749 Marlin Drive Road Extension Coastal Development Permit CDP-2022-2071 & Road Extension RD EXT-2021-10443

Public Review Draft
Initial Study/Negative Declaration
Technical Appendices

January 2023

Prepared for:

City of Laguna Beach
505 Forest Avenue
Laguna Beach, CA 92651

Prepared by:

De Novo Planning Group
180 E. Main Street, Suite 108
Tustin, CA 92780

De Novo Planning Group

A Land Use Planning, Design, and Environmental Firm

749 MARLIN DRIVE ROAD EXTENSION COASTAL DEVELOPMENT PERMIT CDP-2022-2071 & ROAD EXTENSION RD EXT-2021-10443

Public Review Draft

Initial Study/Negative Declaration Technical Appendices

LEAD AGENCY: CITY OF LAGUNA BEACH
505 Forest Avenue
Laguna Beach, California, 92651
Contact: Chris Dominguez, Senior Planner
cdominguez@lagunabeachcity.net

PREPARED BY: DE NOVO PLANNING GROUP
180 E. Main Street, Suite 108
Tustin, California 92780
Contact: Starla Barker, AICP
sbarker@denovoplanning.com

January 2023

Appendix A
Biological Technical Report

BIOLOGICAL TECHNICAL REPORT FOR PROPOSED FUEL MODIFICATION ZONE AND LECKEY PROPERTY IN THE ARCH BEACH HEIGHTS AREA OF LAGUNA BEACH, ORANGE COUNTY, CALIFORNIA

Prepared for:
Laguna Beach Fire Department
505 Forest Avenue
Laguna Beach, California 92651

Prepared by:
Glenn Lukos Associates
29 Orchard
Lake Forest, California 92630-8300

August 2014

TABLE OF CONTENTS

I. Site Location 1
II. Site Description and Project Purpose 1
III. Methods 2
IV. Regulatory Setting/Requirements 2
V. Vegetation Mapping 9
VI. Special-Status Species and Habitats 11
VII. Project-Related Impacts 20
VIII. Mitigation Measures 25
IX. Conclusion 26
X. Appendices

LIST OF EXHIBITS

Regional Map ..... Exhibit 1
Vicinity Map ..... Exhibit 2
Vegetation Map ..... Exhibit 3
Site Photographs ..... Exhibit 4
Sensitive Species Map ..... Exhibit 5
Soils Map ..... Exhibit 6
Potentially Jurisdictional Features Map ..... Exhibit 7
City of Laguna Beach High Value Habitat Map ..... Exhibit 8
Vegetation Impact Map ..... Exhibit 9
Proposed Mitigation Map ..... Exhibit 10

I. SITE LOCATION

This report addresses the biological resources associated with a newly proposed fuel modification zone and adjacent Leckey property (Study Area) located in the City of Laguna Beach, Orange County, California (Exhibit 1: Regional Map). The Study Area is located in the Arch Beach Heights area on the undeveloped slopes south of Alisos Avenue and Oro Street, west of Quivera Street, north and west of Nyes Place, and east of Alta Vista Way, in Section 31 of Township 7 South, Range 8 West of the Laguna Beach 7.5" U.S. Geological Survey (USGS) Quadrangle Map [dated 1965 and photorevised in 1981]. The Study Area is depicted on Exhibit 2: Vicinity Map.

II. SITE DESCRIPTION AND PROJECT PURPOSE

As indicated above, the Study Area addressed in this report includes a proposed fuel modification zone that would extend from the edge of residential areas approximately 100 feet into the undeveloped canyons totaling 20.63 acres, as well as an additional 15.14-acre avoided area associated with the Leckey property, as depicted on Exhibit 9. The Leckey property totals 21.22 acres; however, 6.08 acres overlap with the proposed fuel modification zone. Proposed fuel modification would require approximately fifty-percent thinning of vegetation. The Study Area is located on hillsides adjacent to residential housing developments and includes moderate to steep canyons that are vegetated with chaparral and coastal sage scrub habitat, as well as ornamental and non-native vegetation.

The purpose for conducting biological surveys is to determine where special-status species occur within the Study Area, in order to provide for avoidance during vegetation thinning. All special-status species detected and mapped during surveys will be clearly demarcated in the field for avoidance and will not be subject to fuel modification activities. The intent is to design a fuel modification zone that will meet the need for public safety while preserving the sensitive biological resources that occur in the designated fuel modification zone. Therefore, the project will result in no impacts to special-status species as identified through the California Natural Diversity Database (CNDDB, 2014) and California Native Plant Society's (CNPS) inventory of rare plants (2010), which is now designated as the California Rare Plant Rank (CRPR).

The Study Area consists of hillside and canyon areas vegetated with chaparral, coastal sage scrub, and large areas of a transitional state between the two that are dominated by lemonade berry (*Rhus integrifolia*). Throughout portions of the site, an existing fuel modification area consisting of a band of primarily non-native and ornamental vegetation separates the residential housing from the native habitat. Exhibit 3 depicts the vegetation communities found within the Study Area.

Dominant plant species within chaparral habitat include lemonade berry, toyon (*Heteromeles arbutifolia*), big-pod ceanothus (*Ceanothus megacarpus*), mesa bushmallow (*Malacothamnus fasciculatus*), laurel sumac (*Malosma laurina*), and giant wild rye (*Leymus condensatus*).

Coastal sage scrub habitat within the Study Area is dominated by black sage (*Salvia mellifera*), California sagebrush *(Artemisia californica),* California buckwheat (*Eriogonum fasciculatum*), coastal prickly pear (*Opuntia littoralis*), orange bush monkey-flower (*Mimulus aurantiacus*), coastal goldenbush (*Isocoma menziesii*), and deerweed (*Acmispon glaber*).

III. METHODS

Biologist Jason Fitzgibbon from Glenn Lukos Associates, Inc. (GLA) visited the Study Area on March 3 and 25, April 3, May 9 and 13, and June 9, 2014 to identify the presence of special-status species and habitats, including conducting focused surveys for special-status plants. The areas were also evaluated for the presence of aquatic features potentially subject to the jurisdiction of the U.S. Army Corps of Engineers (Corps) pursuant to Section 404 of the Clean Water Act and the California Department of Fish and Wildlife (CDFW) pursuant to Section 1602 of the California Fish and Game Code. Reconnaissance was conducted in such a manner as to allow inspection of the entire site by direct observation, including the use of binoculars, for avian surveys.

In addition to site reconnaissance, the study included a review of the CNDDB for the Laguna Beach Quadrangle[1], a review of the 2010 CNPS rare plant inventory[2], and a review of the Natural Resources Conservation Service's (NRCS)[3] soil survey for Laguna Beach.

IV. REGULATORY SETTING/REQUIREMENTS

The proposed activities may be subject to local, state, and federal regulations associated with a number of regulatory programs. These programs often overlap and were developed to protect natural resources, including: state- and federally-listed plants and animals; aquatic resources including rivers and creeks, ephemeral streambeds, wetlands, and areas of riparian habitat; other special-status species which are not listed as threatened or endangered by the state or federal governments; and other special-status vegetation communities.

A. State and/or Federally Listed Plants or Animals

1. State of California Endangered Species Act

California's Endangered Species Act (CESA) 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

[1] California Department of Fish and Wildlife. June 2014. Natural Diversity Database: RareFind 5.0.
[2] California Native Plant Society. 2010. Inventory of Rare and Endangered Plants of California (Eighth Edition).
[3] NRCS was formerly the Soil Conservation Service (SCS).

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 Game Commission. Unlike the Federal Endangered Species Act (FESA), CESA does not list invertebrate species.

Article 3, Sections 2080 through 2085, of the CESA addresses the taking of threatened, endangered, or candidate 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 and for take incidental to otherwise lawful activities. Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance.

2. Federal Endangered Species Act

The FESA of 1973 defines an endangered species as "any species that is in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as "any species that is likely to become an Endangered species within the foreseeable future throughout all or a significant portion of its range." Under 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 U.S. Fish and Wildlife Service (USFWS), through regulation, has interpreted the terms "harm" and "harass" to include certain types of habitat modification that result in injury to, or death of species 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 that 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.

3. State and Federal Take Authorizations for Listed Species

Federal or state authorizations of impacts to or incidental take of a listed species by a private individual or other private entity would be granted in one of the following ways:

- Section 7 of the FESA stipulates that any federal action that may affect a species listed as threatened or endangered requires a formal consultation with USFWS to ensure that the action is not likely to jeopardize the continued existence of the listed species or result in destruction or adverse modification of designated critical habitat. 16 U.S.C. 1536(a)(2).

- In 1982, the FESA was amended to give private landowners the ability to develop Habitat Conservation Plans (HCP) pursuant to Section 10(a) of the FESA. Upon development of an HCP, the USFWS can issue incidental take permits for listed species where the HCP specifies at minimum, the following: (1) the level of impact that will result from the taking, (2) steps that will minimize and mitigate the impacts, (3) funding necessary to implement the plan, (4) alternative actions to the taking considered by the applicant and the reasons why such alternatives were not chosen, and (5) such other measures that the Secretary of the Interior may require as being necessary or appropriate for the plan.

- Sections 2090-2097 of the CESA require that the state lead agency consult with CDFW on projects with potential impacts on state-listed species. These provisions also require CDFW to coordinate consultations with USFWS for actions involving federally listed as well as state-listed species. In certain circumstances, Section 2080.1 of the California Fish and Game Code allows CDFW to adopt the federal incidental take statement or the 10(a) permit as its own based on its findings that the federal permit adequately protects the species under state law.

