environmental concern.

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This Phase I ESA has revealed no evidence of recognized environmental conditions in connection with the Site. Additional assessment at the Site is not considered to be warranted at this time. AEC does recommend that prior to the commencement of mass grading activities, a pre-construction meeting with the selected grading contractor should be held to ensure that said contractor is aware of the area of petroleum staining and odors located on-Site and west of Wickham Canyon and so that it is handled and managed appropriately. In addition, during the course of earthwork activities, the selected grading contractor should notify the Site owner and/or their designated representative (i.e. general contractor or other designated party) if additional areas of impacted soil are discovered on-Site so that such areas would also be handled and managed appropriately.

1.0 Introduction

1.1 Purpose

The purpose of this Phase I ESA is to provide a professional opinion on the presence of recognized environmental conditions and other suspect environmental conditions in connection with the Site, as they existed on the date of the site inspection, and to recommend whether further investigation is required. ASTM Standard Practice E 1527-13, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, specifies minimum requirements for conducting an ESA of a parcel of commercial real estate with respect to the range of contaminants pertinent to the scope of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), as well as petroleum products. As such, this ESA is intended to satisfy one of the threshold criteria for satisfying the landowner liability protections to CERCLA liability assuming compliance with other elements of the defense. In other words, this ESA represents one of the practices that constitute “all appropriate inquiry” into the previous ownership and uses of the property consistent with good commercial or customary practice, as defined in 42 USC Section 9601(35)(B) and 40 CFR Part 312.

The goal of the process is to identify recognized environmental conditions, which are defined by the Practice as “the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: 1) due to any release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment. The term recognized environmental condition includes hazardous substances or petroleum products even under conditions in compliance with laws. In addition, the term also included historical recognized environmental conditions and controlled recognized environmental conditions. A historical recognized environmental condition is defined by the Practice as “a past release of hazardous substances or petroleum products that has occurred in connection with a property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).” A controlled recognized environmental condition is defined by the Practice as “a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).” The term recognized environmental condition is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

The term "environment" is defined in CERCLA 42 USC 9601(8) as "(A) the navigable waters, the water of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson-Stevens Fishery conservation and Management Act", and "(B) any other surface water, ground water, drinking water supply, land surface or subsurface strata, or ambient air within the United States or under the jurisdiction of the United States."

The term “release” means any "spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment (including the abandonment or discarding of barrels, containers, and other closed receptacles containing any hazardous substance or pollutant or contaminant)", but excludes "(A) any release which results in exposure to persons solely within a workplace, with respect to a claim which such persons may assert against the employer of such persons, (B) emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel, or pipeline pumping station engine, (C) release of source, byproduct, or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.], if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of such Act [42 U.S.C. 2210], or, for the purposes of 42 USC 9604 or any other response action, any release of source byproduct, or special nuclear material from any processing site designated under section 7912(a)(1) or 7942(a) of this title, and (D) the normal application of fertilizer."

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The Phase I ESA was conducted in accordance with generally accepted Phase I industry standards using ASTM Standard Practice E 1527-13, 40 CFR Part 312, and the Scope of Work proposed by AEC (Proposal Number P14-042SD) dated March 4, 2014. The following services were provided for this assessment:

- A review of title information pertaining to the Site.
- An evaluation of standard environmental record sources contained within Federal, State and local environmental databases within specific search distances.
- An evaluation of additional environmental record sources obtained from local regulatory departments/agencies.
- A qualitative evaluation of the physical characteristics of the Site through a review of published topographic, geologic, and hydrogeologic maps; published groundwater data; and area observations to characterize surface water flow in the Site area.
- An evaluation of past Site and adjacent/nearby property uses through a review of historical resources including topographic maps and aerial photographs.
- A physical inspection of the Site conducted to search for conditions indicative of potential environmental concerns including underground storage tanks (USTs), aboveground storage tanks, and associated tank piping; stained soil or pavement; equipment that may contain or have historically contained polychlorinated biphenyls (PCBs); and other potential environmental concerns as defined in the ASTM E 1527-13 standard.
- A physical assessment of indications of past uses and visual observations of adjacent and surrounding properties (from curbside or public spaces) to assess potential impacts to the Site.
- Interviews completed with a representative of the current owner of the Site and local regulatory officials.

- Review and summary of prior environmental assessments completed at the Site. Some of the historical resources included in the prior environmental assessments were utilized by AEC during the preparation of the current Phase I ESA.

- The preparation of this Phase I ESA report, which includes the findings of the study and our opinion regarding their level of significance. Conclusions have been drawn based on the significance levels of the findings with subsequent recommendations provided.

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This Phase I ESA was conducted in accordance with ASTM guidelines, 40 CFR Part 312, and the Scope of Work proposed by AEC (Proposal Number P14-042SD) dated March 4, 2014, for the performance of such assessment. No other warranties either express or implied, are made by AEC. AEC's evaluations, analyses, and opinions should not be taken as representations regarding subsurface conditions or the actual value of the Site. Subsurface conditions may differ from the conditions implied by the surficial observations, and can only be reliably evaluated through intrusive techniques.

Documentation and data provided by the client, designated representatives, other interested third parties, or from the public domain, and referred to in the preparation of this assessment, are assumed to be complete and correct and have been used and referenced with the understanding that AEC assumes no responsibility or liability for their accuracy. AEC's conclusions are based upon such information and documentation and on our observations of Site conditions, as they existed on the date of the site inspection. Because Site conditions may change significantly over a short period of time and additional data may become available, data reported and conclusions drawn in this report are limited to current conditions and may not be relied upon on a significantly later date.

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Reasonable efforts have been made during this assessment to uncover evidence of USTs, ASTs, ancillary equipment associated with such tanks, and other subsurface structures. "Reasonable efforts" are limited to information gained from visual observation of unobstructed areas, recorded database information held in public record, and available information gathered from interviews. Such methods may not identify subsurface equipment that may have been hidden from view due to paving, construction or debris pile storage, or incorrect information from sources.

This investigation was not an environmental compliance audit. While some observations and discussion in this report may address conditions and/or operations that may be regulated, the regulatory compliance of those conditions and/or operations is outside the scope of this investigation. Nothing in this report constitutes a legal opinion or legal advice. For information regarding specific individual or organizational liability, AEC recommends consultation with independent legal counsel.

According to 40 CFR Part 312, Standards and Practices for All Appropriate Inquiry: Final Rule, CERCLA liability rests with the owner or operator of a property and not with an environmental professional hired by the prospective landowner and who is not involved with the ownership or operation of the property. This report meets the requirements set forth in 40 CFR Part 312 Standards and Practices for All Appropriate Inquiries; Final Rule. However, in order to qualify for certain landowner liability protections under CERCLA, "Bona Fide Prospective Purchasers,

Contiguous Property Owners, and/or Innocent Landowners" must meet additional requirements of CERCLA (42 U.S.C. 9601 (35)(B)).

This ESA does not address non-scope ASTM considerations including radon, lead in drinking water, wetlands, protected environments and habitat, industrial hygiene concerns, indoor air quality (unrelated to releases of hazardous substances or petroleum products into the environment) and high voltage power lines.

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No special terms and conditions between AEC and the client pertinent to the findings of this ESA or methodology used to complete this assessment are noted. In addition, AEC does not have a financial interest in the subject property.

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This report may be relied upon by Alliance Land Planning & Engineering and Lennar Homes of California. The report is not for the use or benefit of, nor may it be relied upon by any other person or entity not referenced above for any purpose without the advance written consent of AEC. AEC makes no representation to any third party except that it has used the degree of care and skill ordinarily exercised by a reasonable prudent environmental professional in the same community and in the same time frame given the same or similar facts and circumstances. No other use or disclosure is intended or authorized by AEC. In the preparation of this ESA, AEC has used the degree of care and skill ordinarily exercised by a reasonably prudent environmental professional in the same community and in the same time frame given the same or similar facts and circumstances. No other warranties are made to any third party, either express or implied.

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The Site includes an approximately 230-acre property identified as Tentative Tract Map No. 52796, located south of Stevenson Ranch in unincorporated Los Angeles County, California. The Site is situated along Pico Canyon Road and is further identified by Los Angeles County Assessor's Parcel Numbers 2826-097-003, 2826-020-020, -021, -022, -023, -024, -030, -031, -032 and -033. A Vicinity Map depicting the location of the Site is included in Section 13.1.

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The Site is generally located south of Pico Canyon Road in an area comprised of naturally vegetated hillsides and canyons. The adjacent/nearby properties are comprised of similar undeveloped hillsides with the exception of a single-family residential development located east of the Site. Additional details of the Site and adjoining properties are provided in the sections below.

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The majority of the Site is currently vacant and includes Pico Canyon Road and a concrete-lined drainage channel in the northeast portion.

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As stated previously, the Site is currently vacant with the exception of the northeast portion which includes Pico Canyon Road and a concrete-lined drainage channel. Improvements on the Site were limited to gates located along an unimproved road that traverses the eastern portion of the Site in a general north-to-south orientation. A potential water well and apparent plugged/abandoned oil well were observed along the unimproved road in the northern and central portions of the Site, respectively. Electricity in the area is provided by Southern California Edison. Other utilities in the area are provided by the Castaic Lake Water Agency (water), the City of Santa Clarita (sewer), and the Southern California Gas Company (natural gas). A Site Plan is included in Section 13.2. Photographs taken of the Site during the Site visit are included in Section 13.3.

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The surrounding area consists of undeveloped land with the exception of a residential development to the east. AEC performed a visual inspection of adjoining properties from adjacent sidewalks and public right-of-ways. The following table identifies the adjacent property uses:

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North	Pico Canyon Road, then undeveloped hillsides
South	Undeveloped hillsides and canyons
West	Undeveloped hillsides and canyons
East	Single-family residential development

No adjoining properties were observed to be a potential environmental concern to the Site based on AEC's visual inspection from the Site and public right-of-ways.

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AEC was provided with a preliminary title report pertaining to the Site prepared by First American Title Insurance Company and dated July 18, 2013. According to the title document, the majority of the Site is currently vested in Joseph W. Aidlin, trustee of the Adilin general trust dated April 27, 1999 and includes partial vested interests for Mildred S. Blinn, Dianne L. Morris, and Roger Borzini. A subsurface oil and gas lease identifying Joseph W. Aidlin as lessee was referenced in the preliminary title document. A review of the title document did not reveal evidence of environmentally related liens, deed restrictions, activity and use limitations or institutional/engineering controls recorded against the Site.

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The client has no knowledge of environmental related liens, deed restrictions or activity and use limitations that are related to potential environmental issues at the Site.

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The client has no specialized knowledge pertinent to potential recognized environmental conditions at the Site.

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The client has no knowledge of commonly known or reasonably ascertainable information pertinent to potential recognized environmental conditions at the Site.

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The client has no information pertaining to possible influences on the estimated fair market value of the property that might indicate that significant contamination exists.

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As stated previously, the Site includes partial vested interests for Joseph W. Aidlin, Mildred S. Blinn, Dianne L. Morris, and Roger Borzini. The owners are also considered to be the property managers of the Site. The Site is vacant with no known occupants.

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AEC has been retained to conduct this Phase I ESA to identify environmental issues which may be present and to comply with 40 CFR Part 312.

Other

AEC was provided with a Phase I Environmental Site Assessment prepared by AGRA Earth & Environmental, Inc. and dated March 2, 1999. ARGA indicated in the report that the northern portion of the Site was developed with two primary structures dating back to at least 1952. The structures included a single-family residence and a bee keeping/honey processing building. Additional improvements included a garage, corral, two water tanks, and a shed. The area identified as a bee ranch also included 200 to 300 55-gallon drums used for honey storage and transport. In addition, a plugged and abandoned oil exploration well was noted along Wickham Canyon in the eastern portion of the Site. Areas of potential environmental concern identified by ARGA included the following:

- Artificial fill with reported petroleum odor in a tributary west of Wickham Canyon
- The presence of an oil well in Wickham Canyon
- Unlabeled drums and debris of unknown origin (present at the time of the assessment)
- Suspect asbestos containing materials in structures (present at the time of the assessment)
- One pole-mounted electrical transformer near the residence (present at the time of the assessment)

A client provided copy of the Phase I ESA is included in Section 13.5.

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AEC reviewed Federal and State environmental databases provided by EDR of Milford, Connecticut for information pertaining to documented and/or suspected releases of regulated hazardous substances and/or petroleum products within specified search distances. A copy of the EDR Radius Map™ Report is included in Section 13.4.

AEC also reviewed unmappable sites listed in the environmental database report by cross-referencing addresses and site names. Unmappable sites are sites that cannot be plotted with confidence, but can be located by zip code or city name. In general, a site cannot be mapped because of inaccurate or missing location information in the record provided by the regulatory agency. Any unmappable sites that AEC identifies within the specified search radii were evaluated as part of the preparation of this report.

The following Federal databases related to potential on-site and off-site sources of contamination were reviewed and interpreted by AEC:

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National Priorities List (NPL)	One mile
Delisted NPL	One mile
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	One-half mile
CERCLIS No Further Remedial Action Planned (NFRAP)	One-half mile
Resource Conservation and Recovery Act (RCRA) Corrective Action Report (CORRACTS) Facilities	One mile
RCRA non-CORRACTS Hazardous Waste Treatment, Storage and Disposal (TSD) Facilities	One-half mile
RCRA Hazardous Waste Generators (RCRA GEN)	One-eighth mile
Emergency Response Notification System (ERNS)	One-eighth mile
Institutional Controls/Engineering Control (IC/EC) Registries	One-half mile

The following State/local databases related to potential on-site and off-site sources of contamination were also searched and reviewed:

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State-equivalent NPL and CERCLIS (RESPONSE and ENVIROSTOR)	One mile
State Voluntary Cleanup Sites (VCP)	One-half mile
State Landfill and/or Solid Waste Disposal Sites (SWF/LF)	One-half mile
State Leaking Storage Tank (LUST and SLIC)	One-half mile
State Registered Storage Tank (UST, AST)	One-eighth mile
Los Angeles County HMS (Los Angeles County Department of Public Health)	

Descriptions/sources of each of the above referenced regulatory databases and the dates these databases were last updated by the applicable regulatory agencies are included in the EDR report.

Subject Site

The Site was not listed on any of the databases searched by EDR.

Adjoining and Nearby Properties

Several listings are identified at the address of 26835 Pico Canyon Road in the EDR database. DKM Offshore Energy Inc, Texaco Inc, and Tidelands Oil Product Co are listed at this address in the Los Angeles County HMS database. ARCO Products Co is also listed at this address under the LUST database with a case-closed regulatory status. The listings are mapped at several locations in the EDR database report; however, the actual location of 26835 Pico Canyon Road coincides with the EDR mapped location for ARCO Products Co, situated 0.35-mile west-northwest of the Site. This address is part of the Newhall-Potrero oil field, an active oil field covering several square miles north of the Site.

The off-Site properties listed on the various regulatory databases are not expected to have adversely impacted the Site. This opinions is based on several factors including distance of the listed properties from the Site, orientation of the listed properties relative to the Site and/or regulatory case status information for the various properties as described in the database report.

Non-ASTM Database Reviews

Below is a list of non-ASTM databases searched by EDR and reviewed by AEC during the preparation of this assessment. The descriptions of each database and their data release frequency are included in the EDR report, included in Section 13.4.

<u>Local Brownfield Lists</u>
US BROWNFIELDS - A Listing of Brownfields Sites

<u>Local Lists of Landfill / Solid Waste Disposal Sites</u>
DEBRIS REGION 9 - Torres Martinez Reservation Illegal Dump Site Locations
ODI - Open Dump Inventory
WMUDS/SWAT - Waste Management Unit Database
SWRCY - Recycler Database
HAULERS - Registered Waste Tire Haulers Listing

<u>Local Lists of Hazardous Waste / Contaminated Sites</u>
US CDL - Clandestine Drug Labs
HIST Cal-Sites - Historical Calsites Database
SCH - School Property Evaluation Program
Toxic Pits - Toxic Pits Cleanup Act Sites
CDL - Clandestine Drug Labs
US HIST CDL - National Clandestine Laboratory Register

<u>Local Land Records</u>
LIENS 2 - CERCLA Lien Information
LIENS - Environmental Liens Listing
DEED - Deed Restriction Listing

<u>Records of Emergency Release Reports</u>
HMIRS - Hazardous Materials Information Reporting System
CHMIRS - California Hazardous Material Incident Report System

LDS - Land Disposal Sites Listing
MCS - Military Cleanup Sites Listing

Other Ascertainable Records
RCRA-NonGen - RCRA - Non Generators
DOT OPS - Incident and Accident Data
DOD - Department of Defense Sites
FUDS - Formerly Used Defense Sites
CONSENT - Superfund (CERCLA) Consent Decrees
ROD - Records Of Decision
UMTRA - Uranium Mill Tailings Sites
MINES - Mines Master Index File
TRIS - Toxic Chemical Release Inventory System
TSCA - Toxic Substances Control Act
FTTSFIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS - FIFRA/TSCA Tracking System Administrative Case Listing
SSTS - Section 7 Tracking Systems
ICIS - Integrated Compliance Information System
PADS - PCB Activity Database System
MLTS - Material Licensing Tracking System
RADINFO - Radiation Information Database
FINDS - Facility Index System/Facility Registry System
RAATS - RCRA Administrative Action Tracking System
RMP - Risk Management Plans
CA BOND EXP. PLAN - Bond Expenditure Plan
UIC - UIC Listing
NPDES - NPDES Permits Listing
Cortese - "Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE - Hazardous Waste & Substance Site List
CUPA Listings - CUPA Resources List
Notify 65 - Proposition 65 Records
DRYCLEANERS - Cleaner Facilities
Ventura Co. BWT
WIP - Well Investigation Program Case List
ENF - Enforcement Action List
HAZNET - Facility and Manifest Data
EMI - Emissions Inventory Data
INDIAN RESERV - Indian Reservations
SCRD DRYCLEANERS - State Coalition for Remediation of Drycleaners Listing
MWMP - Medical Waste Management Program Listing
COAL ASDH DOE – Sleam Electric Plan Operation Data Listing
COAL ASH EPA – Coal Combustion Residues Surface Impoundments List
HWT - Registered Hazardous Waste Transporter Database
HWP - Envirostor Permitted Facilities List
FINANCIAL ASSURANCE - Financial Assurance Information Listing
LEAD SMELTERS - Lead Smelter Sites
2020 COR ACTION - 2020 Corrective Action Program List
US AIRS - Aerometric Information Retrieval System Facility Subsystem
PRP - Potentially Responsible Parties
WDS - Waste Discharge System
EPA WATCH LIST - EPA WATCH LIST

US FIN ASSUR - Financial Assurance Information
PCB TRANSFORMER - PCB Transformer Registration Database
PROC - Certified Processors Database

Non-ASTM Database Listings

The Site was not listed on any of the non-ASTM databases searched by EDR. Off-Site properties listed on the non-ASTM databases as referenced in the EDR report do not represent an environmental concern to the Site.

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AEC searched for information regarding a possible release at the Site on the Geotracker database maintained by the California Water Resources Control Board. No release cases were identified in the Geotracker search of the Site or adjoining properties.

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The following physical setting sources were reviewed to provide information about the topographic, hydrologic, geologic and/or hydrogeologic characteristics of the Site.

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USGS Topographic Quadrangle

Based on the review of United States Geological Survey (USGS) 7.5-minute topographic map of Newhall, Quadrangle (1995), the Site is depicted as vacant and undeveloped land with the exception of an unimproved road along the eastern portion of the Site (Wickham Canyon) and three structures located near the northern Site boundary. The elevation of the Site ranges from approximately 1,475 feet to 2,250 feet above mean sea level. Topography is generally depicted sloping downward toward the northeast. Adjacent properties are depicted as vacant, undeveloped land with the exception of Pico Canyon Road to the north.

Hydrology/Storm Water Management

Surface runoff at the Site generally drains toward the northeast and enters a concrete-lined flood control channel for Pico Canyon Creek. The channel crosses the northeastern portion of the Site and drains to the east. Given the topography of the area, the Site likely receives runoff during storm events from adjacent and nearby upgradient properties to the south and east.

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The Site lies within the Transverse Ranges Geomorphic Province; one of 11 physiographic provinces in California recognized by defining features based on geology, faults, topography, and climate. The transverse Ranges are an east-west trending series of steep mountain ranges and valleys. The east-west structure of the Transverse Ranges is oblique to the normal northwest trend of coastal California. The province extends off-shore to include San Miguel, Santa Rosa, and Santa Cruz Islands. Its eastern extension, the San Bernardino Mountains, has been

displaced to the south along the San Andreas Fault. Intense north-south compression is squeezing the Transverse Ranges. As a result, this is one of the most rapidly rising regions on earth. Great thicknesses of Cenozoic petroleum-rich sedimentary rocks have been folded and faulted, making this one of the important oil-producing areas in the United States (California Geologic Survey, 2002). Based on review of the geologic map for the property, the Site lies within the Santa Susanna Mountains. These mountains are characterized by west northwest trending ridgelines, crosscutting drainages, and alleviated valley fill derived from higher uplands. The majority of the Site lies within the hill and mountain areas with the northeastern portion in the valley fill of Pico Canyon. The southern upland portion of the Site is underlain by Tertiary Pico Formation bedrock consisting of siltstone, sandstone, and conglomerate. The northeastern portion of the Site in the valley fill area consists of cobbles, sand, gravel, and silt (CGS, 1969).

According to the *Water Quality Control Plan for the Los Angeles Region (Region 4)* (California Regional Water Quality Control Board [CRWQCB], 1994), the Site is situated in the Santa Clara River Valley East groundwater basin. Groundwater within the Santa Clara River Valley East Basin has existing beneficial uses for municipal, industrial process, industrial service, and agricultural purposes. Based on the 1999 environmental Site investigation completed by ARGA, groundwater beneath the Site is anticipated to be present in the valley fill at a depth of approximately 15 to 20 feet below ground surface with an flow anticipated to follow the topographic gradient toward the northeast. Groundwater depth at higher surface elevations at the Site is expected to be present at depths of greater than 50 feet below existing grades. The depth and flow of groundwater beneath the Site may vary with seasonal rainfall, groundwater pumping rates, bedrock structure, local faulting and other factors.

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Several historical sources (as described in the following sections) were reviewed to develop a history of the previous uses of the Site, in order to help identify the likelihood of past uses having led to recognized environmental conditions in connection with the Site.

□□□□ □opo□raphic Map□

AEC reviewed topographic maps from 1930, 1939, 1943, 1948, 1953, 1958, 1964, 1967, 1970, 1988, and 1999 via online resources. The results of the topographic map review are summarized in the following table:

□opo□raphic Map □e□ie□	
□ear	**□□□er□ation□**
□□□□ and □□□□	□□□□□The Site appears to be vacant and undeveloped with a drainage depicted along Wickham Canyon in the northeast portion. □□□□□□□□□□□**G** □□□□□Adjacent and nearby properties are vacant and undeveloped with the exception of the northern adjacent Pico Canyon Road and an unimproved road depicted along Dewitt Canyon to the east. One structure is depicted to the east of the Site, on Pico Canyon Road.

□opo□raphic Map □e□ie□	
□ear	□□□er□ation□
□□□□□ □□□□□ □□□□□ □□□□	□□□□□A road is depicted along Wickham Canyon, the Site's northeast drainage. The Site is depicted with two structures on the northeast portion where Pico Canyon Road and Wickham Canyon converge □□□□□□□□□□□G □□□□□The surrounding area is depicted similar to the 1943 topographic map.
□□□□□ □□□□□ □□□□	□□□□□The Site is depicted similar to the 1958 topographic map. □□□□□□□□□□□G □□□□□The surrounding area is depicted similar to the 1958 topographic map, with Sand Rock Peak and Pico Oil Field depicted southwest of the Site.
□□□□ and □□□□	□□□□□The Site is depicted similar to the 1970 topographic map with three structures on the northeast portion near an unimproved road. □□□□□□□□□□□G □□□□□The surrounding area is depicted similar to the 1970 topographic map

No environmental concerns in connection with the Site or adjoining properties were noted during the topographic map review.

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Fire Insurance Maps (Sanborn maps) are not available for the Site.

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AEC reviewed aerial photographs from 1952, 1959, 1969, 1974, 1977, 1980, 1988, 1990, 2003, 2005, and 2014 via online resources. The results of the topographic map review are summarized in the following table:

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□ear	□□□er□ation□
□□□□□□□□□□ □□□□	□□□□□ The majority of the Site appears to be vacant and undeveloped hillsides with the exception of a road along Wickham Canyon and two structures located in the northeastern portion. □□□□□□□□□□□G □□□□□ Adjacent properties appear as vacant, undeveloped land with roads located to the north and east.
□□□□□□□□□□ □□□□□□□□□	□□□□□ The Site appears similar to the 1969 aerial photograph with an additional structure located near the structures previously noted. □□□□□□□□□□□G □□□□□ The surrounding properties appear similar to the 1964 aerial photograph.

□erial □hoto□raph □e□ie□	
□ear	**□□□er□ation□**
□□□□ **and** □□□□	□□□□□ The Site appears similar to the 1990 aerial photograph, with one structure located in the northeastern portion. □□□□□□□□□□□**G** □□□□□ The Site's adjacent properties appear similar to the 1990 aerial photograph with the exception of the eastern adjacent residential development (partially completed).
□□□□	□□□□□ The Site appears similar to the 2005 aerial photograph with several trailers parked along the unimproved road. □□□□□□□□□□□**G** □□□□□ The Site's adjacent properties appear similar to the 2005 aerial photograph. The residential development to the east has been completed.

No environmental concerns in connection with the Site or adjoining properties were noted during the aerial photograph review.

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According to online resources provided by the California Department of Conservation, Division of Oil, Gas and Geothermal Resources, the Site is not located in an oil field. Two plugged oil wells are identified on the Site as "dry holes" and labeled Gerald 1, API 03705406 (western well) and Overman 1, API 03705378 (eastern well). Based on the location of the inactive oil wells, it appears each former well is located over 300 feet from the proposed residential pads planned for construction in the future, and therefore, are not considered to be an environmental concern to the Site. It should be noted that the Los Angeles County Department of Public Works may require additional information regarding the abandoned oil wells and their proximity to proposed residential pads as part of project approval.

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The objective of the Site reconnaissance was to obtain information indicating the likelihood of recognized environmental conditions in connection with the Site. The reconnaissance was conducted on March 5, 2014 by Mr. Todd Jacquay of AEC's Western Regional office. Mr. Jacquay was unaccompanied during the Site reconnaissance.

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The Site reconnaissance consisted of inspecting the Site and walking accessible areas and pedestrian walkways surrounding the Site. Full access to the Site was provided. However, the western and southwestern hillsides of the Site were inaccessible due to dense vegetation and rugged terrain. The limited Site reconnaissance does not alter AEC's conclusions and recommendations regarding the Site. As stated previously, a Site Plan is included in Section 13.2. Photographs of the Site were taken to document existing Site conditions and several are included and described in Section 13.3.

□□□ General □ite □ettin□

The majority of the Site is currently vacant and includes Pico Canyon Road and a concrete-lined drainage channel in the northeast portion. The Site is generally located south of Pico Canyon Road in an area comprised of naturally vegetated hillsides and canyons. The adjacent/nearby properties are comprised of similar undeveloped hillsides with the exception of a single-family residential development located east of the Site. The current uses of the Site and adjoining properties are not ones that are indicative of the use, treatment, storage, disposal or generation of significant quantities of hazardous substances or petroleum products.

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AEC examined the Site for evidence of the following potential environmental concerns:

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Hazardous Substances/Petroleum Products	X		--
Waste Generation/Storage/Disposal	X		--
Aboveground Storage Tanks (ASTs)	X		--
Underground Storage Tanks (USTs)	X		--
PCB Containing Equipment	X		--
Chemical/Petroleum Odors		X	No
Pools of Liquid	X		--
Floor Drains/Sumps/Wells	X		--
Drums	X		--
Stains or Corrosion	X		--
Unidentified Substance Containers	X		--
Stained Soil or Pavement		X	No
Stressed Vegetation	X		--
Pits, Ponds or Lagoons	X		--
Wastewater Discharges/Disposal Systems	X		--
Septic Systems/Cesspools	X		--

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Non-Hazardous Solid Waste Disposal Areas		X	No
Drinking Water Systems/Water Wells		X	No
Other Wells		X	No

The noted items in the table above are discussed below:

Non-Hazardous Solid Waste Disposal Areas

AEC observed recently cleared areas located adjacent to the existing unimproved road. These areas include discarded trash and debris, small piles of concrete and asphalt, and miscellaneous pieces of plastic. No hazardous materials were observed in these areas and no evidence of stained soil was observed. The presence of the trash and debris is not considered to be a significant environmental concern.

Drinking Water Systems/Water Wells and Other Wells

AEC observed a potential water supply well in the northeastern portion of the Site and an apparent plugged/abandoned oil well located adjacent to the Site's unimproved road. These wells appeared to be capped within 10 feet of the ground surface. The presence of these wells is not considered to be a significant environmental concern. As stated previously, it should be noted that the Los Angeles County Department of Public Works may require additional information regarding the abandoned oil wells and their proximity to proposed residential pads as part of project approval. In addition, the developer may wish to formerly abandon the water supply well at the Site if it is not going to be utilized in the future.

Chemical/Petroleum Odors

AEC noted an area of what appeared to be disturbed soil with petroleum staining and odors located west of Wickham Canyon. At the time of the Site reconnaissance, the lateral extent of the stained and odorous soil appeared to be approximately 400 square feet in size. The stained and odorous soil appeared to be surficial in nature. Given the apparent limited extent of the petroleum hydrocarbon impacted soil, this area is not considered to be a significant environmental concern. Such soil can be removed from the Site during the course of future mass grading activities for the proposed development.

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As stated previously, the Site currently has partial vested interests in Joseph W. Aidlin, Mildred S. Blinn, Dianne L. Morris, and Roger Borzini. AEC was directed to the historical environmental document pertaining to the Site (see Section 4.8) for information pertaining to environmental conditions at the Site.

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The owners are also considered to be the Site managers. AEC was directed to the historical environmental document pertaining to the Site (see Section 4.8) for information pertaining to environmental conditions at the Site.

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The Site is currently vacant with no known occupants.

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During the preparation of this assessment, AEC consulted with various regulatory agency sources regarding potential environmental concerns at the Site.

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Interviews with other persons were not conducted during the preparation of this assessment.

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Advantage Environmental Consultants, LLC has performed a Phase I Environmental Site Assessment, in conformance with the scope and limitations of ASTM Practice E 1527-13 and 40 CFR Part 312 for the approximately 230-acre property identified as Tentative Tract Map No. 52796, located in unincorporated Los Angeles County, California. The subject property is situated along Pico Canyon Road to the south of Stevenson Ranch and is further identified by Los Angeles County Assessor's Parcel Numbers 2826-097-003 and 2826-020-020, -021, -022, -023, -024, -030, -031, -032 and -033. Any exceptions to, or deletions from, this practice are described in Section 9.0 of this report.

This Phase I ESA has revealed no evidence of recognized environmental conditions in connection with the Site. Additional assessment at the Site is not considered to be warranted at this time. AEC does recommend that prior to the commencement of mass grading activities, a pre-construction meeting with the selected grading contractor should be held to ensure that said contractor is aware of the area of petroleum staining and odors located on-Site and west of Wickham Canyon and so that it is handled and managed appropriately. In addition, during the course of earthwork activities, the selected grading contractor should notify the Site owner and/or their designated representative (i.e. general contractor or other designated party) if additional areas of impacted soil are discovered on-Site so that such areas would also be handled and managed appropriately.

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No deviations from the ASTM E 1527-13 standard or data gaps as defined in the ASTM E 1527-05 standard were noted during the preparation of this assessment.

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No additional services were completed by AEC during the preparation of this assessment.

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"All Appropriate Inquiry" as necessary to satisfy the defenses available under 42 U.S.C. §§ 9607(b)(3), 9607(r)(1), and 9607(q), relying on definitions provided at 42 U.S.C. §§ 9601(35)(B); and as further explained in 40 CFR §§ 312.1 – 312.31;

ARGA Earth & Environmental, Inc., Phase I Environmental Site Assessment, Aidlin Property, 26300 Pico Canyon Road, Los Angeles County, California, March 2, 1999.

ASTM International, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process," ASTM Designation E 1527-13, Published November 2013;

California Geological Survey, California Geomorphic Provinces, Note 36, 2002;

California Geological Survey, Geologic Atlas of California Map No. 008, Los Angeles Sheet, by Charles W Jennings, and Rudolph G. Strand, 1969;

California Regional Water Quality Control Board – Los Angeles Region (Region 4), 2008, "Water Quality Control Plan, Los Angeles Region", June 13, 1994;

California State Water Resources Control Board, GeoTracker online database: http://www.geotracker.swrcb.ca.gov;

Environmental Data Resources Inc., March 25, 2014, The EDR Radius Map™ Report, Pico Canyon Road, Stevenson Ranch, CA 91381;

State of California Department of Conservation, Division of Oil and Gas and Geothermal Resources, DOGGR Online Mapping System: http://maps.conservation.ca.gov/doms/doms-app.html; and

United States Geological Survey (USGS), 1995, Newhall, CA, Quadrangle 7.5 Minute Topographic Map.

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We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in 40 CFR 312.10. We have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the subject Site. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Daniel Weis, R.E.H.S.	Todd Jacquay
Branch Manager	Project Manager
Western Regional Office	Western Regional Office

Qualifications for the environmental professionals involved in the performance of the Phase I ESA are included in Section 13.6.

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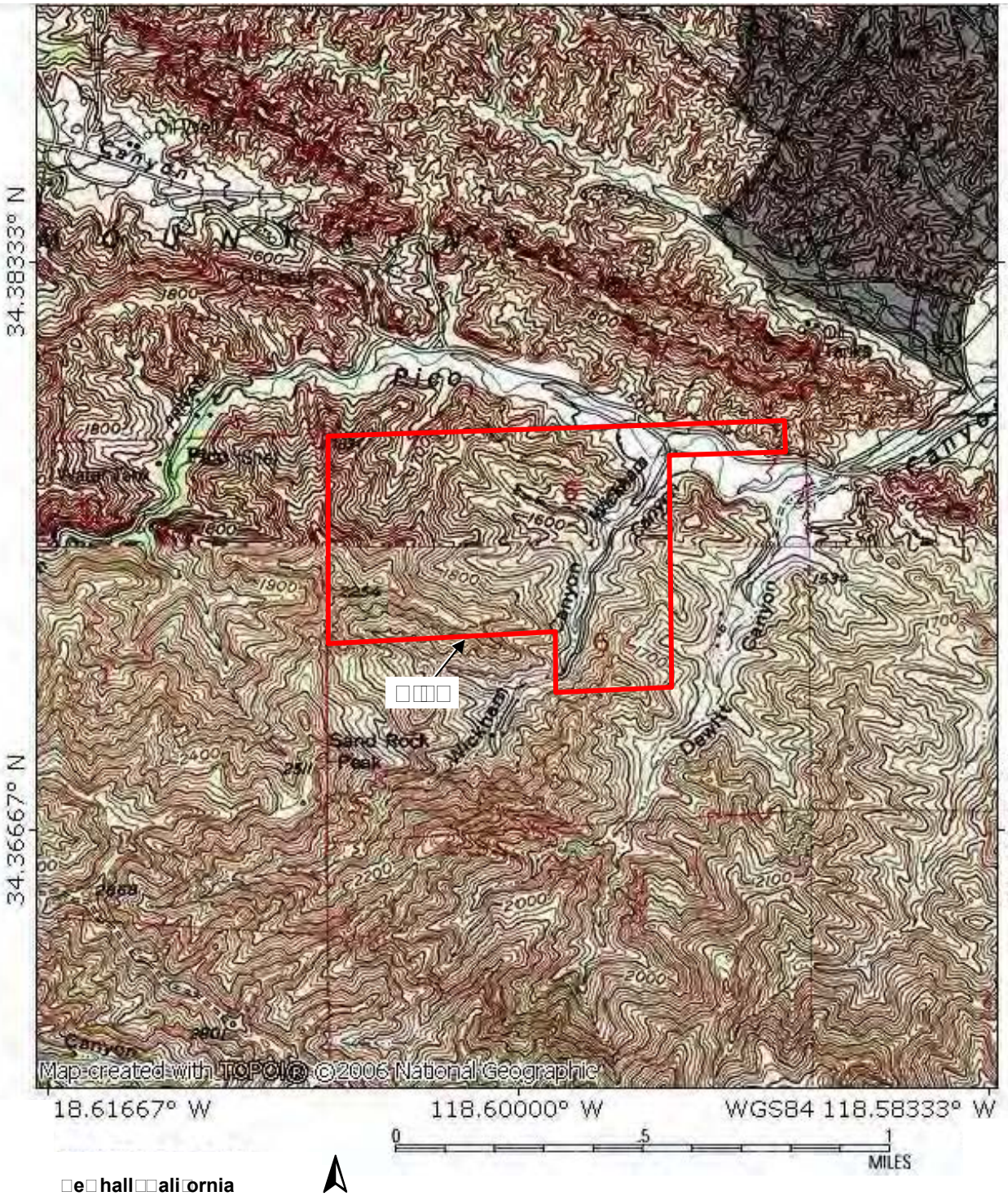

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Advantage Environmental Consultants, LLC

145 Vallecitos De Oro, Suite 201
San Marcos, CA 92069
Phone: 760-744-3363 Fax: 760-744-3383

Vicinity Map
Tentative Tract Map No. 52796
Los Angeles County
California

Work Order No.:	Report Date:	Drawn By:
14-031SD	March 2014	TJ

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Advantage Environmental Consultants, LLC
145 Vallecitos De Oro, Suite 201
San Marcos, CA 92069
Phone: 760-744-3363
Fax: 760-744-3383

Site Plan
Tentative Tract Map No. 52796
Los Angeles County
California

Work Order No.:	Report Date:	Drawn By:
14-031SD	January 2014	TJ

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1. View west along Pico Canyon Road at the flood control channel located in the northeast portion of the Site.

2. View east at the gated entrance to the flood control channel located in the northeast portion of the Site.

3. View south at the locked gate located on the unimproved road in the eastern portion of the Site (Wickham Canyon).

4. View east along Pico Canyon Road in the northeastern portion of the Site.

5. Signage indicating a high pressure gas pipeline on the northern portion of the Site.

6. View north along the Site's unimproved access road.

7. View west along the northern portion of the Site.

8. Location of apparent plugged and abandoned oil well.

9. View west along drainage leading to soil with petroleum odor.

10. View east at area of soil with petroleum odor.

11. View north at water well and overhead powerline located on the northern portion of the Site.

12. View south at a recently cleared area with small pieces of wood, brick, concrete debris, asphalt, and miscellaneous plastic.

13. View north at a recently cleared area located west of the unimproved road.

14. The south along Wichham Canyon, the Site's eastern portion.

15. View southwest at a gate located on unimproved road located at the edge of southern boundary of the Site, beyond which is the adjacent property.