B. Aquatic Resources

1. U.S. Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act, the Corps regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined in Corps regulations at 33 CFR Part 328.3(a) as:

> *(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
> *(2) All interstate waters including interstate wetlands;*
> *(3) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect foreign commerce including any such waters:*
> > *(i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
> > *(ii) From which fish or shell fish are or could be taken and sold in interstate or foreign commerce; or*

(iii) Which are used or could be used for industrial purpose by industries in interstate commerce...

(4) All impoundments of waters otherwise defined as waters of the United States under the definition;

(5) Tributaries of waters identified in paragraphs (a) (1)-(4) of this section;

(6) The territorial seas;

(7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1)-(6) of this section.

In the absence of wetlands, the limits of Corps jurisdiction in non-tidal waters, such as intermittent streams, extend to the ordinary high water mark (OHWM) which is defined at 33 CFR 328.3(e) as:

> *...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

The term “wetlands” (a subset of “waters of the United States”) is defined at 33 CFR 328.3(b) as "those areas 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." The discharge of dredge or fill material into waters of the United States, including wetlands requires authorization from the Corps prior to impacts.

2. Regional Water Quality Control Board

Regional Water Quality Control Board (RWQCB) jurisdiction includes all waters or tributaries to waters that are determined to be waters of the United States plus any waters that may lack a connection to a federal nexus. RWQCB jurisdiction, similar to waters of the United States, is typically delineated at the OHWM but may also include isolated vernal pools, isolated wetlands, or other aquatic habitats not normally subject to federal regulation (under Section 404 of the Clean Water Act). The RWQCB regulates isolated features under Section 13260 of the state Porter-Cologne Act.

3. California Department of Fish and Wildlife

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code, the CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFW defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has

supported riparian vegetation." CDFW's definition of "lake" includes "natural lakes or man-made reservoirs."

Diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife, require authorization from CDFW by means of entering into an agreement pursuant to Section 1601 or 1603 of the Fish and Game Code.

4. California Coastal Commission

The California Coastal Commission (CCC) regulates the diking, filling, or dredging of wetlands within the coastal zone. The Coastal Act Section 30121 defines "wetlands" as land "which may be covered periodically or permanently with shallow water." The 1998 CCC Statewide Interpretive Guidelines state that hydric soils and hydrophytic vegetation "are useful indicators of wetland conditions, but the presence or absence of hydric soils and/or hydrophytes alone are not necessarily determinative when the Commission identifies wetlands under the Coastal Act. In the past, the Commission has considered all relevant information in making such determinations and relied upon the advice and judgment of experts before reaching its own independent conclusion as to whether a particular area will be considered wetland under the Coastal Act. The Commission intends to continue to follow this policy."

Areas regulated by the Corps, RWQCB, CDFW and CCC are often not coincident due to the different goals of the respective regulatory programs as well as because these agencies use different definitions for determining the extent of wetland areas. The Corps requires that under normal circumstances, all three wetland parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) be present for an area to be considered as a jurisdictional wetland; whereas, the CCC policy provides for a positive determination for the presence of wetlands based on the presence of any one of the three criteria.

C. Local Approvals

1. City of Laguna Beach

The Project Site is located within the coastal zone, which is under the permitting authority of the City of Laguna Beach through the City's Local Coastal Program. In addition, the City has inventoried biological resources occurring within the City and has designated several categories of habitat value, ranging from low value habitats to very high value habitats[4]. The Project Site occurs partially within an area designated as a high value habitat. High value habitats are described by the City as:

> *" . . . extensive areas dominated by indigenous plant communities, which possess good species diversity. They are often, but not always, linked to extensive open space areas, within or outside of the City, by traversable*

[4] City of Laguna Beach. 1993. Laguna Beach General Plan; Open Space/Conservation Element (updated February 2006)

open space corridors. Their faunal carrying capacity is good to excellent; many areas are utilized as bedding and foraging sites by mule deer, or possess large resident populations of birds or native small mammals."

The City requires that all development proposals, including fuel modification proposals, located within or adjacent to high value or very high value habitat, undergo detailed biological assessments. Pursuant to the City's general plan these biological assessments are to utilize the biological value criteria specified in the City's Biological Resource Inventories as a means to conduct an updated, and smaller-scale assessment of the resources actually present on site.

In regard to proposed fuel modification activities within areas designated as high value or very high value habitat, the City's General Plan specifically,

" Prohibit[s] intrusion of fuel modification programs into environmentally sensitive areas, including chaparral and coastal sage scrub."

In an effort to protect watershed areas and natural watercourses, the City has designated several drainage features throughout the City as "significant drainage courses". Avoidance of these drainage courses is recommended within the City's General Plan so as to minimize the likelihood of disasters such as flooding and mudslides, and to protect water supply, water quality, and valuable habitat lands and ecological systems. Two significant drainage courses and their associated tributaries occur adjacent to the proposed fuel modification area, but will be entirely avoided.

Also designated within the City's General Plan are various open space preserve areas. These areas are typically characterized by increased levels of ecological, geographical and historical importance. The open space designation is intended to preserve land in its natural state for open space purposes exclusively. The majority of the Project site is designated as open space preserve areas within the City's General Plan.

D. California Environmental Quality Act

1. CEQA Guidelines Section 15380

The California Environmental Quality Act (CEQA) requires evaluation of a project's impacts on biological resources and provides guidelines and thresholds for use by lead agencies for evaluating the significance of proposed impacts. Sections VII.A.1 and VII.A.2 below set forth these thresholds and guidelines. Furthermore, pursuant to the CEQA Guidelines Section 15380, CEQA provides protection for non-listed species that could potentially meet the criteria for state listing. For plants, CDFW adopts the California Rare Plant Ranks (CRPR) and recognizes that species ranked as Rank 1A, 1B, 2A, or 2B of the CNPS *Inventory of Rare and Endangered Plants in California* may meet the criteria for listing and should be considered under CEQA. CDFW also recommends protection of plants, which are regionally important, such as locally rare species, disjunct populations of more common plants, or plants on the CNPS Ranks 3 or 4.

2. Non-Listed Special-Status Plants and Animals Evaluated Under CEQA

Federally Designated Special-Status Species

Within recent years, the USFWS instituted changes in the listing status of candidate species. Former C1 (candidate) species are now referred to simply as candidate species and represent the only candidates for listing. Former C2 species (for which the USFWS had insufficient evidence to warrant listing) and C3 species (either extinct, no longer a valid taxon or more abundant than was formerly believed) are no longer considered as candidate species. Therefore, these species are no longer maintained in list form by the USFWS, nor are they formally protected. However, some USFWS field offices have issued memoranda stating that former C2 species are to be considered federal Species of Concern (FSC). This term is employed in this document, but carries no official protections. All references to federally protected species in this report (whether listed, proposed for listing, or candidate) include the most current published status or candidate category to which each species has been assigned by USFWS.

For this report the following acronyms are used for federal special-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
FC	Federal candidate species (former C1 species)
FSC	Federal Species of Concern (former C2 species)

State-Designated Special-Status Species

Some mammals and birds are protected by the state as Fully Protected (SFP) Mammals or Fully Protected Birds, as described in the California Fish and Game Code, Sections 4700 and 3511, respectively. California Species of Special Concern (SSC) are species designated as vulnerable to extinction due to declining population levels, limited ranges, and/or continuing threats. This list is primarily a working document for the CDFW's CNDDB project. Informally listed taxa are not protected, 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 this report the following acronyms are used for State special-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
SP State Protected
SSC California Special Concern Species (CDFW)

Literature Search

Prior to conducting fieldwork, pertinent literature on the flora of the region was examined. A thorough archival review was conducted using available literature and other historical records. These resources included the following:

- CNPS, Inventory of Rare and Endangered Plants of California (Eighth Edition), 2010.
- CNDDB Rarefind 5.0, for USGS 7.5' Laguna Beach quadrangle, which contains the Study Area, 2014.

V. VEGETATION MAPPING

During vegetation mapping of the 35.77-acre Study Area, 6 different habitat associations were identified within 9 vegetation/land use types. Table 1 provides a summary of vegetation types/land uses and the corresponding acreage. Detailed descriptions of each vegetation type follow the table. A Vegetation Map is attached as Exhibit 3. Photographs depicting the various vegetation types and land uses are attached as Exhibit 4.

Table 1. Summary of Vegetation/Land Use Types for the Study Area

Vegetation/Land Use Type	Area (Acres)
Sage Scrub	**1.93**
Coastal Sage Scrub	1.52
Disturbed Coastal Sage Scrub	0.41
Chaparral	**22.47**
Chaparral	20.39
Disturbed Chaparral	2.08
Sage Scrub/Chaparral Ecotone	**6.52**
Western Sycamore	**0.01**
Disturbed/Developed Habitats	**4.66**
Ornamental	2.51
Disturbed	2.15
Bare Ground	**0.18**
Total Vegetation/Land Use Acreage	**35.77**

Coastal Sage Scrub

Coastal sage scrub at the site comprises an area of approximately 1.52 acres. Vegetation in these areas is dominated by black sage (*Salvia mellifera*), California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), coast goldenbush (*Isocoma menziesii*), deer weed (*Acmipson glaber*), California encelia (*Encelia californica*), and coast prickly pear (*Opuntia littoralis*). Other, less dominant species in these areas include giant wildrye (*Elymus condensatus*), bush monkey flower (*Mimulus aurantiacus*), and bladder pod (*Cleome isomeris*).

Disturbed Coastal Sage Scrub

Disturbed coastal sage scrub at the site comprises an area of approximately 0.41 acre and consists of areas of coastal sage scrub that have been subjected to significant levels of past or present disturbance and as a result, now possess a relatively large non-native vegetation component. Native scrub species in these areas are interspersed by spaces dominated by non-native, weedy vegetation such as ripgut brome (*Bromus diandrus*), slender wild oat (*Avena fatua*), red brome (*Bromus rubens*), sweet fennel (*Foeniculum vulgare*), horehound (*Marrubium vulgare*), and black mustard (*Brassica nigra*).

Chaparral

Chaparral at the site comprises an area of approximately 20.39 acres. Dominant species in these areas include lemonade berry (*Rhus integrifolia*), black sage, laurel sumac (*Malosma laurina*), big-pod ceanothus (*Ceanothus megacarpus*), coyote brush (*Baccharis pilularis*), bush rue (*Cneoridium dumosum*), California boxthorn (*Lycium californicum*), and sawtooth goldenbush (*Hazardia squarrosa*).

Disturbed Chaparral

Disturbed chaparral at the site comprises an area of approximately 2.08 acres and consists of areas of chaparral that have been subject to a significant level of past or present disturbance. As a result these areas contain a relatively large component of non-native or ornamental vegetation, including species such as myoporum (*Myoporum laetum*), pampas grass (*Cortaderia jubata*), fountain grass (*Pennisetum setaceum*), and acacia (*Acacia* sp.).

Western Sycamore

A few large western sycamore (*Platanus racemosa*) trees occur adjacent to a large drainage feature in the western portion of the site and comprise an area of approximately 0.01 acre.

Ornamental

Ornamental vegetation at the site comprises an area of approximately 2.51 acres and primarily occurs adjacent to existing residential development, or downslope of existing development where

landscaped areas have expanded into natural areas. This is most evident within the two drainage features on site, where pampas grass has become established and is now a dominant species. Otherwise, ornamental vegetation within the study area is extremely varied but comprised of other species including Mexican fan palm (*Washingtonia robusta*), hottentot fig (*Carpobrotus edulus*), Allepo pine (*Pinus halepensis*), acacia, and eucalyptus (*Eucalyptus* sp.).

Disturbed

Disturbed areas at the site comprise approximately 2.15 acres and consist of areas that are subject to regular disturbance and as a result are comprised primarily of various non-native grasses and weeds including ripgut brome, red brome, slender wild oat, black mustard, sweet fennel, horehound, and many other non-native annual species. These areas primarily occur adjacent to existing residential development and appear to have resulted from residents' fuel modification attempts.

Bare Ground

Bare ground at the site comprises an area of approximately 0.18 acres and consists of areas void of vegetation. These areas also primarily occur adjacent to existing residential development and appear to be a result of residents' fuel modification attempts.

VI. SPECIAL-STATUS SPECIES AND HABITATS

Species were considered based on a number of factors, including: 1) species identified by the March 2014 CNDDB as occurring (either currently of historically) on or in the vicinity of the subject areas, and 2) any other special-status species that are known to occur within the vicinity of the subject areas, or for which potentially suitable habitat occurs within the subject areas.

A. Special-Status Animals

1. State- or Federally-Listed Animal Species

Table 2 includes a summary list of the special-status animal species considered in the biological study and their legal status. All species were evaluated for their potential to occur within the Study Area. State- and/or federally-listed animal species or species proposed for listing that are addressed in this letter report include: the federally-listed threatened coastal California gnatcatcher (*Polioptila californica californica*), the federally- and state-listed endangered least Bell's vireo (*Vireo belli pusillus*), the federally-listed endangered Pacific pocket mouse (*Perognathus longimembris pacificus*), and the federally-listed endangered tidewater goby (*Eucyclogobius newberryi*). While none of the federally- or state-listed species were observed, the California gnatcatcher does have the potential to occur in areas of coastal sage scrub on site. Focused protocol surveys for gnatcatcher were conducted in 2010 and were negative. The least Bell's vireo, Pacific pocket mouse, and tidewater goby do not occur within the Study Area due to lack of suitable habitat.

2. Other Special-Status Animal Species

Other special-status species that have the potential to occur in the subject areas based on habitat and range include the orangethroat whiptail (*Aspidoscelis hyperythra*), red-diamond rattlesnake (*Crotalus ruber*), western mastiff bat (*Eumops perotis californicus*), and coast horned lizard (*Phrynosoma blainvillii* (*blainvillii* population)). No special-status animal species were observed within the Study Area.

Table 2. Special-Status Wildlife Species Considered for the Biological Study

Species	Status	Habitat Requirements	Occurrence on Site
FEDERALLY OR STATE-LISTED THREATENED OR ENDANGERED SPECIES			
Eucyclobobius newberryi Tidewater goby	Federal: FE State: None CDFW: SSC	Occurs in shallow lagoons and lower stream reaches along the California coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of the Smith River.	Does not occur on site due to lack of suitable habitat.
Perognathus longimembris pacificus Pacific pocket mouse	Federal: FE State: None CDFW: SSC	Fine, alluvial soils along the coastal plain. Scarcely in rocky soils of scrub habitats.	Does not occur on site due to lack of suitable habitat.
Polioptila californica californica Coastal California gnatcatcher	Federal: FT State: None CDFW: SSC	Low elevation coastal sage scrub and coastal bluff scrub.	Moderate potential to occur on site, very low potential to occur within proposed fuel modification areas due to the insularity of coastal sage scrub that is present. Not detected in 2010 during protocol surveys, and not detected in 2014 during biological surveys.
Vireo bellii pusillus Least Bell's vireo	Federal: FE State: SE CDFW: None	Dense riparian habitats with a stratified canopy, including southern willow scrub, mule fat scrub, and riparian forest.	Does not occur on site due to lack of suitable habitat.
OTHER SPECIAL-STATUS ANIMALS			
Actinemys marmorata pallida Southwestern pond turtle	Federal: FSC State: None CDFW: SSC	Slow-moving permanent or intermittent streams, small ponds and lakes, reservoirs, abandoned gravel pits, permanent and ephemeral shallow wetlands, stock ponds, and treatment lagoons. Abundant basking sites and cover necessary, including logs, rocks, submerged vegetation, and undercut banks.	Does not occur on site due to lack of suitable habitat.

Species	Status	Habitat Requirements	Occurrence on Site
Aspidoscelis hyperythrus Orange-throated whiptail	Federal: None State: None CDFW: SSC	Coastal sage scrub, chaparral, non-native grassland, oak woodland, and juniper woodland.	Moderate potential to occur on site; would not present a constraint to vegetation thinning.
Athene cunicularia Burrowing owl	Federal: FSC State: None CDFW: SSC	Shortgrass prairies, grasslands, lowland scrub, agricultural lands (particularly rangelands), coastal dunes, desert floors, and some artificial, open areas as a year-long resident. Occupies abandoned ground squirrel burrows as well as artificial structures such as culverts and underpasses.	Does not occur on site due to lack of suitable habitat.
Buteo regalis Ferruginous hawk (wintering)	Federal: FSC State: None CDFW: SSC	Open, dry country, perching on trees, posts, and mounds. In California, wintering habitat consists of open terrain and grasslands of the plains and foothills.	Very low potential to forage on site. Site is outside of known breeding range of the species.
Campylorhychus brunneicapillus couesi Coastal cactus wren	Federal: None State: None CDFW: SSC	Occurs almost exclusively in cactus (cholla and prickly pear) dominated coastal sage scrub.	Does not occur on site due to lack of suitable habitat.
Crotalus ruber Red-diamond rattlesnake	Federal: None State: None CDFW: SSC	Habitats with heavy brush and rock outcrops, including coastal sage scrub and chaparral.	Low potential to occur on site; would not present a constraint to vegetation thinning.
Danaus plexippus Monarch butterfly (wintering)	Federal: None State: None CDFW: None	Roosts in winter in wind-protected tree groves along the California coast from northern Mendocino to Baja California, Mexico.	Does not occur on site due to lack of suitable habitat.
Elanus leucurus White-tailed kite (nesting)	Federal: FSC State: None CDFW: CFP	Low elevation open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. Dense canopies used for nesting and cover.	Low potential to forage on site, no suitable nesting habitat occurs on site.
Eumops perotis californicus western mastiff bat	Federal: None State: None CDFW: SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral etc.	Low potential to occur on site; would not present a constraint to vegetation thinning.
Icteria virens Yellow-breasted chat	Federal: None State: None CDFW: SSC	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles, and dense brush with well-developed understories.	Does not occur on site due to lack of suitable habitat.
Nyctinomops macrotis Big free-tailed bat	Federal: None State: None CDFW: SSC	Occurs in low-lying arid areas in Southern California. Roosts in high cliffs or rocky outcrops.	Does not occur on site due to lack of suitable habitat.
Phrynosoma coronatum (*blainvillii* population) Coast (San Diego) horned Lizard	Federal: FSC State: None CDFW: SSC	Chaparral and coastal sage scrub.	Low potential to occur on site; would not present a constraint to vegetation thinning.

Species	Status	Habitat Requirements	Occurrence on Site
Spea hammondii Western spadefoot	Federal: FSC State: None CDFW: SSC	Seasonal pools in coastal sage scrub, chaparral, and grassland habitats.	Not observed on site. Not expected to occur on site due to lack of suitable habitat.