16. View northwest from the adjacent property.

17. View west at the Site.

18. View of the eastern adjacent single-family residential development.

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Pico Canyon Road
Pico Canyon Road
Stevenson Ranch, CA 91381

Inquiry Number: 3884211.1s
March 25, 2014

The EDR Radius Map™ Report

Environmental Data Resources Inc

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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GEOCHECK ADDENDUM

GeoCheck - Not Requested

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

PICO CANYON ROAD
STEVENSON RANCH, CA 91381

COORDINATES

Latitude (North):	34.3778000 - 34˚ 22' 40.08''
Longitude (West):	118.5956000 - 118˚ 35' 44.16''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	353295.1
UTM Y (Meters):	3805005.0
Elevation:	1488 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	34118-D5 NEWHALL, CA
Most Recent Revision:	1988
South Map:	34118-C5 OAT MOUNTAIN, CA
Most Recent Revision:	1969

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2012
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL---------- National Priority List

EXECUTIVE SUMMARY

Proposed NPL ..... Proposed National Priority List Sites
NPL LIENS ..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ..... National Priority List Deletions

Federal CERCLIS list

CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY ..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS ..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ..... RCRA - Large Quantity Generators
RCRA-SQG ..... RCRA - Small Quantity Generators
RCRA-CESQG ..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS ..... Engineering Controls Sites List
US INST CONTROL ..... Sites with Institutional Controls
LUCIS ..... Land Use Control Information System

Federal ERNS list

ERNS ..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE ..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR ..... EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF ..... Solid Waste Information System

State and tribal leaking storage tank lists

SLIC ..... Statewide SLIC Cases

INDIAN LUST ..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST ..... Active UST Facilities
AST ..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST ..... Underground Storage Tanks on Indian Land
FEMA UST ..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

VCP ..... Voluntary Cleanup Program Properties
INDIAN VCP ..... Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS ..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI ..... Open Dump Inventory
DEBRIS REGION 9 ..... Torres Martinez Reservation Illegal Dump Site Locations
WMUDS/SWAT ..... Waste Management Unit Database
SWRCY ..... Recycler Database
HAULERS ..... Registered Waste Tire Haulers Listing

Local Lists of Hazardous waste / Contaminated Sites

US CDL ..... Clandestine Drug Labs
HIST Cal-Sites ..... Historical Calsites Database
SCH ..... School Property Evaluation Program
Toxic Pits ..... Toxic Pits Cleanup Act Sites
AOCONCERN ..... San Gabriel Valley Areas of Concern
CDL ..... Clandestine Drug Labs
US HIST CDL ..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST ..... Facility Inventory Database
HIST UST ..... Hazardous Substance Storage Container Database
SWEEPS UST ..... SWEEPS UST Listing

Local Land Records

LIENS 2 ..... CERCLA Lien Information
LIENS ..... Environmental Liens Listing
DEED ..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS ..... Hazardous Materials Information Reporting System
CHMIRS ..... California Hazardous Material Incident Report System

LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR	RCRA - Non Generators
DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
NPDES	NPDES Permits Listing
UIC	UIC Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE	Hazardous Waste & Substance Site List
CUPA Listings	CUPA Resources List
Notify 65	Proposition 65 Records
LA Co. Site Mitigation	Site Mitigation List
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
HAZNET	Facility and Manifest Data
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
HWP	EnviroStor Permitted Facilities Listing
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database
Financial Assurance	Financial Assurance Information Listing
PROC	Certified Processors Database
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
WDS	Waste Discharge System
PRP	Potentially Responsible Parties
MWMP	Medical Waste Management Program Listing

EXECUTIVE SUMMARY

COAL ASH DOE..... Steam-Electric Plant Operation Data
HWT..... Registered Hazardous Waste Transporter Database

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF..... Recovered Government Archive Solid Waste Facilities List

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State and tribal leaking storage tank lists

LUST: The Leaking Underground Storage Tank Incident Reports contain an inventory of reported leaking underground storage tank incidents. The data come from the State Water Resources Control Board Leaking Underground Storage Tank Information System.

A review of the LUST list, as provided by EDR, and dated 12/16/2013 has revealed that there is 1 LUST site within approximately 0.5 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO PRODUCTS CO Status: Completed - Case Closed	26835 PICO CANYON RD	WNW 1/4 - 1/2 (0.350 mi.)	B5	10

ADDITIONAL ENVIRONMENTAL RECORDS

Other Ascertainable Records

Los Angeles County Industrial Waste and Underground Storage Tank Sites.

A review of the LOS ANGELES CO. HMS list, as provided by EDR, and dated 12/06/2013 has revealed that there are 3 LOS ANGELES CO. HMS sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TEXACO INC (DEST)	26835 PICO CANYON RD	0 - 1/8 (0.000 mi.)	A1	8
TIDELANDS OIL PROD CO	26835 PICO CANYON RD	0 - 1/8 (0.000 mi.)	A2	8

EXECUTIVE SUMMARY

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
DKM OFFSHORE ENERGY INC	26835 PICO CANYON RD	0 - 1/8 (0.000 mi.)	A3	9

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LUST: The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

A review of the RGA LUST list, as provided by EDR, has revealed that there is 1 RGA LUST site within approximately 0.5 miles of the target property.

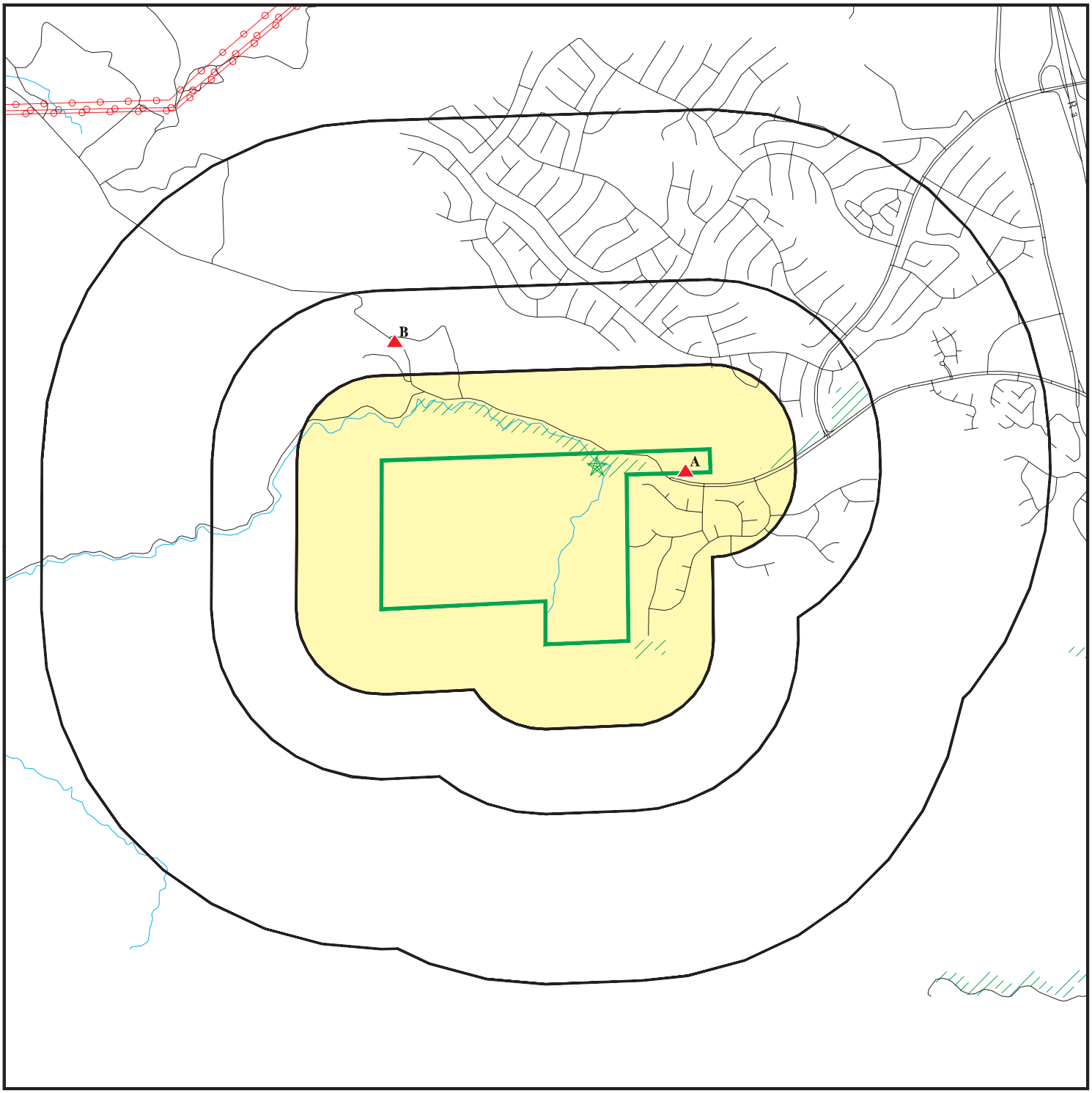
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ARCO PRODUCTS CO	26835 PICO CANYON RD	WNW 1/4 - 1/2 (0.350 mi.)	B4	9

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 4 records.

Site Name	Database(s)
BENNETT MURRAY BRINE SUMP	SWF/LF
AGROMIN PREMIUM SOIL PRODUCTS	SWF/LF
WSHUHSD/RANCHO PICO JUNIOR HIGH SC	HAZNET
BOUQUET CANYON STONE CO INC	US MINES

OVERVIEW MAP - 3884211.1s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Pico Canyon Road ADDRESS: Pico Canyon Road Stevenson Ranch CA 91381 LAT/LONG: 34.3778 / 118.5956	CLIENT: Advantage Env. Consultants LLC CONTACT: Todd Jacquay INQUIRY #: 3884211.1s DATE: March 25, 2014 11:35 am

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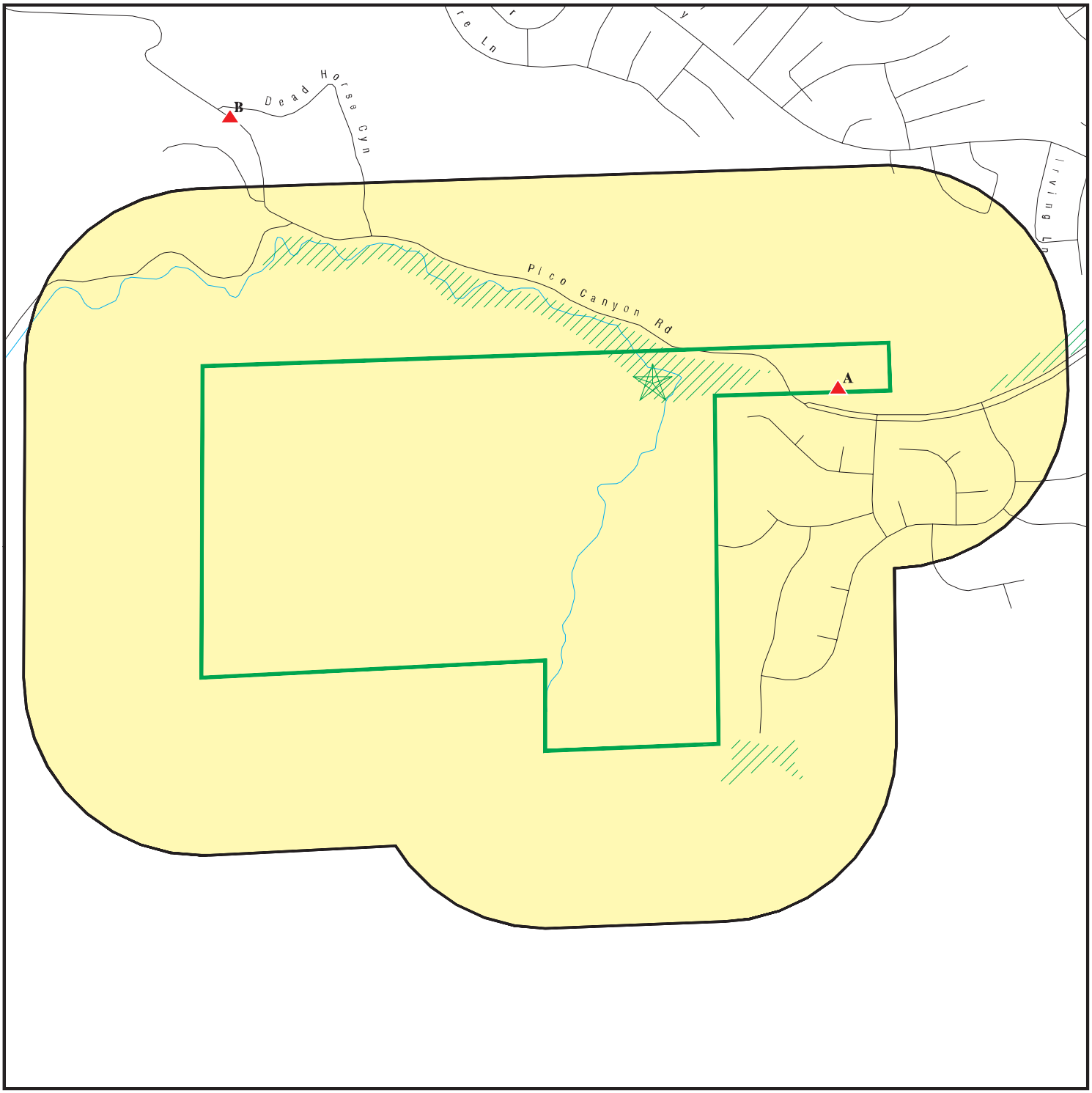
DETAIL MAP - 3884211.1s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/8 1/4 1/2 Miles

Indian Reservations BIA

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Pico Canyon Road	CLIENT: Advantage Env. Consultants LLC
ADDRESS: Pico Canyon Road Stevenson Ranch CA 91381	CONTACT: Todd Jacquay
LAT/LONG: 34.3778 / 118.5956	INQUIRY #: 3884211.1s
	DATE: March 25, 2014 11:40 am

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	TP		NR	NR	NR	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.125		0	NR	NR	NR	NR	0
RCRA-SQG	0.125		0	NR	NR	NR	NR	0
RCRA-CESQG	0.125		0	NR	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	TP		NR	NR	NR	NR	NR	0
Federal ERNS list								
ERNS	0.125		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	1	NR	NR	1

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.125		0	NR	NR	NR	NR	0
AST	0.125		0	NR	NR	NR	NR	0
INDIAN UST	0.125		0	NR	NR	NR	NR	0
FEMA UST	TP		NR	NR	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	TP		NR	NR	NR	NR	NR	0
DEBRIS REGION 9	TP		NR	NR	NR	NR	NR	0
WMUDS/SWAT	TP		NR	NR	NR	NR	NR	0
SWRCY	TP		NR	NR	NR	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	TP		NR	NR	NR	NR	NR	0
Toxic Pits	TP		NR	NR	NR	NR	NR	0
AOCONCERN	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.125		0	NR	NR	NR	NR	0
HIST UST	0.125		0	NR	NR	NR	NR	0
SWEEPS UST	0.125		0	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
CHMIRS	0.125		0	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	0.500		0	0	0	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.125		0	NR	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	TP		NR	NR	NR	NR	NR	0
FUDS	TP		NR	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	TP		NR	NR	NR	NR	NR	0
UMTRA	TP		NR	NR	NR	NR	NR	0
US MINES	TP		NR	NR	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
Cortese	TP		NR	NR	NR	NR	NR	0
HIST CORTESE	TP		NR	NR	NR	NR	NR	0
CUPA Listings	0.125		0	NR	NR	NR	NR	0
Notify 65	TP		NR	NR	NR	NR	NR	0
LA Co. Site Mitigation	0.125		0	NR	NR	NR	NR	0
DRYCLEANERS	TP		NR	NR	NR	NR	NR	0
LOS ANGELES CO. HMS	0.125		3	NR	NR	NR	NR	3
WIP	TP		NR	NR	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	TP		NR	NR	NR	NR	NR	0
HWP	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
PROC	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
PRP	TP		NR	NR	NR	NR	NR	0
MWMP	TP		NR	NR	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
HWT	TP		NR	NR	NR	NR	NR	0
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.500		0	0	0	NR	NR	0
RGA LUST	0.500		0	0	1	NR	NR	1

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **TEXACO INC (DEST)** **LOS ANGELES CO. HMS** **S102064469**
26835 PICO CANYON RD **N/A**
< 1/8 **UNINCORPORATED, CA**
1 ft.

Site 1 of 3 in cluster A

Relative:
Higher

Actual:
1493 ft.

LOS ANGELES CO. HMS:

Region:	LA
Facility Id:	000338-022356
Facility Type:	I06
Facility Status:	Closed
Area:	7
Permit Number:	000138599
Permit Status:	Closed

Region:	LA
Facility Id:	000338-I01151
Facility Type:	I00
Facility Status:	Closed
Area:	7
Permit Number:	000002965
Permit Status:	Closed

A2 **TIDELANDS OIL PROD CO** **LOS ANGELES CO. HMS** **U003056768**
26835 PICO CANYON RD **N/A**
< 1/8 **UNINCORPORATED, CA**
1 ft.

Site 2 of 3 in cluster A

Relative:
Higher

Actual:
1493 ft.

LOS ANGELES CO. HMS:

Region:	LA
Facility Id:	000338-I00340
Facility Type:	I06
Facility Status:	Closed
Area:	7
Permit Number:	000000197
Permit Status:	Closed

Region:	LA
Facility Id:	000338-I01534
Facility Type:	I00
Facility Status:	Closed
Area:	7
Permit Number:	000003292
Permit Status:	Closed

Region:	LA
Facility Id:	000338-I01467
Facility Type:	Not reported
Facility Status:	OPEN
Area:	7
Permit Number:	Not reported
Permit Status:	Not reported

A3 **DKM OFFSHORE ENERGY INC** **LOS ANGELES CO. HMS** **S102064470**
26835 PICO CANYON RD **N/A**
< 1/8 **UNINCORPORATED, CA**
1 ft.

Site 3 of 3 in cluster A

Relative:
Higher

Actual:
1493 ft.

LOS ANGELES CO. HMS:

Region:	LA
Facility Id:	000338-020615
Facility Type:	I06
Facility Status:	Closed
Area:	7
Permit Number:	000083937
Permit Status:	Closed

Region:	LA
Facility Id:	000338-043916
Facility Type:	SS5
Facility Status:	Permit
Area:	7
Permit Number:	000528770
Permit Status:	Permit

Region:	LA
Facility Id:	000338-052435
Facility Type:	I05
Facility Status:	Permit
Area:	7
Permit Number:	000598305
Permit Status:	Permit

B4 **ARCO PRODUCTS CO** **RGA LUST** **S114575527**
WNW **26835 PICO CANYON RD** **N/A**
1/4-1/2 **STEVENSON RANCH, CA**
0.350 mi.
1848 ft.

Site 1 of 2 in cluster B

Relative:
Higher

Actual:
1649 ft.

RGA LUST:

2012	ARCO PRODUCTS CO	26835 PICO CANYON RD
2011	ARCO PRODUCTS CO	26835 PICO CANYON RD
2010	ARCO PRODUCTS CO	26835 PICO CANYON RD
2009	ARCO PRODUCTS CO	26835 PICO CANYON RD
2008	ARCO PRODUCTS CO	26835 PICO CANYON RD
2007	ARCO PRODUCTS CO	26835 PICO CANYON RD
2006	ARCO PRODUCTS CO	26835 PICO CANYON RD
2005	ARCO PRODUCTS CO	26835 PICO CANYON RD
2003	ARCO PRODUCTS CO	26835 PICO CANYON RD
2002	ARCO PRODUCTS CO	26835 PICO CANYON RD
2000	ARCO PRODUCTS CO	26835 PICO CANYON RD

B5 WNW 1/4-1/2 0.350 mi. 1848 ft. | **ARCO PRODUCTS CO**
26835 PICO CANYON RD
STEVENSON RANCH, CA 91381 | **LUST** | **S103891127**
N/A

Site 2 of 2 in cluster B

Relative: Higher

Actual: 1649 ft.

LUST:

Region:	STATE
Global Id:	T0603702702
Latitude:	34.3825694
Longitude:	-118.605346
Case Type:	LUST Cleanup Site
Status:	Completed - Case Closed
Status Date:	07/26/1996
Lead Agency:	LOS ANGELES RWQCB (REGION 4)
Case Worker:	YR
Local Agency:	LOS ANGELES COUNTY
RB Case Number:	I-00340
LOC Case Number:	Not reported
File Location:	Not reported
Potential Media Affect:	Aquifer used for drinking water supply
Potential Contaminants of Concern:	Gasoline
Site History:	Not reported

Click here to access the California GeoTracker records for this facility:

Contact:

Global Id:	T0603702702
Contact Type:	Regional Board Caseworker
Contact Name:	YUE RONG
Organization Name:	LOS ANGELES RWQCB (REGION 4)
Address:	320 W. 4TH ST., SUITE 200
City:	Los Angeles
Email:	yrong@waterboards.ca.gov
Phone Number:	Not reported

Global Id:	T0603702702
Contact Type:	Local Agency Caseworker
Contact Name:	JOHN AWUJO
Organization Name:	LOS ANGELES COUNTY
Address:	900 S FREMONT AVE
City:	ALHAMBRA
Email:	jawujo@dpw.lacounty.gov
Phone Number:	6264583507

Status History:

Global Id:	T0603702702
Status:	Open - Case Begin Date
Status Date:	08/06/1986

Global Id:	T0603702702
Status:	Open - Site Assessment
Status Date:	04/06/1988

Global Id:	T0603702702
Status:	Open - Verification Monitoring
Status Date:	11/17/1994

Global Id:	T0603702702

ARCO PRODUCTS CO (Continued) **S103891127**

Status: Completed - Case Closed
Status Date: 07/26/1996

Regulatory Activities:
Global Id: T0603702702
Action Type: Other
Date: 01/01/1950
Action: Leak Reported

LUST REG 4:
Region: 4
Regional Board: 04
County: Los Angeles
Facility Id: I-00340
Status: Case Closed
Substance: Gasoline
Substance Quantity: Not reported
Local Case No: Not reported
Case Type: Groundwater
Abatement Method Used at the Site: CBCD
Global ID: T0603702702
W Global ID: Not reported
Staff: UNK
Local Agency: 19000
Cross Street: PORTRERO
Enforcement Type: Not reported
Date Leak Discovered: Not reported
Date Leak First Reported: 8/6/1986
Date Leak Record Entered: 9/9/1987
Date Confirmation Began: Not reported
Date Leak Stopped: Not reported
Date Case Last Changed on Database: 11/17/1994
Date the Case was Closed: 7/26/1996
How Leak Discovered: Not reported
How Leak Stopped: Not reported
Cause of Leak: UNK
Leak Source: UNK
Operator: FORMER SUN EXPL. & PRODUCTION
Water System: Not reported
Well Name: Not reported
Approx. Dist To Production Well (ft): 15490.847083381075224413913183
Source of Cleanup Funding: UNK
Preliminary Site Assessment Workplan Submitted: Not reported
Preliminary Site Assessment Began: Not reported
Pollution Characterization Began: 4/6/1988
Remediation Plan Submitted: Not reported
Remedial Action Underway: Not reported
Post Remedial Action Monitoring Began: 11/17/1994
Enforcement Action Date: Not reported
Historical Max MTBE Date: Not reported
Hist Max MTBE Conc in Groundwater: Not reported
Hist Max MTBE Conc in Soil: Not reported
Significant Interim Remedial Action Taken: Yes
GW Qualifier: Not reported
Soil Qualifier: Not reported

ARCO PRODUCTS CO (Continued) **S103891127**

Organization:	Not reported
Owner Contact:	Not reported
Responsible Party:	ARCO PRODUCTS CO
RP Address:	1055 W 7TH ST, LOS ANGELES CA 90017-2503
Program:	LUST
Lat/Long:	34.3805829 / -1
Local Agency Staff:	Not reported
Beneficial Use:	Not reported
Priority:	Not reported
Cleanup Fund Id:	Not reported
Suspended:	Not reported
Assigned Name:	Not reported
Summary:	MAPPED AS REGIONAL BOARD TPCA/RCRA SITE. LTR SENT 11-17-94 DIRECTING RP TO ABANDON WELLS FOR CLOSURE. LTR RETURNED AS UNDELIVERABLE. ALL EFFORTS TO LOCATE RP UNSUCCESSFUL SO FAR.

Count: 4 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
LOS ANGELES COUNTY	M300001888	BOUQUET CANYON STONE CO INC	DEL SUR RIDGE QUARRY		US MINES
NEWHALL	S111075783	BENNETT MURRAY BRINE SUMP	27201 WEST PICO CANYON ROAD	91381	SWF/LF
NEWHALL	S108407548	AGROMIN PREMIUM SOIL PRODUCTS	POTRERO CANYON ROAD	91381	SWF/LF
STEVENSON RANCH	S113128259	WSHUHSD/RANCHO PICO JUNIOR HIGH SC	26250 W. VALENCIA BLVD.	91381	HAZNET

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 01/21/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/25/2013
Date Data Arrived at EDR: 11/11/2013
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 78

Source: EPA
Telephone: N/A
Last EDR Contact: 01/09/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: N/A
Date Made Active in Reports: 01/28/2014	Last EDR Contact: 01/09/2014
Number of Days to Update: 78	Next Scheduled EDR Contact: 04/21/2014
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 02/28/2014
Number of Days to Update: 94	Next Scheduled EDR Contact: 06/09/2014
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 05/31/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 07/08/2013	Telephone: 703-603-8704
Date Made Active in Reports: 12/06/2013	Last EDR Contact: 01/10/2014
Number of Days to Update: 151	Next Scheduled EDR Contact: 04/21/2014
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 10/25/2013	Source: EPA
Date Data Arrived at EDR: 11/11/2013	Telephone: 703-412-9810
Date Made Active in Reports: 02/13/2014	Last EDR Contact: 02/28/2014
Number of Days to Update: 94	Next Scheduled EDR Contact: 06/09/2014
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 12/17/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 12/17/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 01/28/2014
Number of Days to Update: 14

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 11/21/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 95

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 02/07/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/06/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/06/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 02/14/2014
Date Data Arrived at EDR: 02/18/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 28

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 02/18/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 1: Active Toxic Site Investigation

Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST: Geotracker's Leaking Underground Fuel Tank Report

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/16/2014
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 184

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 02/13/2014
Date Data Arrived at EDR: 02/14/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 10

Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 29

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 08/27/2013
Date Data Arrived at EDR: 08/27/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 66

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 02/01/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 271

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/26/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 90

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 02/13/2014
Date Data Arrived at EDR: 02/14/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 10

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 01/29/2014
Date Data Arrived at EDR: 01/29/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 42

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Semi-Annually

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 07/29/2013
Date Data Arrived at EDR: 08/01/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 92

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 07/29/2013
Date Data Arrived at EDR: 07/30/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 129

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/17/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 66

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/06/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/24/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 73

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/20/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/18/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 11/25/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 36

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/04/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 65

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/04/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/06/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 39

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 02/28/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 20

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/04/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: No Update Planned

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 01/17/2014
Date Data Arrived at EDR: 01/21/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 12/09/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 24

Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/03/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 52

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 01/13/2014
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 10/14/2013
Date Data Arrived at EDR: 10/30/2013
Date Made Active in Reports: 12/03/2013
Number of Days to Update: 34

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 18

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 03/19/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 10/02/2013
Date Made Active in Reports: 12/16/2013
Number of Days to Update: 75

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/06/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/24/2014
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 31

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 11/25/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 74

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 09/05/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 28

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/05/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 02/26/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/07/2014
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/28/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 10/09/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 06/01/2013
Date Data Arrived at EDR: 07/17/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 107

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/28/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 11/01/2013
Number of Days to Update: 91

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/09/2014
Date Data Arrived at EDR: 01/10/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/10/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/18/2013
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/12/2014
Number of Days to Update: 13

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 03/14/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/01/2013
Date Data Arrived at EDR: 12/12/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 02/28/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 11/19/2013
Date Data Arrived at EDR: 11/21/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 42

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/18/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

UIC: UIC Listing

A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 09/25/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 03/18/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Varies

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 12/30/2013
Date Data Arrived at EDR: 12/31/2013
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 42

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/31/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/16/2013
Number of Days to Update: 35

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 19

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 41

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/17/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 58

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/07/2014
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/15/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: N/A

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 01/02/2014
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/13/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 03/18/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 01/28/2014
Date Data Arrived at EDR: 01/30/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 12

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 02/14/2014
Date Data Arrived at EDR: 02/18/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 28

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information
All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 11/20/2013
Date Data Arrived at EDR: 12/03/2013
Date Made Active in Reports: 02/13/2014
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Annually

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 03/11/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 02/25/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Quarterly

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/23/2013
Date Data Arrived at EDR: 11/06/2013
Date Made Active in Reports: 12/06/2013
Number of Days to Update: 30

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 12/26/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Annually

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 01/13/2014
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 28

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/14/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Quarterly

COAL ASH DOE: Sleam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Varies

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 09/20/2013
Date Data Arrived at EDR: 12/11/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 24

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/22/2014
Date Data Arrived at EDR: 01/23/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 19

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 01/22/2014
Date Data Arrived at EDR: 01/23/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 20

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 12/05/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 01/03/2014
Number of Days to Update: 24

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing
Cupa facility list.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 20

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 09/30/2013
Date Data Arrived at EDR: 10/01/2013
Date Made Active in Reports: 11/26/2013
Number of Days to Update: 56

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 12/05/2013
Date Data Arrived at EDR: 12/05/2013
Date Made Active in Reports: 01/27/2014
Number of Days to Update: 53

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 03/13/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 21

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 02/05/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 01/09/2013
Date Data Arrived at EDR: 01/10/2013
Date Made Active in Reports: 02/25/2013
Number of Days to Update: 46

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 11/04/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 02/20/2014
Date Data Arrived at EDR: 02/21/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 27

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 02/04/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 28

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 01/27/2014
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 14

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 09/10/2013
Date Data Arrived at EDR: 09/11/2013
Date Made Active in Reports: 10/14/2013
Number of Days to Update: 33

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 02/25/2014
Date Data Arrived at EDR: 02/27/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 21

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

LAKE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/25/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 33

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 12/06/2013
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 48

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 01/20/2014
Date Data Arrived at EDR: 01/21/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 21

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/21/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/07/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/25/2014
Number of Days to Update: 28

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 02/10/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 33

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/30/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Annually

City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/15/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 33

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/13/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 12/09/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 02/20/2014
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 01/03/2014
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 34

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/25/2013
Date Made Active in Reports: 02/24/2014
Number of Days to Update: 91

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

MONO COUNTY:

CUPA Facility List
CUPA Facility List

Date of Government Version: 12/02/2013
Date Data Arrived at EDR: 12/03/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 30

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 01/09/2014
Date Data Arrived at EDR: 01/10/2014
Date Made Active in Reports: 02/14/2014
Number of Days to Update: 35

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/06/2014
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 11/06/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 12/04/2013
Number of Days to Update: 27

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 02/01/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 02/03/2014
Date Data Arrived at EDR: 02/13/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 33

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 02/01/2014
Date Data Arrived at EDR: 02/12/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 34

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 12/09/2013
Date Data Arrived at EDR: 12/10/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 28

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 01/14/2014
Date Data Arrived at EDR: 01/15/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/02/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 01/14/2014
Date Data Arrived at EDR: 01/15/2014
Date Made Active in Reports: 02/12/2014
Number of Days to Update: 28

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/06/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 01/09/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 33

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 01/06/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 11/26/2013
Date Data Arrived at EDR: 11/27/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 34

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 09/23/2013
Date Data Arrived at EDR: 09/24/2013
Date Made Active in Reports: 10/17/2013
Number of Days to Update: 23

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Quarterly

Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2013
Date Data Arrived at EDR: 11/19/2013
Date Made Active in Reports: 12/31/2013
Number of Days to Update: 42

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 02/14/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 03/10/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

Underground Storage Tank Information

Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 12/18/2013
Date Data Arrived at EDR: 12/19/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 20

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 11/21/2013
Date Data Arrived at EDR: 11/25/2013
Date Made Active in Reports: 02/27/2014
Number of Days to Update: 94

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/13/2014
Date Data Arrived at EDR: 01/14/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 28

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 12/12/2013
Date Data Arrived at EDR: 12/17/2013
Date Made Active in Reports: 01/07/2014
Number of Days to Update: 21

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List
Cupa facility list

Date of Government Version: 03/04/2014
Date Data Arrived at EDR: 03/06/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 14

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 03/03/2014
Next Scheduled EDR Contact: 06/16/2014
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 02/07/2014
Date Data Arrived at EDR: 02/11/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 34

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 02/10/2014
Next Scheduled EDR Contact: 05/26/2014
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List

CUPA facility listing.

Date of Government Version: 02/24/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 23

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List

Cupa Facility List.

Date of Government Version: 12/03/2013
Date Data Arrived at EDR: 12/04/2013
Date Made Active in Reports: 01/02/2014
Number of Days to Update: 29

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/18/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 21

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 12/16/2013
Date Data Arrived at EDR: 12/19/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 20

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 12/31/2013
Date Data Arrived at EDR: 01/02/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 40

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Varies

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 01/03/2014
Date Data Arrived at EDR: 01/03/2014
Date Made Active in Reports: 02/11/2014
Number of Days to Update: 39

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/30/2013
Next Scheduled EDR Contact: 04/14/2014
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 12/10/2013
Date Data Arrived at EDR: 12/11/2013
Date Made Active in Reports: 01/04/2014
Number of Days to Update: 24

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 06/23/2014
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/27/2014
Date Data Arrived at EDR: 01/28/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 48

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/27/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks

The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 01/28/2014
Date Data Arrived at EDR: 02/25/2014
Date Made Active in Reports: 03/20/2014
Number of Days to Update: 23

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/18/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites

Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/03/2014
Next Scheduled EDR Contact: 04/21/2014
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites

Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 02/17/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 10/02/2013
Date Data Arrived at EDR: 10/30/2013
Date Made Active in Reports: 11/27/2013
Number of Days to Update: 28

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 03/21/2014
Next Scheduled EDR Contact: 05/12/2014
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 11/26/2013
Date Data Arrived at EDR: 12/18/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 21

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 12/18/2013
Date Data Arrived at EDR: 12/24/2013
Date Made Active in Reports: 01/08/2014
Number of Days to Update: 15

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 03/24/2014
Next Scheduled EDR Contact: 07/07/2014
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 02/11/2014
Date Data Arrived at EDR: 02/13/2014
Date Made Active in Reports: 03/17/2014
Number of Days to Update: 32

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 12/06/2013
Next Scheduled EDR Contact: 02/17/2014
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 07/30/2013
Date Data Arrived at EDR: 08/19/2013
Date Made Active in Reports: 10/03/2013
Number of Days to Update: 45

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 02/21/2014
Next Scheduled EDR Contact: 06/02/2014
Data Release Frequency: Annually

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/17/2014
Next Scheduled EDR Contact: 04/28/2014
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 11/01/2013
Date Data Arrived at EDR: 11/07/2013
Date Made Active in Reports: 11/18/2013
Number of Days to Update: 11

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 03/12/2014
Next Scheduled EDR Contact: 05/19/2014
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/20/2014
Next Scheduled EDR Contact: 05/05/2014
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 02/24/2014
Next Scheduled EDR Contact: 06/09/2014
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 09/27/2013
Number of Days to Update: 49

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 03/17/2014
Next Scheduled EDR Contact: 06/30/2014
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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PHASE I
ENVIRONMENTAL SITE ASSESSMENT

AIDLIN PROPERTY
26300 PICO CANYON ROAD
LOS ANGELES COUNTY, CALIFORNIA

Submitted To:

ASL Consulting Engineers
3280 East Foothill Boulevard, #350
Pasadena, California 91107

Submitted By:

AGRA Earth & Environmental, Inc.
1290 North Hancock Street
P.O. Box 19079
Anaheim, California 92817

March 2, 1999

Job No. 9-212-801100

Recycled Paper

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EXECUTIVE SUMMARY

AGRA Earth & Environmental, Inc. (AGRA) conducted this Phase I Environmental Site Assessment (ESA) of the Aidlin Property, located at 26300 Pico Canyon Road, during February 1999 at the request of ASL Consulting Engineers, Inc. AGRA performed the ESA in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E 1527. The purpose of the Phase I ESA is to evaluate the potential presence of hazardous substances, including contaminated soil or ground water, due to past or present land use practices at the site, or from nearby sites. In conducting this assessment, AGRA did not perform geologic mapping or any surveys for wetlands, endangered species, asbestos-containing building materials, lead-based paint, radon gas, or lead in drinking water.

The subject property is located primarily in the hills along the south side of Pico Canyon, west of the City of Santa Clarita, in an unincorporated portion of Los Angeles County. The property is located about two miles west of the I-5 Freeway.

Regionally, the subject property lies within the northwestern part of the Transverse Ranges geomorphic province of California. Geologic maps indicate that the area is underlain by Tertiary Pico Formation bedrock consisting mostly of siltstone and sandstone; and Quaternary alluvial deposits composed of unconsolidated silt, sand, gravel and cobbles. Ground water occurs in the alluvial deposits.

Historical data indicate that the northerly portion of the subject property has had built structures since at least 1952. The two primary structures that have existed on the site since at least 1952 include one single-family dwelling and a bee keeping/honey processing building ("Bee Ranch"). These structures are located in the northeastern portion of the site. Other subordinate structures also exist along the northern portion of the site. These include a garage, corral, two water tanks, and a shed. One oil exploration well was completed in 1931 along the main easterly canyon of the site, called Wickham Canyon. The remainder of the site remains undeveloped. AGRA found no records indicating other previous site uses.

During the property site reconnaissance on February 22, 1999, AGRA observed existing conditions on the subject property. The two primary on-site buildings appear recently used though no one was present during the site visit. No entry to these structures was possible during the site visit. Observations at the Bee Ranch included 200 to 300 55-gallon drums. Some of the drums indicated their use for honey storage and transport. Several empty drums distributed around the northern site area were unlabeled. No drums were observed in the canyon areas of the site. One pole mounted electric transformer outside the residence appeared to be in good condition with no stains or leaks. An area of artificial fill was observed in one tributary canyon to Wickham Canyon. Soil explorations by others noted hydrocarbon odors in soil excavated from this fill.

Adjacent to the north of the subject property, between the site and Pico Canyon Road, AGRA observed several debris piles containing metal, wood, barbed wire, cable, a small propane tank,

unlabeled drums, and one partially collapsed structure posted with "High Voltage" signs. No evidence of former transformers was observed at the "High Voltage" structure.

No files exist for the subject site at the Los Angeles County Department of Public Works Environmental Programs Section. AGRA sent a request for file information to the Los Angeles County Fire Department Hazardous Materials Division but there has been no response at the time of the completion of this report. AGRA sent a request to Southern California Edison for PCB information regarding the on-site transformer. AGRA will update this report if response to the requests warrants an addendum.

One large generator of hazardous waste is located northwest of the property at 26835 Pico Canyon Road. The off-site property is currently used for oil production. The waste generation is apparently petroleum production waste water that is re-injected into former deep oil wells. The off-site deep well injection facilities are not expected to pose an environmental concern to the subject property given its intended use for housing development. The 26835 Pico Canyon site also has had one reported spill of 30 barrels of crude oil. This site is also listed on a leaking underground storage tank (LUST) list. The tank was removed and case closed in 1996. Because of the distance of the spill and LUST from the site, these are not likely to be environmental concerns for the intended use of the subject site.

In conclusion, AGRA identified several areas of potential environmental concern at the site. These include:

- Artificial fill with reported petroleum odor in tributary to Wickham Canyon;
- Oil well in Wickham Canyon;
- Unlabeled drums and debris of unknown origin;
- Suspect asbestos containing materials;
- One transformer near residence with potential PCB contamination

AGRA has several recommendations to address the environmental concerns for the site. These include:

- collecting near-surface soil samples near several of the unlabeled drum accumulations. We recommend 4 to 6 samples be tested for metals, total petroleum hydrocarbons, volatile organic compounds.

- collecting deeper soil samples of the artificial fill in the tributary canyon. We recommend testing about 10 samples in three borings for total petroleum hydrocarbons, and volatile organic compounds.

- conducting an asbestos containing material (ACM) survey of the structures at the site.

- contacting an oil well abandonment contractor to assess the status of the well conductor/casing observed in Wickham Canyon.

1.0 INTRODUCTION

1.1 BACKGROUND

This Phase I Environmental Site Assessment (ESA) of the Aidlin Property was conducted by AGRA Earth & Environmental, Inc. (AGRA) during February 1999 at the request of ASL Consulting Engineers, Inc. AGRA conducted the work in accordance with the scope of services outlined in Proposal No. A99-026 dated February 4, 1999. AGRA performed the Phase I ESA in general conformance with the scope and limitations of the American Society for Testing and Materials (ASTM) Practice E 1527.