Federal
FE – Federally Endangered
FT – Federally Threatened
FPT – Federally Proposed Threatened
FSC – Federal Species of Concern
FD – Federally Delisted

State
SE – State Endangered
ST – State Threatened

CDFW
SSC – California Species of Concern
CFP – California Fully-Protected Species

B. Special-Status Plants

Species were considered based on a number of factors including: 1) species identified by the March 2014 CNDDB as occurring (either currently of historically) on or in the vicinity of the subject areas, and 2) any other special-status species that are known to occur within the vicinity of the subject areas, or for which potentially suitable habitat occurs on site. The CNPS has compiled an inventory comprised of information focusing on geographic distribution and qualitative characterization of rare, threatened or endangered vascular plant species of California. The current inventory (Eighth Edition, 2010) was used to identify sensitive plant species that occur on or in the vicinity of the subject areas.

1. Sate or Federally Listed Plant Species

State- and/or federally-listed plant species or species proposed for listing that are addressed in this letter report include: the federally- and state-listed threatened Laguna Beach dudleya (*Dudleya stolonifera*) and the federally- and state-listed threatened big-leaved crownbeard (*Verbesina dissita).* Suitable habitat does not exist on site for the Laguna Beach dudleya. Big-leaved crownbeard was detected within the Study Area and is depicted on Exhibit 5.

2. Other Special-Status Plant Species

Other special-status plants that have the potential to occur on site include Coulter's matilija poppy (*Romneya coulteri*), intermediate mariposa-lily (*Calochortus weedii* var. *intermedius*), summer holly (*Comarostaphylos diversifolia* ssp. *diversifolia*), western dichondra (*Dichondra occidentalis*), many-stemmed dudleya (*Dudleya multicaulis*), cliff spurge (*Euphorbia misera*), and Fish's milkwort (*Polygala cornuta* var. *fishiae*). Coulter's matilija poppy, a CRPR 4.2 species, was detected within the Study Area and is depicted on Exhibit 5. Note that Coulter's matilija poppy appears to have been planted in a resident's backyard as an ornamental plant and

has spread to areas on the Project Site. Table 3 includes a summary list of the special-status plant species considered in the biological study and their legal status.

Table 3. Special-Status Plant Species Considered for the Biological Study

Species	Status	Habitat	Occurrence On Site
FEDERALLY OR STATE-LISTED THREATENED OR ENDANGERED SPECIES			
Dudleya stolonifera Laguna Beach dudleya	Federal: FT State: ST CRPR: 1B.1	Chaparral, cismontane woodland, coastal sage scrub, valley and foothill grassland. Occurring on rocky soils.	No suitable habitat within the Study Area.
Verbesina dissita Big-leaved crownbeard	Federal: FT State: ST CRPR: 1B.1	Southern maritime chaparral, coastal sage scrub.	Observed at multiple locations in the southern portions of the site during focused surveys.
OTHER SPECIAL-STATUS PLANTS			
Aphanisma blitoides Aphanisma	Federal: None State: None CRPR: 1B.2	Coastal bluff scrub, coastal dunes, coastal dune scrub.	Does not occur due to lack of suitable habitat.
Atriplex coulteri Coulter's saltbush	Federal: None State: None CRPR: 1B.2	Coastal bluff scrub, coastal dunes, coastal sage scrub, valley and foothill grassland. Occurring on alkaline or clay soils.	Does not occur due to lack of suitable habitat.
Atriplex pacifica South coast saltscale	Federal: None State: None CRPR: 1B.2	Coastal bluff scrub, coastal dunes, coastal sage scrub, playas.	Does not occur due to lack of suitable habitat.
Atriplex parishii Parish's brittlescale	Federal: None State: None CRPR: 1B.1	Alkali meadows, vernal pools, chenopod scrub, playas.	Does not occur due to lack of suitable habitat.
Atriplex serenana var. *davidsonii* Davidson's saltscale	Federal: None State: None CRPR: 1B.2	Alkaline soils in coastal sage scrub, coastal bluff scrub.	Does not occur due to lack of suitable habitat.
Calochortus weedii var. *intermedius* Intermediate mariposa lily	Federal: None State: None CRPR: 1B.2	Rocky soils in chaparral, coastal sage scrub, valley and foothill grassland.	Moderate potential to occur within the Study Area.
Chaenactis glabriuscula var. *orcuttiana* Orcutt's pincushion	Federal: None State: None CRPR: 1B.1	Coastal bluff scrub (sandy soils) and coastal dunes.	Does not occur due to lack of suitable habitat.
Comarostaphylos diversifolia ssp. *diversifolia* Summer holly	Federal: None State: None CRPR: 1B.2	Chaparral.	Low potential to occur; would not present a constraint to fuel modification if vegetation thinning is conducted by hand.

Species	Status	Habitat	Occurrence On Site
Dichondra occidentalis Western dichondra	Federal: None State: None CRPR: 4.2	Coastal sage scrub, chaparral, oak woodland. Often in dry sandy banks in scrub or under trees.	Moderate potential to occur, though not detected during surveys.
Dudleya multicaulis Many-stemmed dudleya	Federal: None State: None CRPR: 1B.2	Chaparral, coastal sage scrub, valley and foothill grassland. Often occurring in clay soils.	Moderate potential to occur within portions of the Leckey Property. Not observed during general biological surveys within proposed fuel modification areas.
Euphorbia misera Cliff spurge	Federal: None State: None CRPR: 2B.2	Coastal bluff scrub and coastal sage scrub. Occurring on rocky soils.	Very low potential to occur, not observed during general biological surveys. Would not present a constraint to fuel modification if vegetation thinning is conducted by hand.
Horkelia cuneata var. *puberula* Mesa horkelia	Federal: None State: None CRPR: 1B.1	Chaparral, cismontane woodland, and coastal scrub. Occuring on sandy or gravelly soils.	Does not occur due to lack of suitable habitat.
Isocoma menziesii var. *decumbens* Decumbent goldenbush	Federal: None State: None CRPR: 1B.2	Utilizes coastal sage scrub habitat intermixed with grassland, and is more partial to clay soils than other closely related varieties.	Does not occur due to lack of suitable habitat.
Lasthenia glabrata ssp. *coulteri* Coulter's goldfields	Federal: None State: None CRPR: 1B.1	Playas, vernal pools, marshes and swamps (coastal salt).	Does not occur due to lack of suitable habitat.
Nama stenocarpum Mud nama	Federal: None State: None CRPR: 2B.2	Marshes and swamps	Does not occur due to lack of suitable habitat.
Pentachaeta aurea ssp. *allenii* Allen’s Pentachaeta	Federal: None State: None CRPR: 1B.1	Valley and foothill grasslands, coastal scrub.	Does not occur due to lack of suitable habitat.
Polygala cornuta var. *fishae* Fish's milkwort	Federal: None State: None CRPR: 4.3	Chaparral, cismontane woodland, riparian woodland.	Potential to occur within the Study Area.
Quercus dumosa Nuttall's scrub oak	Federal: None State: None CRPR: 1B.1	Closed-cone coniferous forest, chaparral, and coastal sage scrub. Occurring on sandy, clay loam soils.	Low potential to occur on site, not observed during general biological surveys. Would not present a constraint to fuel modification if vegetation thinning is

Species	Status	Habitat	Occurrence On Site
			conducted by hand.
Romneya coulteri Coulter's matilija poppy	Federal: None State: None CRPR: 4.2	Occurs in chaparral and coastal scrub from 20 to 1,200 meters (66 to 3,940 feet) MSL and is known as a fire follower species.	Observed during general biological surveys. Would not present a constraint to fuel modification if vegetation thinning is conducted by hand.
Suaeda esteroa Estuary seablite	Federal: None State: None CRPR: 1B.2	Coastal salt marsh and swamps. Occurs in sandy soils.	Does not occur due to lack of suitable habitat.

Federal
FE – Federally Endangered
FT – Federally Threatened

State
SE – State Endangered
ST – State Threatened

CRPR
1B – Plants rare, threatened, or endangered in California and elsewhere.
2A - Plants rare, threatened, or endangered in California, but more common elsewhere.
2B – Plants rare, threatened, or endangered in California, but more common elsewhere.
3 – Plants about which more information is needed.
4 – Plants of limited distribution (a watch list).

Threat Code Extension
.1 – Seriously endangered in California (over 80% occurrences threatened)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

C. Special-Status Habitats

A review of the March 2014 CNDDB identified the following special-status habitats as occurring within the USGS Laguna Beach quadrangle: southern coast live oak riparian forest, southern sycamore alder riparian woodland, and valley needlegrass grassland. The Study Area does not contain these special-status habitats; however the Study Area does support two special-status habitats: southern maritime chaparral and coastal sage scrub.

D. Wildlife Movement

The Project Site supports limited wildlife movement as a result of steep topography and surrounding existing development. Species observed utilizing or moving through the site included raccoon (*Procyon lotor*) [tracks], coyote (*Canis latrans*) [tracks and scat], and mule deer (*Odocoileus hemionus*). Movement on the site appears to be limited to low-lying canyon bottoms and is not likely to occur in areas immediately adjacent to residential development where fuel modification activities are proposed. Additionally, movement to and from the site to adjacent open space areas is inhibited by dense, existing residential development and the associated roads. Very limited potential exists for wildlife movement into the site from the adjacent Aliso Creek open space area to the east, however, due to the insularity of the site, it does

not function as a wildlife corridor. As such, wildlife movement would not be significantly affected by proposed fuel modification activities.

E. Soil Mapping

The NRCS has mapped the below soil types as occurring in the general vicinity of the Project Site. A soils map is attached as Exhibit 6.

Anaheim Clay Loam, 30 to 50 Percent Slopes

The Anaheim series consists of well-drained, moderately deep soils occurring over weathered fine-grained sandstone and shale. This series is found on moderately steep to very steep foothills at elevations of 100 to 2,500 feet. The typical soil texture is that of fine-loamy or clay loams with rapid to very rapid runoff and moderate/moderately slow permeability. Anaheim soils have a moderate extent and are located in the upland foothills of southern California.