1.2 OBJECTIVE

The objective of this Phase I ESA is to evaluate the potential for hazardous substances and soil or ground water contamination at the site. The assessment is based on discernible visual observations, and on documented present and historic uses of the property.

1.3 SCOPE OF WORK

This assessment was accomplished principally by review of available documented information relative to land use, supplemented with site reconnaissance. It was performed in accordance with generally accepted environmental engineering practices. AGRA conducted this ESA by performing the following scope of work:

- Conduct a reconnaissance of the site to visually observe existing conditions and look for signs of contamination from hazardous wastes or toxic substances;
- Observe adjacent properties and the site vicinity to assess potential hazardous materials issues of environmental concern;
- Review readily available aerial photographs, topographic maps; and geologic reports relevant to the site and surrounding area;
- Review available public agency records listing sites of potential environmental concern in the vicinity of the subject property; and
- Formulate conclusions and prepare this written report presenting the findings of the assessment.

This ESA is based on the work scope described above. In conducting this assessment, AGRA did <u>not</u> perform geologic mapping or any surveys for wetlands, endangered species, asbestos-containing building materials, lead-based paint, radon gas, or lead in drinking water. No previous environmental site assessment reports of the subject property were known to exist or made

available to AGRA for review as part of this project. A reference list of data sources is presented in Appendix A.

This ESA has been completed using American Society for Testing and Materials (ASTM) Standard E 1527 and AGRA's internal standard of performance. These criteria meet the level of care and technical complexity currently practiced by environmental professionals for projects of a similar scope. AGRA regularly reviews the current state of environmental practice in order to advance the technical quality of its Phase I ESAs.

2.0 SITE LOCATION AND DESCRIPTION

The subject property is 26300 Pico Canyon Road. The site is located primarily in the hills along the south side of Pico Canyon, west of the City of Santa Clarita, in an unincorporated portion of Los Angeles County. The property is located about two miles west of the I-5 Freeway. Figure 1, Site Vicinity Map, shows the general site location. Figure 2, Site Area Map, shows the site perimeter with area features and topography. The site covers approximately 237 acres of mostly mountainous terrain.

The subject property is located within the northern half of Section 6 of Township 3 North, Range 16 West (San Bernardino Base Line and Meridian). Topographic map coverage of the site and vicinity is shown on the Newhall, California and Oat Mountain, California quadrangle maps (U.S. Geological Survey, 1988 and 1969, respectively).

Based on elevation contours shown on the USGS quadrangle maps, the elevation of the subject property ranges from approximately 1,475 feet to 2,254 feet above sea level. Storm water runoff from the sites generally drains toward the northeast, and enters Pico Canyon Creek. The creek crosses the northeastern portion of the site and drains to the east.

2.1 BUILDINGS

Mr. Scott Burton and Robert Martinez of ASL provided site information, and made access arrangements for the site reconnaissance visit. Two primary structures exist on the subject property. Figure 3, Site Map, shows the structure locations. One is a single-family residence constructed of wood with corrugated metal roofing. The residence has a detached garage. Based on inference from topographic maps and aerial photographs, the residence was constructed prior to 1952. Files with the Los Angeles County Building and Safety Department, Valencia Branch, do not contain building permits or other records for the construction of the residence. These files do, however, contain the permit for the residence garage that was constructed in 1962. The second main structure is the "Bee Ranch." This structure was present on the 1952 topographic map and aerial photograph. Building permit records indicate addition of electric, plumbing, and septic systems in 1957.

Other subordinate structures exist on the site. Two water tanks were observed during the site reconnaissance. One water tank near the residence appeared in working condition. One other

was in disrepair. No wells or plumbing were observed near the water tanks. Immediately adjacent to the north of the site exists one structure in disrepair with "High Voltage" placards. No evidence of transformers was observed near this structure. Debris piles around and near the "High Voltage" structure include metal, wood, tires, barbed wire, a 5 gallon propane tank and other material.

Figure 3, Site Map, shows the locations of these structures.

2.2 GEOLOGY

Regionally, the subject property lies within the northwestern part of the Transverse Ranges geomorphic province of California (Norris and Webb, 1990). A list of references is provided in Appendix A.

The site lies within the Santa Susanna Mountains characterized in the site area by west northwest trending ridgelines, crosscutting drainages, and alluviated valley fill derived from the local uplands. The great majority of the site lies in the hill and mountain area. A small portion of the site lies in the valley fill of Pico Canyon. Figure 2, Site Area Map, shows the site area features and topography.

The southern upland portion of the site is underlain by Tertiary Pico Formation bedrock consisting of primarily siltstone, sandstone, and conglomerate (J. Byer Group, 1998; Winterer and Durham, 1962; Dibblee, 1996). The valley fill area of the northeastern part of the site consists of cobbles, gravel, sand, and silt (J. Byer Group, 1998). One observed area of artificial fill exists at the top of the first westerly sub-canyon of Wickham Canyon.

2.3 GROUND WATER CONDITIONS

Ground water exists in the valley fill at a depth of approximately 14 to 19 feet below ground surface (J. Byer Group, 1998). Water levels may fluctuate seasonally. Ground water may also occur in the Pico Formation bedrock at shallow depth. We anticipate groundwater flow follows topographic gradient (toward the east) in the valley fill. We anticipate groundwater flow in the Pico Formation (upland areas of the site) locally follows bedding joints and fractures, but regionally flows toward Pico Canyon (to the north).

2.4 FLOOD-PRONE AREA MAP REVIEW

AGRA reviewed Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps to determine if the subject property is located within the zone of a 100-year flood. The subject property is shown in Zones A and C on FEMA Map No. *065043-0460 (dated November 15, 1985)*. This map indicates that a portion of the low lying area at the site along Pico Canyon Creek lies within the limits of a 100-year flood. The remainder of the site does not lie within the limits of a 100-year flood. This status was confirmed during a telephone interview with the Los Angeles County Department of Department of Public Works, Land Development Division.

3.0 SITE HISTORY

Earliest available site information indicates the residence and Bee Ranch were present on the site prior to 1952. Since 1952, a garage was added near the residence. Few other changes to physical structures were evident from the information available and reviewed for this ESA.

3.1 AERIAL PHOTOGRAPH AND HISTORIC MAP REVIEW

AGRA conducted a review of available historical aerial photographs, U.S. Geological Survey (USGS) maps, and records from the Los Angeles County Building and Safety Department in an effort to confirm past site usage and identify potential sources of contamination. No Sanborn Fire Insurance maps were available for the site.

Photographs and maps covering the years 1952, 1969, 1972, 1977, 1980, 1988, 1990, 1993, and 1995. These photographs and maps did not reveal sources of contamination on or adjacent to the subject property. Pertinent details identified as part of the aerial photograph and historic map review are presented below.

3.1.1 1952 Topographic Map

The 1952 USGS topographic maps (Newhall and Oat Mountain quadrangles) show the general area of the site in a relatively undeveloped condition. The two structures (residence and Bee Ranch) are present on this map.

3.1.2 1969 Topographic Map

The 1969 USGS topographic maps (Newhall and Oat Mountain quadrangles) show conditions similar to those observed in the 1952 topographic maps. The garage structure adjacent to the residence is shown on this map.

3.1.3 1988 Topographic Map

The 1988 USGS topographic map (Newhall quadrangle) shows conditions similar to those observed in the 1969 topographic map.

3.1.4 1952 Photograph

In the 1952 photograph (Continental Aerial Photo, 2K-39-40), AGRA observed on-site features including the Bee Ranch, residence, and roads to the structures and up Wickham Canyon. Each of the three water tanks currently present were observed in the 1952 photograph. The "High Voltage" structure was not observed. Other than the road up Wickham Canyon, no other evidence of recent activity or development was observed in the upland areas of the site. There is little development in immediately surrounding properties. There exist some roads into canyon areas to the east and north of the site.

3.1.5 1972 Photograph

In the 1972 photograph (Continental Aerial Photo, 107-9-19), conditions appear similar to the 1952 photograph. The garage adjacent to the residence is present. Roads to the structures and Wickham Canyon are still present. Shadows in photograph make it difficult to tell if "High Voltage structure is present. No evidence of recent activity or development was observed in the upland areas of the site. Little change to surrounding properties was observed.

3.1.6 1977 Photograph

In the 1977 photograph (Continental Aerial Photo, 1-VEN-2-47), conditions appear similar to the 1972 photograph. The "High Voltage" structure is now present to the west of the residence. No evidence of recent activity or development was observed in the upland areas of the site.

3.1.7 1980 Photograph

In the 1980 photograph (Continental Aerial Photo, 80165-462), conditions appear similar to the 1977 photograph. A new corral is present between the residence and Bee Ranch. No evidence of recent activity or development was observed in the upland areas of the site. Greater abundance of brush seems apparent in hill areas.

3.1.8 1988 Photograph

In the 1988 photograph (Continental Aerial Photo, NAC-VEN 3-23), on-site conditions appear similar to the 1980 photograph. The road east of the Bee Ranch across the creek to Wickham Canyon is washed out. No evidence of recent activity or development was observed in the upland areas of the site. Greater abundance of brush seems apparent in hill areas. A large new housing development is under construction about 1 mile to the east of the site.

3.1.9 1990 Photograph

In the 1990 photograph (Continental Aerial Photo, C82-3-8), conditions appear similar to the 1988 photograph. "High Voltage" building appears in disrepair. No evidence of recent activity or development was observed in the upland areas of the site.

3.1.10 1993 Photograph

In the 1993 photograph (Continental Aerial Photo, C87-30-147), conditions appear similar to the 1990 photograph. "High Voltage" building appears in further disrepair. No evidence of recent activity or development was observed in the upland areas of the site.

3.1.11 1995 Photograph

In the 1995 photograph (Continental Aerial Photo, C111-17-227), conditions appear similar to the 1993 photograph. No evidence of recent activity or development was observed in the upland areas of the site.

3.2 LOCAL RECORDS REVIEW

Building Permits on file at the Los Angeles County (1999) Building and Safety Department were reviewed by AGRA. Microfiche copies of permits were observed for some on-site construction but did not include all structures present on-site. Three permits exist for the improvements to the Bee Ranch that include installation of a septic tank and seepage pit, plumbing, and electrical in 1957. One permit exists for the residence garage from 1962. No other building permits were on file for the subject property.

3.3 OIL AND GAS MAP REVIEW

AGRA reviewed the Munger Map Book (1990) of Oil and Gas Fields, and the California Division of Oil, Gas, and Geothermal Resources (CDOGGR) Regional Wildcat Map W1-2. The site is not located in an oil field. It is adjacent to the Newhall-Petrero oil field (northwest, the Pico Canyon oil field (west), and the abandoned Dewitt Canyon oil field (south). According to the information provided on the maps, there are several exploratory well sites near the property and one marked on the subject site. The exploratory well located on the subject site is the "Electrological Pet. Corp. Ltd., Overman 1" drilled in 1931 to a depth of 1070 feet. The well is reported to be "plugged and abandoned—dry hole" by the CDOGGR (1998). During the site reconnaissance by AGRA, an approximately 16-inch steel riveted casing was observed on the property in the approximate location of the mapped Overman 1 drill site.

4.0 RESULTS OF INVESTIGATION

4.1 SITE OBSERVATIONS

AGRA observed existing conditions on the subject property on February 22, 1999. During the site reconnaissance of the property, AGRA visited the subject site unescorted. The site owners or occupants were not available during our site reconnaissance to assist in identifying locations of potential hazardous material usage or storage. Entry into on-site structures was not possible so they were observed from the exterior only. Site observation photographs are presented in Appendix B.

The site observations are divided into two parts. The first is the observations of the southerly undeveloped upland area of the site. The second is the observations of the developed flatland area in the northeastern portion of the site where the residence and Bee Ranch are located.

4.1.1 Undeveloped Upland Area

Access to the mountainous terrain of the southern portion of the property was attempted by driving and hiking canyon paths. Much of the area is highly overgrown, steep, and not reasonably accessible. In our experience, areas with poor accessibility typically have fewer environmental concerns because of their difficulty of access. AGRA observed these areas from a distance and saw little evidence necessitating further efforts accessing these areas.

Several notable observations were made of the upland area. One notable observation includes remnants of a well casing or conductor casing in Wickham Canyon. The well location is shown on Figure 3, Site Map. As noted earlier, this may be a former oil well drill site. It may be an environmental concern if not abandoned properly or if remnants of the well sump and drilling muds remain the well area. However, there was no visually observable evidence of contamination at the well site. Another notable observation is a bench of artificial fill at the head of one tributary canyon to Wickham Canyon. No distressed vegetation, staining, or other indication of potential contamination was observed. However, the J. Byer Group (1998) noted petroleum odors in test pits excavated in the fill. Evidence indicating the age of the fill was not apparent. Location of the fill is shown on Figure 3. A water heater was observed in the creek bed of Wickham Canyon. While this is not by itself necessarily an environmental concern, it indicates the area at times may have been used for dumping. AGRA did not observe other remnants of dumping in the canyon. However, much of the creek bed is highly overgrown and other dumped items may be present.

4.1.2 Developed Flatland Area

The areas around the on-site structures are unpaved. Unpaved roads lead from Pico Canyon Road to the residence and Bee Ranch. Unpaved paths also lead between the residence, Bee Ranch, corral, and to Wickham Canyon. On-site roads were in good repair.

The unpaved areas of the site generally have a vegetative cover, including young trees, small plants, and grass. The reconnaissance did not reveal any indications of stained soil or distressed vegetation. No mounding or other evidence of buried materials was observed.

The residence is constructed of wood frame, wood panel siding, and corrugated metal roof. The house was observed on the outside only. One plumbing vent pipe on the north side of the structure may have suspect asbestos containing material, although this pipe was not closely observed. One small water tank was present southwest of the residence. It appeared to be in usable condition. The adjacent garage is wood frame with corrugated metal siding and roof. The Bee Ranch structure is wood frame with corrugated metal siding and roof.

One pole-mounted electrical transformer was observed near the residence. The only number observed on the transformer was "25." The transformer appeared to be in good condition, with no obvious damage or stains observed on the transformer or on the ground at the base of the pole.

The Bee Ranch was surrounded by 200 to 300 55-gallon drums, tanks, and boxes. Most of the drums were empty. Many were marked for honey storage and transport. Many, however, were not marked, but stored with the honey drums. Two 500-gallon poly tanks were adjacent to the structure. One was partially filled with a viscous fluid, presumably honey, but this was not verified. There was a wax melting burner/machine, mixers, and numerous active bee hive boxes spread throughout the Bee Ranch building area. One large haul truck and two cars were parked in the gravel lot of the Bee Ranch. One used car battery was outside adjacent to the structure. Some staining was observed in the gravel lot. The stains were sticky and sweet smelling -- presumably from honey spills. A four-foot diameter concrete cistern, dry well or similar structure was observed to the west of the Bee Ranch. The pipe was open to about 10 feet below ground surface. There was some debris (rocks and trash) but no water observed in the pipe. An above ground water tank was observed to the east of the Bee Ranch building, but did not appear to have been used in a number of years.

During the reconnaissance, AGRA did not observe evidence of underground storage tanks clarifiers, pits, oil-water separators, drains, or water wells near the residence or Bee Ranch. During the tour of the facility, AGRA did not observe evidence of chemical releases, spills, or discharges.

4.2 ADJACENT SITES AND SITE VICINITY OBSERVATIONS

Land in the vicinity of the subject property is predominantly undeveloped. Currently, land to the east of the property is being developed for residential housing. Adjacent areas northwest, west, and south have historically been used for oil production. The Newhall-Petrero oil field to the northwest of the site is currently active.

Immediately adjacent to the north of the site, just to the northwest of the residence, one structure in disrepair was present. It consisted of a wood frame only. The frame had several "High Voltage" placards affixed to it. Debris piles surrounded the structure. The debris consisted of wood, metal, barbed wire, tires, steel cable, a small propane tank, an empty unlabeled 55-gallon drum, and other miscellaneous items. No evidence of former transformers or other electrical equipment was observed. Near the "High Voltage" structure were several piles of miscellaneous debris including cable, cut steel pipe, a swamp cooler and several empty unlabeled 55-gallon drums. The cut steel pipe was covered with an eroding tar and fibrous paper coating. The fibrous paper coating may be suspect asbestos containing material. Near the debris piles, there was also a water tank in disrepair. No evidence of a well near the water tank was observed.

Except for immediately to the north of the site, adjacent properties were gated at the time of the site visit or inaccessible because of mountainous terrain. Off-site properties were observed from a distance for signs of potential contamination. Except as noted previously, the reconnaissance of adjacent sites did not reveal any obvious indications of contamination which are likely to impact the subject site. It should be noted that many types of operations have the potential to use, generate, or store hazardous or potentially hazardous chemicals, and visual examination may not reveal all potential sources of off-site contamination.

4.3 REGULATORY AGENCY LIST RESEARCH

AGRA reviewed applicable regulatory agency lists of known or potential hazardous waste sites or landfills, and sites currently under investigation for environmental issues in accordance with the guidelines set forth by the American Society for Testing and Materials (ASTM) in Standard E 1527.

4.3.1 Databases

The databases which were searched to determine if there are any agency listed sites within the ASTM recommended distances from the subject property are the following:

Databases Searched to One Mile:

- U.S. EPA National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program.

- California State Equivalent Priority List (SPL) is the Cal-EPA Department of Toxic Substances Control inventory of facilities subject to investigation concerning likely or threatened releases of hazardous substances. It includes Annual Work Plan (AWP) sites and sites where Preliminary Endangerment Assessments are a high priority.

- U.S. EPA RCRA Corrective Action Sites (CORRACTS) list identifies RCRA facilities that are undergoing corrective action. A corrective action order is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility.

- U.S. EPA Resource Conservation and Recovery Act (RCRA) program or permitted treatment, storage, and disposal (TSD) facilities identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA-TSD database is a compilation of facilities which treat, store, and/or dispose of hazardous waste.

Databases Searched to One Half Mile:

- U.S. EPA Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) list is a compilation of sites that EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the Superfund Act of 1980.

- California State Equivalent CERCLIS List (SCL) is the Cal-EPA Department of Toxic Substances Control inventory of facilities subject to investigation concerning likely or threatened releases of hazardous substances. It includes the Abandoned Site Program Information System (ASPIS) and sites with a lower priority than the SPL sites.

- California Solid Waste Landfills (SWLF) list includes the California Integrated Waste Management Board inventory of solid waste facilities and local agency (County) list of landfills, incinerators, and transfer stations.

- California Leaking Underground Storage Tank (LUST) list is Cal-EPA's inventory of sites where releases of hazardous materials have occurred from underground storage tanks.

- The list of the California Governor's Office of Planning and Research, Hazardous Waste and Substances Sites (the CORTESE list) is currently provided by the Office of Environmental Protection, Office of Hazardous Materials.

Databases Searched to One Quarter Mile:

- California Underground Storage Tank (UST) list is the State Water Resources Control Board, Office of Underground Storage Tanks, inventory of registered USTs.

- California Above Ground Storage Tank (AST) list is the State Water Resources Control Board inventory of registered ASTs.

Databases Searched to One Eighth Mile:

- U.S. EPA Emergency Response Notification System (ERNS) is a national database used to collect information on reported releases of oil and hazardous substances. The database contains information from spill reports made to federal authorities including the EPA, Coast Guard, National Response Center, and Department of Transportation.

- U.S. EPA RCRA Large Generators list is a compilation of facilities which generate at least 1000 kg per month of non-acutely hazardous waste (or 1 kg per month of acutely hazardous waste).

- U.S. EPA RCRA Small Generators list is a compilation of facilities which generate less than 1000 kg per month of non-acutely hazardous waste.

4.3.2 Summary Of Research

Within the search distances recommended in ASTM Standard E 1527, two sites were identified on the applicable regulatory agency lists of known or potential hazardous waste concerns. The subject property does not appear on any of the lists included in the database search. The database review was based on information obtained from Vista Information Solutions (1999). A copy of the Site Assessment Plus Report is provided in Appendix C.

The listed sites are not expected to pose an environmental concern to the subject property due to their distances, the current site status, and the types of facilities they are. Details concerning these nearby sites, as listed in the databases, are presented below:

- Medallion CA Properties Co., located at 26835 Pico Canyon Road, is listed by the Emergency Response Notification System (ERNS) (Vista Site No. 1 and 2). The ERNS database indicates a crude oil spill of 30 barrels (1,260 gallons) occurred in February 1994. The ERNS indicated only the soil was affected. This Vista-plotted site address is located approximately 0.35 miles northeast (plotted site No. 1), and 0.51 miles northeast (plotted site No. 2) of the subject property.

- Sun Exploration Production Company, also located at 26835 Pico Canyon Road, is listed on the Resource Conservation and Recovery Act (RCRA) large generators list (Vista Site No. 2). LADPW Environmental Programs files showed that the waste generated is petroleum production waste water. Waste water is reinjected in deep wells in the oil field. This site/owner is listed under the State underground storage tank list for two UST's. LADPW files indicate that one tank was mistakenly registered as a UST. It is actually an above ground tank. This site is plotted approximately 0.51 miles northeast of the subject property.

- ARCO Products Co., also located at 26835 Pico Canyon Road, is listed on the State Leaking underground storage tank (LUST) list. Gasoline stored in a UST at the site was reported to have leaked in 1986. Investigation and remediation was initiated in 1988. The case was closed by the Regional Water Quality Control Board in 1996. This site is plotted approximately 0.51 miles northeast of the subject property.

The actual location of the 26835 Pico Canyon Road site is at the end of the county maintained road north of the subject property. The site is part of the Newhall-Potrero oil field, which covers several square miles. It is likely that the distances to the actual spills, underground tanks, and leaks described above are in fact farther than the indicated distances. It is our opinion that none of the facilities listed above is expected to be an environmental concern for the intended use of the subject property.

4.4 COUNTY FIRE DEPARTMENT RECORDS

AGRA requested file information from the Los Angeles County Fire Department for the subject site. We have not yet received information regarding the existence of any files. A copy of the correspondence is provided in Appendix D

4.5 POLYCHLORINATED BIPHENYLS (PCBs)

During the site reconnaissance, AGRA observed one pole-mounted electrical transformer on the subject property. The transformer appeared to be in good condition with no obvious damage or stains. AGRA requested information about this transformer from Southern California Edison (SCE). Typically, SCE indicates that their transformers are unlikely to contain PCBs at concentrations requiring special management, according to EPA guidelines under the Toxic Substances Control Act (TSCA). These guidelines specify that substances containing less than 50 ppm of PCBs are considered as non-hazardous. Upon SCE's reply to our request, we will

provide an addendum letter outlining their reply. A copy of the correspondence is provided in Appendix D.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 CONCLUSIONS

Available historical data indicate that most of the subject property undeveloped. Many of the structures on site have existed since at least 1952. Land in the vicinity of the subject property is predominantly undeveloped with some oil field related activities.

During the site reconnaissance of the property on February 22, 1999, AGRA observed existing conditions on the subject property. The site can be divided into a large undeveloped and mountainous portion and a smaller, flatter lying, developed portion. AGRA did not have access to the interior of the structures in the developed portion.

In the undeveloped portion of the site, two main concerns exist. One area of artificial fill of unknown origin exists at the head of a tributary canyon to Wickham Canyon. Investigations by others indicate that this fill has petroleum odor when excavated. We did not observe odors, discolored soil or stressed vegetation during our site visit. The second concern is a remnant of what may be a former oil well, also located in Wickham Canyon. This well, if not properly abandoned, or accompanied by a buried sump or drilling mud, may be an environmental concern.

In the developed portion of the site, 200 to 300 55-gallon drums exist near the Bee Ranch. Most of these are marked for honey transport and storage. However, several empty unmarked drums of unknown origin are distributed around the site. Suspect asbestos containing material is located in several locations in the developed portion of the site.

Off-site environmental concerns include debris piles and a building marked with "High Voltage" placards. This off-site structure may have had one or more transformers. Other than these immediately adjacent concerns, other off-site environmental impacts identified in this ESA are likely to be too far away from the subject site, and of small enough severity, that they are not concerns for the intended use of the subject property.

5.2 RECOMMENDATIONS

AGRA has several recommendations at this time. These include:

- collecting near-surface soil samples near several of the unlabeled drum accumulations. We recommend 4 to 6 samples be tested for metals, total petroleum hydrocarbons, volatile organic compounds.

- collecting deeper soil samples of the artificial fill in the tributary canyon. We recommend testing about 10 samples in three borings for total petroleum hydrocarbons, and volatile organic compounds.

- conducting an asbestos containing material (ACM) survey of the structures at the site.

- contacting an oil well abandonment contractor or past operator to assess the status of the well conductor/casing observed in Wickham Canyon as well as the status of the drilling sump material.

6.0 LIMITATIONS AND CLOSURE

The findings and conclusions presented in this Phase I ESA are based solely on the scope of work, and on AGRA's interpretation of the information collected. The assessment is intended to address the potential for the presence of hazardous wastes or contamination on the site at the time of AGRA's evaluation.

Completion of this Phase I ESA is intended to reduce the risk that there is a concealed or unapparent presence of hazardous materials on the property. However, completion of this ESA does not preclude the presence of hazardous materials on the property. It should be understood that certain limitations exist in any assessment of subsurface or hazardous waste conditions. Due to the limitations of investigations involving the behavior of contaminants in the natural environment, a certification as to the absence of hazardous materials at the subject property cannot be provided.

In conducting this assessment, AGRA did <u>not</u> perform geologic mapping, asbestos or radon sampling, or chemical testing of soil or water. The conclusions in this report represent AGRA's judgement as to the potential for the presence of hazardous wastes or contaminated soils in the subsurface.

Changes in conditions at a property can occur with the passage of time. In addition, the broadening of knowledge or legislative and regulatory actions relative to hazardous materials can result in varying standards concerning the presence of hazardous materials at the site.

Information provided by others which was relied upon in the preparation of this report is assumed to be true and accurate.

Respectfully submitted,

AGRA Earth & Environmental, Inc.

Sanford L. Britt
Project Geologist
RG 6655 (Expires May 15, 1999)
SLB/GHK/dc

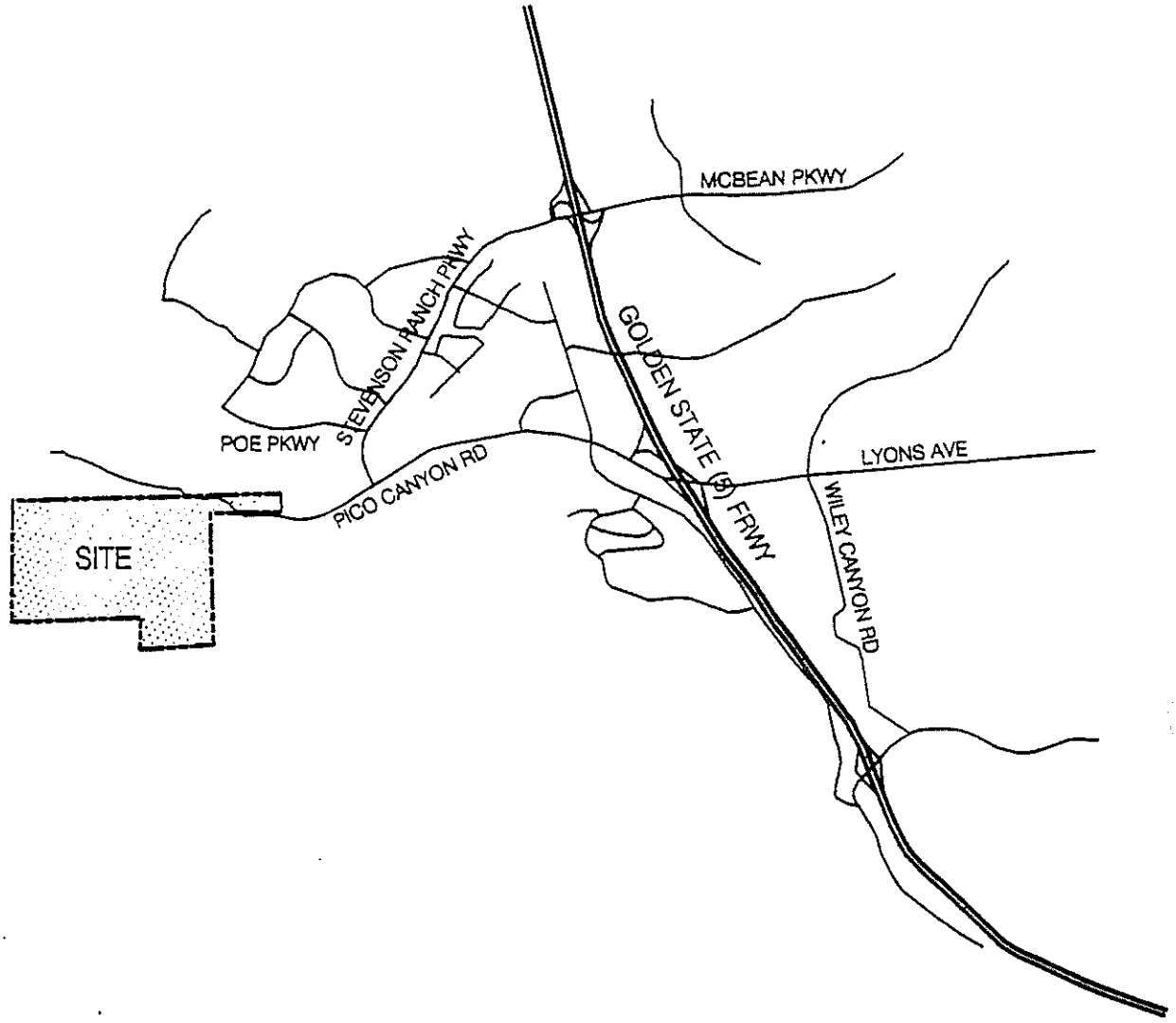
Garry H. Kepes
Environmental Project Manager
REA 02823

c: Mr. Gary Baker, Addressee (2)

08/9-8011Rpt.M02/3-02-99

FIGURES

FILE: 9-212-8011A
PLOT DATE: 3-3-99



NOT TO SCALE

REFERENCE

J BYER GROUP (1988)

FIGURE 1

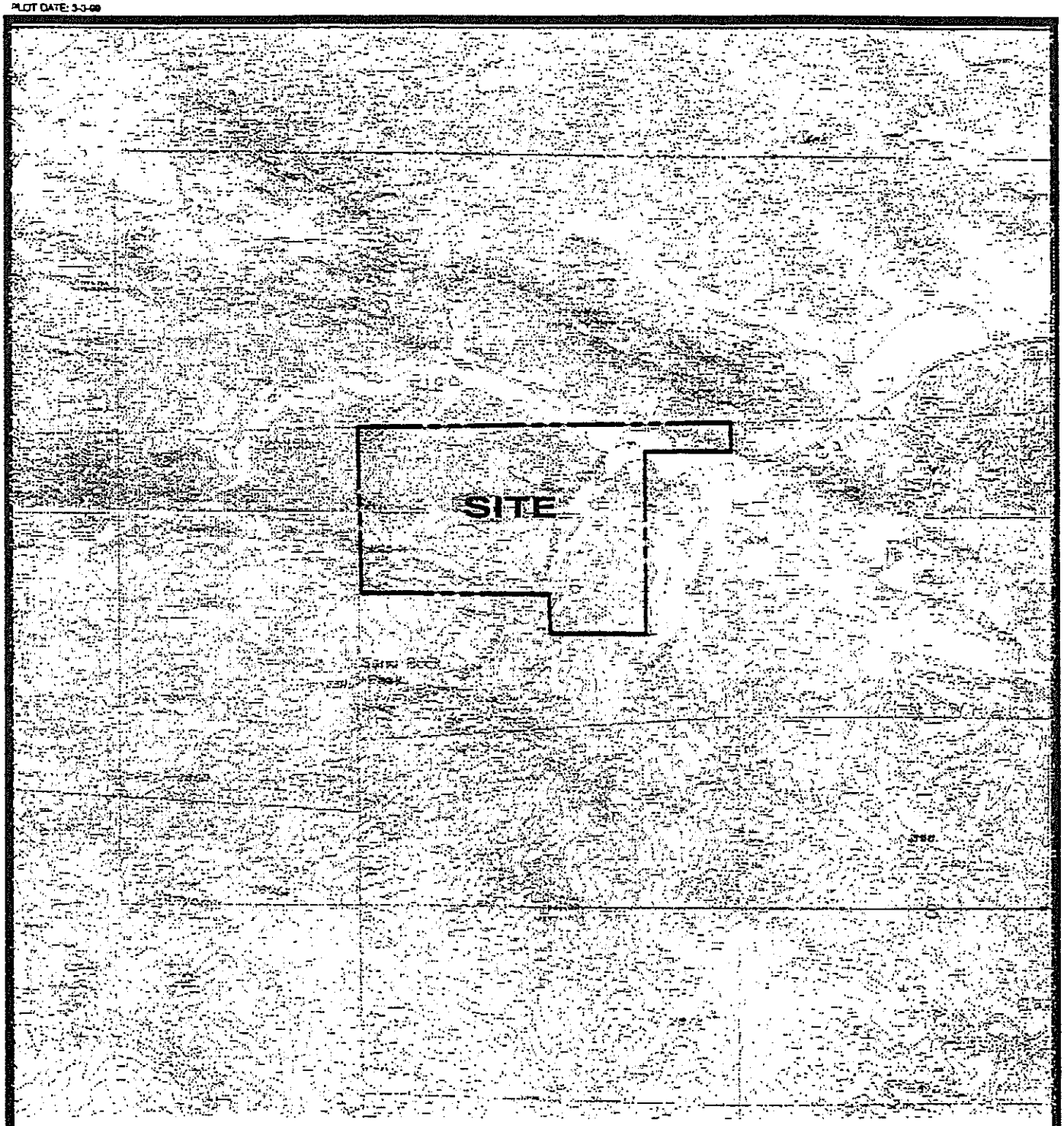
ASL/AIDLIN PROPERTY
26300 PICO CANYON ROAD
LOS ANGELES COUNTY, CALIFORNIA

SITE VICINITY MAP

AGRA
Earth & Environmental, Inc.

FIELD	DRAFT	APPROV.	DATE	JOB No.
—	JBD	SWB	3-2-99	9-212-8011

FILE: 9-212-8011A
PLOT DATE: 3-3-99



SCALE: 1"=2000'

FIGURE 2

ASL/AIDLIN PROPERTY
26300 PICO CANYON ROAD
LOS ANGELES COUNTY, CALIFORNIA

SITE AREA MAP

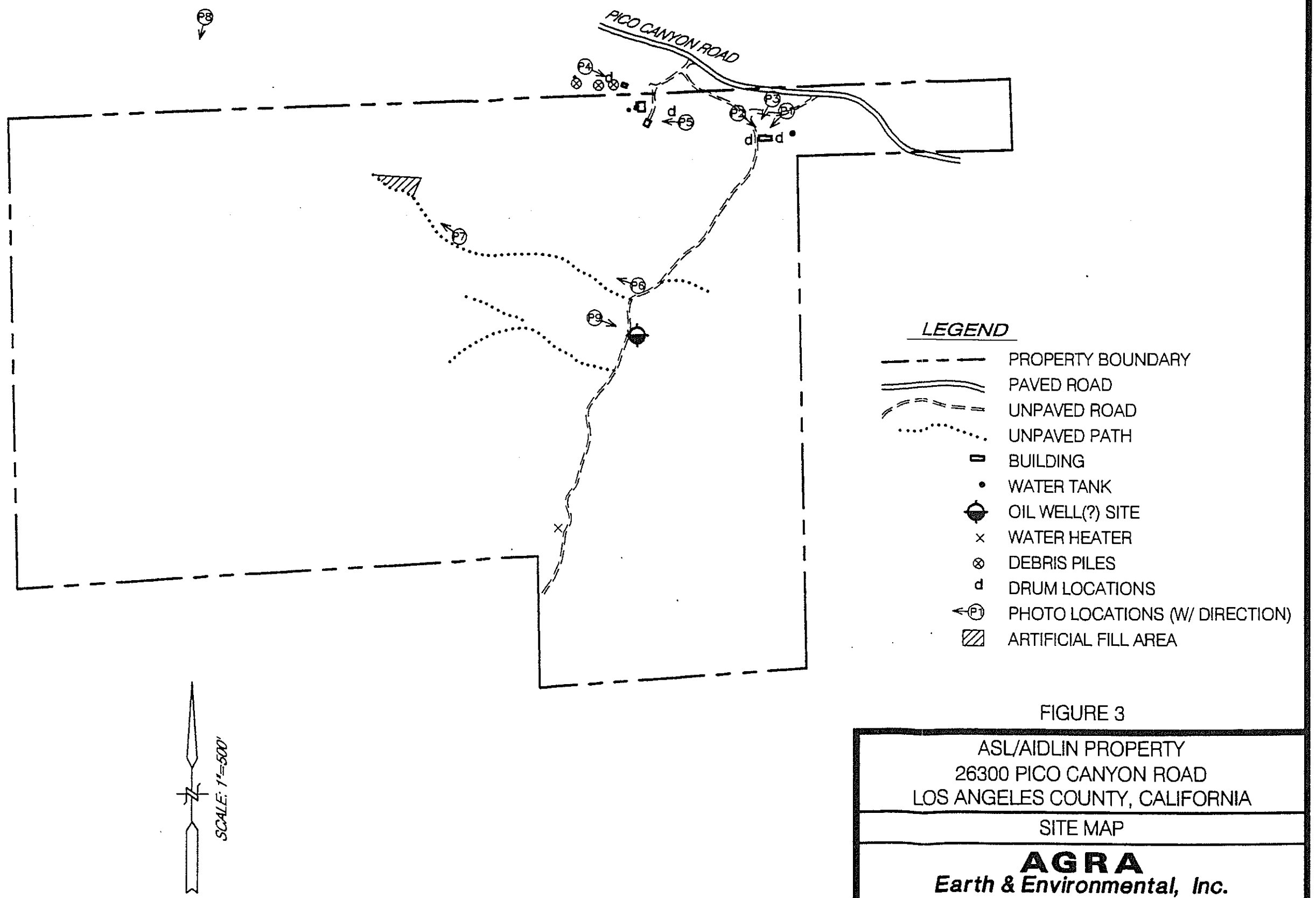
AGRA
Earth & Environmental, Inc.

FIELD	DRAFT	APPROV.	DATE	JOB No.
—	JBD	SLC	3-2-99	9-212-8011

REFERENCE

USGS 7.5 MINUTE TOPOGRAPHIC SERIES
NEWHALL QUADRANGLE, 1952 (1988) AND
OAT MOUNTAIN QUADRANGLE, 1952 (1969)

FILE: 9-212-8011A
PLOT DATE: 3-3-99



REFERENCE

BASE MAP FROM J. BYER GROUP (1998)

FIGURE 3

ASL/AIDLIN PROPERTY
26300 PICO CANYON ROAD
LOS ANGELES COUNTY, CALIFORNIA

SITE MAP

AGRA
Earth & Environmental, Inc.

FIELD	DRAFT	APPROV.	DATE	JOB No.
SLB	JBD	SLB	3-2-99	9-212-8011

APPENDIX A

REFERENCES

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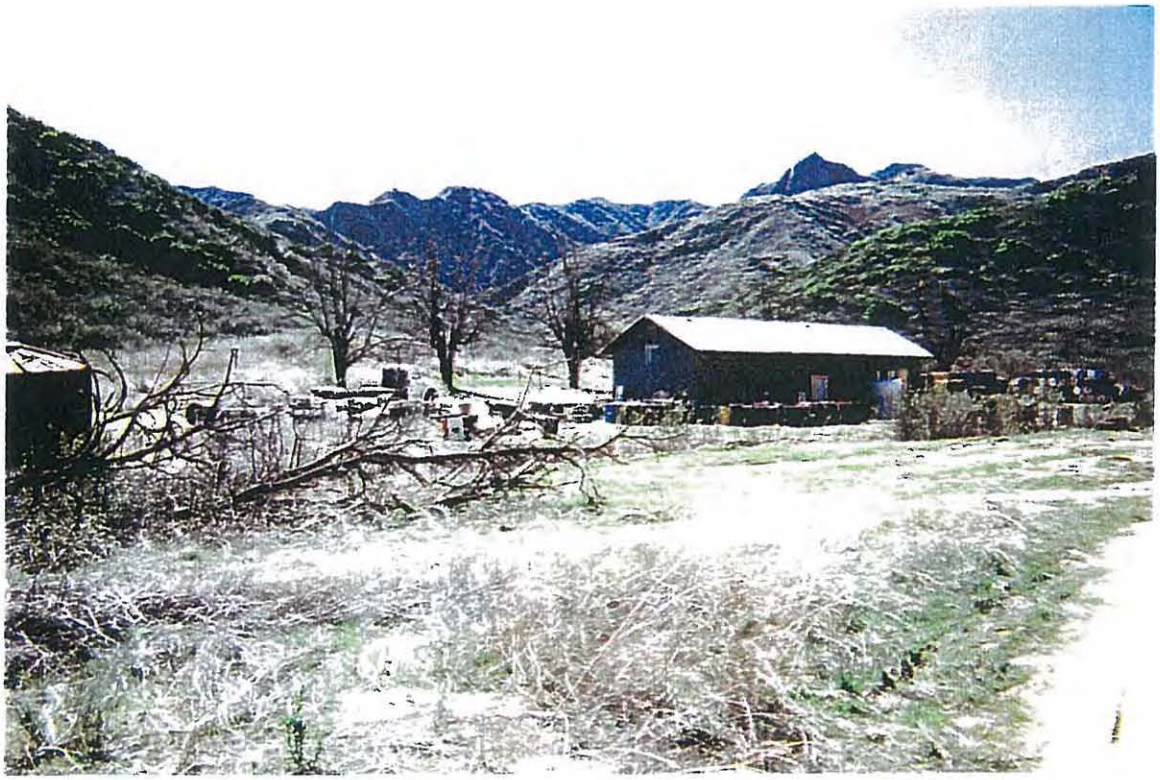
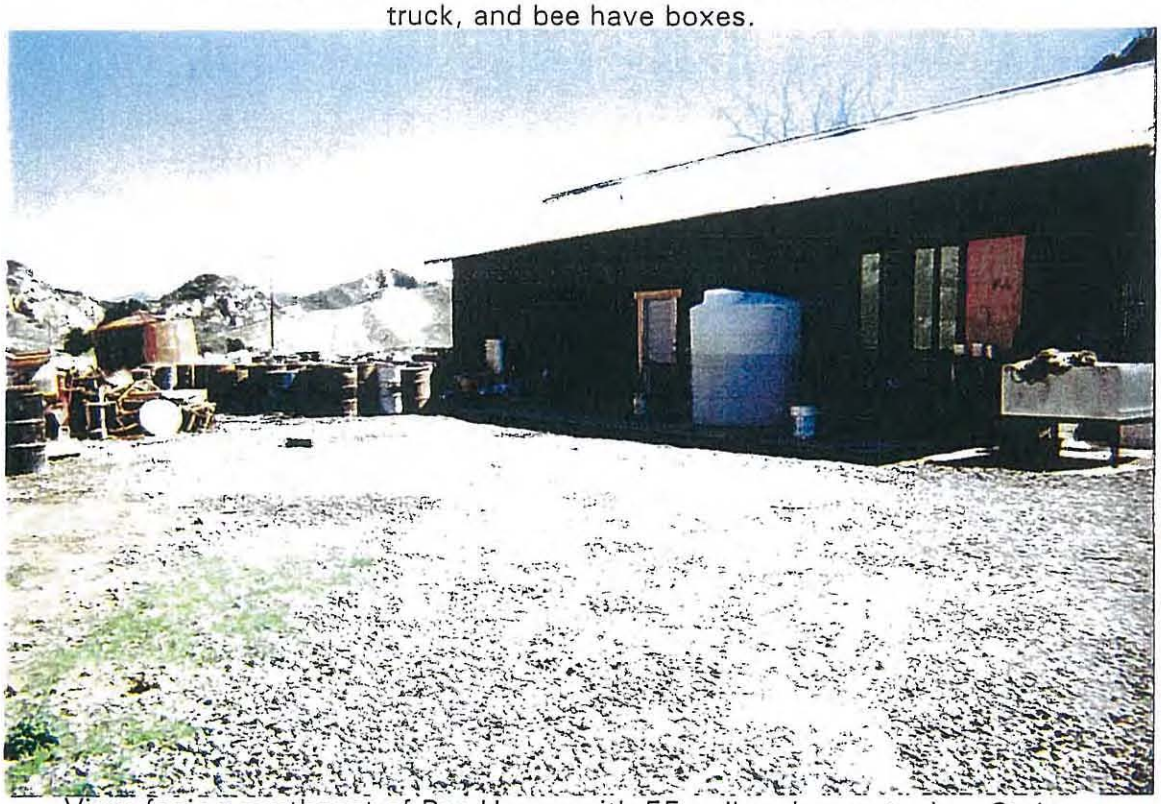
APPENDIX B



View facing southwest of Bee House with 55-gallon drums, truck, and bee have boxes.



View facing southeast of Bee House with 55-gallon drums, tanks. Stain in gravel appears to have spilled honey. Bee house is wood frame and corrugated meta construction.

AGRA
ENGINEERING GLOBAL SOLUTIONS

Recycled Paper

View facing southwest of empty 55-gallon drums – many marked for storage/transport of honey. Dry/seepage well at left of photo.

View facing east of "high voltage" marked structure with wood and metal debris, some empty unmarked drums and small propane tank (adjacent to site).

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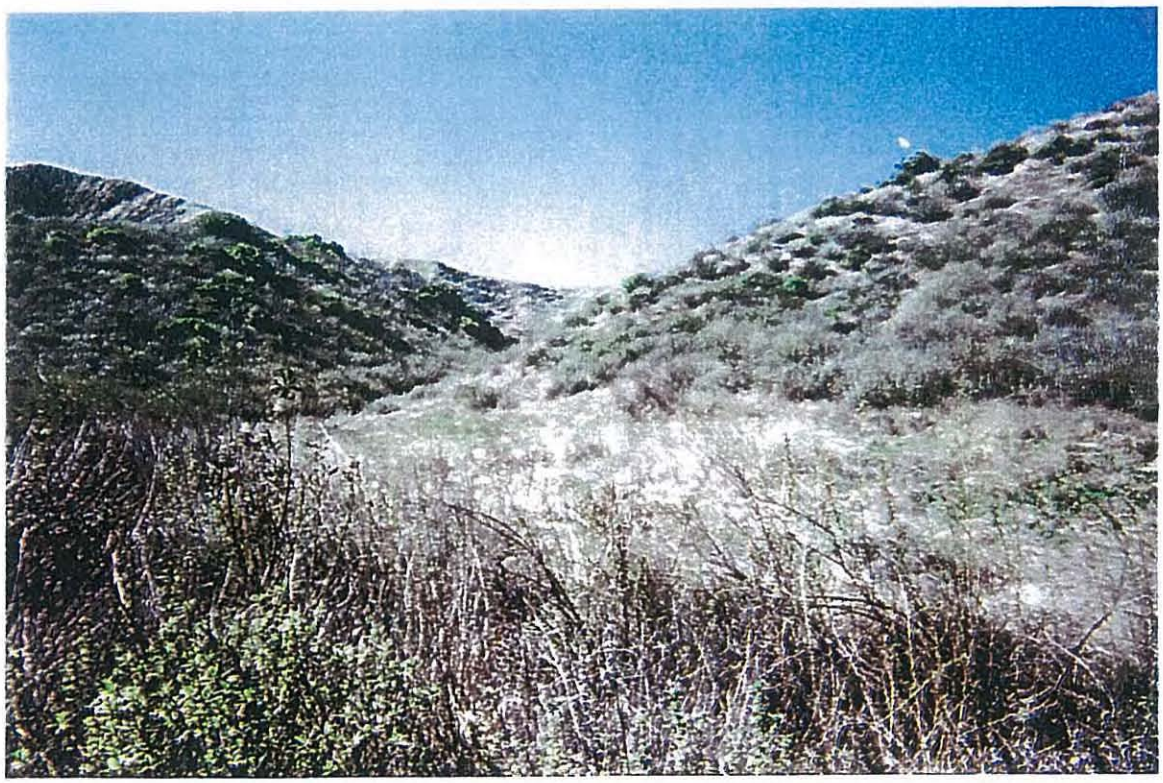
Recycled Paper

View facing west of house and garage.



View facing west up native canyon.

AGRA
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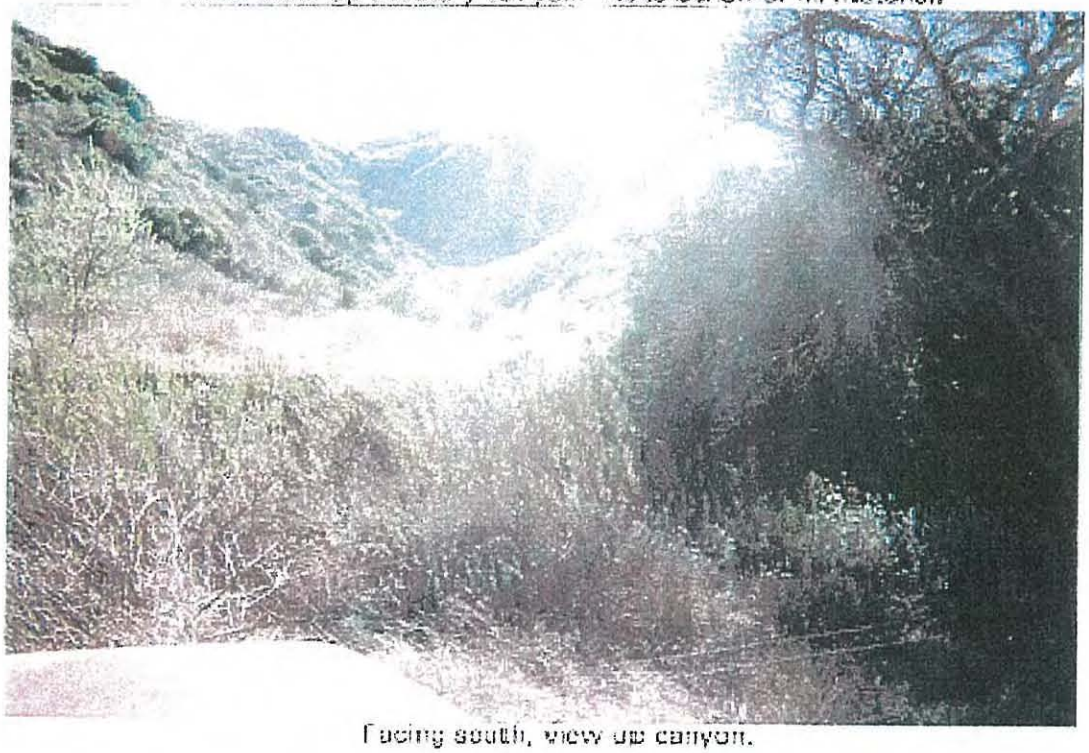
Recycled Paper

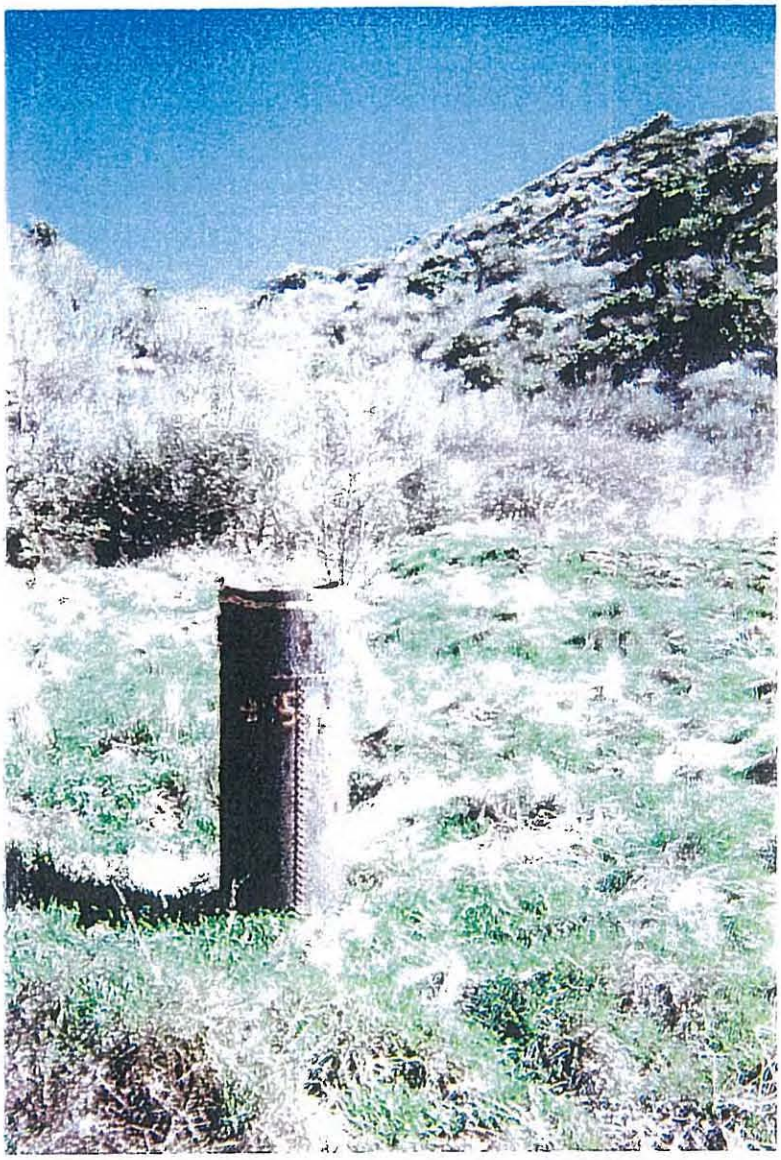
View west up tributary canyon. Note bench of fill material.



Facing south, view up canyon.

AGRA
ENGINEERING GLOBAL SOLUTIONS

Recycled Paper



Apparent "plugged and abandoned" oil well. Casing is about 5 feet tall and is open to about 5 feet below ground surface.

APPENDIX C

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/2 MILE)

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: 9-212-8011 ASL/Aidlin Properties 26300 Pico Canyon Road LA County, CA Latitude/Longitude: (34.373991, 118.598831)	Sandy Britt Agra Earth - Anaheim 1290 N Hancock St Anaheim, CA 92817

Site Distribution Summary Agency / Database - Type of Records			within 5/8 mile	5/8 to 3/4 mile	3/4 to 1 mile	1 to 1 1/2 miles
A) Databases searched to 1 1/2 miles:						
US EPA	NPL	National Priority List	0	0	0	0
US EPA	CORRACTS (TSD)	RCRA Corrective Actions and associated TSD	0	0	0	0
STATE	SPL	State equivalent priority list	0	0	0	0
B) Databases searched to 1 mile:						
US EPA	CERCLIS / NFRAP	Sites currently or formerly under review by US EPA	0	0	0	-
US EPA	TSD	RCRA permitted treatment, storage, disposal facilities	0	0	-	-
STATE	SCL	State equivalent CERCLIS list	0	0	0	-
STATE REG CO	LUST	Leaking Underground Storage Tanks	1	0	0	-
STATE/ REG/CO	SWLF	Permitted as solid waste landfills, incinerators, or transfer stations	0	0	0	-
STATE	DEED RSTR	Sites with deed restrictions	0	0	0	-
STATE	CORTESE	State index of properties with hazardous waste	0	0	0	-
STATE	TOXIC PITS	Toxic Pits cleanup facilities	0	0	0	-
C) Databases searched to 3/4 mile:						
US EPA	RCRA Viol	RCRA violations/enforcement actions	0	0	-	-
US EPA	TRIS	Toxic Release Inventory database	0	0	-	-
STATE	UST/AST	Registered underground or aboveground storage tanks	2	0	-	-
COUNTY	UNIQUE CO	Unique county databases	0	0	-	-

Site Distribution Summary

Agency / Database - Type of Records			within 5/8 mile	5/8 to 3/4 mile	3/4 to 1 mile	1 to 1 1/2 miles
D) Databases searched to 5/8 mile:						
US EPA	ERNS	Emergency Response Notification System of spills	2	-	-	-
US EPA	GNRTR	RCRA registered small or large generators of hazardous waste	1	-	-	-

This report meets the ASTM standard E-1527 for standard federal and state government database research in a Phase I environmental site assessment. A (-) indicates a distance not searched because it exceeds these ASTM search parameters.

LIMITATION OF LIABILITY
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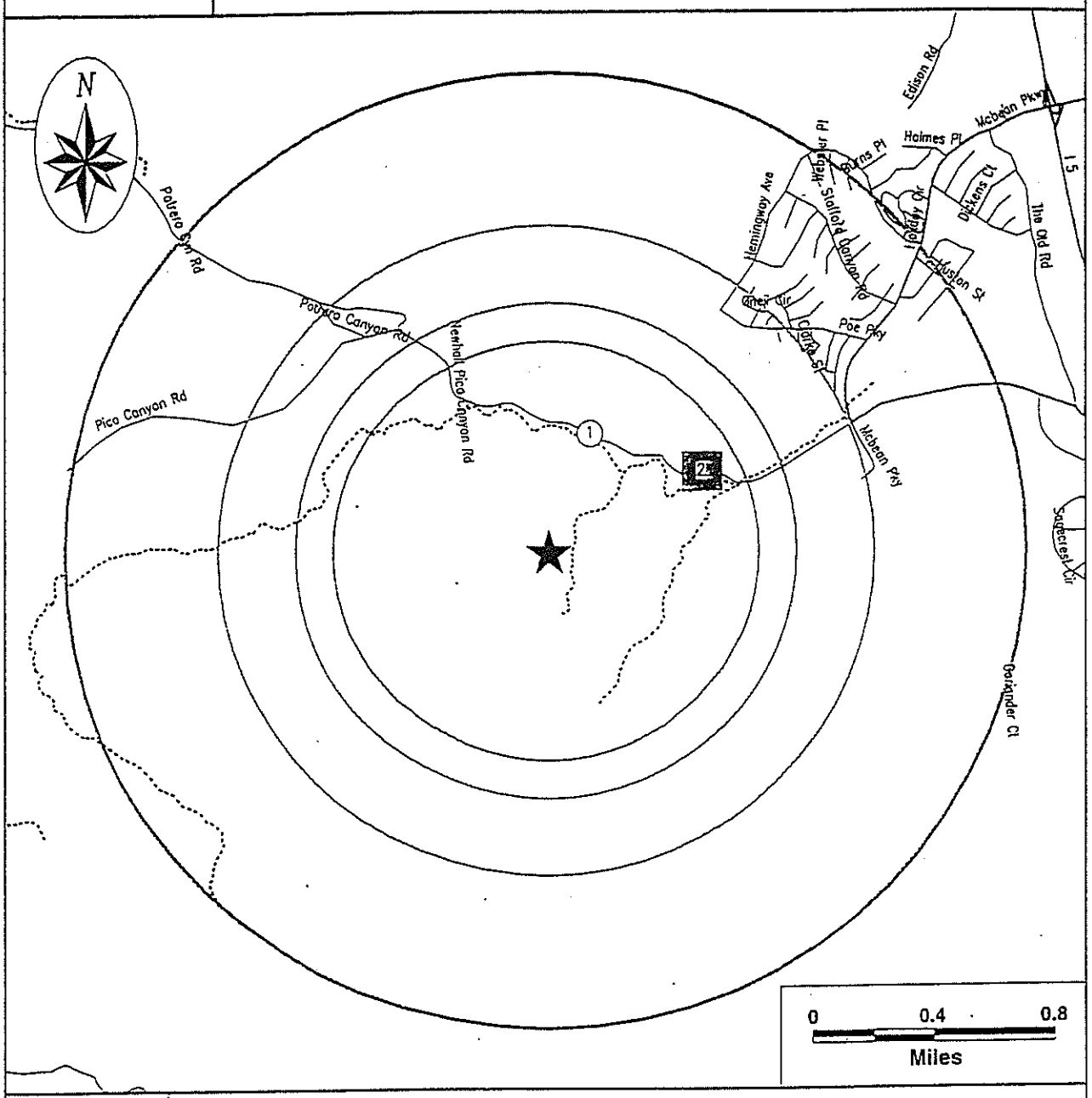
NOTES

SITE ASSESSMENT PLUS REPORT (EXTENDED BY 1/2 MILE)

Map of Sites within One and One-Half Miles



Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 1/2 mi.	1 mi.	3/4 mi.	5/8 mi.
	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○
		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	UST	ERNS, GENERATORS

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D.

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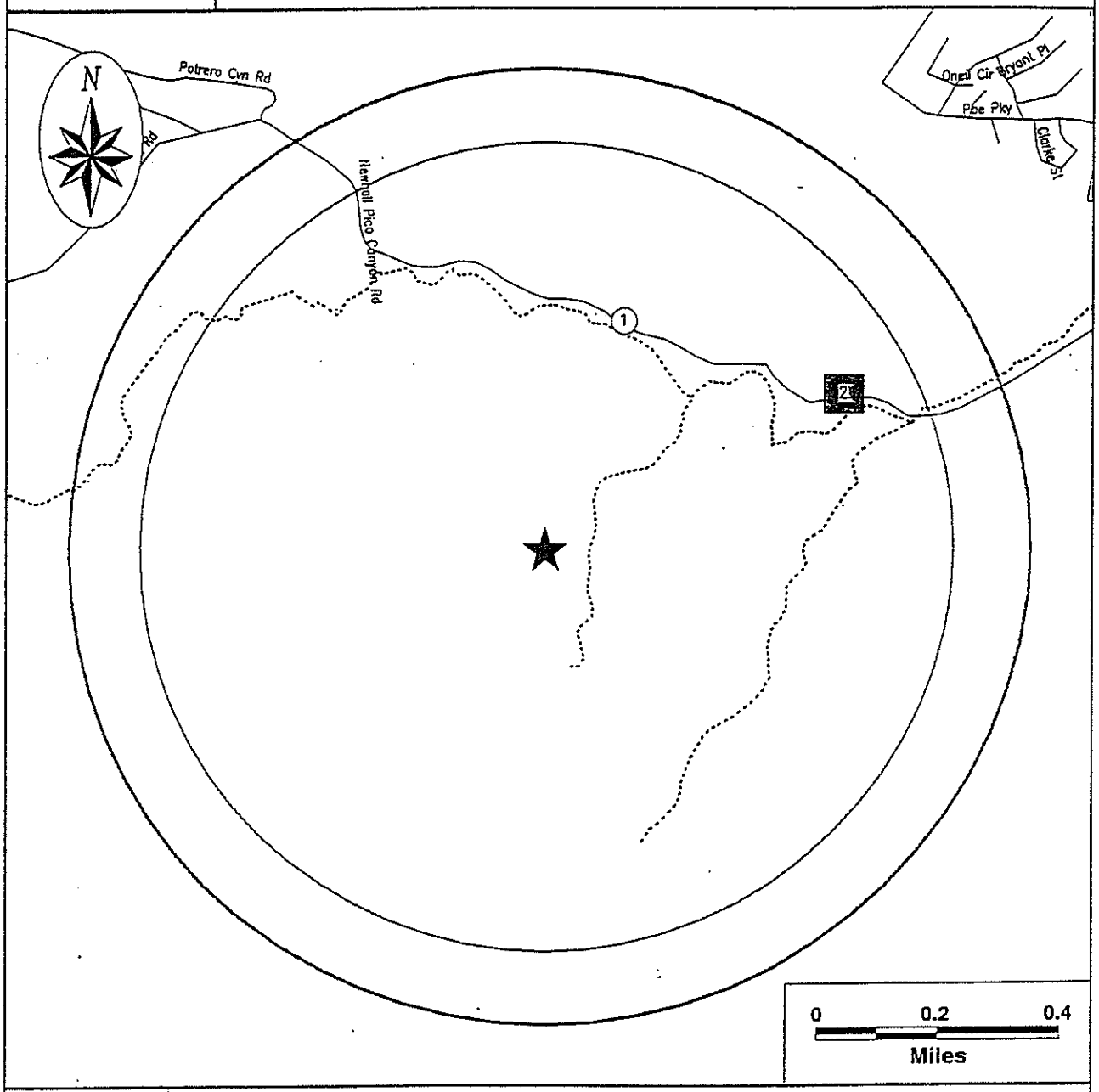
SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/2 MILE)

Map of Sites within Three-Quarter Miles



Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 1/2 mi.	1 mi.	3/4 mi.	5/8 mi.
	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○
		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	UST	ERNS, GENERATORS

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D.

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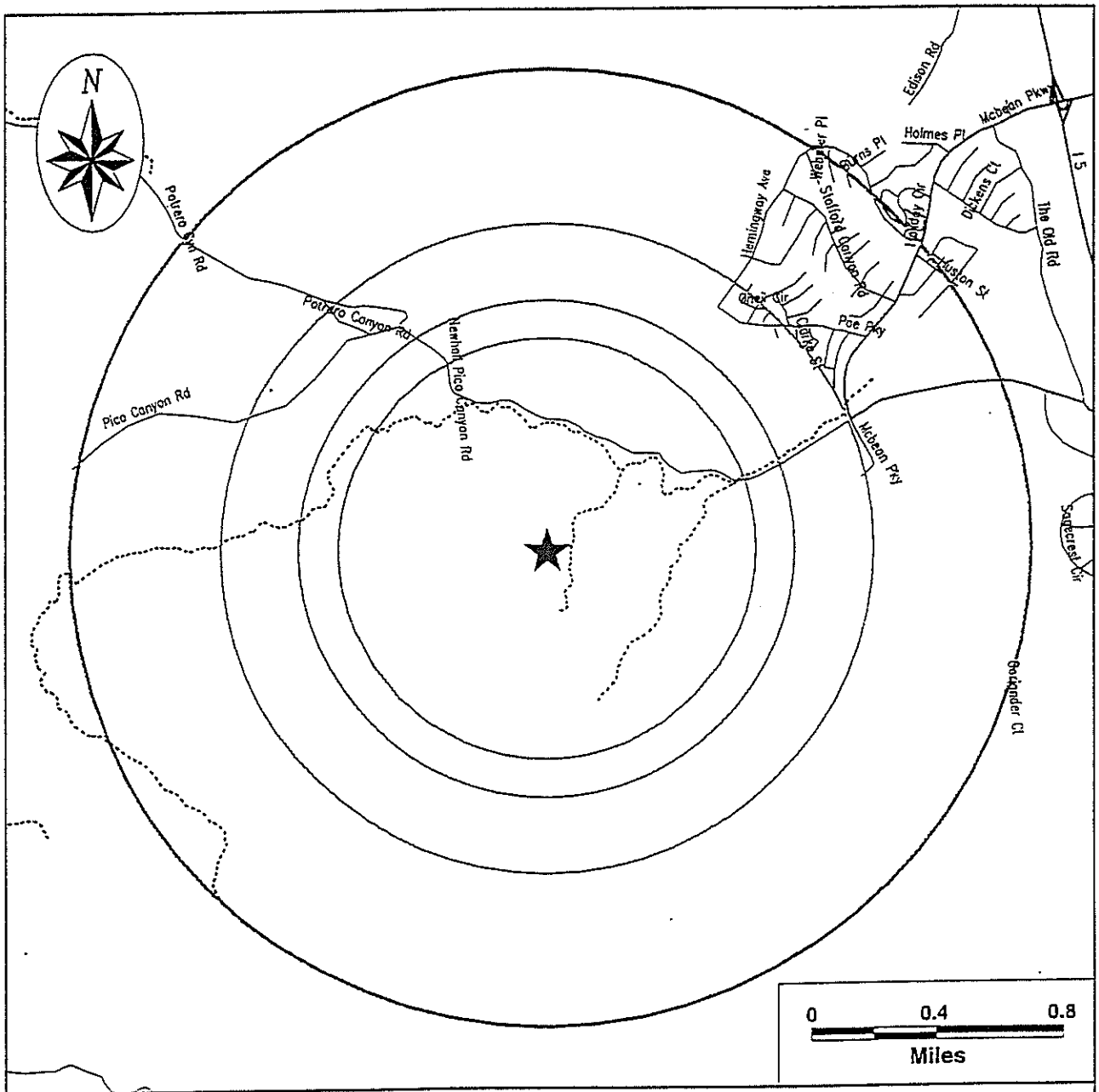
SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/2 MILE)

Street Map



Subject Site

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

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SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/2 MILE)

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 5/8 mile)	VISTA ID / DISTANCE / DIRECTION	A			B								C				D	
			NPL	CORRACTS(TSD)	SPL	CERCLIS/NFRAP	TSD	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
1	MEDALLION CA PROPERTYS CO 26835 WEST PICO CAYNON ROAD NEWHALL, CA 91321	200291889 0.35 MI NE																X	
2	MEDALLION CA PROPERTYS CO 26835 WEST PICO CAYNON ROAD NEWHALL, CA 91321	200288164 0.51 MI NE																X	
2	SUN EXPLORATION PROD CO 26835 PICO CANYON ROAD STEVENSON RANCH, CA 91381	406148 0.51 MI NE														X			X
2	ARCO PRODUCTS CO 26835 W. PICO CNYN RD NEWHALL, CA 91321	6605089 0.51 MI NE							X										
2	SUN PRODUCTION CO 26835 W PICO CANYON STEVENSON RANCH, CA 91381	4037650 0.51 MI NE														X			

MAP ID	SITES IN THE SURROUNDING AREA (within 5/8 - 3/4 mile)	VISTA ID / DISTANCE / DIRECTION	A			B								C				D	
			NPL	CORRACTS(TSD)	SPL	CERCLIS/NFRAP	TSD	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
No Records Found																			

MAP ID	SITES IN THE SURROUNDING AREA (within 3/4 - 1 mile)	VISTA ID / DISTANCE / DIRECTION	A			B								C				D	
			NPL	CORRACTS(TSD)	SPL	CERCLIS/NFRAP	TSD	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
No Records Found																			

X = search criteria; * = tag-along (beyond search criteria).
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Version 2.6.1

Date of Report: February 17, 1999
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MAP ID	SITES IN THE SURROUNDING AREA (within 1 - 1 1/2 miles) VISTA ID DISTANCE DIRECTION	A			B								C				D	
		NPL	CORRACTS(TSD)	SPL	CERCLIS/NFRAP	TSD	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
No Records Found																		

X = search criteria; • = tag-along (beyond search criteria).
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Version 2.6.1 *Page #7*

UNMAPPED SITES	VISTA ID	A			B								C				D	
		NPL	CORRACTS(TSD)	SPL	CERCLIS/NFRAP	TSD	SCL	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	RCRA VIOL	TRIS	UST/AST	UNIQUE CO	ERNS	GNRTR
CASTAIC CLAY MANUFACTURIN 3230 OLD RIDGE RT CASTAIC, CA 91310	7433728										X							
DEPARTMENT OF WATER RESOU 31849 LAKE HUGES CASTAIC, CA 91310	7429791										X							
POLY CARBON INC. 28176 STANFORD CASTAIC, CA 91310	7434598										X							

X = search criteria; • = tag-along (beyond search criteria).
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SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/2 MILE)

DETAILS

PROPERTY AND THE ADJACENT AREA (within 5/8 mile)

VISTA Address*:	MEDALLION CA PROPERTYS CO 26835 WEST PICO CAYNON ROAD NEWHALL, CA 91321	VISTA ID#:	200291889	Map ID
		Distance/Direction:	0.35 MI / NE	1
		Plotted as:	Point	
ERNS - Emergency Response Notification System / SRC# 4939		Agency ID:	94-2303	

Agency Address:	SAME AS ABOVE
Spill Date Time:	FEBRUARY 15, 1994 07:00:00 AM
Case Number:	94-2303
Spill Location:	26835 WEST PICO CAYNON ROAD
Source Agency:	E
Discharger Name:	ROTHENAY, EDWARD
Discharger Org:	MEDALLION CA PROPERTYS CO
Material Spilled:	OIL: CRUDE, 30.00 (BBL)
Fields Not Reported:	Discharger Phone, Waterway Affected

Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	NO	NO

VISTA Address*:	MEDALLION CA PROPERTYS CO 26835 WEST PICO CAYNON ROAD NEWHALL, CA 91321	VISTA ID#:	200288164	Map ID
		Distance/Direction:	0.51 MI / NE	2
		Plotted as:	Point	
ERNS - Emergency Response Notification System / SRC# 4939		Agency ID:	221784	

Agency Address:	SAME AS ABOVE
Spill Date Time:	FEBRUARY 15, 1994 07:00:00 AM
Case Number:	221784
Spill Location:	26835 WEST PICO CAYNON ROAD
Source Agency:	N
Discharger Name:	ROTHENAY, EDWARD
Discharger Org:	MEDALLION CA PROPERTYS CO
Material Spilled:	OIL: CRUDE, 30.00 (BBL)
Waterway Affected:	SOIL
Fields Not Reported:	Discharger Phone

Air Release:	Land Release:	Water Release:	Ground Release:	Facility Release:	Other Release:
NO	YES	NO	NO	NO	NO

VISTA Address*:	SUN EXPLORATION PROD CO 26835 PICO CANYON ROAD STEVENSON RANCH, CA 91381	VISTA ID#:	406148	Map ID
		Distance/Direction:	0.51 MI / NE	2
		Plotted as:	Point	
RCRA-LgGen - RCRA-Large Generator / SRC# 5078		EPA ID:	CAT000619122	

Agency Address:	SUN GAS CO NEWHALL GAS PLT 915101 26835 PICO CANYON ROAD NEWHALL, CA 91321
Generator Class:	Generates at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

* VISTA address includes enhanced city and ZIP.
For more information call VISTA Information Solutions, Inc. at 1 - 800 - 767 - 0403.
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STATE UST - State Underground Storage Tank / SRC# 5470	Agency ID:	008962-000340R

Agency Address:	SUN PRODUCTION AND EXPLORATION 26835 W PICO CANYON RO NEWHALL, CA
Underground Tanks:	NOT REPORTED
Aboveground Tanks:	NOT REPORTED
Tanks Removed:	NOT REPORTED

Tank ID:	T001U	Tank Status:	REMOVED
Tank Contents:	NOT AVAILABLE	Leak Monitoring:	NOT AVAILABLE
Tank Age:	NOT REPORTED	Tank Piping:	NOT AVAILABLE
Tank Size (Units):	NOT REPORTED (NOT AVAILABLE)	Tank Material:	NOT AVAILABLE

VISTA Address*:	ARCO PRODUCTS CO 26835 W. PICO CNYN RD NEWHALL, CA 91321	VISTA ID#:	6605089
		Distance/Direction:	0.51 MI / NE
		Plotted as:	Point

Map ID
2

STATE LUST - State Leaking Underground Storage Tank / SRC# 5271	EPA/Agency ID:	N/A

Agency Address:	ARCO PRODUCTS CO 26835 PICO CANYON RO W NEWHALL, CA 91321
Facility ID:	I-00340
Leak Report Date:	08/06/86
Who Reported:	LACDPW
Pollution Characterization Date:	04/06/88
Post Remediation Monitoring Began:	11/17/94
Case Closed Date:	07/26/96
Leak Cause:	UNKNOWN
Leak Source:	UNKNOWN
Substance:	GASOLINE
Remediation Event:	CONTAINMENT BARRIER
Remediation Status:	CASE CLOSED
Media Affected:	OTHER GROUND WATER
Lead Agency:	ALEXANDER, JOHN P.
Region / District:	LOS ANGELES REGION
Contact:	ALEXANDER, JOHN P.
Responsible Party:	ARCO PRODUCTS CO

STATE LUST - State Leaking Underground Storage Tank / SRC# 5497	EPA/Agency ID:	N/A

Agency Address:	ARCO PRODUCTS CO 26835 PICO CANYON RD W NEWHALL, CA 91321
Facility ID:	I-00340
Leak Report Date:	08/06/86
Pollution Characterization Date:	04/06/88
Post Remediation Monitoring Began:	11/17/94
Case Closed Date:	07/26/96
Substance:	GASOLINE
Remediation Event:	CONTAINMENT BARRIER
Remediation Status:	CASE CLOSED
Media Affected:	OTHER GROUND WATER
Region / District:	LOS ANGELES REGION
Description / Comment:	COUNTY: LOS ANGELES
Description / Comment:	CROSS STREET: PORTRERO
Description / Comment:	REVIEW DATE:11/17/94

PROPERTY AND THE ADJACENT AREA (within 5/8 mile) CONT.

VISTA Address*:	SUN PRODUCTION CO 26835 W PICO CANYON STEVENSON RANCH, CA 91381	VISTA ID#:	4037650	Map ID
		Distance/Direction:	0.51 MI / NE	2
		Plotted as:	Point	
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID:	N/A	

Agency Address:	SUN PRODUCTION CO 26835 W PICO CANYON NEWHALL, CA 91321
Underground Tanks:	1
Aboveground Tanks:	NOT REPORTED
Tanks Removed:	NOT REPORTED

Tank ID:	590012U	Tank Status:	ACTIVE/IN SERVICE
Tank Contents:	UNKNOWN	Leak Monitoring:	Agency Code (')
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	NOT REPORTED (GALLONS)	Tank Material:	UNKNOWN

SITES IN THE SURROUNDING AREA (within 5/8 - 3/4 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 3/4 - 1 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 1 - 1 1/2 miles)

No Records Found

* VISTA address includes enhanced city and ZIP.
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UNMAPPED SITES

Records Found, No Details Displayed

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/2 MILE)

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES SEARCHED TO 1 1/2 MILES

NPL
SRC#: 5280

VISTA conducts a database search to identify all sites within 1.5 mile of your property.:
The agency release date for NPL was January, 1999.

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

SPL
SRC#: 5455

VISTA conducts a database search to identify all sites within 1.5 mile of your property.
The agency release date for Calsites Database: Annual Workplan Sites was October, 1998.

The CalSites database contains information on properties (or "sites") in California where hazardous substances have been released, or where the potential for such a release exists. This database is used primarily by the Department of Toxic Substances Control to evaluate and track activities at sites that may have been affected by the release of hazardous substances. Also see SPL/SCL: Annual Work Plan (AWP) sites are cleassified as SPL and all the other sites are classified as SCL.

CORRACTS
SRC#: 5078

VISTA conducts a database search to identify all sites within 1.5 mile of your property.
The agency release date for HWDMS/RCRIS was August, 1998.

The EPA maintains this database of RCRA facilities which are undergoing "corrective action". A "corrective action order" is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

B) DATABASES SEARCHED TO 1 MILE

CERCLIS
SRC#: 5278

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for CERCLIS was October, 1998.

The CERCLIS List contains sites which are either proposed to or on the National Priorities List(NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. The information on each site includes a history of all pre-remedial, remedial, removal and community relations activiies or events at the site, financial funding information for the events, and unrestricted enforcement activities.

Cal Cerclis
SRC#: 2462

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Ca Cerclis w/Regional Utility Description was June, 1995.

This database is provided by the U.S. Environmental Protection Agency, Region 9. The agency may be contacted at: . These are regional utility descriptions for California CERCLIS sites.

NFRAP
SRC#: 5279

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for CERCLIS-NFRAP was October, 1998.

NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

SCL
SRC#: 5454

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Calsites Database: All Sites except Annual Workplan Sites (incl. ASPIS) was October, 1998.

The CalSites database contains information on properties (or "sites") in California where hazardous substances have been released, or where the potential for such a release exists. This database is used primarily by the Department of Toxic Substances Control to evaluate and track activities at sites that may have been affected by the release of hazardous substances. Also see SPL/SCL: Annual Work Plan (AWP) sites are cleassified as SPL and all the other sites are classified as SCL.

The CalSites database includes both known and potential sites. Two- thirds of these sites have been classified, based on available information, as needing "No Further Action" (NFA) by the Department of Toxic Substances Control. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site. Several hundred sites have been remediated and are considered certified. Some of these sites may be in long term operation and maintenance.