Cieneba Sandy Loam, 15 to 30 Percent Slopes

The Cieneba series consists of shallow, somewhat excessively drained soils formed in weathered granitic material. Cieneba soils occur in uplands with slopes of 9% to 85% at elevations of 500 to 4,000 feet. The typical soil texture is that of coarse sandy loam, gravelly sandy loam, light loam, and gravelly light loams with low to medium runoff and moderately rapid permeability in the soil but much slower permeability in the weathered granite. The series occurs in the Coast Range in central and south-central California and the foothills of the Sierra Nevada.

Marina Loamy Sand, 2 to 9 Percent Slopes

The Marina series consists of somewhat excessively drained soils formed in old sand dunes near the coast. They are gently sloping to moderately steep at elevations of 100 to 700 feet. The texture is that of light loamy sand to loamy sand to sand. Marina soils have slow to rapid runoff and moderate permeability. They are moderately extensive and found in coast areas in south and south-central California.

Modjeska Gravelly Loam, 15 to 30 Percent Slopes

The soils of the Modjeska series are deep and well-drained, formed in mixed gravelly and cobbly sandy alluvium high in metabasic, metasedimentary, and granitic rocks. They are typically found on terraces in the coastal plain of southern California at elevations from 200 to 1,500 feet. The texture is that of gravelly loam, gravelly very fine sandy loam, or very cobbly loam. Modjeska soils have slow to medium runoff and moderate permeability.

San Miguel-Exchequer rocky silt loams, 9 to 70 percent slopes

The San Miguel series consists of well-drained, shallow to moderately deep silt loams that have a clay subsoil. These soils are derived from metavolcanic rock in mountainous areas and have

slopes of 9 to 30 percent. The San Miguel-Exchequer complex consists of approximately 50 percent San Miguel silt loam and 40 percent Exchequer silt loams with approximately 10 percent of the area covered by rock outcrop. This complex occurs at elevations of 400 to 3,300 feet. The San Miguel soil has a surface layer of light-brown silt loam about 8 inches thick; the subsoil is strong-brown and yellowish-brown clay underlain at a depth of about 23 inches by hard metavolcanic rock. The Exchequer soil has a surface layer of yellowish-red silt loam about 10 inches thick, and below this, hard metabasic rock. Permeability is slowly to moderately permeable, fertility is very low, and drainage is good. Runoff is medium to rapid and the erosion hazard is moderate to very high. This soil complex is used primarily for wildlife habitat and watershed.

Soper Gravelly Loam, 15 to 30 Percent Slopes and 30 to 50 Percent Slopes

The soils of the Soper series are moderately deep, well-drained soils that formed in material weathered from conglomerate and sandstone. They are found on hills and uplands at elevations of 100 to 2,500 feet. The texture is that of gravelly loam to gravelly clay loam with rapid runoff and moderately slow permeability. Soper soils have a moderate extent and are found in foothill areas in the western part of southern and central California.

Yorba Gravelly Sandy Loam, 9 to 15 Percent Slopes

The Yorba soil series consists of deep, well-drained soils that formed in mixed alluvium on terraces. Yorba soils occur on nearly level to steep terraces at elevations of 100 to 2,500 feet. The typical soil texture is that of gravelly sandy loam to very gravelly sandy clay loams with medium to rapid runoff and slow permeability. Yorba soils have a small extent and are located in the coastal plain of southern California.

None of the soil units referenced above are identified as hydric in the SCS's publication, Hydric Soils of the United States[5].

F. Jurisdictional Waters

Two USGS blue-line ephemeral drainages and their associated tributaries occur on the Project Site and are potentially subject to the jurisdiction of the Corps, RWQCB, CDFW, and or CCC [Exhibit 7]. However, these areas will be avoided by the proposed fuel modification plan.

G. High Value Habitat

As depicted in Exhibit 8, approximately 27.32 acres of the Study Area is mapped by the City of Laguna Beach as “High Value Habitat”, approximately 12.18 acres of which occurs within the proposed fuel modification area. However, several areas within those mapped as High Value

[5] United States Department of Agriculture, Soil Conservation Service. 1991. Hydric Soils of the United States, 3rd Edition, Miscellaneous Publication Number 1491. (In cooperation with the National Technical Committee for Hydric Soils.)

Habitat do not exhibit characteristics associated with High Value Habitat; primarily those areas immediately adjacent to existing residential development that exhibit high levels of disturbance and a lack of vegetation or are comprised wholly of ornamental vegetation. These areas comprise a total of approximately 2.03 acres of the areas mapped as high value habitat occurring within the proposed fuel modification area. These areas do not support a high diversity of plant species nor do they facilitate wildlife movement, because they are comprised of non-native plant species and occur at the urban interface, which already serves to limit wildlife movement and dispersal.

VII. PROJECT-RELATED IMPACTS

A. Discussion of Impacts Considered in Accordance with the California Environmental Quality Act (CEQA)

1. Thresholds of Significance

Environmental impacts relative to biological resources are assessed using impact significance threshold criteria, which reflect the policy statement contained in CEQA, Section 21001(c) of the California Public Resources Code. Accordingly, the State Legislature has established it to be the policy of the State of California:

> *"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 CEQA, 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 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, ..."*

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 criteria discussed below would result from implementation of the proposed activities.

2. Criteria for Determining Significance Pursuant to CEQA

Appendix G of the 1998 State CEQA guidelines indicate that a project may be deemed to have a significant effect on the environment if the project is likely to:

> *a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or Special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.*
>
> *b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service (including protections provided pursuant to Section 1600 et seq.).*
>
> *c) 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.*
>
> *d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*
>
> *e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*
>
> *f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

3. Direct and Indirect Impacts Defined

The following discussion examines the potential impacts to plant and wildlife resources that may be anticipated to occur as a result of implementation of the proposed fuel modification zones. Project-related impacts can occur in two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, modification or disturbance of natural habitats (i.e., plant communities), which in turn, directly affect the flora and fauna associated with those habitats. Direct impacts also include the destruction of individual plants or wildlife, which can also directly affect regional populations or result in the physical isolation of populations, potentially reducing genetic diversity and population stability.

Indirect impacts involve the harmful effects associated with increases in ambient levels of noise or light, introduction of unnatural predators (i.e., domestic cats and other non-native animals), competition from exotic plants and animals, increased levels of human disturbance associated with human incursions from hiking, mountain biking and changes in fire regimes. Indirect impacts may be associated with the day-to-day activities associated with project build-out, such as increased traffic use, permanent concrete barrier walls or chain-link fences that restrict wildlife movement, exotic ornamental plantings that provide a local source of seed of invasive plants, etc., which may be both short-term and long-term in their duration. These impacts are commonly referred to as "edge effects" and may result in a slow replacement of native plants by exotics, and changes in the behavioral patterns of wildlife and reduced wildlife diversity and abundance in habitats adjacent to project sites.

Potentially significant effects, either directly through habitat loss or modifications, or indirectly due to edge effects on any endangered or threatened species, or any other special-status plant, animal, or habitat that could occur as a result of the project are discussed below.

A. Impacts to Native Vegetation

Table 4 provides a summary of vegetation/land use types within the proposed fuel modification zone, including where fuel modification overlaps with the Leckey property [Exhibit 9]. As noted in Table 4, the total area subject to fuel modification covers 20.63 acres; however, the impact analysis takes into account that only 50-percent of the vegetation would be removed, leaving significant habitat values in place. Furthermore, for areas where non-native vegetation is mixed with native habitat, prioritized removal of non-natives will further reduce impacts to native habitat. As such, proposed impacts to native vegetation types comprise approximately 8.08 acres, consisting of 0.33 acres of impacts to coastal sage scrub, 6.48 acres of impacts to chaparral, and 1.27 acres of impacts to a mixed coastal sage scrub/chaparral ecotone.

Proposed impacts to coastal sage scrub total approximately 0.33 acre, 0.12 acre of which consists of disturbed coastal sage scrub. Portions of the coastal sage scrub and disturbed coastal sage scrub occur within areas mapped as high value habitat; nevertheless, given the discontinuity of coastal sage scrub at the site, and its proximity to existing adjacent development, impacts to coastal sage scrub associated with the proposed fuel modification activities would be less than significant.

Proposed impacts to chaparral total approximately 6.48 acres, 1.01 acres of which consists of disturbed chaparral. Portions of the chaparral are mapped as high value habitat. Given the density and diversity of cover associated with areas mapped as chaparral, and the presence of the federally and state listed as threatened big-leaved crownbeard (*Verbesina dissita*) at multiple locations throughout the southern portion of the site, impacts to chaparral associated with the proposed fuel modification activities would be significant. With mitigation, these impacts would be reduced to less than significant.

Proposed impacts to coastal sage scrub/chaparral ecotone total approximately 1.27 acres. Portions of the coastal sage scrub/chaparral ecotone are mapped as high value habitat. These areas exhibit little or no signs of disturbance and support a high diversity of both coastal sage scrub and chaparral species. Impacts to coastal sage scrub/chaparral associated with the proposed fuel modification activities would be significant. With mitigation, these impacts would be reduced to less than significant.

While fuel modification activities will result in the thinning of the vegetation canopy, fuel modification activities will not result in impacts to special-status plants or native shrubs that are identified as providing habitat conditions required by special-status species, such as big-leaved crownbeard. Therefore, with the mitigation measures implemented as discussed below, fuel modification activities will not result in impacts to special-status species.

Table 4. Summary of Vegetation/Land Use Types within Fuel Modification Zone

Vegetation/Land Use Type	Total Area (Acres)	Impacts with 50% Thinning (Acres)
Sage Scrub	**0.65**	**0.33**
Coastal Sage Scrub	0.41	0.21
Disturbed Coastal Sage Scrub	0.24	0.12
Chaparral	**12.96**	**6.48**
Chaparral	10.93	5.47
Disturbed Chaparral	2.03	1.01
Coastal Sage Scrub/Chaparral Ecotone	**2.54**	**1.27**
Sycamore	**0.01**	**0.00**
Disturbed/Developed Habitats	**4.48**	**2.24**
Ornamental Vegetation	2.37	1.19
Disturbed	2.11	1.05
Total Vegetation within Fuel Mod Zone	**20.63**	**10.32**

B. Impacts to Special-Status Animals

No special-status animals were observed within the Study Area. Special-status species with the potential to occur in the area include the coastal California gnatcatcher, orange-throated whiptail, northern red-diamond rattlesnake, western mastiff bat, and coast (San Diego) horned lizard. Approximately 0.65 acre of coastal sage scrub, which is potential habitat for coastal California gnatcatcher, will be subject to thinning associated with fuel modification activities. Thinning would result in impacts to no more than 0.33 acre of coastal sage scrub. In addition, to the extent practicable, the proposed activities will be conducted during the non-breeding season for birds,

including the coastal California gnatcatcher, to ensure the full avoidance of special-status avian species. If seasonal conditions are conducive to high fire danger, work may be required during the breeding season (February 1 through August 31). Under such conditions, work may occur if a qualified biologist conducts a survey for nesting birds within 48 hours prior to the commencement of fuel modification activities in the area, and ensures that no active nests are affected. The proposed fuel modification activities will not occur in breeding habitat or result in significant disturbance to other special-status species with the potential to occur in the Study Area.

C. Impacts to Special-Status Plants

The proposed fuel modification activities will result in the reduction of approximately fifty-percent of the vegetation canopy occurring within the 100-foot fuel modification zone adjacent to residential areas in the Study Area. Three occurrences of multiple individuals of big-leaved crownbeard (federally- and state-listed threatened) and two Coulter's matilija poppies (CRPR 4.2) were identified within the fuel modification zone. To avoid impacts to big-leaved crownbeard and Coulter's matilija poppy, a qualified biologist shall verify and flag the locations of all special-status plant species prior to conducting fuel modification activities. Fencing will be installed around the plants utilizing a 15-foot buffer to ensure the complete avoidance of impacts. While fuel modification activities will result in the thinning of the vegetation canopy, thinning will not result in impacts to special-status plants or native shrubs that are identified as providing habitat conditions required by a special-status species. Therefore, with mitigation implemented, fuel modification activities will not result in impacts to special-status biological resources.

D. Impacts to Special-Status Habitats

The CNDDB identified three special-status habitats that could potentially occur within the Study Area including southern coast live oak riparian forest, southern sycamore alder riparian woodland, and valley needlegrass grassland. None of these habitat-types were detected within the Study Area. However, the area does support two other special-status habitats: coastal sage scrub and southern maritime scrub. While fuel modification activities will result in the thinning of the vegetation canopy, thinning will not result in permanent impacts to special-status plants or animals within these special-status habitats and will therefore not result in permanent impacts to special-status biological resources.

Coastal Sage Scrub

Coastal sage scrub (CSS) is a diverse community forming many sub-associations determined by soil factors, fire, and topography. It is a community of low growing, soft, woody, drought-deciduous subshrubs and herbaceous plants that grow in thin rocky soils. Component species of CSS vegetation vary between relatively moist (mesic) and relatively dry (xeric) sites. In general, the coastal sage scrub sub-associations within the Study Area are comprised of California sagebrush, California buckwheat, California encelia, black sage, deerweed, lemonade berry, white sage, and laurel sumac. The understory is often comprised of purple needle grass, slender wild oats, red brome, and many other native and non-native species of forbs. While the California sagebrush

sub-association within the Study Area exhibits limited potential to support the federally listed threatened coastal California gnatcatcher, no California gnatcatchers were detected during surveys conducted for this study or during protocol surveys conducted in 2010.

Southern Maritime Chaparral

Southern maritime chaparral is a plant community composed of a variety of woody shrubs. The most commonly observed include big pod ceanothus, bush rue, laurel sumac, lemonade berry, and toyon. The habitat type occurs on sandstone and has a limited distribution that is characterized by the aforementioned native woody shrubs. Southern maritime chaparral is considered a sensitive habitat that occurs within the Study Area; partly, because this community has the potential to support various special-status plant species, including the federally and state listed as threatened big-leaved crownbeard, which was detected at several locations within the southwestern portion of the Project site.

VIII. MITIGATION MEASURES

During focused surveys, two special-status plant species were identified within the proposed fuel modification zone. No special-status wildlife species were detected. The following measures are recommended to minimize impacts within special-status habitats and would reduce potentially significant impacts to less than significant:

- To the extent practicable, vegetation thinning within coastal sage scrub and chaparral habitats should be limited to the winter months outside of the growing/blooming season in order to avoid impacts to special-status plants. However, if seasonal fire conditions warrant, fuel modification activities may be required during the spring and summer months. Under such circumstances, areas that are known to support or have potential to support big-leaved crownbeard, Coulter's matilija poppy, intermediate mariposa lily or other special-status species should be identified in the field by a biologist prior to the commencement of fuel modification activities. To avoid impacts to special-status plants, a qualified biologist shall flag locations. Fencing will be installed around special-status plants utilizing a 15-foot buffer and this area will be prohibited from fuel modification activities.

- If goats are used for vegetation thinning, the fur and hooves shall be cleaned of non-native seeds and debris to prevent distribution of weedy species.

- In order to minimize impacts to native vegetation, thinning will focus on the removal of non-native species and dead or dying material to achieve a threshold of no more than fifty-percent vegetative cover. In areas dominated by non-native species or dead and dying material, cover may be reduced to less than fifty percent. Where it is not possible to reduce cover to at least fifty-percent through the removal of only non-natives, and dead or dying material, woody native species will be removed in accordance with the following hierarchy:

- Initial vegetation removals will include all non-native species as well as dead and dying vegetation.

- If cover is not reduced to at least fifty-percent after removing non-native species and dead plant material, then non-special-status native species such as coastal goldenbush may be removed. If fifty-percent cover is not attained after removing coastal goldenbush, then California buckwheat will be removed followed by black sage and California sagebrush until fifty-percent cover is attained. If fifty-percent cover is not attained after removing coastal sage scrub elements, laurel sumac may be removed followed by toyon and lemonade berry until fifty-percent cover is attained. Big pod ceanothus and bush rue should be avoided to the maximum extent feasible. Native shrubs that are shading big-leaved crownbeard may not be removed.

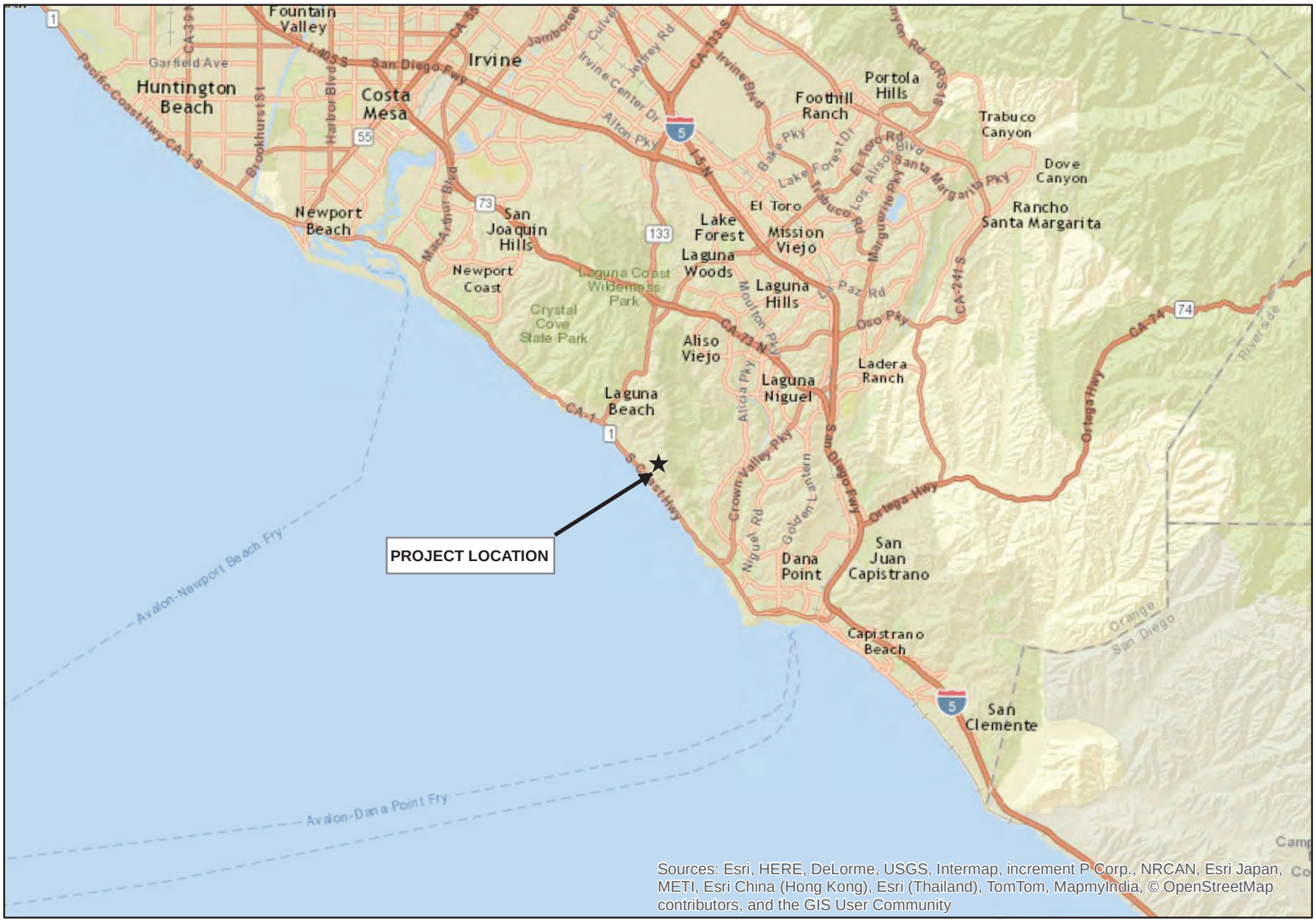
- All special-status species must be retained, including big-leaved crownbeard, Coulter's matilija poppy, and native shrubs that provide shading/overstory for such species.