RCRA-TSD
SRC#: 5078

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for HWDMS/RCRIS was August, 1998.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

SWLF
SRC#: 5457

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Ca Solid Waste Information System (SWIS) was November, 1998.

This database is provided by the Integrated Waste Management Board. The agency may be contacted at: 916-255-4021.

The California Solid Waste Information System (SWIS) database consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations pursuant to the Solid Waste Management and Resource Recovery Act of 1972, Government Code Section 2.66790(b). Generally, the California Integrated Waste Management Board learns of locations of disposal facilities through permit applications and from local enforcement agencies.

LAC-Landfills
SRC#: 4574

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Los Angeles County Landfills and Transfer Stations was February, 1998.

This database is provided by the Public Health Invesitgations, Hazardous Material Control Program. The agency may be contacted at: 213-881-4151.

WMUDS
SRC#: 5368

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Waste Management Unit Database System (WMUDS) was October, 1998.

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-892-0323. This is used for program tracking and inventory of waste management units. This system contains information from: Facility, Waste Management Unit, SWAT Program and Report Summary Information, Chapter 15 (formerly Subchapter 15), TPCA and RCRA Program Information, Closure Information; also some information from the WDS (Waste Discharge System).

The WMUDS system also accesses information from the following databases from the Waste Discharger System (WDS): Inspections, Violations, and Enforcements. The sites contained in these databases are subject to the California Code of Regulations - Title 23. Waters.

LUST
SRC#: 5271

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Region #4-UST Leak List was September, 1998.

This database is provided by the Regional Water Quality Control Board, Region #4. The agency may be contacted at: 916-266-7582.

LUST
SRC#: 5374

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Region #6-Leaking Underground Storage Tank Listing was October, 1998.

This database is provided by the Regional Water Quality Control Board, Region #6. The agency may be contacted at: 760-241-7365.

LUST
SRC#: 5459

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Lahontan Region LUST List was October, 1998.

This database is provided by the Lahontan Region Six South Lake Tahoe. The agency may be contacted at: 916-542-5400.

LUST
SRC#: 5463

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Region #4-SLIC List was November, 1998.

This database is provided by the Regional Water Quality Control Board, Region #4. The agency may be contacted at: 916-266-7582.

LUST
SRC#: 5497

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Lust Information System (LUSTIS) was October, 1998.

This database is provided by the California Environmental Protection Agency. The agency may be contacted at: 916-445-6532.

CORTESE
SRC#: 4840

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Cortese List-Hazardous Waste Substance Site List was April, 1998.

This database is provided by the Office of Environmental Protection, Office of Hazardous Materials. The agency may be contacted at: 916-445-6532.

The California Governor's Office of Planning and Research annually publishes a listing of potential and confirmed hazardous waste sites throughout the State of California under Government Code Section 65962.5. This database (CORTESE) is based on input from the following: (1)CALSITES-Department of Toxic Substances Control, Abandoned Sites Program Information Systems; (2)SARA Title III Section III Toxic Chemicals Release Inventory for 1987, 1988, 1989, and 1990; (3)FINDS; (4)HWIS-Department of Toxic Substances Control, Hazardous Waste Information System. Vista has not included one time generator facilities from Cortese in our database.; (5)SWRCB-State Water Resources Control Board; (6)SWIS-Integrated Waste Management Control Board (solid waste facilities); (7)AGT25-Air Resources Board, dischargers of greater than 25 tons of criteria pollutants to the air; (8)A1025-Air Resources Board, dischargers of greater than 10 and less than 25 tons of criteria pollutants to the air; (9)LTANK-SWRCB Leaking Underground Storage Tanks; (10)UTANK-SWRCB Underground tanks reported to the SWEEPS systems; (11)IUR-Inventory Update Rule (Chemical Manufacturers); (12)WB-LF- Waste Board - Leaking Facility, site has known migration; (13)WDSE-Waste Discharge System - Enforcement Action; (14)DTSCD-Department of Toxic Substance Control Docket.

Deed Restrictions
SRC#: 1703

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Deed Restriction Properties Report was April, 1994.

This database is provided by the Department of Health Services-Land Use and Air Assessment. The agency may be contacted at: 916-323-3376. These are voluntary deed restriction agreements with owners of property who propose building residences, schools, hospitals, or day care centers on property that is "on or within 2,000 feet of a significant disposal of hazardous waste".

California has a statutory and administrative procedure under which the California Department of Health Services (DHS) may designate real property as either a "Hazardous Waste Property" or a "Border Zone Property" pursuant to California Health Safety Code Sections 25220-25241. Hazardous Waste Property is land at which hazardous waste has been deposited, creating a significant existing or potential hazard to public health and safety. A Border Zone Property is one within 2,000 feet of a hazardous waste deposit. Property within either category is restricted in use, unless a written variance is obtained from DHS. A Hazardous Waste Property designation results in a prohibition of new uses, other than a modification or expansion of an industrial or manufacturing facility on land previously owned by the facility prior to January 1, 1981. A Border Zone Property designation results in prohibition of a variety of uses involving human habitation, hospitals, schools and day care center.

Toxic Pits
SRC#: 2229

VISTA conducts a database search to identify all sites within 1 mile of your property.
The agency release date for Summary of Toxic Pits Cleanup Facilities was February, 1995.

This database is provided by the Water Quality Control Board, Division of Loans Grants. The agency may be contacted at: 916-227-4396.

C) DATABASES SEARCHED TO 3/4 MILE

RCRA-Viols/Enfs
SRC#: 5078

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for HWDMS/RCRIS was August, 1998.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Violators are facilities which have been cited for RCRA Violations at least once since 1980. RCRA Enforcements are enforcement actions taken against RCRA violators.

UST's
SRC#: 1612

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for Underground Storage Tank Registrations Database was January, 1994.

This database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks. The agency may be contacted at: 916-227-4337; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5068

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for City of Torrance Underground Storage Tank List was July, 1998.

This database is provided by the City of Torrance Fire Prevention Division. The agency may be contacted at: 310-618-2973; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5187

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for Long Beach UST List was March, 1998.

This database is provided by the City of Long Beach Fire Department. The agency may be contacted at: 562-570-2560; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5261

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for City of El Segundo Open Tanks List was September, 1998.

This database is provided by the City of El Segundo Fire Department. The agency may be contacted at: 310-607-2239; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 5470

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for Los Angeles County UST "Street Number" Book was November, 1998.

This database is provided by the Los Angeles County Department of Public Works, Environmental Programs. The agency may be contacted at: 626-458-3517; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

AST's
SRC#: 5513

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for Aboveground Storage Tank Database was December, 1998.

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-227-4364.

LAC-Site Miti.
SRC#: 5476

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for LA County-Site Mitigation Complaint Control Log was October, 1998.

The CalSites database contains information on properties (or "sites") in California where hazardous substances have been released, or where the potential for such a release exists. This database is used primarily by the Department of Toxic Substances Control to evaluate and track activities at sites that may have been affected by the release of hazardous substances. Also see SPL/SCL: Annual Work Plan (AWP) sites are cleassified as SPL and all the other sites are classified as SCL.

TRIS
SRC#: 4946

VISTA conducts a database search to identify all sites within 3/4 mile of your property.
The agency release date for TRIS was January, 1998.

Section 313 of the Emergency Planning and Community Right-to-Know Act (also known as SARA Title III) of 1986 requires the EPA to establish an inventory of Toxic Chemicals emissions from certain facilities(Toxic Release Inventory System). Facilities subject to this reporting are required to complete a Toxic Chemical Release Form(Form R) for specified chemicals.

D) DATABASES SEARCHED TO 5/8 MILE

ERNS
SRC#: 4939

VISTA conducts a database search to identify all sites within .625 mile of your property.
The agency release date for was July, 1998.

The Emergency Response Notification System (ERNS) is a national database used to collect information on reported releases of oil and hazardous substances. The database contains information from spill reports made to federal authorities including the EPA, the US Coast Guard, the National Response Center and the Department of transportation. A search of the database records for the period October 1986 through January 1998 revealed information regarding reported spills of oil or hazardous substances in the stated area.

RCRA-LgGen
SRC#: 5078

VISTA conducts a database search to identify all sites within .625 mile of your property.
The agency release date for HWDMS/RCRIS was August, 1998.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

RCRA-SmGen
SRC#: 5078

VISTA conducts a database search to identify all sites within .625 mile of your property.
The agency release date for HWDMS/RCRIS was August, 1998.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small and Very Small generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.

End of Report

APPENDIX D

AGRA Earth & Environmental
ENGINEERING GLOBAL SOLUTIONS

AGRA Earth & Environmental, Inc.
1290 North Hancock Street
P.O. Box 19079
Anaheim, CA 92817
Tel (714) 779-2591
Fax (714) 779-8377

February 23, 1999

Southern California Edison
25625 W. Rye Canyon Road
Valencia, CA 91355

Attention: Mr. Joe Montoya

Subject: **Information on Transformers**
26300 West Pico Canyon Road
Newhall, California

AGRA Earth and Environmental, Inc., requests information from Southern California Edison regarding transformers near the above address that may contain PCB".

Please provide a written response to the undersigned as soon as possible. If you need additional information, please call (714) 779-2591. Thank you for your help.

Sincerely,
AGRA Earth and Environmental, Inc.

Sanford L. Britt, RG, CHG
Project Geologist
Environmental Project Manager

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Recycled Paper

AGRA Earth & Environmental
ENGINEERING GLOBAL SOLUTIONS

AGRA Earth & Environmental, Inc.
1290 North Hancock Street
P.O. Box 19079
Anaheim, CA 92817
Tel (714) 779-2591
Fax (714) 779-8377

February 23, 1999

Los Angeles County Fire Department
Public Health Information
5555 Ferguson Drive, Suite 120-04
Commerce, CA 90022

Subject: **26,300 Pico Canyon Road**
Los Angeles County (Stevenson Ranch), CA 91381

Dear Filing Department:

Please inform me if Los Angeles County Fire Department has in its records a hazardous materials file for the above referenced site.

Thank you for your assistance.

Sincerely,
AGRA Earth and Environmental, Inc.

Sanford L. Britt, RG, CHG
Project Geologist
Environmental Project Manager

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ENVIRONMENTAL DUE DILIGENCE AND REMEDIATION SPECIALISTS

TODD JACQUAY

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B.S.E. Geological Engineering, Purdue University, West Lafayette, IN (2000)

PROFESSI]NAL
RE **G**ISTRATIONS, LICENSES, AND CERTIFICATI]NS

- EIT, Engineer-In-Training
- OSHA 40-hour Hazardous Waste Operations Worker and Supervisor Certifications and annual Refreshers

PROFESSIONAL
□□**MM**□□□

Mr. Jacquay has over seven years of experience in the field of environmental consulting. He has conducted numerous Phase I and Phase II Environmental Site Assessments throughout the State of California. His project management experience includes on-site environmental investigation, data evaluation, workplan development, health risk modeling, and technical report writing. His field experience includes environmental site characterization, construction management, subcontractor oversight, soil and groundwater sampling, UST removals, remedial excavation, waste characterization, operation and maintenance of remedial systems, and stormwater pollution prevention and monitoring.

PROFESS [ONAL EXPERIENCE

School Projects - Mr. Jacquay has conducted PEAs for school districts in southern and central California. The PEAs were completed according to guidance requirements established by the California DTSC. The PEAs addressed environmental impacts associated with historical use of organochlorine pesticides, lead, termiticides, arsenic, petroleum hydrocarbons, volatile organic compounds, and polychlorinated biphenyls. Following data collection and interpretation, Mr. Jacquay prepared human health risk models and conducted remedial excavations, as needed, under oversight of DTSC.

Energy/Utility Companies – Performed construction monitoring during pipeline realignments and repairs for utility companies in Orange and Los Angeles Counties. Responsibilities included implementation of Site Safety Plan, segregation and stockpiling of fuel impacted soil, and monitoring ambient air to protect worker's health from elevated levels of volatiles.

Residential Developments - Completed Phase I and Phase II Environmental Site Assessments for single and multi-family residential developments throughout the State of California. The historic uses of the proposed developments included former or current agricultural properties, ranches, and manufacturing/industrial facilities.

Urban Redevelopment Projects – Performed site assessments, subsurface investigations, and implemented remedial action programs at urban redevelopment sites in downtown San Diego. Downtown redevelopment projects included railroad yards, former gasoline service stations and automotive repair facilities. Suspected and known contaminants included burn ash, lead, polychlorinated biphenyls, volatile organic compounds, semi-volatile compounds, and petroleum hydrocarbons. Mr. Jacquay has performed such assessments on behalf of private developers and

redevelopment agencies. Many of the projects have been subject to regulatory oversight by local or State level regulatory agencies, including voluntary cleanup programs.

Retail/Commercial Projects - Conducted numerous Phase I and Phase II Environmental Site Assessments for new and existing small to large-scale retail/commercial properties throughout California. Many retail/commercial centers included gasoline service stations and heavy equipment maintenance centers with documented leaking underground storage tank cases. In particular, completed several Phase I ESAs and subsequent Phase II ESAs for adjacent parcels slated for retail development in the City of Scotts Valley, CA. Review of historic aerials and documents provided by the City of Scotts Valley revealed the historic use of the site as an airport with areas of fill material from an unknown source. Several Phase II subsurface evaluations were conducted to assess the project site for lead and petroleum hydrocarbons contamination.

Remedial Excavation and Monitoring - Conducted monitoring and segregation of soil during remedial excavation of petroleum hydrocarbon contaminated soil from sites throughout Southern California. Collected confirmation soil samples from the sidewalls and bottom of each remedial excavation according to guidelines established by the acting regulatory agency. Profiled the soil for regulated disposal and coordinated transportation of contaminated soil for removal from site.

Groundwater Assessments - Performed groundwater assessments through the installation and sampling of a series of groundwater monitoring wells at sites throughout California. In addition several human health risk assessments were completed for future occupants of the project sites based on the concentrations of contaminants found in the groundwater.

Dry Cleaning Facilities - Performed soil, groundwater, and soil vapor investigations throughout Southern California at locations with known subsurface impacts from dry cleaning solvents such as PCE, TCE, and vinyl chloride. In addition conducted pilot testing to determine the radius of influence for each chemical of concern. Installation of soil vapor extraction systems and preparation of human health risk assessments were completed for future occupants of the project sites based on contamination results. Performed groundwater sampling, operations and maintenance of soil vapor extraction units, completed quarterly reporting, and coordinated with applicable regulatory agencies throughout the terms of the projects.

Property Condition Assessments and Seismic Evaluations – Under the direct oversight of a professional engineer, Mr. Jacquay assisted with inspecting the condition of structural features of site buildings, building systems and other on-site improvements. In addition, Mr. Jacquay has performed calculations of seismic stability for site buildings in terms of the Probable Maximum Loss (PML). The PML is expressed in terms of a percentage of the total replacement cost of the building.

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□**prin□ □alle□ □n□□lation□□an □ie□o □o□nt□□□ali□ornia** - A 2,000-gallon single-wall steel UST formerly used to store unleaded gasoline was removed from the property under oversight of the County of San Diego County DEH. DEH directives required that groundwater in the vicinity of the former UST be evaluated for the potential presence of contamination. Following field reconnaissance to evaluate the feasibility of proposed fieldwork and boring locations, completed and received approval of a work plan for further assessment as required by DEH. Work carried out as specified in the work plan included the installation of four groundwater monitoring wells, the collection of soil and groundwater samples, and an estimation of the vertical and horizontal extent of petroleum hydrocarbon impacted soil at the property. Based on the findings of the investigation, the information presented in the report, and additional groundwater assessment conducted at the property, the DEH issued a no further action letter for the property.

□**ropo□ed Medical □□ildin□ □ite□□□□ □□l□er □l□d□and □nce □l□d□□□□l□er □it□□□ali□ornia** – Project manager and lead for the completion of a Phase I ESA at the proposed redevelopment property located at the southeast corner of Culver Boulevard and Ince Boulevard in Culver City, Los

Angeles County, California. Redevelopment plans for the property included a medical-related commercial structure with a subterranean parking garage. Past uses of the property (including but not limited to automobile repair and possible dry-cleaning operations) as revealed during historical research completed during the Phase I ESA were considered to be suspect and a recognized environmental condition in connection with the property and a subsurface assessment at the property (consisting of soil and soil vapor sampling) was recommended. Mr. Jacquay continued project management duties on this project in conducting a Phase II ESA at the property which included the drilling of eight soil borings using a truck-mounted, direct-push sampling rig. The sampling probes were advanced by hydraulically driving an approximately two-inch diameter stainless steel rod equipped with a soil sampling tool. Soil borings were drilled to depths of 10 to 15 feet with soil samples collected at varying depths between one and fifteen feet. Four of the soil borings were converted to dual nested soil vapor probes installed at 5 and 15 feet bgs in each borehole. Select soil samples were analyzed onsite using a mobile laboratory for petroleum hydrocarbons and associated constituents. In addition, several near surface soil samples obtained from the soil borings were analyzed for Title 22 Metals and/or total lead. Soil samples collected but not analyzed were archived at the analytical laboratories. Soil vapor samples were analyzed for VOCs. A remediation cost estimate pertaining to lead-impacted soil removal to be completed at the property was also prepared and is being used by the developer in finalizing construction budgets.

□orth □o□nt□ □ran□it □i□trict (NCTD) Bus **Maintenance □acilit□, □□condido, □ali□ornia** – Project manager and lead field representative for the completion of turn-key limited excavation and soil sampling activities at a NCTD bus maintenance facility due to the discovery of petroleum hydrocarbon-impacted soil during a hydraulic hoist removal from a vehicle service bay. Prior to the commencement of field activities, Mr. Jacquay pre-profiled the impacted soil with a Class III recycling facility using analytical data obtained prior to excavation activities (stockpile testing associated with the initial hoist removal). A subcontracted excavation contractor, working under the direct supervision of Mr. Jacquay, completed the field activities (i.e. excavation with a designated area around the former hoist, stockpiling and loading on to trucks). Contaminated soil was excavated from the former hoist area using a backhoe and bobcat skid-steer and placed onto trucks for off-Site disposal under appropriate manifests issued by the receiving facility. Following the completion of the excavation activities, Mr. Jacquay collected soil samples from the base and sidewalls of the hoist excavation to verify removal and/or extent of the contamination left in-place. Soil samples were also collected from the stockpile of excavated soil for use by the recycling facility to finalize treatment options. A total of 39.88 tons of petroleum-hydrocarbon impacted soil were transported under proper manifesting protocol to the recycling facility. The results of the soil sampling and analysis indicated that petroleum hydrocarbon-impacted soil remained in place in the vicinity of the former hoist. However, due to several constraints, including limits of the concrete opening, depth of the excavation in relation to reach of the excavation equipment and the proximity of the excavation bottom to groundwater, additional excavation was not conducted.

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13200 **□o□th □□alon □o□le□ard □□1□□□□ □□□are □oot □or□ er □nd□□trial □a□ndr□ □acilit□**) – **□o□ □n□ele□, □ali□ornia -** Phase I and II Environmental Site Assessment

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□or□ er □a□□co □hip□ard Ga□oline □tation, □an □ie□o, □ali□ornia - Regulatory Permitting, Soil Sampling During Removal of Underground Storage Tanks and Regulatory Reporting

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ENVIRONMENTAL DUE DILIGENCE AND REMEDIATION SPECIALISTS

DANIEL A. WEIS, R.E.H.S.

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EDUCATION

- Bachelor of Arts - University of Delaware, Newark, DE (1995)
- Master of Science – Public Health, San Diego State University, San Diego, CA (1998)

PROFESSI]NAL RE GISTRATIONS, LICENSES, AND CERTIFICATIONS

- Registered Environmental Health Specialist #8172 in the State of California
- OSHA 40-hour Hazardous Waste Operations Worker and Supervisor Certifications and Annual Refreshers

PROFESSIONAL SU MMARY

Mr. Weis is the branch manager of AEC's western regional office based in the City of San Marcos, San Diego County, California. He has 14 years of experience in the environmental sciences and consulting fields and is supported by Professional Geologists, Engineers and other technical team members of AEC staff. His responsibilities at AEC include client development and management, project management, technical oversight and quality control for assessment and remediation services, project staffing, and office financial management. Mr. Weis also completes technical services (including field activities) required of select projects completed by AEC. He has a proven ability to manage multiple personnel and technical projects, negotiate with regulatory agencies and maintain strong and trusting client relationships. Such clientele include but are not limited to local government entities, redevelopment agencies, affordable housing developers, Federal government entities, environmental and land use attorneys, architectural and engineering firms, commercial lending institutions, conservancies, commercial/industrial real estate owners/managers, insurance companies, wireless telecommunication carriers and real estate developers. He is also very experienced in the completion of assessment, construction and remediation quality assurance during the completion of urban redevelopment/brownfields projects, many of which have been located in downtown San Diego, Los Angeles and other urban communities throughout the State of California. Mr. Weis has a deep understanding of environmental due diligence guidelines including:

- American Society for Testing and Materials (ASTM) E1527-05, Standard Practice for Environmental Site Assessments (ESAs)
- ASTM E2247-08, Standard Practice for ESA: Phase I ESA Process for Forestland or Rural Properties
- ASTM E1903-97 (Re-approved 2002), Standard Practices for Environmental Site Assessments: Phase II ESA Process
- ASTM E2600-10, Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions
- 40 Code of Federal Regulations (CFR) Part 312 Standards for Conducting All Appropriate Inquiry (AAI)
- 33 CFR Part 137 Oil Spill Liability Standards for Conducting AAI
- United States Department of Housing and Urban Development Guide to Multifamily Accelerated Processing
- Other financial institution specific guidelines including The United States Small Business Administration, Fannie Mae and Freddie Mac

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Mr. Weis has completed over 700 due diligence related environmental assessments (i.e. Phase I ESAs, Transaction Screen Analyses, etc.) and has managed over 200 subsurface environmental investigations of soil gas, soil and/or groundwater. Such investigations have also included human health and ecological risk assessments, evaluations of indoor air conditions based on interpretations of subsurface conditions, underground storage tank (UST) evaluation/closure and hazardous waste characterization/management. Subsurface activities performed include the completion of soil borings using various drilling technologies, soil and groundwater sampling, installation and sampling of groundwater monitoring wells, free product evaluations, exploratory trenching and real-time delineation using mobile analytical laboratories and other soil screening technology. Assets evaluated include industrial, commercial, residential, agricultural and vacant land sites throughout the State of California and numerous additional states of the Nation, with many of the assessments completed under the regulatory oversight of local environmental regulatory agencies, the California Regional Water Quality Control Boards (RWQCBs) and the California Environmental Protection Agency Department of Toxic Substances Control (DTSC). Mr. Weis has also conducted and/or managed hundreds of public/environmental health related assessments including electromagnetic field surveys, radionuclide surveys, indoor air quality investigations, radon surveys, drinking water assessments, asbestos containing materials (ACM) and lead-based paint (LBP) surveys and mold/microbial evaluations.

Mr. Weis has managed over 20 remediation related projects primarily related to source removal of subsurface contaminants including but not limited to petroleum hydrocarbons, chlorinated solvents, heavy metals, organochlorine pesticides and other agricultural related chemicals, dioxins and furans and polychlorinated biphenyls (PCBs). Cost effective solutions and various remedial action options are provided prior to remedial action implementation. He is very proficient in developing remediation cost estimates and evaluating multiple remedial strategies on specific projects and conducting budget tracking to ensure the accuracy of such estimates during remedial implementation. Mr. Weis also assists clients with the preparation of contractor bid specifications, contractor bid and change order reviews for such projects, contractor agreements and project status reports/updates and has conducted presentations to client personnel, regulatory agencies and/or the public pertaining to such remediation related projects. He has also assisted numerous clients in cost recovery efforts from private parties and State/Federal funding programs for environmental assessment and remediation work.

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borings and the collection of soil, groundwater, and soil gas samples. The analytical laboratory data was evaluated, deliverables were prepared and preliminary evaluations of risk conducted using County of San Diego Department of Environmental Health and DTSC Johnson and Ettinger vapor intrusion risk models. The case was subsequently referred to the DTSC due to permit by rule conditions and Mr. Weis oversaw and participated in the preparation a current conditions report, Facility Investigation (FI) Work plan and Community Profile for the property under a Corrective Action Consent Agreement between the interested parties and the DTSC. The FI Work Plan described the investigation objectives, pertinent background information related to the facility, current conditions, and a description of each identified Solid Waste Management Unit and Area of Concern identified at the facility. The document also included a Quality Assurance Project Plan (QAPP), data management plan and information pertaining to the proposed reporting structure. Mr. Weis also served as the project lead/coordinator for the implementation of the FI Work Plan which included the installation of sub-slab and at-depth soil gas probes and multiple groundwater monitoring wells, and the drilling of several direct-push soil borings. On-going regulatory negotiation is being conducted in efforts to reach a quantifiable approach to future monitoring of subsurface conditions at the property.

□anta Monica □each □□□lic □e□troo□ □acilitie□ □eplace□ent □ro□ect□□anta Monica□□ali□ornia □ Project director and lead on the completion of a Phase I ESA in accordance with ASTM Practice E 1527-05 of eight public restroom facilities on the Santa Monica State Beach in the City of Santa Monica, Los Angeles County, California. ACM, LBP and PCB surveys were also completed in conjunction with the ESA. All components of the ESA were completed in strict accordance with the applicable guidelines. The assessment revealed no evidence of RECs in connection with the properties and additional assessment was not recommended. Recommendations were provided regarding abatement of ACM and LBP identified at the facilities.

□e□enth and Mar□et □treet □ropert□ □□th and □th □□en□e□ and Mar□et □treet□□an □ie□o□□ali□ornia □ Project lead and manager for remediation planning assistance associated with a proposed 55,000 square foot mixed-use redevelopment project including a multiple level subterranean parking garage) in downtown San Diego. Subsurface characterization utilized in conjunction with prior site data included the drilling of ten soil borings using a hollow-stem auger drill rig, excavation of ten exploratory test pits using a backhoe and sampling/analysis of soil samples for various contaminants of concern. The additional data obtained was used for evaluating the feasibility of alternative remedial strategies, revising remedial cost estimates for multiple redevelopment scenarios and preparation of a mitigation plan and community health and safety plan for the project. Eligible costs for the site characterization related work were recovered from the State Water Resources Control Board (SWRCB) Orphan Site Cleanup Account (OSCA) program on behalf of the client. Although redevelopment plans for the project changed due to various factors, funding remained secured for the project and remediation work consisting of a removal action of lead and petroleum hydrocarbon impact soil was conducted. Over 15,000 tons of contaminated soil was removed from the property during the remediation effort. Mr. Weis served as the project lead and manager for the remediation phase of work which included the excavation and segregation of lead and petroleum hydrocarbon contaminated soils within an approximately 30,000 square foot remediation area, backfilling the excavation with non-contaminated soil generated from the proposed excavation as well as soil to be imported to the property and reconstruction of the property to City of San Diego surface parking lot standards. The remediation activities required the displacement of approximately 27,000 cubic yards of soil. Pre-remediation work completed by Mr. Weis included revising the mitigation plan to account for changes to the project plan, assistance with the preparation of technical bid specifications pertaining to the proposed site remediation, pre-bid meeting representation and responding to questions/inquiries from prospective bidders regarding the technical specifications, drawings and other items related to the proposed remediation effort and associated construction activity. Over 99% of $1,500,000 in SWRCB OSCA grant funds for the cleanup was recovered on behalf of the client.

□ropo□ed □harter □chool □thletic □ield □o□ ple□□□e□ ple □□en□e and □oo□er □treet□□o□ □n□ele□□ □ali□ornia □ Project lead and manager for the completion of a Phase I and II ESA during a property acquisition due diligence period at this approximately one-acre property located in the northern portion of the downtown area of the City of Los Angeles. The Phase I ESA was completed under ASTM-2005/AAI protocol and supplemental DTSC guidelines. Prior uses of the property included metal plating activity and a gasoline service station. Other deliverables provided and approved by the DTSC included a Preliminary

Environmental Assessment (PEA) Work Plan, QAPP and a Site Specific Health and Safety Plan. Additional subsurface investigation was subsequently completed to close data gaps pertaining to contaminant distribution and remediation costs prior to a removal action completed at the property. Such investigation included the drilling of over 70 soil borings and sample collection/analysis of soil, soil gas and groundwater samples. Remediation (excavation) at the property was completed by on a turn-key basis and consisted of the excavation and disposal of approximately 2,500 cubic yards of metals contaminated soil and removal of a UST under Los Angeles Fire Department oversight. Other duties completed during the course of the project included regulatory negotiation and litigation support. Community outreach associated with the project included a public hearing with the Los Angeles Department of Building and Safety pertaining to the site permit grading and haul route for trucking of contaminated soil and mass mailing of fieldwork notification activities to all properties situated within a 300 foot radius of the property.

□trata □□th and □□th □□en□e□ and Mar□et □treet□□an □ie□o□□ali□ornia – Project manager for the completion of California SWRCB OSCA Program application assistance pertaining to a portion (former gasoline station) of this downtown San Diego redevelopment site, which included a four-level subterranean parking garage. Initial tasks included a review of prior environmental assessments, written response to SWRCB inquiries pertaining to historical site uses and principal contamination sources and preparation of select sections of OSCA Pre-Assessment and Cleanup Grants. Portions of the Grants included a summary of background information pertaining to the property, detailed scopes of work pertaining to prior eligible assessment response work and proposed cleanup response actions and specific budget details. Cost recovery efforts from the OSCA program were successful. Mr. Weis also served as the project lead for general remediation planning assistance which included the preparation of multiple variations of remediation cost estimates for the project and attendance of meetings with the development team. The remediation cost estimate variations were broken down by physical address (parcel) and three contaminant types (lead, chlorinated solvents and petroleum hydrocarbons) and differing combinations of the referenced parameters. The cost estimation included interface with UST removal, excavation, shoring and dewatering contractors, landfill/recycling facilities, trucking companies, vapor barrier design and installation companies and analytical laboratories. Mr. Weis oversaw subsequent third-party oversight activities on behalf of the client as the property was sold to a third-party and included field oversight of remediation activities, budget tracking, invoice approval, compliance with the OSCA Grant conditions, attendance at meetings and other tasks.

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- Weis, D.A., Callaway, J.C., and R.M. Gersberg (2001). Vertical Accretion Rates and Heavy Metal Chronologies in Wetland Sediments of the Tijuana Estuary. Estuaries 24(6A).
- Gersberg, R.M., Pitt, J.L., Weis, D.A., and D.D. Yorkey. Characterizing In-Stream Metal Loading in the Tijuana River Watershed. (2002). National TMDL Science and Policy Conference, Specialty Conference Proceeding on CD Rom, November 13-16, Phoenix, Arizona

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National Brownfields Association
San Diego Housing Federation

ADVANTAGE
ENVIRONMENTAL
CONSULTANTS, LLC.

April 14, 2015

Denise Williams
LENNAR
980 Montecito Drive, Suite 302
Corona, CA 92879

Re: Report of Subsurface Investigation
Tentative Tract Map No. 52796
Los Angeles County, California
AEC Project No. 14-031SD

Dear Ms. Williams:

Advantage Environmental Consultants, LLC (AEC) has conducted subsurface exploration and soil sampling/analysis at the property known at a portion of the approximately 230 acre property identified as Tentative Tract Map No. 52796, located in unincorporated Los Angeles County, California. The subject property is situated along Pico Canyon Road to the south of Stevenson Ranch and is further identified by Los Angeles County Assessor's Parcel Numbers 2826-097-003 and 2826-020-020, -021, -022, -023, -024, -030, -031, -032 and -033. It is our understanding that LENNAR intends to develop portions of the property for residential purposes.

An area of the subject property situated to the west of Wickham Canyon has been documented during prior geotechnical investigations as containing undocumented/artificial fill material, some of which was reported to exhibit staining and odors indicative of petroleum hydrocarbons. During the completion of a Phase I Environmental Site Assessment of the property, AEC also noted an area of what appeared to be disturbed soil with petroleum staining and odors located west of Wickham Canyon. The scope of work included herein was derived to address such a concern.

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AEC collected 34 soil samples of undocumented fill material at the Site by way of the scope of work discussed below. A figure depicting the approximate soil sampling locations is included as an attachment to this report.

- AEC project managers conducted Site visits prior to soil sampling activities to optimize and select soil sampling locations.

- In accordance with State law, Underground Service Alert was notified of the proposed sampling activities.

- All equipment to be used during the sampling events was inspected, pre-cleaned and decontaminated.

- Field meters used during sampling (i.e., photoionization detector (PID) and other equipment) were checked to ensure proper calibration.

- All forms used in the field (i.e., logbook, chain-of-custody forms, etc.) were assembled.

- Sampling personnel reviewed the sampling protocols. In addition, health and safety protocols were reviewed and a project health and safety plan was signed by all field personnel.

- A total of eight test pits (identified as TP1 through TP8) were excavated using a track-mounted excavator to maximum depths varying from approximately 23 to 25 feet below existing grades. Representative soil samples of undocumented fill material were obtained from each test pit at near the ground surface and then at generally five foot depth increments to the maximum depths explored. AEC field personnel placed the soil samples in analytical laboratory provided four ounce glass jars. Soil samples were then placed into a chilled cooler for transport to State-certified analytical laboratories. A total of 34 soil samples were obtained during the soil sampling activities.

- Thirty soil samples were analyzed for total petroleum hydrocarbons (TPH) in the gasoline, diesel and oil ranges by United States Environmental Agency (EPA) test Method 8015B. In addition, eight soil samples were analyzed for organochlorine pesticides (OCPs) by United States EPA test Method 8081A and five soil samples were analyzed for Title 22 Metals by United States EPA test Methods 6010B and 7471A, Volatile Organic Compounds by EPA test Method 8260B, Semi-Volatile Organic Compounds by EPA test Method 8270C and Polychlorinated Biphenyls (PCBs) by EPA test Method 8082.

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With the exception of hydrocarbon stained and odorous soil noted in TP3 and TP5, no suspect soil conditions were noted during the subsurface exploration activities. A summary of the analytical laboratory data is presented below. Tables summarizing the analytical laboratory results and the analytical laboratory reports and chain of custody documentation are also included as attachments to this report.

Total Petroleum Hydrocarbons (TPH)

TPH as gasoline (TPHg) was detected in three of the thirty soil samples analyzed for this constituent. The detected concentrations were reported at the 5, 10 and 15 foot depths of TP5 with reported concentrations of 140 mg/kg, 160 mg/kg and 35 mg/kg, respectively. The gasoline concentrations at the 5 and 10 foot depths exceed the United States EPA Regional Screening Level (RSL) for residential soil of 82 mg/kg. None of the detected gasoline concentrations exceed the Los Angeles Regional Water Quality Control Board (LA-RWQCB) Maximum Soil Screening Level (SSL) for gasoline above drinking water aquifers of 500 mg/kg.

TPH as diesel (TPHd) was detected in eight of the thirty soil samples analyzed for this constituent. The detected concentrations were reported at the 17, 18 and 20 foot depths of TP3 and at the 5, 10, 15, 20 and 23 foot depths of TP5. Detectable concentrations of TPHd ranged from 85 mg/kg (SP3-18) to 4,900 mg/kg (TP5-10). Seven of the detections exceed the United States EPA RSL for residential soil of 110 mg/kg. Two of the detections (5 and 10 foot depths of TP5) exceed the LA-RWQCB SSL for diesel of 1,000 mg/kg. However, it should be noted that diesel concentrations below the 10 foot depth in TP5 do not exceed its SSL, indicating insignificant vertical migration of this contaminant.

TPH as soil (TPHo) was also detected in eight of the thirty soil samples analyzed for this constituent. The detected concentrations were reported at the 17, 18 and 20 foot depths of TP3 and at the 5, 10, 15, 20 and 23 foot depths of TP5. Detectable concentrations of TPHd ranged from 210 mg/kg (SP3-18) to 32,000 mg/kg (TP5-15). Three of the detections exceed the United States EPA RSL for residential soil of 2,500 mg/kg. Two of the detections (5 and 10 foot depths of TP5) exceed the LA-RWQCB SSL for oil of 10,000 mg/kg. However, it should be noted that oil concentrations below the 10 foot depth in TP5 do not exceed its SSL, indicating insignificant vertical migration of this contaminant.

Title 22 Metals

Eight of the seventeen Title 22 Metals were detected at or above analytical laboratory reporting limits in one or more of the 5 soil samples analyzed during the subsurface assessment. The detected metals included barium, chromium, cobalt, copper, lead, nickel, vanadium and zinc. The maximum concentrations of these analytes reported in the soil samples were 133 mg/kg (barium), 31.5 mg/kg (chromium), 13.0 mg/kg (cobalt), 27.6 mg/kg (copper), 39.1 mg/kg (lead), 28.6 mg/kg (nickel), 38.0 mg/kg (vanadium) and 77.1 mg/kg (zinc). Metals concentrations are below their respective California Human Health Screening Levels (CHHSLs) for residential soil of 5,200 mg/kg (barium), 660 mg/kg (cobalt), 3,000 mg/kg (copper), 80 mg/kg (lead), 1,600 mg/kg (nickel), 530 mg/kg (vanadium) and 23,000 mg/kg (zinc). There is no published CHHSL for total chromium. However, the detected total chromium concentrations are not considered to be elevated or significant. The metals concentrations also do not exceed hazardous waste criteria for such elements.

Volatile Organic Compounds (VOCs)

With the exception of ethylbenzene detected in two soil samples at concentrations of 1.1 mg/kg (TP5-5) and 7.4 mg/kg (TP5-10), no VOCs were detected at or above their respective analytical laboratory reporting limits in any of the samples analyzed for these constituents. The ethylbenzene EPA RSL for residential soil is 5.8 mg/kg and is exceeded at the 10 foot depth of TP5. However, it should be noted that no VOCs were detected in soil at the 15 foot depth of TP5, indicating insignificant vertical migration of contaminants at the Site.

Semi-Volatile Organic Compounds (SVOCs)

With the exception of 2-methylnapthalene detected in one soil sample at a concentration of 11.1 mg/kg (TP5-10), no SVOCs were detected at or above their respective analytical

laboratory reporting limits in any of the samples analyzed for these constituents. The concentration of 2-methylnapthalene detected at the Site is below the United States EPA RSL for residential soil of 230 mg/kg.

Organochlorine Pesticides (OCPs) and Polychlorinated Biphenyls (PCBs)

OCPs and PCBs were not detected at or above their respective analytical laboratory reporting limits in any of the samples analyzed for these constituents.

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Conclusions of the assessment are as follows:

- TPH was detected in two of the eight test pits sampled during this investigation. Of the 30 soil samples that were collected and analyzed for TPH, eight had detectable concentrations that were primarily in the heavier ended ranges (oil and upper end of diesel). The most significant concentrations were located at the 5 and 10 foot depths of TP5, with moderate detections and decreasing concentrations extending downward to the total depth of exploration of 23 feet. Additional TPH detections (less significant) were at the 17, 18 and 20 foot depths of TP3. Based on the chromatograms generated during laboratory analysis, the TPH signature is generally indicative of a naturally occurring and unrefined hydrocarbon product. It is possible that the hydrocarbon impacted soil that was placed in its current location was derived as a by-product of oil well drilling and attempts at oil well development which reportedly occurred both to the east-southeast and west of the area of impact.

- Title 22 Metals, VOCs, SVOCs, OCPs and PCBs are not considered to be contaminants of significance at the Site.

- Based on an interpretation of available data, it is estimated that upwards to 4,000 cubic yards of soil at the Site is impacted with petroleum hydrocarbons. This volume estimate could increase or decrease based on actual subsurface conditions. The presence of such soil is not considered to be a significant threat to human health or the environment and as such, is not considered to be actionable or a condition that requires reporting to an environmental regulatory agency.

AEC recommends that the petroleum hydrocarbon impacted soil be managed in accordance with a Soil Management Plan (SMP) for the project. The SMP should be drafted in collaboration with the developer and other members of the project team so that the feasibility of various remedial options (including off-Site disposal or on-Site reuse) can be contemplated.

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The services provided by AEC have been performed in accordance with practices and standards generally accepted by environmental scientists practicing in this industry. No other warranty, either express or implied, is made. The results and conclusions

described herein are based on a limited subsurface sampling program and do not purport to identify any and all sources or subsurface impacts that may exist at the subject property. Subsurface conditions at a given location may not be representative of conditions in other areas on the subject property. In addition, conditions may change at any particular location as a function of time in response to natural conditions, chemical reactions and other factors. Our conclusions regarding the condition of the subject property does not represent a warranty that all areas of the subject property are similar to those sampled. AEC is not responsible for the conclusions, opinions, or recommendations made by others based on this information.

We appreciate the opportunity to be of service on this project. If you should have any questions regarding this report, or if we can be of further assistance, please contact us at (760) 744-3363.

Sincerely,

Advantage Environmental Consultants, LLC

Daniel Weis, R.E.H.S.
Branch Manager
Western Regional Office

Eric M. Cathcart, MS, PG
Senior Geologist
California Professional Geologist #7548

Attachments

Site Plan
Analytical Data Summaries
Analytical Laboratory Reports

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Approximate Scale in Feet

Advantage Environmental Consultants, LLC
145 Vallecitos De Oro, Suite 201
San Marcos, CA 92069
Phone: 760-744-3363
Fax: 760-744-3383

Site Plan
Tentative Tract Map No. 52796
Los Angeles County
California

Work Order No.:	Report Date:	Drawn By:
15-031SD	April 2015	TJ

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				TPH □	TPH d	TPH o				
TP1	1-0.5	0.5	3/10/2015	--	--	--	--	--	--	ND
	1-5	5	3/10/2015	ND<10	ND<10	ND<10	--	--	--	ND
	1-15	15	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	1-20	20	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	1-25	25	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
TP2	2-10	10	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	2-20	20	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	2-25	25	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
TP3	3-0.5	0.5	3/10/2015	--	--	--	--	--	--	ND
	3-5	5	3/10/2015	ND<10	ND<10	ND<10	--	--	--	ND
	3-10	10	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	3-15	15	3/10/2015	ND<10	ND<10	ND<10	--	--	--	ND
	3-20	20	3/10/2015	ND<10	150	330	ND	ND	ND<125	--
	3-23	23	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
TP4	4-5	5	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	4-15	15	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	4-20	20	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
TP5	5-0.5	0.5	3/10/2015	--	--	--	--	--	--	ND
	5-5	5	3/10/2015	140	4,200	28,000	Ethylbenzene = 1.1	ND	ND<125	ND
	5-10	10	3/10/2015	160	4,900	32,000	Ethylbenzene = 7.4	2-Methylnaphthalene = 11.1	ND<250	--
	5-15	15	3/10/2015	35	830	3,300	ND	ND	ND<125	ND
	5-20	20	3/10/2015	ND<10	720	1,900	--	--	--	--
	5-23	23	3/10/2015	ND<10	370	530	ND	ND	ND<50	--
TP6	6-5	5	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	6-15	15	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
TP7	7-0.5	0.5	3/10/2015	--	--	--	--	--	--	ND
	7-5	5	3/10/2015	ND<10	ND<10	ND<10	--	--	--	ND
	7-10	10	3/10/2015	ND<10	ND<10	ND<10	--		--	--
	7-20	20	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
TP8	8-5	5	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	8-10	10	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
	8-20	20	3/10/2015	ND<10	ND<10	ND<10	--	--	--	--
--	SP3-17	17	3/10/2015	ND<10	190	430	--	--	--	--
--	SP3-18	18	3/10/2015	ND<10	85	210	--	--	--	--

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mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
-- = Not analyzed
ND (<1.00) = Not detected at or above the laboratory reporting limit
TPHg = Total petroleum hydrocarbons as Gasoline (EPA 8015B)
TPHd = Total petroleum hydrocarbons as Diesel (EPA 8015B)
TPHo = Total petroleum hydrocarbons as Oill (EPA 8015B)
VOCs = Volatile Organic Compounds (EPA 8260B)
SVOCs = Semi-Volatile Organic Compounds (EPA 8270C)
PCBs = Polychlorinated Biphenyls (EPA 8082)
OCPs = Organochlorine Pesticides (8081A)

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Sample ID	Sample Date	Depth (feet)	Total Title 22 Metals by EPA Test Methods 6010B/7471A (mg/kg)																
			Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
3-20	3/10/2015	20	ND(<1.00)	ND(<1.00)	104	ND(<1.30)	ND(<1.30)	30.5	10.2	24.8	39.1	ND(<0.100)	ND(<2.50)	22.7	ND(<1.00)	ND(<2.50)	ND(<1.00)	38.0	77.1
5-5	3/10/2015	5	ND(<1.00)	ND(<1.00)	80.1	ND(<1.30)	ND(<1.30)	10.5	4.69J	6.90	2.97J	ND(<0.100)	ND(<2.50)	8.59	ND(<1.00)	ND(<2.50)	ND(<1.00)	16.3	26.2
5-10	3/10/2015	10	ND(<1.00)	ND(<1.00)	133	ND(<1.30)	ND(<1.30)	5.86	4.38J	4.68J	9.04	ND(<0.100)	ND(<2.50)	11.5	ND(<1.00)	ND(<2.50)	ND(<1.00)	22.6	33.3
5-15	3/10/2015	15	ND(<1.00)	ND(<1.00)	50.4	ND(<1.30)	ND(<1.30)	28.2	13.0	25.1	5.04	ND(<0.100)	ND(<2.50)	28.6	ND(<1.00)	ND(<2.50)	ND(<1.00)	33.4	66.6
5-23	3/10/2015	23	ND(<1.00)	ND(<1.00)	64.9	ND(<1.30)	ND(<1.30)	31.5	10.6	27.6	5.85	ND(<0.100)	ND(<2.50)	24.7	ND(<1.00)	ND(<2.50)	ND(<1.00)	35.8	69.6
TTLC (mg/kg)		--	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
10x STLC (mg/kg)		--	150	50	1,000	7.5	10	50	800	250	50	2	3,500	200	10	50	70	240	2,500
20x TCLP (mg/kg)		--	NA	100	2,000	NA	20	100	NA	NA	100	4	NA	NA	20	100	NA	NA	NA
CHHSL-R (mg/kg)		--	30	0.07	5,200	150	1.7	17 (Chromium VI) 100,000 (Chromium III)	660	3,000	80	18	380	1,600	380	380	5	530	23,000
CHHSL-CI (mg/kg)		--	380	0.24	63,000	1,700	7.5	37 (Chromium VI) 100,000 (Chromium III)	3,200	38,000	320	180	4,800	16,000	4,800	4,800	63	6,700	100,000

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Samples analyzed by US EPA Test Methods 6010B/7471A
mg/kg - milligrams per kilogram
ND (<1.00) = Not detected at or above the laboratory reporting limit
TTLC = Total Threshold Limit Concentration (California Code of Regulations Title 22, Chapter 30, Article 11)
STLC = Soluble Threshold Limit Concentration (California Code of Regulations Title 22, Chapter 30, Article 11)
TCLP = Toxicity Characteristic Leaching Procedure (40 Code of Federal Regulations, Part 261.24 and California Code of Regulations Title 22, Chapter 30, Article 11)
CHHSL-R - California Human Health Screening Level (Residential Soil)
CHHSL-CI - California Human Health Screening Level (Commercial/Industrial Soil)

BASELINE ON-SITE ANALYSIS™

Baseline On-Site Analysis
P. O. Box 2243
Huntington Beach, CA 92647

Toll Free: 888.753.7553
FAX: 714.840.1584

Laboratory Report

Client: Advantage Environmental Consultants, LLC
Client Address: 145 Vallecitos De Oro, Suite 201
San Marcos, California 92069

Project Name: Tentative Tract Map 52796
Project Address: Tentative Tract Map 52796
Stevenson Ranch, California
Contact: Dan Weis

Report Date: 3/17/15
Lab Project Number: 15195
Client Project Number: 14-031SD

Date(s) Sampled: 3/10/15
Date(s) Received: 3/13/15
Date(s) Analyzed: 3/15-17/15
Sample Matrix: Soil

Analyses Requested:

1. **EPA 8015B – Total Petroleum Hydrocarbons as Gasoline (TPH-G)**
2. **EPA 8015B – Total Petroleum Hydrocarbons as Diesel (TPH-D)**
3. **EPA 8015B – Total Petroleum Hydrocarbons as Waste Oil (TPH-WO)**
4. **EPA 8260B – Volatile Organic Compounds (VOC's) with Fuel Oxygenates**

Baseline received samples collected from the project shown above. A Chain-of-Custody Record (COC) is attached.

The samples were analyzed for the parameters shown above per the COC. In this report, *Baseline* presents the results and a QA/QC summary for this analysis.

Brian K. Kato

Approved
Brian K. Kato, Laboratory Manager

BASELINE ON-SITE ANALYSIS™

Baseline On-Site Analysis
P. O. Box 2243
Huntington Beach, CA 92647

Toll Free: 888.753.7553
FAX: 714.840.1584

Laboratory Report

Client: Advantage Environmental Consultants, LLC
Client Address: 145 Vallecitos De Oro, Suite 201
San Marcos, California 92069

Report Date: 3/17/15
Lab Project Number: 15195
Client Project Number: 14-031SD

Project Name: Tentative Tract Map 52796
Project Address: Tentative Tract Map 52796
Stevenson Ranch, California
Contact: Dan Weis

Date(s) Sampled: 3/10/15
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Date(s) Analyzed: 3/15-17/15
Sample Matrix: Soil

Total Petroleum Hydrocarbons as Gasoline (TPH-G), Diesel (TPH-D), and Waste Oil (TPH-WO) Results

Constituent:	TPH-G	TPH-D	TPH-WO
Method:	8015B	8015B	8015B
Carbon Range:	C4-C12	C10-C28	C6-C36
Units:	mg/kg	mg/kg	mg/kg
Sample ID			
1-5	ND<10	ND<10	ND<10
1-15	ND<10	ND<10	ND<10
1-20	ND<10	ND<10	ND<10
1-25	ND<10	ND<10	ND<10
2-10	ND<10	ND<10	ND<10
2-20	ND<10	ND<10	ND<10
2-25	ND<10	ND<10	ND<10
3-5	ND<10	ND<10	ND<10
3-10	ND<10	ND<10	ND<10
3-15	ND<10	ND<10	ND<10
3-20	ND<10	150	330
3-23	ND<10	ND<10	ND<10
4-5	ND<10	ND<10	ND<10
4-15	ND<10	ND<10	ND<10
4-20	ND<10	ND<10	ND<10
5-5	140	4200	28000
5-10	160	4900	32000
5-15	35	830	3300
5-20	ND<10	720	1900
5-23	ND<10	370	530
6-5	ND<10	ND<10	ND<10
6-15	ND<10	ND<10	ND<10
7-5	ND<10	ND<10	ND<10
7-10	ND<10	ND<10	ND<10
7-20	ND<10	ND<10	ND<10
8-5	ND<10	ND<10	ND<10
8-10	ND<10	ND<10	ND<10
8-20	ND<10	ND<10	ND<10
SP3-17	ND<10	190	430
SP3-18	ND<10	85	210
Method Blank	ND<10	ND<10	ND<10

TPH-G: Total Petroleum Hydrocarbons as Gasoline
TPH-D: Total Petroleum Hydrocarbons as Diesel
TPH-WO: Total Petroleum Hydrocarbons as Waste Oil
ND: Not detected at the indicated Method Detection Limit (MDL)

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Laboratory Report

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Client Address: 145 Vallecitos De Oro, Suite 201
San Marcos, California 92069
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Project Address: Tentative Tract Map 52796
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Report Date: 3/17/15
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Client Project Number: 14-031SD
Date(s) Sampled: 3/10/15
Date(s) Received: 3/13/15
Date(s) Analyzed: 3/15-17/15
Sample Matrix: Soil

Volatile Organic Compounds (EPA 8260B) - Part I

EPA Method:	8260B	8260B	8260B	8260B	8260B		8260B
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg
Dilution Factor:	1	200	200	20	1		1
Sample ID:	**3-20**	**5-5**	**5-10**	**5-15**	**5-23**		**Method Blank**
Compound Name							
Volatile Aromatics (BTEX)							
Benzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Toluene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Ethylbenzene	ND<0.0050	1.1	7.4	ND<0.10	ND<0.0050		ND<0.0050
Total Xylenes	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Fuel Oxygenates							
Methyl t-Butyl Ether (MTBE)	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
t-Butanol (TBA)	ND<0.025	ND<5.0	ND<5.0	ND<0.50	ND<0.025		ND<0.025
Di-Isopropyl Ether (DIPE)	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Ethyl t-Butyl Ether (ETBE)	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
t-Amyl Methyl Ether (TAME)	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Ethanol	ND<0.25	ND<50	ND<50	ND<5.0	ND<0.25		ND<0.25
Non-Halogenated VOC's							
n-Butylbenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
sec-Butylbenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
tert-Butylbenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Isopropylbenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
p-isopropyltoluene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Naphthalene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
n-Propylbenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Styrene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2,4-Trimethylbenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,3,5-Trimethylbenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Halogenated VOC's (HVOC's)							
Bromobenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Bromochloromethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Bromoform	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Bromomethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Carbon Tetrachloride	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
2-Chlorotoluene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
4-Chlorotoluene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Chlorobenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Chloroethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Chloroform	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Chloromethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050

ND: Not detected at the indicated method detection limit (MDL); MB: Method Blank

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Laboratory Report

Client: Advantage Environmental Consultants, LLC
Client Address: 145 Vallecitos De Oro, Suite 201
San Marcos, California 92069

Project Name: Tentative Tract Map 52796
Project Address: Tentative Tract Map 52796
Stevenson Ranch, California
Contact: Dan Weis

Report Date: 3/17/15
Lab Project Number: 15195
Client Project Number: 14-031SD

Date(s) Sampled: 3/10/15
Date(s) Received: 3/13/15
Date(s) Analyzed: 3/15-17/15
Sample Matrix: Soil

Volatile Organic Compounds (EPA 8260B) - Part II

EPA Method:	8260B	8260B	8260B	8260B	8260B		8260B
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		mg/kg
Dilution Factor:	1	200	200	20	1		1
Sample ID:	**3-20**	**5-5**	**5-10**	**5-15**	**5-23**		**Method Blank**
Compound Name							
HVOC's, continued							
Dibromochloromethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2-Dibromo-3-Chloropropane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2-Dibromoethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2-Dichlorobenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,3-Dichlorobenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,4-Dichlorobenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Dichlorodifluoromethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,1-Dichloroethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2-Dichloroethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,1-Dichloroethene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
cis-1,2-Dichloroethene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
trans-1,2-Dichloroethene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2-Dichloropropane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,3-Dichloropropane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
2,2-Dichloropropane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,1-Dichloropropene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Hexachlorobutadiene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Methylene Chloride	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Tetrachloroethene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,1,1,2-Tetrachloroethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,1,2,2-Tetrachloroethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2,3-Trichlorobenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2,4-Trichlorobenzene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,1,1-Trichloroethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,1,2-Trichloroethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Trichloroethene	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Trichlorofluoromethane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
1,2,3-Trichloropropane	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050
Vinyl Chloride	ND<0.0050	ND<1.0	ND<1.0	ND<0.10	ND<0.0050		ND<0.0050

ND: Not detected at the indicated method detection limit (MDL); MB: Method Blank

Baseline On-Site Analysis
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Laboratory Report

Client: Advantage Environmental Consultants, LLC
Client Address: 145 Vallecitos De Oro, Suite 201
San Marcos, California 92069

Report Date: 3/17/15
Lab Project Number: 15195
Client Project Number: 14-031SD

Project Name: Tentative Tract Map 52796
Project Address: Tentative Tract Map 52796
Stevenson Ranch, California
Contact: Dan Weis

Date(s) Sampled: 3/10/15
Date(s) Received: 3/13/15
Date(s) Analyzed: 3/15-17/15
Sample Matrix: Soil

Quality Control Summary

Analytes	MS Recovery (%)	MSD Recovery (%)	RPD (%)	QC Sample
8015B				
TPH-C6-C36	101	95	6	LCS/LCSD
8260B				
1,1-Dichloroethene	96	98	2	LCS/LCSD
Benzene	92	89	3	LCS/LCSD
Trichloroethene	95	99	4	LCS/LCSD
Toluene	100	97	3	LCS/LCSD
Chlorobenzene	95	91	4	LCS/LCSD
MTBE	93	94	1	LCS/LCSD
Acceptable QC Limits:	(65-135)	(65-135)	(0-30)	

MS: Matrix Spike; MSD: Matrix Spike Duplicate; RPD: Relative Percent Difference
LCS/LCSD: Lab Control Sample/Duplicate

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CHAIN OF CUSTODY RECORD

Baseline 15195 № 88511

AETL JOB No.

COMPANY: AEC
PROJECT MANAGER: TODD JACQUAY / DAN WEIS
COMPANY ADDRESS: SAN MARCOS, CA
PHONE:
FAX: 760-744-3363
PROJECT NAME: TENTATIVE TRACT MAP 52796-
PROJECT #: 14-031SD
SITE NAME AND ADDRESS: STEVENSON RANCH, CA
PO #:

ANALYSIS REQUESTED: TPH 8015B; VOCs 8260B

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	TPH 8015B	VOCs 8260B	TEST INSTRUCTIONS & COMMENTS
1	1-0.5		3-10-15	8:02	SOIL	1-4oz JAR	ICE			
2	1-5			8:03				X		
3	1-10			8:10						
4	1-15			8:17				X		
5	1-20			8:23				X		
6	1-25			8:30	SOIL	1-4oz JAR		X		
7	2-0.5			9:05						
8	2-1			9:08						
9	2-5			9:09						
10	2-10			9:15				X		
11	2-15			9:26						
12	2-20			9:35				X		
13	2-25			9:45				X		
14	SP2(10)			9:50						
15	3-0.5			10:15						

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS		PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y/ N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:	Signature: Brian K. Kato	Signature:
Printed Name: JACQUAY	Printed Name: BRIAN KATO	Printed Name:
Date: Time:	Date: 3/13/15 Time: 0700	Date: Time:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: 3.**
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name:
Date: Time:	Date: Time:	Date: Time:

TURN AROUND TIME

☐ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY
☐ PDF
☐ GEOTRACKER (GLOBAL ID) _____
☐ OTHER (PLEASE SPECIFY) _____

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CHAIN OF CUSTODY RECORD

Baseline 15195 № 88512

AETL JOB No.

COMPANY: AEC
PROJECT MANAGER:
COMPANY ADDRESS: SAN MARCOS
PHONE:
FAX:
PROJECT NAME: TENTATIVE TRACT MAP 52796
PROJECT #: 14-0315D
SITE NAME AND ADDRESS: STEVENSON RANCH, CA.
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	TPH 8015B	VOCs 8260B									TEST INSTRUCTIONS & COMMENTS
1	3-5		3-10-15	10:16	SOIL	1- 402 JAR	ICE	X										
2	3-10		↓	10:20	↓	↓	↓	X										
3	3-15		↓	10:25	↓	↓	↓	X										
4	3-20		↓	10:32	↓	↓	↓	X	X									
5	SP3-17		↓	10:34	↓	↓	↓	X										
6	SP3-18		↓	10:35	↓	↓	↓	X										
7	3-23		↓	10:41	↓	↓	↓	X										
8	4-0.5		↓	11:00	↓	↓	↓											
9	4-5		↓	11:01	↓	↓	↓											
10	4-10		↓	11:10	↓	↓	↓											
11	4-15		↓	11:17	↓	↓	↓											
12	4-20		↓	11:25	↓	↓	↓											
13	5-0.5		↓	11:35	↓	↓	↓											
14	5-5		↓	11:38	↓	↓	↓	X	X									
15	SP5(8)		↓	11:40	↓	↓	↓											

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS		PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y/ N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:	Signature: B. K. Kato	Signature:
Printed Name: JACQUAY	Printed Name: BRIAN KATO	Printed Name:
Date: Time:	Date: 3/13/15 Time: 0700	Date: Time:
RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY LABORATORY: 3.
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name:
Date: Time:	Date: Time:	Date: Time:

TURN AROUND TIME

☐ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY
☐ PDF
☐ GEOTRACKER (GLOBAL ID) _____
☐ OTHER (PLEASE SPECIFY) _____

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CHAIN OF CUSTODY RECORD

Baseline 15195 № 88513

AETL JOB No.

COMPANY: AEC
PROJECT MANAGER:
COMPANY ADDRESS: SAN MARCOS, CA
PHONE:
FAX:
PROJECT NAME: TENTATIVE TRACT MAP 52796
PROJECT #: 14-031SD
SITE NAME AND ADDRESS: STEVENSON RANCH, CA
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	TPH 8015B	VOCs 8260B
1	5-0		3-10-15	11:45	Soil	1-4oz JAR	ICE	X	X
2	5-15			11:51				X	X
3	5-20			11:57				X	
4	5-23			12:05				X	X
5	6-0.5			12:23					
6	6-5			12:24				X	
7	6-10			12:30					
8	6-15			12:35				X	
9	7-0.5			12:50					
10	7-5			12:51				X	
11	7-10			12:55				X	
12	7-15			12:59					
13	7-20			1:03				X	
14	8-0.5			1:16					
15	8-5			1:17				X	

ANALYSIS REQUESTED

TEST INSTRUCTIONS & COMMENTS

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS		PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y/ N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:	Signature:	Signature:
Printed Name:	Printed Name: BRIAN KATO	Printed Name:
Date: Time:	Date: 3/13/15 Time: 0700	Date: Time:
RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY LABORATORY: 3.
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name:
Date: Time:	Date: Time:	Date: Time:

TURN AROUND TIME: ☐ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED: ☐ HARD COPY ☐ PDF ☐ GEOTRACKER (GLOBAL ID) ☐ OTHER (PLEASE SPECIFY)

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CHAIN OF CUSTODY RECORD

Baseline 15195 № 88514

AETL JOB No.

COMPANY: AEC
PROJECT MANAGER:
COMPANY ADDRESS:
PHONE:
FAX:
PROJECT NAME: TENTATIVE TRACT MAP 52796
PROJECT #: 14-0315D
SITE NAME AND ADDRESS: STEVENSON RANCH, CA
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	TPH 8015B	VOC 8260B									TEST INSTRUCTIONS & COMMENTS
1	8-10		3-10-15	1:21	SOIL	1-4oz JAR		X										
2	8-15		↓	1:26	↓	↓												
3	8-20		↓	1:30	↓	↓		X										
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS		PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y/ N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:	Signature: B. K. Kato	Signature:
Printed Name: JACQUAY	Printed Name: BRIAN KATO	Printed Name:
Date: Time:	Date: 3/13/15 Time: 0700	Date: Time:
RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY LABORATORY: 3.
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name:
Date: Time:	Date: Time:	Date: Time:

TURN AROUND TIME

☐ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

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Ordered By

Advantage Environmental Consultants
145 Vallecitos De Oro Suite 201
San Marcos, CA 92069-

Telephone: (760)744-3363
Attention: Dan Weis

Number of Pages 29
Date Received 03/17/2015
Date Reported 03/26/2015

Job Number	Order Date	Client
76322	03/17/2015	AEC

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796
Site: Stevenson Ranch, CA

Enclosed please find results of analyses of 8 soil samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

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CHAIN OF CUSTODY RECORD

№ 88511

AETL JOB No. 76322

COMPANY: AEC
PROJECT MANAGER: TODD JACQUAY / DAN WEIS
COMPANY ADDRESS: SAN MARCOS, CA
PHONE:
FAX: 760-744-3363
PROJECT NAME: TENTATIVE TRACT MAP 52796-
PROJECT #: 14-031SD
SITE NAME AND ADDRESS: STEVENSON RANCH, CA
PO #:

ANALYSIS REQUESTED

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	OCPs (EPA 8081)	SVOCs (8270C)	PCBs	Title 22 metals					TEST INSTRUCTIONS & COMMENTS
1	1-0.5	76322.01	3-10-15	8:02	SOIL	1-4oz JAR	ICE	X								
2	1-5	76322.02	↓	8:03	↓	↓	↓	X								
3	1-10	76322.03		8:10												
4	1-15	76322.04		8:17												
5	1-20	76322.05		8:23												
6	1-25	76322.06		8:30	SOIL	1-4oz JAR										
7	2-0.5	76322.07		9:05												
8	2-1	76322.08		9:08												
9	2-5	76322.09		9:09												
10	2-10	76322.10		9:15												
11	2-15	76322.11		9:26												
12	2-20	76322.12		9:35												
13	2-25	76322.13		9:45												
14	SP2(10)	76322.14		9:50												
15	3-0.5	76322.15		10:15								X				

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	15	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y / N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

TURN AROUND TIME: [X] NORMAL [ ] RUSH [ ] SAME DAY [ ] NEXT DAY [ ] 2 DAYS [ ] 3 DAYS

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RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:		Signature:
Printed Name: JACQUAY		Printed Name: BRIAN KATO
Date: 3/17/15 Time:		Date: 17 MAR 2015 Time: 1821
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: 3.**
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name: Jim Lin
Date: Time:	Date: Time:	Date: 3/17/15 Time: 1821

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CHAIN OF CUSTODY RECORD

№ 88512

AETL JOB No. 76322

COMPANY: AEC
PROJECT MANAGER:
COMPANY ADDRESS: SAN MARCOS
PHONE:
FAX:
PROJECT NAME: TENTATIVE TRACT MAP 52796
PROJECT #: 14-0315D
SITE NAME AND ADDRESS: STEVENSON RANCH CA.
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	OCPs 8081A	SVOCs (8270C)	PCBs	TPHe 22 Models	TEST INSTRUCTIONS & COMMENTS
1	3-5	76322.16	3-10-15	10:16	SOIL	1- 4oz JAR	ICE	X				
2	3-10	76322.17		10:20								
3	3-15	76322.18		10:25				X				
4	3-20	76322.19		10:32					X	X	X	
5	SP3-17	76322.20		10:34								
6	SP3-18	76322.21		10:35								
7	3-23	76322.22		10:41								
8	4-0.5	76322.23		11:00								
9	4-5	76322.24		11:01								
10	4-10	76322.25		11:10								
11	4-15	76322.26		11:17								
12	4-20	76322.27		11:25								
13	5-0.5	76322.28		11:35				X				
14	5-5	76322.29		11:38				X	X	X	X	
15	SP5(8)	76322.30		11:40								

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	15	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y / N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

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RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:		Signature:
Printed Name: J. CALLAY		Printed Name: BRIAN KATO
Date: 3/17/15 Time:		Date: 17 MAR 2015 Time: 1821
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: 3.**
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name: Jim Lin
Date: Time:	Date Time:	Date: 3-17-15 Time: 1821

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Ordered By

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Project ID: 14-031SD
Date Received 03/17/2015
Date Reported 03/26/2015

Telephone: (760)744-3363
Attention: Dan Weis

Job Number	Order Date	Client
76322	03/17/2015	AEC

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 30 samples with the following specification on 03/17/2015.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
76322.01	1-0.5	03/10/2015	Soil	1
76322.02	1-5	03/10/2015	Soil	1
76322.15	3-0.5	03/10/2015	Soil	1
76322.16	3-5	03/10/2015	Soil	1
76322.18	3-15	03/10/2015	Soil	1
76322.28	5-0.5	03/10/2015	Soil	1

Method ^ Submethod	Req Date	Priority	TAT	Units
(8081A)	03/24/2015	2	Normal	ug/Kg

76322.03	1-10	03/10/2015	Soil	1
76322.04	1-15	03/10/2015	Soil	1
76322.05	1-20	03/10/2015	Soil	1
76322.06	1-25	03/10/2015	Soil	1
76322.07	2-0.5	03/10/2015	Soil	1
76322.08	2-1	03/10/2015	Soil	1
76322.09	2-5	03/10/2015	Soil	1
76322.10	2-10	03/10/2015	Soil	1
76322.11	2-15	03/10/2015	Soil	1
76322.12	2-20	03/10/2015	Soil	1
76322.13	2-25	03/10/2015	Soil	1
76322.14	SP2 (10)	03/10/2015	Soil	1
76322.17	3-10	03/10/2015	Soil	1
76322.20	SP3-17	03/10/2015	Soil	1
76322.21	SP3-18	03/10/2015	Soil	1
76322.22	3-23	03/10/2015	Soil	1
76322.23	4-0.5	03/10/2015	Soil	1

Continued

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Project ID: 14-031SD
Date Received 03/17/2015
Date Reported 03/26/2015

Telephone: (760)744-3363
Attention: Dan Weis

Job Number	Order Date	Client
76322	03/17/2015	AEC

CERTIFICATE OF ANALYSIS

CASE NARRATIVE

76322.24	4-5	03/10/2015	Soil	1
76322.25	4-10	03/10/2015	Soil	1
76322.26	4-15	03/10/2015	Soil	1
76322.27	4-20	03/10/2015	Soil	1
76322.30	SP3 (8)	03/10/2015	Soil	1

Method ^ Submethod	Req Date	Priority	TAT	Units
ARCHIVE	03/24/2015	2	Normal	--

76322.19	3-20	03/10/2015	Soil	1

Method ^ Submethod	Req Date	Priority	TAT	Units
(6010B/7000CAM)	03/24/2015	2	Normal	mg/Kg
(8082)	03/24/2015	2	Normal	ug/Kg
(8270C)	03/24/2015	2	Normal	mg/Kg

76322.29	5-5	03/10/2015	Soil	1

Method ^ Submethod	Req Date	Priority	TAT	Units
(6010B/7000CAM)	03/24/2015	2	Normal	mg/Kg
(8081A)	03/24/2015	2	Normal	ug/Kg
(8082)	03/24/2015	2	Normal	ug/Kg
(8270C)	03/24/2015	2	Normal	mg/Kg

The samples were analyzed as specified on the enclosed chain of custody. Analytical non-conformances have been noted on the report.

Unless otherwise noted, all results of soil and solid samples are based on wet weight.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

American Environmental Testing Laboratory Inc.

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ANALYTICAL RESULTS

Ordered By

Advantage Environmental Consultants
145 Vallecitos De Oro
Suite 201
San Marcos, CA 92069-

Telephone: (760)744-3363
Attn: Dan Weis

Site

Stevenson Ranch, CA

Page: **2**

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB4

Our Lab I.D.			Method Blank	**76322.01**	**76322.02**		
Client Sample I.D.				1-0.5	1-5		
Date Sampled				03/10/2015	03/10/2015		
Date Prepared			03/20/2015	03/20/2015	03/20/2015		
Preparation Method			3550B	3550B	3550B		
Date Analyzed			03/24/2015	03/24/2015	03/24/2015		
Matrix			Soil	Soil	Soil		
Units			ug/Kg	ug/Kg	ug/Kg		
Dilution Factor			1	1	1		
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**		
Aldrin	1.0	2.0	ND	ND	ND		
Chlordane (Total)	1.0	2.0	ND	ND	ND		
Chlordane (alpha)	1.0	2.0	ND	ND	ND		
4,4'-DDD (DDD)	1.0	2.0	ND	ND	ND		
4,4'-DDE (DDE)	1.0	2.0	ND	ND	ND		
4,4'-DDT (DDT)	1.0	2.0	ND	ND	ND		
Dieldrin	1.0	2.0	ND	ND	1.63J		
Endosulfan 1	1.0	2.0	ND	ND	ND		
Endosulfan 11	1.0	2.0	ND	ND	ND		
Endosulfan sulfate	1.0	2.0	ND	ND	ND		
Endrin	1.0	2.0	ND	ND	ND		
Endrin aldehyde	1.0	2.0	ND	ND	ND		
Endrin ketone	1.0	2.0	ND	ND	ND		
Chlordane (gamma)	1.0	2.0	ND	ND	ND		
Heptachlor	1.0	2.0	ND	ND	ND		
Heptachlor epoxide	1.0	2.0	ND	ND	ND		
alpha-Hexachlorocyclohexane (Alpha-BHC)	1.0	2.0	ND	ND	ND		
beta-Hexachlorocyclohexane (Betta-BHC)	1.0	2.0	ND	ND	ND		
delta-Hexachlorocyclohexane (Delta-BHC)	1.0	2.0	ND	ND	ND		
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	1.0	2.0	ND	ND	ND		
Methoxychlor	5.0	10.0	ND	ND	ND		
Toxaphene	85.0	170.0	ND	ND	ND		

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

Our Lab I.D.			Method Blank	**76322.01**	**76322.02**		
Surrogates	**%Rec.Limit**		**% Rec.**	**% Rec.**	**% Rec.**		
Decachlorobiphenyl	30-150		76.8	93.2	83.2		
Tetrachloro-m-xylene	30-150		106	136	110		

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ANALYTICAL RESULTS

Ordered By

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Telephone: (760)744-3363
Attn: Dan Weis

Site

Stevenson Ranch, CA

Page: **4**

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB4

Our Lab I.D.			**76322.15**				
Client Sample I.D.			3-0.5				
Date Sampled			03/10/2015				
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			2				
Analytes	**MDL**	**PQL**	**Results**				
Aldrin	2.0	4.0	ND				
Chlordane (Total)	2.0	4.0	ND				
Chlordane (alpha)	2.0	4.0	ND				
4,4'-DDD (DDD)	2.0	4.0	ND				
4,4'-DDE (DDE)	2.0	4.0	ND				
4,4'-DDT (DDT)	2.0	4.0	ND				
Dieldrin	2.0	4.0	ND				
Endosulfan 1	2.0	4.0	ND				
Endosulfan 11	2.0	4.0	ND				
Endosulfan sulfate	2.0	4.0	ND				
Endrin	2.0	4.0	ND				
Endrin aldehyde	2.0	4.0	ND				
Endrin ketone	2.0	4.0	ND				
Chlordane (gamma)	2.0	4.0	ND				
Heptachlor	2.0	4.0	ND				
Heptachlor epoxide	2.0	4.0	ND				
alpha-Hexachlorocyclohexane (Alpha-BHC)	2.0	4.0	ND				
beta-Hexachlorocyclohexane (Betta-BHC)	2.0	4.0	ND				
delta-Hexachlorocyclohexane (Delta-BHC)	2.0	4.0	ND				
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	2.0	4.0	ND				
Methoxychlor	10	20	ND				
Toxaphene	170	340	ND				

Comment(s):
76322.15: Analyzed under dilution due to matrix interference

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

Our Lab I.D.			**76322.15**				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		80.8				
Tetrachloro-m-xylene	30-150		119				

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ANALYTICAL RESULTS

Ordered By

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Telephone: (760)744-3363
Attn: Dan Weis

Site

Stevenson Ranch, CA

Page: 6

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB4

Our Lab I.D.			76322.16	76322.18			
Client Sample I.D.			3-5	3-15			
Date Sampled			03/10/2015	03/10/2015			
Date Prepared			03/20/2015	03/20/2015			
Preparation Method			3550B	3550B			
Date Analyzed			03/24/2015	03/24/2015			
Matrix			Soil	Soil			
Units			ug/Kg	ug/Kg			
Dilution Factor			1	1			
Analytes	**MDL**	**PQL**	**Results**	**Results**			
Aldrin	1.0	2.0	ND	ND			
Chlordane (Total)	1.0	2.0	ND	ND			
Chlordane (alpha)	1.0	2.0	ND	ND			
4,4'-DDD (DDD)	1.0	2.0	ND	ND			
4,4'-DDE (DDE)	1.0	2.0	ND	ND			
4,4'-DDT (DDT)	1.0	2.0	ND	ND			
Dieldrin	1.0	2.0	ND	ND			
Endosulfan 1	1.0	2.0	ND	ND			
Endosulfan 11	1.0	2.0	ND	ND			
Endosulfan sulfate	1.0	2.0	ND	ND			
Endrin	1.0	2.0	ND	ND			
Endrin aldehyde	1.0	2.0	ND	ND			
Endrin ketone	1.0	2.0	ND	ND			
Chlordane (gamma)	1.0	2.0	ND	ND			
Heptachlor	1.0	2.0	ND	ND			
Heptachlor epoxide	1.0	2.0	ND	ND			
alpha-Hexachlorocyclohexane (Alpha-BHC)	1.0	2.0	ND	ND			
beta-Hexachlorocyclohexane (Betta-BHC)	1.0	2.0	ND	ND			
delta-Hexachlorocyclohexane (Delta-BHC)	1.0	2.0	ND	ND			
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	1.0	2.0	ND	ND			
Methoxychlor	5.0	10.0	ND	ND			
Toxaphene	85.0	170.0	ND	ND			

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

Our Lab I.D.			76322.16	76322.18			
Surrogates	%Rec.Limit		% Rec.	% Rec.			
Decachlorobiphenyl	30-150		84.2	97.2			
Tetrachloro-m-xylene	30-150		106	149			

American Environmental Testing Laboratory Inc.