- To avoid impacts to nesting and migratory birds including coastal California gnatcatcher, it is recommended that any removal or clearing of vegetation be conducted outside of the breeding season, which extends from February 1 to August 31. In the event that seasonal conditions promote a high risk for wildfires, work may occur during the breeding season if a qualified biologist conducts a survey for nesting birds within 48 hours prior to the commencement of fuel modification activities in the area, and ensures that no active nests are affected.

In addition to these proposed avoidance measures, the City of Laguna Beach will also conduct invasive plant removal in the drainage bottoms on the Project Site, as depicted on Exhibit 10. Pampas grass (*Cortaderia* spp.) has colonized in the bottom of the canyon within a jurisdictional drainage. Other ornamental non-native species such as Myoporum, acacia, and eucalyptus will also be removed. The City is proposing the hand removal of pampas grass to offset temporary impacts within the Project Site as a result of fuel modification activities. At this time, pampas grass covers approximately 0.30 acre scattered in patches throughout the drainages.

Finally, as noted above, with the implementation of the mitigation measures, all potentially significant impacts can be mitigated to less than significant within the Project limits with the exception of impacts to southern maritime chaparral and coastal sage scrub/chaparral ecotonal habitats. Impacts to these special-status habitats would total 7.75 acres, and would be considered significant pursuant to CEQA. These impacts can be mitigated to less than significant through 1:1 replacement of “in-kind” habitat or through 3:1 dedication of existing “in-kind” habitat that has been mapped as High Value or Very High Value within City open space subject to confirmation by a qualified biologist that the areas identified meet the thresholds for High and/or Very High Value Habitat. Sufficient area does not exist on site to fully mitigate the impacts associated with habitat removal to a level of less than significant. As a result, in-kind mitigation consisting of southern maritime chaparral and coastal sage scrub/chaparral ecotone habitat

creation or enhancement would be required at a minimum of a 1:1 ratio or habitat dedication at a 3:1 to offset the proposed impacts and would have to occur in offsite locations within City open space. With either 1:1 habitat creation or restoration or 3:1 dedication of High or Very High Value habitat, the impacts to7.75 acres of southern maritime chaparral and coastal sage scrub/chaparral ecotonal habitats would be reduced to less than significant.