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ANALYTICAL RESULTS

Ordered By

Advantage Environmental Consultants
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San Marcos, CA 92069-

Telephone: (760)744-3363
Attn: Dan Weis

Site

Stevenson Ranch, CA

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB4

Our Lab I.D.			**76322.28**				
Client Sample I.D.			5-0.5				
Date Sampled			03/10/2015				
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			10				
Analytes	**MDL**	**PQL**	**Results**				
Aldrin	10	20	ND				
Chlordane (Total)	10	20	ND				
Chlordane (alpha)	10	20	ND				
4,4'-DDD (DDD)	10	20	ND				
4,4'-DDE (DDE)	10	20	ND				
4,4'-DDT (DDT)	10	20	ND				
Dieldrin	10	20	ND				
Endosulfan 1	10	20	ND				
Endosulfan 11	10	20	ND				
Endosulfan sulfate	10	20	ND				
Endrin	10	20	ND				
Endrin aldehyde	10	20	ND				
Endrin ketone	10	20	ND				
Chlordane (gamma)	10	20	ND				
Heptachlor	10	20	ND				
Heptachlor epoxide	10	20	ND				
alpha-Hexachlorocyclohexane (Alpha-BHC)	10	20	ND				
beta-Hexachlorocyclohexane (Betta-BHC)	10	20	ND				
delta-Hexachlorocyclohexane (Delta-BHC)	10	20	ND				
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	10	20	ND				
Methoxychlor	50	100	ND				
Toxaphene	850	1700	ND				

Comment(s):
76322.28: Analyzed under dilution due to matrix interference

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

Our Lab I.D.			**76322.28**				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		82.4				
Tetrachloro-m-xylene	30-150		108				

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Stevenson Ranch, CA

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB4

Our Lab I.D.			**76322.29**				
Client Sample I.D.			5-5				
Date Sampled			03/10/2015				
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			5				
Analytes	**MDL**	**PQL**	**Results**				
Aldrin	5	10	ND				
Chlordane (Total)	5	10	ND				
Chlordane (alpha)	5	10	ND				
4,4'-DDD (DDD)	5	10	ND				
4,4'-DDE (DDE)	5	10	ND				
4,4'-DDT (DDT)	5	10	ND				
Dieldrin	5	10	ND				
Endosulfan 1	5	10	ND				
Endosulfan 11	5	10	ND				
Endosulfan sulfate	5	10	ND				
Endrin	5	10	ND				
Endrin aldehyde	5	10	ND				
Endrin ketone	5	10	ND				
Chlordane (gamma)	5	10	ND				
Heptachlor	5	10	ND				
Heptachlor epoxide	5	10	ND				
alpha-Hexachlorocyclohexane (Alpha-BHC)	5	10	ND				
beta-Hexachlorocyclohexane (Betta-BHC)	5	10	ND				
delta-Hexachlorocyclohexane (Delta-BHC)	5	10	ND				
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	5	10	ND				
Methoxychlor	25	50	ND				
Toxaphene	425	850	ND				

Comment(s):
76322.29: Analyzed under dilution due to matrix interference

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

Our Lab I.D.			**76322.29**				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		74.4				
Tetrachloro-m-xylene	30-150		98.8				

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Stevenson Ranch, CA

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8082), Polychlorinated Biphenyls (PCBs) by GC

QC Batch No: 032015MB

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Aroclor-1016 (PCB-1016)	25.0	50.0	ND				
Aroclor-1221 (PCB-1221)	25.0	50.0	ND				
Aroclor-1232 (PCB-1232)	25.0	50.0	ND				
Aroclor-1242 (PCB-1242)	25.0	50.0	ND				
Aroclor-1248 (PCB-1248)	25.0	50.0	ND				
Aroclor-1254 (PCB-1254)	25.0	50.0	ND				
Aroclor-1260 (PCB-1260)	25.0	50.0	ND				
Aroclor-1262 (PCB-1262)	25.0	50.0	ND				
Aroclor-1268 (PCB-1268)	25.0	50.0	ND				
Our Lab I.D.			Method Blank				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		96.4				
Tetrachloro-m-xylene	30-150		105				

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Page: **13**

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8082), Polychlorinated Biphenyls (PCBs) by GC

QC Batch No: 032015MB

Our Lab I.D.			**76322.19**	**76322.29**			
Client Sample I.D.			3-20	5-5			
Date Sampled			03/10/2015	03/10/2015			
Date Prepared			03/20/2015	03/20/2015			
Preparation Method			3550B	3550B			
Date Analyzed			03/24/2015	03/24/2015			
Matrix			Soil	Soil			
Units			ug/Kg	ug/Kg			
Dilution Factor			5	5			
Analytes	**MDL**	**PQL**	**Results**	**Results**			
Aroclor-1016 (PCB-1016)	125	250	ND	ND			
Aroclor-1221 (PCB-1221)	125	250	ND	ND			
Aroclor-1232 (PCB-1232)	125	250	ND	ND			
Aroclor-1242 (PCB-1242)	125	250	ND	ND			
Aroclor-1248 (PCB-1248)	125	250	ND	ND			
Aroclor-1254 (PCB-1254)	125	250	ND	ND			
Aroclor-1260 (PCB-1260)	125	250	ND	ND			
Aroclor-1262 (PCB-1262)	125	250	ND	ND			
Aroclor-1268 (PCB-1268)	125	250	ND	ND			

Comment(s):
76322.19: Analyzed under dilution due to matrix interference 76322.29: Analyzed under dilution due to matrix interference

Our Lab I.D.			**76322.19**	**76322.29**			
Surrogates	**%Rec.Limit**		**% Rec.**	**% Rec.**			
Decachlorobiphenyl	30-150		131	92.2			
Tetrachloro-m-xylene	30-150		79.4	71.8			

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Acenaphthene	0.25	0.50	ND				
Acenaphthylene	0.25	0.50	ND				
Anthracene	0.25	0.50	ND				
Azobenzene	0.25	0.50	ND				
Benzidine	0.25	0.50	ND				
Benzo(a)anthracene	0.25	0.50	ND				
Benzo(a)pyrene	0.25	0.50	ND				
Benzo(b)fluoranthene	0.25	0.50	ND				
Benzo(g,h,i)perylene	0.25	0.50	ND				
Benzo(k)fluoranthene	0.25	0.50	ND				
Benzoic Acid	0.25	0.50	ND				
Benzyl Alcohol	0.25	0.50	ND				
Bis(2-Chloroethoxy)methane	0.25	0.50	ND				
Bis(2-Chloroethyl)ether	0.25	0.50	ND				
Bis(2-chloroisopropyl) ether	0.25	0.50	ND				
Bis(2-ethylhexyl) phthalate	0.25	0.50	ND				
4-Bromophenyl phenyl ether	0.25	0.50	ND				
Butyl benzyl phthalate	0.25	0.50	ND				
4-Chloro-3-methylphenol	0.25	0.50	ND				
4-Chloroaniline	0.25	0.50	ND				
2-Chloronaphthalene	0.25	0.50	ND				
2-Chlorophenol	0.25	0.50	ND				
4-Chlorophenyl phenyl ether	0.25	0.50	ND				
Chrysene	0.25	0.50	ND				
Di-n-butyl phthalate	0.25	0.50	ND				
Di-n-octyl phthalate (Dioctyl ester)	0.25	0.50	ND				
Dibenzo(a,h)anthracene	0.25	0.50	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Dibenzofuran	0.25	0.50	ND				
1,2-Dichlorobenzene	0.25	0.50	ND				
1,3-Dichlorobenzene	0.25	0.50	ND				
1,4-Dichlorobenzene	0.25	0.50	ND				
3,3'-Dichlorobenzidine	0.25	0.50	ND				
2,4-Dichlorophenol	0.25	0.50	ND				
Diethyl phthalate (Diethyl ester)	0.25	0.50	ND				
Dimethyl phthalate (Dimethyl ester)	0.25	0.50	ND				
2,4-Dimethylphenol	0.25	0.50	ND				
4,6-Dinitro-2-methylphenol	0.25	0.50	ND				
2,4-Dinitrophenol	0.25	0.50	ND				
2,4-Dinitrotoluene	0.25	0.50	ND				
2,6-Dinitrotoluene (2,6-DNT)	0.25	0.50	ND				
Fluoranthene	0.25	0.50	ND				
Fluorene	0.25	0.50	ND				
Hexachlorobenzene	0.25	0.50	ND				
Hexachlorobutadiene	0.25	0.50	ND				
Hexachlorocyclopentadiene	0.25	0.50	ND				
Hexachloroethane	0.25	0.50	ND				
Indeno(1,2,3-cd)pyrene	0.25	0.50	ND				
Isophorone	0.25	0.50	ND				
2-Methylnaphthalene	0.25	0.50	ND				
4-Methylphenol	0.25	0.50	ND				
2-Methylphenol (2-Cresol)	0.25	0.50	ND				
3-Methylphenol (3-Cresol)	0.25	0.50	ND				
N-Nitroso-Di-n-propylamine	0.25	0.50	ND				
Naphthalene	0.25	0.50	ND				
2-Nitroaniline	0.25	0.50	ND				
3-Nitroaniline	0.25	0.50	ND				
4-Nitroaniline	0.25	0.50	ND				
Nitrobenzene (NB)	0.25	0.50	ND				
4-Nitrophenol	0.25	0.50	ND				
2-Nitrophenol (o-Nitrophenol)	0.25	0.50	ND				
N-nitrosodiphenylamine	0.25	0.50	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Pentachlorophenol	0.25	0.50	ND				
Phenanthrene	0.25	0.50	ND				
Phenol	0.25	0.50	ND				
Pyrene	0.25	0.50	ND				
1,2,4-Trichlorobenzene	0.25	0.50	ND				
2,4,5-Trichlorophenol	0.25	0.50	ND				
2,4,6-Trichlorophenol	0.25	0.50	ND				
Our Lab I.D.			Method Blank				
Surrogates	**%Rec.Limit**		**% Rec.**				
2-Fluorophenol	25-121		70.8				
2-Fluorobiphenyl	30-115		76.9				
Nitrobenzene-d5	23-120		74.9				
Phenol-d6	21-113		77.6				
p-Terphenyl-D14	18-137		106				
2,4,6-Tribromophenol	19-122		61.6				

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			**76322.19**				
Client Sample I.D.			3-20				
Date Sampled			03/10/2015				
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			4				
Analytes	**MDL**	**PQL**	**Results**				
Acenaphthene	1.00	2.00	ND				
Acenaphthylene	1.00	2.00	ND				
Anthracene	1.00	2.00	ND				
Azobenzene	1.00	2.00	ND				
Benzidine	1.00	2.00	ND				
Benzo(a)anthracene	1.00	2.00	ND				
Benzo(a)pyrene	1.00	2.00	ND				
Benzo(b)fluoranthene	1.00	2.00	ND				
Benzo(g,h,i)perylene	1.00	2.00	ND				
Benzo(k)fluoranthene	1.00	2.00	ND				
Benzoic Acid	1.00	2.00	ND				
Benzyl Alcohol	1.00	2.00	ND				
Bis(2-Chloroethoxy)methane	1.00	2.00	ND				
Bis(2-Chloroethyl)ether	1.00	2.00	ND				
Bis(2-chloroisopropyl) ether	1.00	2.00	ND				
Bis(2-ethylhexyl) phthalate	1.00	2.00	ND				
4-Bromophenyl phenyl ether	1.00	2.00	ND				
Butyl benzyl phthalate	1.00	2.00	ND				
4-Chloro-3-methylphenol	1.00	2.00	ND				
4-Chloroaniline	1.00	2.00	ND				
2-Chloronaphthalene	1.00	2.00	ND				
2-Chlorophenol	1.00	2.00	ND				
4-Chlorophenyl phenyl ether	1.00	2.00	ND				
Chrysene	1.00	2.00	ND				
Di-n-butyl phthalate	1.00	2.00	ND				
Di-n-octyl phthalate (Dioctyl ester)	1.00	2.00	ND				
Dibenzo(a,h)anthracene	1.00	2.00	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			**76322.19**				
Client Sample I.D.			3-20				
Date Sampled			03/10/2015				
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			4				
Analytes	**MDL**	**PQL**	**Results**				
Dibenzofuran	1.00	2.00	ND				
1,2-Dichlorobenzene	1.00	2.00	ND				
1,3-Dichlorobenzene	1.00	2.00	ND				
1,4-Dichlorobenzene	1.00	2.00	ND				
3,3'-Dichlorobenzidine	1.00	2.00	ND				
2,4-Dichlorophenol	1.00	2.00	ND				
Diethyl phthalate (Diethyl ester)	1.00	2.00	ND				
Dimethyl phthalate (Dimethyl ester)	1.00	2.00	ND				
2,4-Dimethylphenol	1.00	2.00	ND				
4,6-Dinitro-2-methylphenol	1.00	2.00	ND				
2,4-Dinitrophenol	1.00	2.00	ND				
2,4-Dinitrotoluene	1.00	2.00	ND				
2,6-Dinitrotoluene (2,6-DNT)	1.00	2.00	ND				
Fluoranthene	1.00	2.00	ND				
Fluorene	1.00	2.00	ND				
Hexachlorobenzene	1.00	2.00	ND				
Hexachlorobutadiene	1.00	2.00	ND				
Hexachlorocyclopentadiene	1.00	2.00	ND				
Hexachloroethane	1.00	2.00	ND				
Indeno(1,2,3-cd)pyrene	1.00	2.00	ND				
Isophorone	1.00	2.00	ND				
2-Methylnaphthalene	1.00	2.00	ND				
4-Methylphenol	1.00	2.00	ND				
2-Methylphenol (2-Cresol)	1.00	2.00	ND				
3-Methylphenol (3-Cresol)	1.00	2.00	ND				
N-Nitroso-Di-n-propylamine	1.00	2.00	ND				
Naphthalene	1.00	2.00	ND				
2-Nitroaniline	1.00	2.00	ND				
3-Nitroaniline	1.00	2.00	ND				
4-Nitroaniline	1.00	2.00	ND				
Nitrobenzene (NB)	1.00	2.00	ND				
4-Nitrophenol	1.00	2.00	ND				
2-Nitrophenol (o-Nitrophenol)	1.00	2.00	ND				
N-nitrosodiphenylamine	1.00	2.00	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			**76322.19**				
Client Sample I.D.			3-20				
Date Sampled			03/10/2015				
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			4				
Analytes	**MDL**	**PQL**	**Results**				
Pentachlorophenol	1.00	2.00	ND				
Phenanthrene	1.00	2.00	ND				
Phenol	1.00	2.00	ND				
Pyrene	1.00	2.00	ND				
1,2,4-Trichlorobenzene	1.00	2.00	ND				
2,4,5-Trichlorophenol	1.00	2.00	ND				
2,4,6-Trichlorophenol	1.00	2.00	ND				

Comment(s):
76322.19: Analyzed under dilution due to matrix interference

Our Lab I.D.			**76322.19**				
Surrogates	**%Rec.Limit**		**% Rec.**				
2-Fluorophenol	25-121		58.2				
2-Fluorobiphenyl	30-115		78.9				
Nitrobenzene-d5	23-120		71.2				
Phenol-d6	21-113		57.2				
p-Terphenyl-D14	18-137		121				
2,4,6-Tribromophenol	19-122		75.1				

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			**76322.29**				
Client Sample I.D.			5-5				
Date Sampled			03/10/2015				
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			16				
Analytes	**MDL**	**PQL**	**Results**				
Acenaphthene	4.00	8	ND				
Acenaphthylene	4.00	8	ND				
Anthracene	4.00	8	ND				
Azobenzene	4.00	8	ND				
Benzidine	4.00	8	ND				
Benzo(a)anthracene	4.00	8	ND				
Benzo(a)pyrene	4.00	8	ND				
Benzo(b)fluoranthene	4.00	8	ND				
Benzo(g,h,i)perylene	4.00	8	ND				
Benzo(k)fluoranthene	4.00	8	ND				
Benzoic Acid	4.00	8	ND				
Benzyl Alcohol	4.00	8	ND				
Bis(2-Chloroethoxy)methane	4.00	8	ND				
Bis(2-Chloroethyl)ether	4.00	8	ND				
Bis(2-chloroisopropyl) ether	4.00	8	ND				
Bis(2-ethylhexyl) phthalate	4.00	8	ND				
4-Bromophenyl phenyl ether	4.00	8	ND				
Butyl benzyl phthalate	4.00	8	ND				
4-Chloro-3-methylphenol	4.00	8	ND				
4-Chloroaniline	4.00	8	ND				
2-Chloronaphthalene	4.00	8	ND				
2-Chlorophenol	4.00	8	ND				
4-Chlorophenyl phenyl ether	4.00	8	ND				
Chrysene	4.00	8	ND				
Di-n-butyl phthalate	4.00	8	ND				
Di-n-octyl phthalate (Dioctyl ester)	4.00	8	ND				
Dibenzo(a,h)anthracene	4.00	8	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			**76322.29**				
Client Sample I.D.			5-5				
Date Sampled			03/10/2015				
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			16				
Analytes	**MDL**	**PQL**	**Results**				
Dibenzofuran	4.00	8	ND				
1,2-Dichlorobenzene	4.00	8	ND				
1,3-Dichlorobenzene	4.00	8	ND				
1,4-Dichlorobenzene	4.00	8	ND				
3,3'-Dichlorobenzidine	4.00	8	ND				
2,4-Dichlorophenol	4.00	8	ND				
Diethyl phthalate (Diethyl ester)	4.00	8	ND				
Dimethyl phthalate (Dimethyl ester)	4.00	8	ND				
2,4-Dimethylphenol	4.00	8	ND				
4,6-Dinitro-2-methylphenol	4.00	8	ND				
2,4-Dinitrophenol	4.00	8	ND				
2,4-Dinitrotoluene	4.00	8	ND				
2,6-Dinitrotoluene (2,6-DNT)	4.00	8	ND				
Fluoranthene	4.00	8	ND				
Fluorene	4.00	8	ND				
Hexachlorobenzene	4.00	8	ND				
Hexachlorobutadiene	4.00	8	ND				
Hexachlorocyclopentadiene	4.00	8	ND				
Hexachloroethane	4.00	8	ND				
Indeno(1,2,3-cd)pyrene	4.00	8	ND				
Isophorone	4.00	8	ND				
2-Methylnaphthalene	4.00	8	ND				
4-Methylphenol	4.00	8	ND				
2-Methylphenol (2-Cresol)	4.00	8	ND				
3-Methylphenol (3-Cresol)	4.00	8	ND				
N-Nitroso-Di-n-propylamine	4.00	8	ND				
Naphthalene	4.00	8	ND				
2-Nitroaniline	4.00	8	ND				
3-Nitroaniline	4.00	8	ND				
4-Nitroaniline	4.00	8	ND				
Nitrobenzene (NB)	4.00	8	ND				
4-Nitrophenol	4.00	8	ND				
2-Nitrophenol (o-Nitrophenol)	4.00	8	ND				
N-nitrosodiphenylamine	4.00	8	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815

Our Lab I.D.			**76322.29**				
Client Sample I.D.			5-5				
Date Sampled			03/10/2015				
Date Prepared			03/18/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			16				
Analytes	**MDL**	**PQL**	**Results**				
Pentachlorophenol	4.00	8	ND				
Phenanthrene	4.00	8	ND				
Phenol	4.00	8	ND				
Pyrene	4.00	8	ND				
1,2,4-Trichlorobenzene	4.00	8	ND				
2,4,5-Trichlorophenol	4.00	8	ND				
2,4,6-Trichlorophenol	4.00	8	ND				

Comment(s):
76322.29: Analyzed under dilution due to matrix interference

Our Lab I.D.			**76322.29**				
Surrogates	**%Rec.Limit**		**% Rec.**				
2-Fluorophenol	25-121		0.0 S6				
2-Fluorobiphenyl	30-115		23.0 S6				
Nitrobenzene-d5	23-120		14.1 S6				
Phenol-d6	21-113		0.0 S6				
p-Terphenyl-D14	18-137		26.2				
2,4,6-Tribromophenol	19-122		0.0 S6				

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (6010B/7000CAM), Title 22 Metals (SW-846)

QC Batch No: 0323152C1

Our Lab I.D.			Method Blank	**76322.19**	**76322.29**		
Client Sample I.D.				3-20	5-5		
Date Sampled				03/10/2015	03/10/2015		
Date Prepared			03/23/2015	03/23/2015	03/23/2015		
Preparation Method			3050B	3050B	3050B		
Date Analyzed			03/23/2015	03/23/2015	03/23/2015		
Matrix			Soil	Soil	Soil		
Units			mg/Kg	mg/Kg	mg/Kg		
Dilution Factor			1	1	1		
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**		
Antimony	1.0	5.0	ND	ND	ND		
Arsenic	1.0	5.0	ND	ND	ND		
Barium	2.5	5.0	ND	104	80.1		
Beryllium	1.3	2.5	ND	ND	ND		
Cadmium	1.3	2.5	ND	ND	ND		
Chromium	2.5	5.0	ND	30.5	10.5		
Cobalt	2.5	5.0	ND	10.2	4.69J		
Copper	2.5	5.0	ND	24.8	6.90		
Lead	2.5	5.0	ND	39.1	2.97J		
Mercury (By EPA 7471)	0.1	0.2	ND	ND	ND		
Molybdenum	2.5	5.0	ND	ND	ND		
Nickel	2.5	5.0	ND	22.7	8.59		
Selenium	1.0	5.0	ND	ND	ND		
Silver	2.5	5.0	ND	ND	ND		
Thallium	1.0	5.0	ND	ND	ND		
Vanadium	2.5	5.0	ND	38.0	16.3		
Zinc	2.5	5.0	ND	77.1	26.2		

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (6010B/7000CAM), Title 22 Metals (SW-846)

QC Batch No: 0323152C1; Dup or Spiked Sample: 76369.02; LCS: Clean Sand; QC Prepared: 03/23/2015; QC Analyzed: 03/23/2015; Units: mg/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Antimony	0.00	50.0	44.6	89.2	50.0	45.0	90.0	<1	75-125	<15
Arsenic	0.00	50.0	43.7	87.4	50.0	44.2	88.4	1.14	75-125	<15
Barium	21.0	50.0	72.0	102	50.0	71.5	101	<1	75-125	<15
Beryllium	0.00	50.0	49.9	99.8	50.0	50.5	101	1.20	75-125	<15
Cadmium	0.00	50.0	44.1	88.2	50.0	44.1	88.2	<1	75-125	<15
Chromium	7.52	50.0	54.3	93.6	50.0	54.2	93.4	<1	75-125	<15
Cobalt	0.00	50.0	47.1	94.2	50.0	47.1	94.2	<1	75-125	<15
Copper	3.80	50.0	51.9	96.2	50.0	52.0	96.4	<1	75-125	<15
Lead	2.64	50.0	45.7	86.1	50.0	45.9	86.5	<1	75-125	<15
Mercury (By EPA 7471)	0.00	0.500	0.555	111	0.500	0.555	111	<1	75-125	<15
Molybdenum	0.00	50.0	50.5	101	50.0	50.5	101	<1	75-125	<15
Nickel	3.52	50.0	48.3	89.6	50.0	48.4	89.8	<1	75-125	<15
Selenium	0.00	50.0	43.5	87.0	50.0	43.3	86.6	<1	75-125	<15
Silver	0.00	50.0	42.0	84.0	50.0	42.0	84.0	<1	75-125	<15
Thallium	0.00	50.0	37.8	75.6	50.0	38.3	76.6	1.31	75-125	<15
Vanadium	10.4	50.0	59.6	98.4	50.0	59.6	98.4	<1	75-125	<15
Zinc	10.2	50.0	53.4	86.4	50.0	53.4	86.4	<1	75-125	<15

QC Batch No: 0323152C1; Dup or Spiked Sample: 76369.02; LCS: Clean Sand; QC Prepared: 03/23/2015; QC Analyzed: 03/23/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Antimony	50.0	46.3	92.6	50.0	46.6	93.2	<1	75-125	<15	
Arsenic	50.0	46.6	93.2	50.0	46.3	92.6	<1	75-125	<15	
Barium	50.0	47.0	94.0	50.0	47.0	94.0	<1	75-125	<15	
Beryllium	50.0	49.4	98.8	50.0	49.5	99.0	<1	75-125	<15	
Cadmium	50.0	46.2	92.4	50.0	46.2	92.4	<1	75-125	<15	
Chromium	50.0	45.7	91.4	50.0	45.7	91.4	<1	75-125	<15	
Cobalt	50.0	43.9	87.8	50.0	43.9	87.8	<1	75-125	<15	
Copper	50.0	44.0	88.0	50.0	44.2	88.4	<1	75-125	<15	
Lead	50.0	43.4	86.8	50.0	43.2	86.4	<1	75-125	<15	

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (6010B/7000CAM), Title 22 Metals (SW-846)

QC Batch No: 0323152C1; Dup or Spiked Sample: 76369.02; LCS: Clean Sand; QC Prepared: 03/23/2015; QC Analyzed: 03/23/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Mercury (By EPA 7471)	0.500	0.545	109	0.500	0.545	109	<1	75-125	<15	
Molybdenum	50.0	49.3	98.6	50.0	49.4	98.8	<1	75-125	<15	
Nickel	50.0	43.3	86.6	50.0	43.2	86.4	<1	75-125	<15	
Selenium	50.0	48.0	96.0	50.0	47.8	95.6	<1	75-125	<15	
Silver	50.0	41.6	83.2	50.0	46.1	92.2	10.3	75-125	<15	
Thallium	50.0	40.1	80.2	50.0	39.9	79.8	<1	75-125	<15	
Vanadium	50.0	47.1	94.2	50.0	47.0	94.0	<1	75-125	<15	
Zinc	50.0	48.2	96.4	50.0	48.2	96.4	<1	75-125	<15	

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB4; Dup or Spiked Sample: 76356.02; LCS: Clean Sand; QC Prepared: 03/20/2015; QC Analyzed: 03/24/2015; Units: ug/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Aldrin	0.00	20.0	16.0	80.0	20.0	16.7	83.5	4.28	40-150	<40
4,4'-DDT (DDT)	0.00	50.0	29.4	58.8	50.0	34.5	69.0	16.0	40-150	<40
Dieldrin	71.7	50.0	118	92.6	50.0	133	123	28.2	40-150	<40
Endrin	0.00	50.0	23.7	47.4	50.0	31.3	62.6	27.6	40-150	<40
Heptachlor	0.00	20.0	13.6	68.0	20.0	15.2	76.0	11.1	40-150	<40
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	0.00	20.0	18.0	90.0	20.0	19.6	98.0	8.51	40-150	<40
Surrogates										
Decachlorobiphenyl	0.00	50.0	39.1	78.2	50.0	42.6	85.2	8.95	30-150	<40
Tetrachloro-m-xylene	0.00	50.0	49.4	98.8	50.0	49.7	99.4	<1	30-150	<40

QC Batch No: 032015MB4; Dup or Spiked Sample: 76356.02; LCS: Clean Sand; QC Prepared: 03/20/2015; QC Analyzed: 03/24/2015; Units: ug/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Aldrin	20.0	19.9	99.5	20.0	18.3	91.5	8.38	50-150	<40	
4,4'-DDT (DDT)	50.0	31.5	63.0	50.0	29.8	59.6	5.55	50-150	<40	
Dieldrin	50.0	46.2	92.4	50.0	43.1	86.2	6.94	50-150	<40	
Endrin	50.0	25.2	50.4	50.0	28.8	57.6	13.3	50-150	<40	
Heptachlor	20.0	16.1	80.5	20.0	15.1	75.5	6.41	50-150	<40	
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	20.0	21.6	108	20.0	19.7	98.5	9.20	50-150	<40	
Surrogates										
Decachlorobiphenyl	50.0	43.4	86.8	50.0	39.5	79.0	8.99	30-150	<40	
Tetrachloro-m-xylene	50.0	69.0	138	50.0	61.5	123	10.9	30-150	<40	

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8082), Polychlorinated Biphenyls (PCBs) by GC

QC Batch No: 032015MB; Dup or Spiked Sample: 76324.36; LCS: Clean Sand; QC Prepared: 03/20/2015; QC Analyzed: 03/24/2015; Units: ug/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Aroclor-1016 (PCB-1016)	0.00	500	484	96.8	500	580	116	18.0	50-150	<20
Aroclor-1260 (PCB-1260)	0.00	500	437	87.4	500	575	115	27.3	50-150	<20
Surrogates										
Decachlorobiphenyl	0.00	50.0	44.5	89.0	50.0	51.5	103	15.7	30-150	<20
Tetrachloro-m-xylene	0.00	50.0	39.6	79.2	50.0	43.9	87.8	10.9	30-150	<20

QC Batch No: 032015MB; Dup or Spiked Sample: 76324.36; LCS: Clean Sand; QC Prepared: 03/20/2015; QC Analyzed: 03/24/2015; Units: ug/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Aroclor-1016 (PCB-1016)	500	466	93.2	50-150						
Aroclor-1260 (PCB-1260)	500	497	99.4	50-150						
Surrogates										
Decachlorobiphenyl	50.0	49.2	98.4	30-150						
Tetrachloro-m-xylene	50.0	50.5	101	30-150						

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815; Dup or Spiked Sample: 76324.05; LCS: Clean Sand; QC Prepared: 03/18/2015; QC Analyzed: 03/24/2015; Units: mg/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Acenaphthene	0.00	2.50	1.82	72.8	2.50	1.77	70.8	2.8	46-118	<20
4-Chloro-3-methylphenol	0.00	5.00	4.00	79.9	5.00	3.51	70.2	12.9	39-98	<20
2-Chlorophenol	0.00	5.00	3.68	73.6	5.00	3.37	67.4	8.8	27-123	<20
1,4-Dichlorobenzene	0.00	2.50	1.84	73.6	2.50	1.72	68.8	6.7	36-97	<20
2,4-Dinitrotoluene	0.00	2.50	1.92	76.8	2.50	1.55	61.8	21.6	24-96	<20
N-Nitroso-Di-n-propylamine	0.00	2.50	2.22	88.8	2.50	2.01	80.2	10.2	41-116	<20
4-Nitrophenol	0.00	5.00	4.18	83.5	5.00	3.55	70.9	16.3	10-110	<20
Pentachlorophenol	0.00	5.00	4.26	85.1	5.00	3.69	73.7	14.4	40-125	<20
Phenol	0.00	5.00	3.88	77.6	5.00	3.56	71.2	8.6	12-89	<20
Pyrene	0.00	2.50	1.74	69.6	2.50	1.69	67.4	3.2	26-127	<20
1,2,4-Trichlorobenzene	0.00	2.50	1.90	75.9	2.50	1.80	71.8	5.6	39-98	<20
Surrogates										
2-Fluorophenol	0.00	5.00	3.21	64.2	5.00	3.06	61.1	4.9	25-121	<20
2-Fluorobiphenyl	0.00	2.50	1.82	72.6	2.50	1.87	74.6	2.7	30-115	<20
Nitrobenzene-d5	0.00	2.50	2.02	80.8	2.50	1.87	74.8	7.7	23-120	<20
p-Terphenyl-D14	0.00	2.50	1.79	71.6	2.50	1.78	71.0	<1	18-137	<20
Phenol-d6	0.00	5.00	3.58	71.5	5.00	3.48	69.6	2.7	24-113	<20
2,4,6-Tribromophenol	0.00	5.00	3.46	69.1	5.00	3.35	67.0	3.1	19-122	<20

QC Batch No: 031815; Dup or Spiked Sample: 76324.05; LCS: Clean Sand; QC Prepared: 03/18/2015; QC Analyzed: 03/24/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Acenaphthene	2.50	1.88	75.2	31-137						
4-Chloro-3-methylphenol	5.00	4.21	84.2	40-99						
2-Chlorophenol	5.00	3.77	75.3	25-102						
1,4-Dichlorobenzene	2.50	1.87	74.6	28-104						
2,4-Dinitrotoluene	2.50	2.15	85.8	28-89						
N-Nitroso-Di-n-propylamine	2.50	2.31	92.4	41-126						
4-Nitrophenol	5.00	4.52	90.4	11-114						
Pentachlorophenol	5.00	4.40	87.9	17-125						

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QUALITY CONTROL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76322	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031815; Dup or Spiked Sample: 76324.05; LCS: Clean Sand; QC Prepared: 03/18/2015; QC Analyzed: 03/24/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Phenol	5.00	4.02	80.4	26-90						
Pyrene	2.50	2.45	98.0	35-142						
1,2,4-Trichlorobenzene	2.50	1.92	76.8	38-107						
Surrogates										
2-Fluorophenol	5.00	3.34	66.8	25-121						
2-Fluorobiphenyl	2.50	1.92	76.8	30-115						
Nitrobenzene-d5	2.50	2.14	85.4	23-120						
p-Terphenyl-D14	2.50	1.84	73.4	18-137						
Phenol-d6	5.00	3.78	75.5	24-113						
2,4,6-Tribromophenol	5.00	3.67	73.4	19-122						

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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

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Ordered By

Advantage Environmental Consultants
145 Vallecitos De Oro Suite 201
San Marcos, CA 92069-

Telephone: (760)744-3363
Attention: Dan Weis

Number of Pages 27
Date Received 03/17/2015
Date Reported 03/26/2015

Job Number	Order Date	Client
76323	03/17/2015	AEC

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796
Site: Stevenson Ranch, CA

Enclosed please find results of analyses of 5 soil samples which were analyzed as specified on the attached chain of custody. If there are any questions, please do not hesitate to call.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

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CHAIN OF CUSTODY RECORD

№ 88513

AETL JOB No. 76323

COMPANY: AEC
PROJECT MANAGER:
COMPANY ADDRESS: SAN MARCOS, CA
PHONE:
FAX:
PROJECT NAME: TENTATIVE TRACT MAP 52796
PROJECT #: 14-0315D
SITE NAME AND ADDRESS: STEVENSON RANCH, CA
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	OCPs (8081)	SVOCs (8270C)	PCBs	THe 22 Metals					TEST INSTRUCTIONS & COMMENTS
1	5-10	76323.01	3-10-15	11:45	SOIL	1-4oz JAR	ICE		X	X	X					
2	5-15	76323.02		11:51				X	X	X	X					
3	5-20	76323.03		11:57												
4	5-23	76323.04		12:05					X	X	X					
5	6-0.5	76323.05		12:23												
6	6-5	76323.06		12:24												
7	6-10	76323.07		12:30												
8	6-15	76323.08		12:35												
9	7-0.5	76323.09		12:50				X								
10	7-5	76323.10		12:51				X								
11	7-10	76323.11		12:55												
12	7-15	76323.12		12:59												
13	7-20	76323.13		1:03												
14	8-0.5	76323.14		1:16												
15	8-5	76323.15		1:17												

ANALYSIS REQUESTED

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	15	PROPERLY COOLED Y/N/NA	
CUSTODY SEALS Y/N/NA		SAMPLES INTACT Y/N/NA	
RECEIVED IN GOOD COND. Y/N		SAMPLES ACCEPTED Y/N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY
☐ PDF
☐ GEOTRACKER (GLOBAL ID) _____
☐ OTHER (PLEASE SPECIFY) _____

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:		Signature:
Printed Name: JACQUAN		Printed Name: BRIAN KATU
Date: 3/17/15 Time:		Date: 17 MAR 2015 Time: 1821
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: 3.**
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name: JimLin
Date: Time:	Date: Time:	Date: 3-17-15 Time: 1821

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

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CHAIN OF CUSTODY RECORD

№ 88514

AETL JOB No. 76323

COMPANY: AEC
PROJECT MANAGER:
COMPANY ADDRESS:
PHONE:
FAX:
PROJECT NAME: TENTATIVE TRACT MAP 52796
PROJECT #: 14-03150
SITE NAME AND ADDRESS: STEVENSON RANCH, CA
PO #:

	SAMPLE ID	LAB ID	DATE	TIME	MATRIX	CONTAINER NUMBER/SIZE	PRES.	OCPs 8081	SVOCs (8270C)	PCBs	Title 22 Metals	TEST INSTRUCTIONS & COMMENTS
1	8-10	76323.16	3-6-15	1:21	SOIL	1-4oz JAR						
2	8-15	76323.17	↓	1:26	↓	↓						
3	8-20	76323.18	↓	1:30	↓	↓						
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												

ANALYSIS REQUESTED

SAMPLE RECEIPT - TO BE FILLED BY LABORATORY

TOTAL NUMBER OF CONTAINERS	3	PROPERLY COOLED Y / N / NA	
CUSTODY SEALS Y / N / NA		SAMPLES INTACT Y / N / NA	
RECEIVED IN GOOD COND. Y / N		SAMPLES ACCEPTED Y / N	

TURN AROUND TIME

☒ NORMAL ☐ RUSH ☐ SAME DAY ☐ NEXT DAY ☐ 2 DAYS ☐ 3 DAYS

DATA DELIVERABLE REQUIRED

☐ HARD COPY
☐ PDF
☐ GEOTRACKER (GLOBAL ID) _____
☐ OTHER (PLEASE SPECIFY) _____

RELINQUISHED BY SAMPLER: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature:		Signature:
Printed Name: J. JACQUAY		Printed Name: BRIAN KATO
Date: 3/17/15 Time:		Date: 17 MAR 2015 Time: 1821
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY LABORATORY: 3.**
Signature:	Signature:	Signature:
Printed Name:	Printed Name:	Printed Name: Jim Lin
Date: Time:	Date: Time:	Date: 3-17-15 Time: 1821

DISTRIBUTION: WHITE - Laboratory, CANARY - Laboratory, PINK - Project/Account Manager, YELLOW - Sampler/Originator

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Ordered By

Advantage Environmental Consultants
145 Vallecitos De Oro Suite 201
San Marcos, CA 92069-

Project ID: 14-031SD
Date Received 03/17/2015
Date Reported 03/26/2015

Telephone: (760)744-3363
Attention: Dan Weis

Job Number	Order Date	Client
76323	03/17/2015	AEC

CERTIFICATE OF ANALYSIS
CASE NARRATIVE

AETL received 18 samples with the following specification on 03/17/2015.

Lab ID	Sample ID	Sample Date	Matrix	Quantity Of Containers
76323.01	5-10	03/10/2015	Soil	1
76323.04	5-23	03/10/2015	Soil	1

Method ^ Submethod	Req Date	Priority	TAT	Units
(6010B/7000CAM)	03/24/2015	2	Normal	mg/Kg
(8082)	03/24/2015	2	Normal	ug/Kg
(8270C)	03/24/2015	2	Normal	mg/Kg

76323.02	5-15	03/10/2015	Soil	1

Method ^ Submethod	Req Date	Priority	TAT	Units
(6010B/7000CAM)	03/24/2015	2	Normal	mg/Kg
(8081A)	03/24/2015	2	Normal	ug/Kg
(8082)	03/24/2015	2	Normal	ug/Kg
(8270C)	03/24/2015	2	Normal	mg/Kg

76323.03	5-20	03/10/2015	Soil	1
76323.05	6-0.5	03/10/2015	Soil	1
76323.06	6-5	03/10/2015	Soil	1
76323.07	6-10	03/10/2015	Soil	1
76323.08	6-15	03/10/2015	Soil	1
76323.11	7-10	03/10/2015	Soil	1
76323.12	7-15	03/10/2015	Soil	1
76323.13	7-20	03/10/2015	Soil	1
76323.14	8-0.5	03/10/2015	Soil	1
76323.15	8-5	03/10/2015	Soil	1
76323.16	8-10	03/10/2015	Soil	1
76323.17	8-15	03/10/2015	Soil	1
76323.18	8-20	03/10/2015	Soil	1

Method ^ Submethod	Req Date	Priority	TAT	Units

Continued

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Project ID: 14-031SD
Date Received 03/17/2015
Date Reported 03/26/2015

Telephone: (760)744-3363
Attention: Dan Weis

Job Number	Order Date	Client
76323	03/17/2015	AEC

CERTIFICATE OF ANALYSIS

CASE NARRATIVE

76323.18	8-20	03/10/2015	Soil			1
Method ^ Submethod		*Req Date*	*Priority*	*TAT*	*Units*	
ARCHIVE		03/24/2015	2	Normal	--	
76323.09	7-0.5	03/10/2015	Soil			1
76323.10	7-5	03/10/2015	Soil			1
Method ^ Submethod		*Req Date*	*Priority*	*TAT*	*Units*	
(8081A)		03/24/2015	2	Normal	ug/Kg	

The samples were analyzed as specified on the enclosed chain of custody. Analytical non-conformances have been noted on the report.

Unless otherwise noted, all results of soil and solid samples are based on wet weight.

Checked By: _____ Approved By: C. Razmara

Cyrus Razmara, Ph.D.
Laboratory Director

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ANALYTICAL RESULTS

Ordered By

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San Marcos, CA 92069-

Telephone: (760)744-3363
Attn: Dan Weis

Site

Stevenson Ranch, CA

Page: **2**

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8082), Polychlorinated Biphenyls (PCBs) by GC

QC Batch No: 032015MB

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Aroclor-1016 (PCB-1016)	25.0	50.0	ND				
Aroclor-1221 (PCB-1221)	25.0	50.0	ND				
Aroclor-1232 (PCB-1232)	25.0	50.0	ND				
Aroclor-1242 (PCB-1242)	25.0	50.0	ND				
Aroclor-1248 (PCB-1248)	25.0	50.0	ND				
Aroclor-1254 (PCB-1254)	25.0	50.0	ND				
Aroclor-1260 (PCB-1260)	25.0	50.0	ND				
Aroclor-1262 (PCB-1262)	25.0	50.0	ND				
Aroclor-1268 (PCB-1268)	25.0	50.0	ND				
Our Lab I.D.			Method Blank				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		96.4				
Tetrachloro-m-xylene	30-150		105				

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ANALYTICAL RESULTS

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Site

Stevenson Ranch, CA

Page: 3

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8082), Polychlorinated Biphenyls (PCBs) by GC

QC Batch No: 032015MB

Our Lab I.D.			**76323.01**				
Client Sample I.D.			5-10				
Date Sampled			03/10/2015				
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			10				
Analytes	**MDL**	**PQL**	**Results**				
Aroclor-1016 (PCB-1016)	250	500	ND				
Aroclor-1221 (PCB-1221)	250	500	ND				
Aroclor-1232 (PCB-1232)	250	500	ND				
Aroclor-1242 (PCB-1242)	250	500	ND				
Aroclor-1248 (PCB-1248)	250	500	ND				
Aroclor-1254 (PCB-1254)	250	500	ND				
Aroclor-1260 (PCB-1260)	250	500	ND				
Aroclor-1262 (PCB-1262)	250	500	ND				
Aroclor-1268 (PCB-1268)	250	500	ND				

Comment(s):
76323.01: Analyzed under dilution due to matrix interference

Our Lab I.D.			**76323.01**				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		107				
Tetrachloro-m-xylene	30-150		89.8				

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ANALYTICAL RESULTS

Ordered By

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Attn: Dan Weis

Site

Stevenson Ranch, CA

Page: **4**

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8082), Polychlorinated Biphenyls (PCBs) by GC

QC Batch No: 032015MB

Our Lab I.D.			**76323.02**				
Client Sample I.D.			5-15				
Date Sampled			03/10/2015				
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			5				
Analytes	**MDL**	**PQL**	**Results**				
Aroclor-1016 (PCB-1016)	125	250	ND				
Aroclor-1221 (PCB-1221)	125	250	ND				
Aroclor-1232 (PCB-1232)	125	250	ND				
Aroclor-1242 (PCB-1242)	125	250	ND				
Aroclor-1248 (PCB-1248)	125	250	ND				
Aroclor-1254 (PCB-1254)	125	250	ND				
Aroclor-1260 (PCB-1260)	125	250	ND				
Aroclor-1262 (PCB-1262)	125	250	ND				
Aroclor-1268 (PCB-1268)	125	250	ND				

Comment(s):
76323.02: Analyzed under dilution due to matrix interference

Our Lab I.D.			**76323.02**				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		142				
Tetrachloro-m-xylene	30-150		72.0				

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ANALYTICAL RESULTS

Ordered By

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Site

Stevenson Ranch, CA

Page: **5**

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8082), Polychlorinated Biphenyls (PCBs) by GC

QC Batch No: 032015MB

Our Lab I.D.			**76323.04**				
Client Sample I.D.			5-23				
Date Sampled			03/10/2015				
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			2				
Analytes	**MDL**	**PQL**	**Results**				
Aroclor-1016 (PCB-1016)	50	100	ND				
Aroclor-1221 (PCB-1221)	50	100	ND				
Aroclor-1232 (PCB-1232)	50	100	ND				
Aroclor-1242 (PCB-1242)	50	100	ND				
Aroclor-1248 (PCB-1248)	50	100	ND				
Aroclor-1254 (PCB-1254)	50	100	ND				
Aroclor-1260 (PCB-1260)	50	100	ND				
Aroclor-1262 (PCB-1262)	50	100	ND				
Aroclor-1268 (PCB-1268)	50	100	ND				

Comment(s):
76323.04: Analyzed under dilution due to matrix interference

Our Lab I.D.			**76323.04**				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		95.4				
Tetrachloro-m-xylene	30-150		69.6				

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ANALYTICAL RESULTS

Ordered By

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Telephone: (760)744-3363
Attn: Dan Weis

Site

Stevenson Ranch, CA

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/19/2015				
Preparation Method			3550B				
Date Analyzed			03/25/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Acenaphthene	0.25	0.50	ND				
Acenaphthylene	0.25	0.50	ND				
Anthracene	0.25	0.50	ND				
Azobenzene	0.25	0.50	ND				
Benzidine	0.25	0.50	ND				
Benzo(a)anthracene	0.25	0.50	ND				
Benzo(a)pyrene	0.25	0.50	ND				
Benzo(b)fluoranthene	0.25	0.50	ND				
Benzo(g,h,i)perylene	0.25	0.50	ND				
Benzo(k)fluoranthene	0.25	0.50	ND				
Benzoic Acid	0.25	0.50	ND				
Benzyl Alcohol	0.25	0.50	ND				
Bis(2-Chloroethoxy)methane	0.25	0.50	ND				
Bis(2-Chloroethyl)ether	0.25	0.50	ND				
Bis(2-chloroisopropyl) ether	0.25	0.50	ND				
Bis(2-ethylhexyl) phthalate	0.25	0.50	ND				
4-Bromophenyl phenyl ether	0.25	0.50	ND				
Butyl benzyl phthalate	0.25	0.50	ND				
4-Chloro-3-methylphenol	0.25	0.50	ND				
4-Chloroaniline	0.25	0.50	ND				
2-Chloronaphthalene	0.25	0.50	ND				
2-Chlorophenol	0.25	0.50	ND				
4-Chlorophenyl phenyl ether	0.25	0.50	ND				
Chrysene	0.25	0.50	ND				
Di-n-butyl phthalate	0.25	0.50	ND				
Di-n-octyl phthalate (Dioctyl ester)	0.25	0.50	ND				
Dibenzo(a,h)anthracene	0.25	0.50	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/19/2015				
Preparation Method			3550B				
Date Analyzed			03/25/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Dibenzofuran	0.25	0.50	ND				
1,2-Dichlorobenzene	0.25	0.50	ND				
1,3-Dichlorobenzene	0.25	0.50	ND				
1,4-Dichlorobenzene	0.25	0.50	ND				
3,3'-Dichlorobenzidine	0.25	0.50	ND				
2,4-Dichlorophenol	0.25	0.50	ND				
Diethyl phthalate (Diethyl ester)	0.25	0.50	ND				
Dimethyl phthalate (Dimethyl ester)	0.25	0.50	ND				
2,4-Dimethylphenol	0.25	0.50	ND				
4,6-Dinitro-2-methylphenol	0.25	0.50	ND				
2,4-Dinitrophenol	0.25	0.50	ND				
2,4-Dinitrotoluene	0.25	0.50	ND				
2,6-Dinitrotoluene (2,6-DNT)	0.25	0.50	ND				
Fluoranthene	0.25	0.50	ND				
Fluorene	0.25	0.50	ND				
Hexachlorobenzene	0.25	0.50	ND				
Hexachlorobutadiene	0.25	0.50	ND				
Hexachlorocyclopentadiene	0.25	0.50	ND				
Hexachloroethane	0.25	0.50	ND				
Indeno(1,2,3-cd)pyrene	0.25	0.50	ND				
Isophorone	0.25	0.50	ND				
2-Methylnaphthalene	0.25	0.50	ND				
4-Methylphenol	0.25	0.50	ND				
2-Methylphenol (2-Cresol)	0.25	0.50	ND				
3-Methylphenol (3-Cresol)	0.25	0.50	ND				
N-Nitroso-Di-n-propylamine	0.25	0.50	ND				
Naphthalene	0.25	0.50	ND				
2-Nitroaniline	0.25	0.50	ND				
3-Nitroaniline	0.25	0.50	ND				
4-Nitroaniline	0.25	0.50	ND				
Nitrobenzene (NB)	0.25	0.50	ND				
4-Nitrophenol	0.25	0.50	ND				
2-Nitrophenol (o-Nitrophenol)	0.25	0.50	ND				
N-nitrosodiphenylamine	0.25	0.50	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/19/2015				
Preparation Method			3550B				
Date Analyzed			03/25/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Pentachlorophenol	0.25	0.50	ND				
Phenanthrene	0.25	0.50	ND				
Phenol	0.25	0.50	ND				
Pyrene	0.25	0.50	ND				
1,2,4-Trichlorobenzene	0.25	0.50	ND				
2,4,5-Trichlorophenol	0.25	0.50	ND				
2,4,6-Trichlorophenol	0.25	0.50	ND				
Our Lab I.D.			Method Blank				
Surrogates	**%Rec.Limit**		**% Rec.**				
2-Fluorophenol	25-121		79.6				
2-Fluorobiphenyl	30-115		96.4				
Nitrobenzene-d5	23-120		87.6				
Phenol-d6	21-113		84.4				
p-Terphenyl-D14	18-137		109				
2,4,6-Tribromophenol	19-122		90.2				

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Stevenson Ranch, CA

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			**76323.01**				
Client Sample I.D.			5-10				
Date Sampled			03/10/2015				
Date Prepared			03/19/2015				
Preparation Method			3550B				
Date Analyzed			03/26/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			16				
Analytes	**MDL**	**PQL**	**Results**				
Acenaphthene	4.00	8	ND				
Acenaphthylene	4.00	8	ND				
Anthracene	4.00	8	ND				
Azobenzene	4.00	8	ND				
Benzidine	4.00	8	ND				
Benzo(a)anthracene	4.00	8	ND				
Benzo(a)pyrene	4.00	8	ND				
Benzo(b)fluoranthene	4.00	8	ND				
Benzo(g,h,i)perylene	4.00	8	ND				
Benzo(k)fluoranthene	4.00	8	ND				
Benzoic Acid	4.00	8	ND				
Benzyl Alcohol	4.00	8	ND				
Bis(2-Chloroethoxy)methane	4.00	8	ND				
Bis(2-Chloroethyl)ether	4.00	8	ND				
Bis(2-chloroisopropyl) ether	4.00	8	ND				
Bis(2-ethylhexyl) phthalate	4.00	8	ND				
4-Bromophenyl phenyl ether	4.00	8	ND				
Butyl benzyl phthalate	4.00	8	ND				
4-Chloro-3-methylphenol	4.00	8	ND				
4-Chloroaniline	4.00	8	ND				
2-Chloronaphthalene	4.00	8	ND				
2-Chlorophenol	4.00	8	ND				
4-Chlorophenyl phenyl ether	4.00	8	ND				
Chrysene	4.00	8	ND				
Di-n-butyl phthalate	4.00	8	ND				
Di-n-octyl phthalate (Dioctyl ester)	4.00	8	ND				
Dibenzo(a,h)anthracene	4.00	8	ND				

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AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			**76323.01**				
Client Sample I.D.			5-10				
Date Sampled			03/10/2015				
Date Prepared			03/19/2015				
Preparation Method			3550B				
Date Analyzed			03/26/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			16				
Analytes	**MDL**	**PQL**	**Results**				
Dibenzofuran	4.00	8	ND				
1,2-Dichlorobenzene	4.00	8	ND				
1,3-Dichlorobenzene	4.00	8	ND				
1,4-Dichlorobenzene	4.00	8	ND				
3,3'-Dichlorobenzidine	4.00	8	ND				
2,4-Dichlorophenol	4.00	8	ND				
Diethyl phthalate (Diethyl ester)	4.00	8	ND				
Dimethyl phthalate (Dimethyl ester)	4.00	8	ND				
2,4-Dimethylphenol	4.00	8	ND				
4,6-Dinitro-2-methylphenol	4.00	8	ND				
2,4-Dinitrophenol	4.00	8	ND				
2,4-Dinitrotoluene	4.00	8	ND				
2,6-Dinitrotoluene (2,6-DNT)	4.00	8	ND				
Fluoranthene	4.00	8	ND				
Fluorene	4.00	8	4.07J				
Hexachlorobenzene	4.00	8	ND				
Hexachlorobutadiene	4.00	8	ND				
Hexachlorocyclopentadiene	4.00	8	ND				
Hexachloroethane	4.00	8	ND				
Indeno(1,2,3-cd)pyrene	4.00	8	ND				
Isophorone	4.00	8	ND				
2-Methylnaphthalene	4.00	8	11.1				
4-Methylphenol	4.00	8	ND				
2-Methylphenol (2-Cresol)	4.00	8	ND				
3-Methylphenol (3-Cresol)	4.00	8	ND				
N-Nitroso-Di-n-propylamine	4.00	8	ND				
Naphthalene	4.00	8	5.46J				
2-Nitroaniline	4.00	8	ND				
3-Nitroaniline	4.00	8	ND				
4-Nitroaniline	4.00	8	ND				
Nitrobenzene (NB)	4.00	8	ND				
4-Nitrophenol	4.00	8	ND				
2-Nitrophenol (o-Nitrophenol)	4.00	8	ND				
N-nitrosodiphenylamine	4.00	8	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			**76323.01**				
Client Sample I.D.			5-10				
Date Sampled			03/10/2015				
Date Prepared			03/19/2015				
Preparation Method			3550B				
Date Analyzed			03/26/2015				
Matrix			Soil				
Units			mg/Kg				
Dilution Factor			16				
Analytes	**MDL**	**PQL**	**Results**				
Pentachlorophenol	4.00	8	ND				
Phenanthrene	4.00	8	5.68J				
Phenol	4.00	8	ND				
Pyrene	4.00	8	ND				
1,2,4-Trichlorobenzene	4.00	8	ND				
2,4,5-Trichlorophenol	4.00	8	ND				
2,4,6-Trichlorophenol	4.00	8	ND				
Our Lab I.D.			**76323.01**				
Surrogates	**%Rec.Limit**		**% Rec.**				
2-Fluorophenol	25-121		0.0 S6				
2-Fluorobiphenyl	30-115		72.8				
Nitrobenzene-d5	23-120		0.0 S6				
Phenol-d6	21-113		0.0 S6				
p-Terphenyl-D14	18-137		86.4				
2,4,6-Tribromophenol	19-122		0.0 S6				

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			**76323.02**	**76323.04**			
Client Sample I.D.			5-15	5-23			
Date Sampled			03/10/2015	03/10/2015			
Date Prepared			03/19/2015	03/19/2015			
Preparation Method			3550B	3550B			
Date Analyzed			03/25/2015	03/26/2015			
Matrix			Soil	Soil			
Units			mg/Kg	mg/Kg			
Dilution Factor			2	2			
Analytes	**MDL**	**PQL**	**Results**	**Results**			
Acenaphthene	0.50	1.00	0.530J	ND			
Acenaphthylene	0.50	1.00	ND	ND			
Anthracene	0.50	1.00	ND	ND			
Azobenzene	0.50	1.00	ND	ND			
Benzidine	0.50	1.00	ND	ND			
Benzo(a)anthracene	0.50	1.00	ND	ND			
Benzo(a)pyrene	0.50	1.00	ND	ND			
Benzo(b)fluoranthene	0.50	1.00	ND	ND			
Benzo(g,h,i)perylene	0.50	1.00	ND	ND			
Benzo(k)fluoranthene	0.50	1.00	ND	ND			
Benzoic Acid	0.50	1.00	ND	ND			
Benzyl Alcohol	0.50	1.00	ND	ND			
Bis(2-Chloroethoxy)methane	0.50	1.00	ND	ND			
Bis(2-Chloroethyl)ether	0.50	1.00	ND	ND			
Bis(2-chloroisopropyl) ether	0.50	1.00	ND	ND			
Bis(2-ethylhexyl) phthalate	0.50	1.00	ND	ND			
4-Bromophenyl phenyl ether	0.50	1.00	ND	ND			
Butyl benzyl phthalate	0.50	1.00	ND	ND			
4-Chloro-3-methylphenol	0.50	1.00	ND	ND			
4-Chloroaniline	0.50	1.00	ND	ND			
2-Chloronaphthalene	0.50	1.00	ND	ND			
2-Chlorophenol	0.50	1.00	ND	ND			
4-Chlorophenyl phenyl ether	0.50	1.00	ND	ND			
Chrysene	0.50	1.00	ND	ND			
Di-n-butyl phthalate	0.50	1.00	ND	ND			
Di-n-octyl phthalate (Dioctyl ester)	0.50	1.00	ND	ND			
Dibenzo(a,h)anthracene	0.50	1.00	ND	ND			

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			76323.02	76323.04			
Client Sample I.D.			5-15	5-23			
Date Sampled			03/10/2015	03/10/2015			
Date Prepared			03/19/2015	03/19/2015			
Preparation Method			3550B	3550B			
Date Analyzed			03/25/2015	03/26/2015			
Matrix			Soil	Soil			
Units			mg/Kg	mg/Kg			
Dilution Factor			2	2			
Analytes	**MDL**	**PQL**	**Results**	**Results**			
Dibenzofuran	0.50	1.00	ND	ND			
1,2-Dichlorobenzene	0.50	1.00	ND	ND			
1,3-Dichlorobenzene	0.50	1.00	ND	ND			
1,4-Dichlorobenzene	0.50	1.00	ND	ND			
3,3'-Dichlorobenzidine	0.50	1.00	ND	ND			
2,4-Dichlorophenol	0.50	1.00	ND	ND			
Diethyl phthalate (Diethyl ester)	0.50	1.00	ND	ND			
Dimethyl phthalate (Dimethyl ester)	0.50	1.00	ND	ND			
2,4-Dimethylphenol	0.50	1.00	ND	ND			
4,6-Dinitro-2-methylphenol	0.50	1.00	ND	ND			
2,4-Dinitrophenol	0.50	1.00	ND	ND			
2,4-Dinitrotoluene	0.50	1.00	ND	ND			
2,6-Dinitrotoluene (2,6-DNT)	0.50	1.00	ND	ND			
Fluoranthene	0.50	1.00	ND	ND			
Fluorene	0.50	1.00	ND	ND			
Hexachlorobenzene	0.50	1.00	ND	ND			
Hexachlorobutadiene	0.50	1.00	ND	ND			
Hexachlorocyclopentadiene	0.50	1.00	ND	ND			
Hexachloroethane	0.50	1.00	ND	ND			
Indeno(1,2,3-cd)pyrene	0.50	1.00	ND	ND			
Isophorone	0.50	1.00	ND	ND			
2-Methylnaphthalene	0.50	1.00	ND	ND			
4-Methylphenol	0.50	1.00	ND	ND			
2-Methylphenol (2-Cresol)	0.50	1.00	ND	ND			
3-Methylphenol (3-Cresol)	0.50	1.00	ND	ND			
N-Nitroso-Di-n-propylamine	0.50	1.00	ND	ND			
Naphthalene	0.50	1.00	ND	ND			
2-Nitroaniline	0.50	1.00	ND	ND			
3-Nitroaniline	0.50	1.00	ND	ND			
4-Nitroaniline	0.50	1.00	ND	ND			
Nitrobenzene (NB)	0.50	1.00	ND	ND			
4-Nitrophenol	0.50	1.00	ND	ND			
2-Nitrophenol (o-Nitrophenol)	0.50	1.00	ND	ND			
N-nitrosodiphenylamine	0.50	1.00	ND	ND			

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1

Our Lab I.D.			76323.02	76323.04			
Client Sample I.D.			5-15	5-23			
Date Sampled			03/10/2015	03/10/2015			
Date Prepared			03/19/2015	03/19/2015			
Preparation Method			3550B	3550B			
Date Analyzed			03/25/2015	03/26/2015			
Matrix			Soil	Soil			
Units			mg/Kg	mg/Kg			
Dilution Factor			2	2			
Analytes	**MDL**	**PQL**	**Results**	**Results**			
Pentachlorophenol	0.50	1.00	ND	ND			
Phenanthrene	0.50	1.00	ND	ND			
Phenol	0.50	1.00	ND	ND			
Pyrene	0.50	1.00	ND	ND			
1,2,4-Trichlorobenzene	0.50	1.00	ND	ND			
2,4,5-Trichlorophenol	0.50	1.00	ND	ND			
2,4,6-Trichlorophenol	0.50	1.00	ND	ND			

Comment(s):
76323.04: Analyzed under dilution due to matrix interference

Our Lab I.D.			76323.02	76323.04			
Surrogates	**%Rec.Limit**		**% Rec.**	**% Rec.**			
2-Fluorophenol	25-121		60.0	43.2			
2-Fluorobiphenyl	30-115		80.0	73.6			
Nitrobenzene-d5	23-120		60.8	51.2			
Phenol-d6	21-113		57.6	45.0			
p-Terphenyl-D14	18-137		130	94.4			
2,4,6-Tribromophenol	19-122		56.8	28.6			

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (6010B/7000CAM), Title 22 Metals (SW-846)

QC Batch No: 0323152C1

Our Lab I.D.			Method Blank	**76323.01**	**76323.02**	**76323.04**	
Client Sample I.D.				5-10	5-15	5-23	
Date Sampled				03/10/2015	03/10/2015	03/10/2015	
Date Prepared			03/23/2015	03/23/2015	03/23/2015	03/23/2015	
Preparation Method			3050B	3050B	3050B	3050B	
Date Analyzed			03/23/2015	03/23/2015	03/23/2015	03/23/2015	
Matrix			Soil	Soil	Soil	Soil	
Units			mg/Kg	mg/Kg	mg/Kg	mg/Kg	
Dilution Factor			1	1	1	1	
Analytes	**MDL**	**PQL**	**Results**	**Results**	**Results**	**Results**	
Antimony	1.0	5.0	ND	ND	ND	ND	
Arsenic	1.0	5.0	ND	ND	ND	ND	
Barium	2.5	5.0	ND	133	50.4	64.9	
Beryllium	1.3	2.5	ND	ND	ND	ND	
Cadmium	1.3	2.5	ND	ND	ND	ND	
Chromium	2.5	5.0	ND	5.86	28.2	31.5	
Cobalt	2.5	5.0	ND	4.38J	13.0	10.6	
Copper	2.5	5.0	ND	4.68J	25.1	27.6	
Lead	2.5	5.0	ND	9.04	5.04	5.85	
Mercury (By EPA 7471)	0.1	0.2	ND	ND	ND	ND	
Molybdenum	2.5	5.0	ND	ND	ND	ND	
Nickel	2.5	5.0	ND	11.5	28.6	24.7	
Selenium	1.0	5.0	ND	ND	ND	ND	
Silver	2.5	5.0	ND	ND	ND	ND	
Thallium	1.0	5.0	ND	ND	ND	ND	
Vanadium	2.5	5.0	ND	22.6	33.4	35.8	
Zinc	2.5	5.0	ND	33.3	66.6	69.6	

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB3

Our Lab I.D.			Method Blank				
Client Sample I.D.							
Date Sampled							
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/23/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			1				
Analytes	**MDL**	**PQL**	**Results**				
Aldrin	1.0	2.0	ND				
Chlordane (Total)	1.0	2.0	ND				
Chlordane (alpha)	1.0	2.0	ND				
4,4'-DDD (DDD)	1.0	2.0	ND				
4,4'-DDE (DDE)	1.0	2.0	ND				
4,4'-DDT (DDT)	1.0	2.0	ND				
Dieldrin	1.0	2.0	ND				
Endosulfan 1	1.0	2.0	ND				
Endosulfan 11	1.0	2.0	ND				
Endosulfan sulfate	1.0	2.0	ND				
Endrin	1.0	2.0	ND				
Endrin aldehyde	1.0	2.0	ND				
Endrin ketone	1.0	2.0	ND				
Chlordane (gamma)	1.0	2.0	ND				
Heptachlor	1.0	2.0	ND				
Heptachlor epoxide	1.0	2.0	ND				
alpha-Hexachlorocyclohexane (Alpha-BHC)	1.0	2.0	ND				
beta-Hexachlorocyclohexane (Betta-BHC)	1.0	2.0	ND				
delta-Hexachlorocyclohexane (Delta-BHC)	1.0	2.0	ND				
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	1.0	2.0	ND				
Methoxychlor	5.0	10.0	ND				
Toxaphene	85.0	170.0	ND				

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

Our Lab I.D.			Method Blank				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		88.2				
Tetrachloro-m-xylene	30-150		145				

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB3

Our Lab I.D.			**76323.02**				
Client Sample I.D.			5-15				
Date Sampled			03/10/2015				
Date Prepared			03/20/2015				
Preparation Method			3550B				
Date Analyzed			03/24/2015				
Matrix			Soil				
Units			ug/Kg				
Dilution Factor			5				
Analytes	**MDL**	**PQL**	**Results**				
Aldrin	5	10	ND				
Chlordane (Total)	5	10	ND				
Chlordane (alpha)	5	10	ND				
4,4'-DDD (DDD)	5	10	ND				
4,4'-DDE (DDE)	5	10	ND				
4,4'-DDT (DDT)	5	10	ND				
Dieldrin	5	10	ND				
Endosulfan 1	5	10	ND				
Endosulfan 11	5	10	ND				
Endosulfan sulfate	5	10	ND				
Endrin	5	10	ND				
Endrin aldehyde	5	10	ND				
Endrin ketone	5	10	ND				
Chlordane (gamma)	5	10	ND				
Heptachlor	5	10	ND				
Heptachlor epoxide	5	10	ND				
alpha-Hexachlorocyclohexane (Alpha-BHC)	5	10	ND				
beta-Hexachlorocyclohexane (Betta-BHC)	5	10	ND				
delta-Hexachlorocyclohexane (Delta-BHC)	5	10	ND				
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	5	10	ND				
Methoxychlor	25	50	ND				
Toxaphene	425	850	ND				

Comment(s):
76323.02: Analyzed under dilution due to matrix interference

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ANALYTICAL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

Our Lab I.D.			**76323.02**				
Surrogates	**%Rec.Limit**		**% Rec.**				
Decachlorobiphenyl	30-150		86.2				
Tetrachloro-m-xylene	30-150		99.0				

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB3

Our Lab I.D.			76323.09	76323.10			
Client Sample I.D.			7-0.5	7-5			
Date Sampled			03/10/2015	03/10/2015			
Date Prepared			03/20/2015	03/20/2015			
Preparation Method			3550B	3550B			
Date Analyzed			03/24/2015	03/24/2015			
Matrix			Soil	Soil			
Units			ug/Kg	ug/Kg			
Dilution Factor			1	1			
Analytes	**MDL**	**PQL**	**Results**	**Results**			
Aldrin	1.0	2.0	ND	ND			
Chlordane (Total)	1.0	2.0	ND	ND			
Chlordane (alpha)	1.0	2.0	ND	ND			
4,4'-DDD (DDD)	1.0	2.0	ND	ND			
4,4'-DDE (DDE)	1.0	2.0	ND	ND			
4,4'-DDT (DDT)	1.0	2.0	ND	ND			
Dieldrin	1.0	2.0	ND	ND			
Endosulfan 1	1.0	2.0	ND	ND			
Endosulfan 11	1.0	2.0	ND	ND			
Endosulfan sulfate	1.0	2.0	ND	ND			
Endrin	1.0	2.0	ND	ND			
Endrin aldehyde	1.0	2.0	ND	ND			
Endrin ketone	1.0	2.0	ND	ND			
Chlordane (gamma)	1.0	2.0	ND	ND			
Heptachlor	1.0	2.0	ND	ND			
Heptachlor epoxide	1.0	2.0	ND	ND			
alpha-Hexachlorocyclohexane (Alpha-BHC)	1.0	2.0	ND	ND			
beta-Hexachlorocyclohexane (Betta-BHC)	1.0	2.0	ND	ND			
delta-Hexachlorocyclohexane (Delta-BHC)	1.0	2.0	ND	ND			
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	1.0	2.0	ND	ND			
Methoxychlor	5.0	10.0	ND	ND			
Toxaphene	85.0	170.0	ND	ND			

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

Our Lab I.D.			76323.09	76323.10			
Surrogates	%Rec.Limit		% Rec.	% Rec.			
Decachlorobiphenyl	30-150		87.6	89.8			
Tetrachloro-m-xylene	30-150		114	113			

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (6010B/7000CAM), Title 22 Metals (SW-846)

QC Batch No: 0323152C1; Dup or Spiked Sample: 76369.02; LCS: Clean Sand; QC Prepared: 03/23/2015; QC Analyzed: 03/23/2015; Units: mg/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Antimony	0.00	50.0	44.6	89.2	50.0	45.0	90.0	<1	75-125	<15
Arsenic	0.00	50.0	43.7	87.4	50.0	44.2	88.4	1.14	75-125	<15
Barium	21.0	50.0	72.0	102	50.0	71.5	101	<1	75-125	<15
Beryllium	0.00	50.0	49.9	99.8	50.0	50.5	101	1.20	75-125	<15
Cadmium	0.00	50.0	44.1	88.2	50.0	44.1	88.2	<1	75-125	<15
Chromium	7.52	50.0	54.3	93.6	50.0	54.2	93.4	<1	75-125	<15
Cobalt	0.00	50.0	47.1	94.2	50.0	47.1	94.2	<1	75-125	<15
Copper	3.80	50.0	51.9	96.2	50.0	52.0	96.4	<1	75-125	<15
Lead	2.64	50.0	45.7	86.1	50.0	45.9	86.5	<1	75-125	<15
Mercury (By EPA 7471)	0.00	0.500	0.555	111	0.500	0.555	111	<1	75-125	<15
Molybdenum	0.00	50.0	50.5	101	50.0	50.5	101	<1	75-125	<15
Nickel	3.52	50.0	48.3	89.6	50.0	48.4	89.8	<1	75-125	<15
Selenium	0.00	50.0	43.5	87.0	50.0	43.3	86.6	<1	75-125	<15
Silver	0.00	50.0	42.0	84.0	50.0	42.0	84.0	<1	75-125	<15
Thallium	0.00	50.0	37.8	75.6	50.0	38.3	76.6	1.31	75-125	<15
Vanadium	10.4	50.0	59.6	98.4	50.0	59.6	98.4	<1	75-125	<15
Zinc	10.2	50.0	53.4	86.4	50.0	53.4	86.4	<1	75-125	<15

QC Batch No: 0323152C1; Dup or Spiked Sample: 76369.02; LCS: Clean Sand; QC Prepared: 03/23/2015; QC Analyzed: 03/23/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Antimony	50.0	46.3	92.6	50.0	46.6	93.2	<1	75-125	<15	
Arsenic	50.0	46.6	93.2	50.0	46.3	92.6	<1	75-125	<15	
Barium	50.0	47.0	94.0	50.0	47.0	94.0	<1	75-125	<15	
Beryllium	50.0	49.4	98.8	50.0	49.5	99.0	<1	75-125	<15	
Cadmium	50.0	46.2	92.4	50.0	46.2	92.4	<1	75-125	<15	
Chromium	50.0	45.7	91.4	50.0	45.7	91.4	<1	75-125	<15	
Cobalt	50.0	43.9	87.8	50.0	43.9	87.8	<1	75-125	<15	
Copper	50.0	44.0	88.0	50.0	44.2	88.4	<1	75-125	<15	
Lead	50.0	43.4	86.8	50.0	43.2	86.4	<1	75-125	<15	

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (6010B/7000CAM), Title 22 Metals (SW-846)

QC Batch No: 0323152C1; Dup or Spiked Sample: 76369.02; LCS: Clean Sand; QC Prepared: 03/23/2015; QC Analyzed: 03/23/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Mercury (By EPA 7471)	0.500	0.545	109	0.500	0.545	109	<1	75-125	<15	
Molybdenum	50.0	49.3	98.6	50.0	49.4	98.8	<1	75-125	<15	
Nickel	50.0	43.3	86.6	50.0	43.2	86.4	<1	75-125	<15	
Selenium	50.0	48.0	96.0	50.0	47.8	95.6	<1	75-125	<15	
Silver	50.0	41.6	83.2	50.0	46.1	92.2	10.3	75-125	<15	
Thallium	50.0	40.1	80.2	50.0	39.9	79.8	<1	75-125	<15	
Vanadium	50.0	47.1	94.2	50.0	47.0	94.0	<1	75-125	<15	
Zinc	50.0	48.2	96.4	50.0	48.2	96.4	<1	75-125	<15	

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8081A), Organochlorine Pesticides by GC

QC Batch No: 032015MB3; Dup or Spiked Sample: 76355.01; LCS: Clean Sand; QC Prepared: 03/20/2015; QC Analyzed: 03/23/2015; Units: ug/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Aldrin	43.7	20.0	61.2	87.5	20.0	55.6	59.5	38.1	40-150	<40
4,4'-DDT (DDT)	0.00	50.0	34.0	68.0	50.0	34.1	68.2	<1	40-150	<40
Dieldrin	2,370	50.0	1,960 #	-818.0	50.0	1,770 #	-1208.0	38.5	40-150	<40
Endrin	11.0	50.0	74.0	126	50.0	71.0	120	4.88	40-150	<40
Heptachlor	0.00	20.0	15.5	77.5	20.0	16.8	84.0	8.05	40-150	<40
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	0.00	20.0	20.6	103	20.0	22.4	112	8.37	40-150	<40
Surrogates										
Decachlorobiphenyl	0.00	50.0	43.3	86.6	50.0	41.8	83.6	3.46	30-150	<40
Tetrachloro-m-xylene	0.00	50.0	56.0	112	50.0	54.5	109	2.68	30-150	<40

QC Batch No: 032015MB3; Dup or Spiked Sample: 76355.01; LCS: Clean Sand; QC Prepared: 03/20/2015; QC Analyzed: 03/23/2015; Units: ug/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS DUP Concen	LCS DUP Recov	LCS DUP % REC	LCS RPD % REC	LCS/LCSD % Limit	LCS RPD % Limit	
Aldrin	20.0	17.5	87.5	20.0	19.1	95.5	8.74	50-150	<40	
4,4'-DDT (DDT)	50.0	27.9	55.8	50.0	32.2	64.4	14.3	50-150	<40	
Dieldrin	50.0	46.0	92.0	50.0	48.0	96.0	4.26	50-150	<40	
Endrin	50.0	42.7	85.4	50.0	47.9	95.8	11.5	50-150	<40	
Heptachlor	20.0	14.2	71.0	20.0	15.2	76.0	6.80	50-150	<40	
gamma-Hexachlorocyclohexane (Gamma-BHC, Lindane)	20.0	19.9	99.5	20.0	21.2	106	6.33	50-150	<40	
Surrogates										
Decachlorobiphenyl	50.0	39.8	79.6	50.0	42.2	84.4	6.03	30-150	<40	
Tetrachloro-m-xylene	50.0	61.5	123	50.0	56.5	113	8.13	30-150	<40	

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8082), Polychlorinated Biphenyls (PCBs) by GC

QC Batch No: 032015MB; Dup or Spiked Sample: 76324.36; LCS: Clean Sand; QC Prepared: 03/20/2015; QC Analyzed: 03/24/2015; Units: ug/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Aroclor-1016 (PCB-1016)	0.00	500	484	96.8	500	579	116	18.0	50-150	<20
Aroclor-1260 (PCB-1260)	0.00	500	437	87.4	500	577	115	27.3	50-150	<20
Surrogates										
Decachlorobiphenyl	0.00	50.0	44.5	89.0	50.0	51.4	103	15.7	30-150	<20
Tetrachloro-m-xylene	0.00	50.0	39.6	79.2	50.0	43.9	87.8	10.9	30-150	<20

QC Batch No: 032015MB; Dup or Spiked Sample: 76324.36; LCS: Clean Sand; QC Prepared: 03/20/2015; QC Analyzed: 03/24/2015; Units: ug/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Aroclor-1016 (PCB-1016)	500	466	93.2	50-150						
Aroclor-1260 (PCB-1260)	500	497	99.4	50-150						
Surrogates										
Decachlorobiphenyl	50.0	49.2	98.4	30-150						
Tetrachloro-m-xylene	50.0	50.4	101	30-150						

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Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1; Dup or Spiked Sample: 76344.11; LCS: Clean Sand; QC Prepared: 03/19/2015; QC Analyzed: 03/25/2015; Units: mg/Kg

Analytes	Sample Result	MS Concen	MS Recov	MS % REC	MS DUP Concen	MS DUP Recov	MS DUP % REC	RPD %	MS/MSD % Limit	MS RPD % Limit
Acenaphthene	0.00	2.50	2.00	80.0	2.50	2.15	86.0	7.23	46-118	<20
4-Chloro-3-methylphenol	0.00	5.00	3.97	79.4	5.00	4.53	90.6	13.2	39-98	<20
2-Chlorophenol	0.00	5.00	3.74	74.8	5.00	4.20	84.0	11.6	27-123	<20
1,4-Dichlorobenzene	0.00	2.50	2.06	82.4	2.50	2.26	90.4	9.26	36-97	<20
2,4-Dinitrotoluene	0.00	2.50	2.06	82.4	2.50	2.30	92.0	11.0	24-96	<20
N-Nitroso-Di-n-propylamine	0.00	2.50	1.85	74.0	2.50	1.96	78.4	5.77	41-116	<20
4-Nitrophenol	0.00	5.00	2.64	52.8	5.00	3.21	64.2	19.5	10-110	<20
Pentachlorophenol	0.00	5.00	3.35	67.0	5.00	3.89	77.8	14.9	40-125	<20
Phenol	0.00	5.00	3.43	68.6	5.00	3.92	78.4	13.3	12-89	<20
Pyrene	0.00	2.50	2.17	86.8	2.50	2.26	90.4	4.06	26-127	<20
1,2,4-Trichlorobenzene	0.00	2.50	2.32	92.8	2.50	2.58	103	10.4	39-98	<20
Surrogates										
2-Fluorophenol	0.00	5.00	3.07	61.4	5.00	3.55	71.0	15.6	25-121	<20
2-Fluorobiphenyl	0.00	2.50	2.24	89.6	2.50	2.37	94.8	5.80	30-115	<20
Nitrobenzene-d5	0.00	2.50	2.00	80.0	2.50	2.24	89.6	12.0	23-120	<20
p-Terphenyl-D14	0.00	2.50	2.40	96.0	2.50	2.50	100	4.17	18-137	<20
Phenol-d6	0.00	5.00	3.31	66.2	5.00	3.79	75.8	14.5	24-113	<20
2,4,6-Tribromophenol	0.00	5.00	4.20	84.0	5.00	4.51	90.2	7.38	19-122	<20

QC Batch No: 031915KB1; Dup or Spiked Sample: 76344.11; LCS: Clean Sand; QC Prepared: 03/19/2015; QC Analyzed: 03/25/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Acenaphthene	2.50	2.35	94.0	31-137						
4-Chloro-3-methylphenol	5.00	4.88	97.6	40-99						
2-Chlorophenol	5.00	4.50	90.0	25-102						
1,4-Dichlorobenzene	2.50	2.38	95.2	28-104						
2,4-Dinitrotoluene	2.50	2.48	99.2	28-89						
N-Nitroso-Di-n-propylamine	2.50	2.10	84.0	41-126						
4-Nitrophenol	5.00	3.66	73.2	11-114						
Pentachlorophenol	5.00	4.73	94.6	17-125						

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QUALITY CONTROL RESULTS

Project ID: 14-031SD
Project Name: Tentative Tract Map 52796

AETL Job Number	Submitted	Client
76323	03/17/2015	AEC

Method: (8270C), Semivolatile Organic Compounds by GC/MS (SW-846)

QC Batch No: 031915KB1; Dup or Spiked Sample: 76344.11; LCS: Clean Sand; QC Prepared: 03/19/2015; QC Analyzed: 03/25/2015; Units: mg/Kg

Analytes	LCS Concen	LCS Recov	LCS % REC	LCS/LCSD % Limit						
Phenol	5.00	4.18	83.6	26-90						
Pyrene	2.50	2.37	94.8	35-142						
1,2,4-Trichlorobenzene	2.50	2.70	108	38-107						
Surrogates										
2-Fluorophenol	5.00	3.85	77.0	25-121						
2-Fluorobiphenyl	2.50	2.55	102	30-115						
Nitrobenzene-d5	2.50	2.34	93.6	23-120						
p-Terphenyl-D14	2.50	2.60	104	18-137						
Phenol-d6	5.00	4.06	81.2	24-113						
2,4,6-Tribromophenol	5.00	5.15	103	19-122						

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Data Qualifiers and Descriptors

Data Qualifier:

#:	Recovery is not within acceptable control limits.
*:	In the QC section, sample results have been taken directly from the ICP reading. No preparation factor has been applied.
B:	Analyte was present in the Method Blank.
D:	Result is from a diluted analysis.
E:	Result is beyond calibration limits and is estimated.
H:	Analysis was performed over the allowed holding time due to circumstances which were beyond laboratory control.
J:	Analyte was detected . However, the analyte concentration is an estimated value, which is between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL).
M:	Matrix spike recovery is outside control limits due to matrix interference. Laboratory Control Sample recovery was acceptable.
MCL:	Maximum Contaminant Level
NS:	No Standard Available
S6:	Surrogate recovery is outside control limits due to matrix interference.
S8:	The analysis of the sample required a dilution such that the surrogate concentration was diluted below the method acceptance criteria.
X:	Results represent LCS and LCSD data.

Definition:

%Limi:	Percent acceptable limits.
%REC:	Percent recovery.
Con.L:	Acceptable Control Limits
Conce:	Added concentration to the sample.
LCS:	Laboratory Control Sample
MDL:	Method Detection Limit is a statistically derived number which is specific for each instrument, each method, and each compound. It indicates a distinctively detectable quantity with 99% probability.

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Data Qualifiers and Descriptors

MS:	Matrix Spike
MS DU:	Matrix Spike Duplicate
ND:	Analyte was not detected in the sample at or above MDL.
PQL:	Practical Quantitation Limit or ML (Minimum Level as per RWQCB) is the minimum concentration that can be quantified with more than 99% confidence. Taking into account all aspects of the entire analytical instrumentation and practice.
Recov:	Recovered concentration in the sample.
RPD:	Relative Percent Difference

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