Source: ESRI World Street Map

N

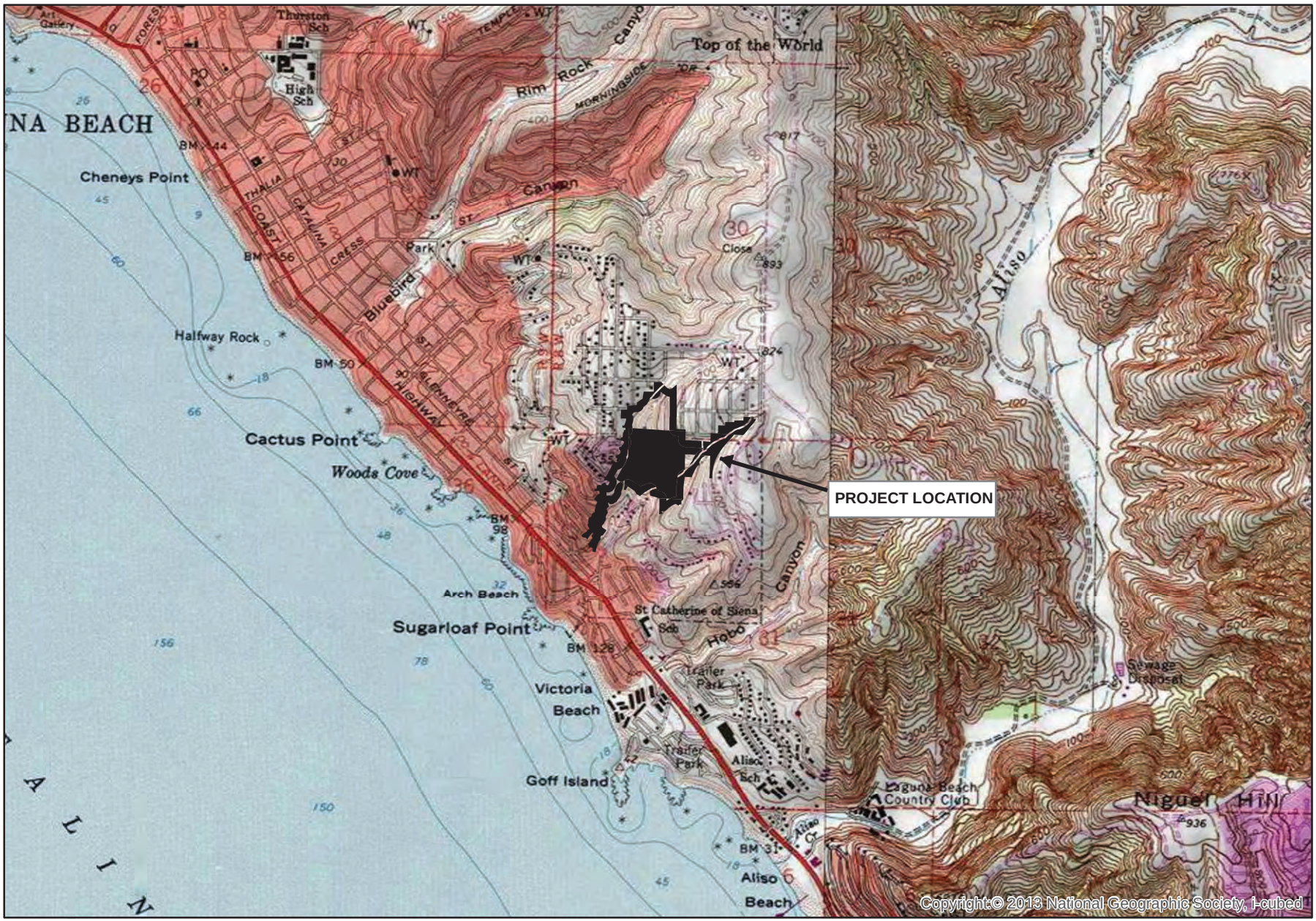
0 2 4 8 Miles

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Laguna Beach, CA quadrangle

N

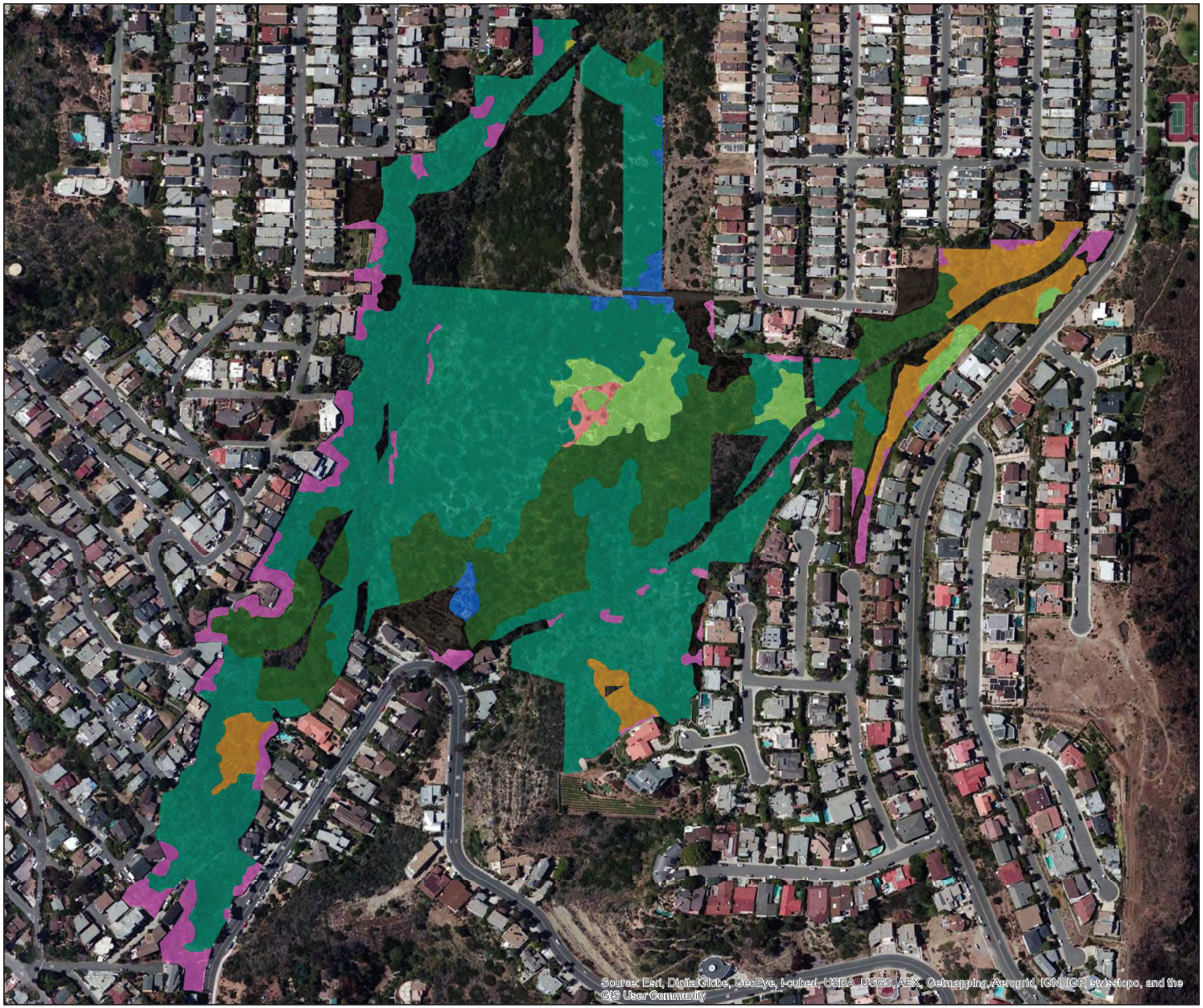
0 1,000 2,000 4,000 Feet

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Legend

- Bare
- Chaparral
- Coastal Sage Scrub
- Coastal Sage Scrub/Chaparral
- Disturbed
- Disturbed Chaparral
- Disturbed Coastal Sage Scrub
- Ornamental
- Sycamore

N

0 125 250 500

Feet

X:\00 - 0362 ONLY\0185-35ORO\185-35_GIS\VegetationGIS\185-35Vegetation.mxd

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Vegetation Map

GLENN LUKOS ASSOCIATES

Exhibit 3

Photograph 1: View from center of property facing southeast. Note chaparral and pampas grass on the slope.

Photograph 2: View of eastern drainage facing upstream (north).

Photograph 3: View from eastern side of property facing west. Note disturbed coastal sage scrub on far slope and ornamentals adjacent to residential homes.

Photograph 4: Overview of project site from center of site looking southwest. Note chaparral in the foreground and coastal sage scrub/chaparral ecotone on far slopes.

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Site Photographs

GLENN LUKOS ASSOCIATES

Exhibit 4

Photograph 5: View from center of the south facing north. Note chaparral in the foreground and coastal sage scrub/chaparral ecotone on far slopes.

Photograph 6: View from eastern side facing west. Note ornamentals in center of photograph and surrounding coastal sage scrub.

Photograph 7: View looking up the eastern drainage. Note chaparral in the foreground and disturbed chaparral on far slopes.

Photograph 8: Overview of site from the western side of the property facing south. Note chaparral and coastal sage scrub.

GLENN LUKOS ASSOCIATES

Exhibit 4

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Site Photographs

Legend

- City of Laguna Beach Fuel Modification Zone
- City of Laguna Beach Fuel Modification Zone that falls within Leckey Parcels
- Leckey Parcels
- Big-leaved crownbeard
- Coulter's matilija poppy

N

0 125 250 500

Feet

X:\00 - 0362 ONLY\0185-35ORO\185-35_GIS\SensitiveSpeciesGIS\185-35sensitivespecies.mxd

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Sensitive Species Map

GLENN LUKOS ASSOCIATES

Exhibit 5

Legend

- City of Laguna Beach Fuel Modification Zone
- City of Laguna Beach Fuel Modification Zone that falls within Leckey Parcels
- Leckey Parcels (avoided)
- 109- ANAHEIM CLAY LOAM, 30 TO 50 PERCENT SLOPES
- 141- CIENEBA SANDY LOAM, 15 TO 30 PERCENT SLOPES
- 162- MARINA LOAMY SAND, 2 TO 9 PERCENT SLOPES
- 171- MODJESKA GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES
- 201- SOPER GRAVELLY LOAM, 15 TO 30 PERCENT SLOPES
- 202- SOPER GRAVELLY LOAM, 30 TO 50 PERCENT SLOPES
- 222- YORBA GRAVELLY SANDY LOAM, 9 TO 15 PERCENT SLOPES

N

0 125 250 500

Feet

X:\00 - 0362 ONLY\0185-35ORO\185-35_GIS\185-35Vegetation.mxd

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Soils Map

GLENN LUKOS ASSOCIATES

Exhibit 6

Legend

- City of Laguna Beach Fuel Modification Zone
- City of Laguna Beach Fuel Modification Zone that falls within Leckey Parcels
- Leckey Parcels
- Potential Jurisdictional Feature subject to Corps, RWQCB, CDFW, and CCC jurisdiction. Extrapolated from the City of Laguna Beach Environmental Constraints Map (http://gis.lagunabeachcity.net/Geocortex/Essentials/Web23/Viewer)

This map does not depict a formal jurisdictional delineation, but may be used for planning purposes to avoid potentially jurisdictional features.

Note: the proposed fuel modification activities would not impact potentially jurisdictional features.

N

0 125 250 500

Feet

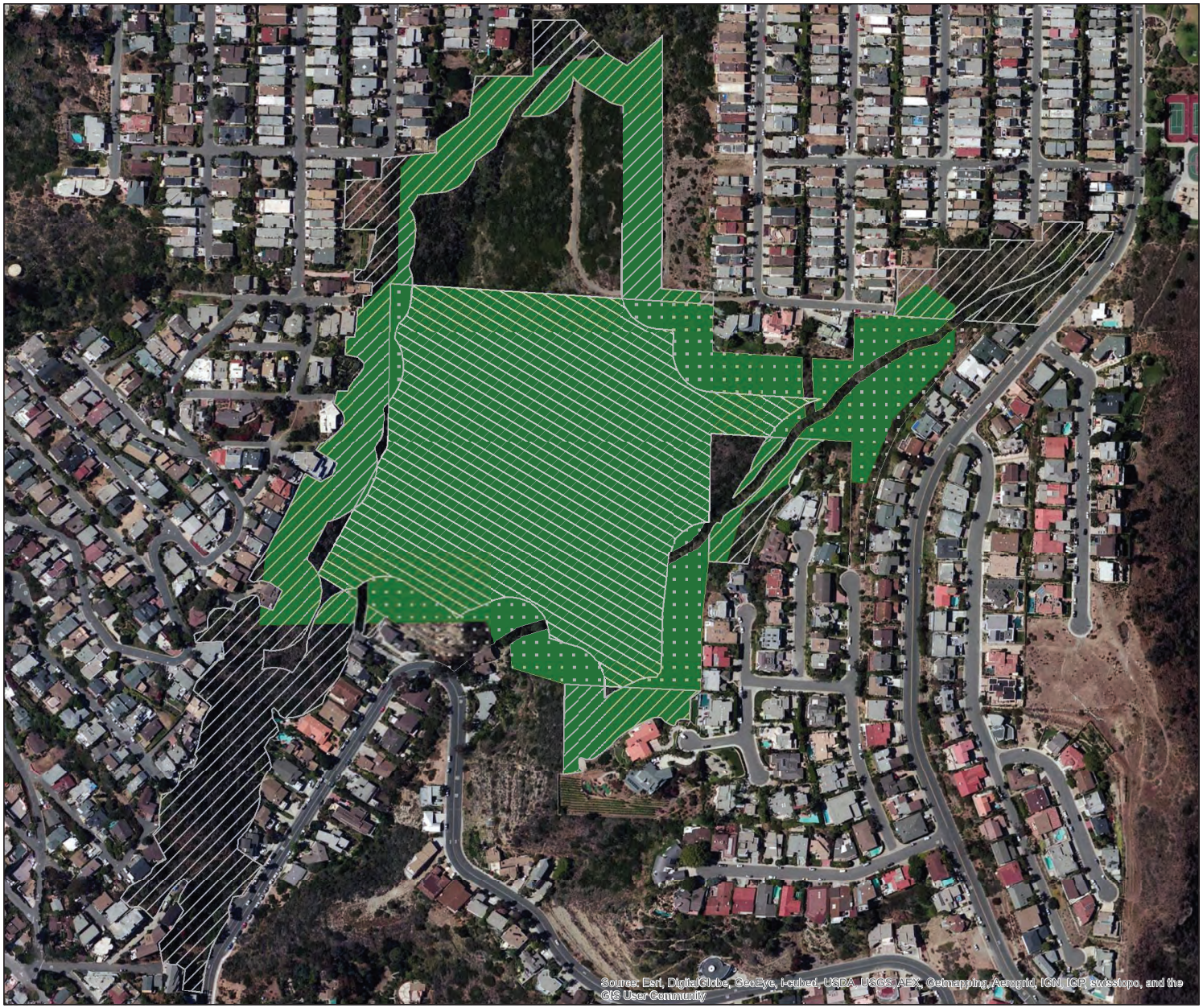
X:\00 - 0362 ONLY\0185-35ORO\185-35_GIS\JDpotentialGIS\185-35potentialjurisdiction.mxd

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Potential Jurisdiction Map

GLENN LUKOS ASSOCIATES

Exhibit 7



Legend

- City of Laguna Beach Fuel Modification Zone
- City of Laguna Beach Fuel Modification Zone that falls within Leckey Parcels
- Leckey Parcels
- City of Laguna Beach High Value Habitat (27.32 ac.)

N

0 125 250 500

Feet

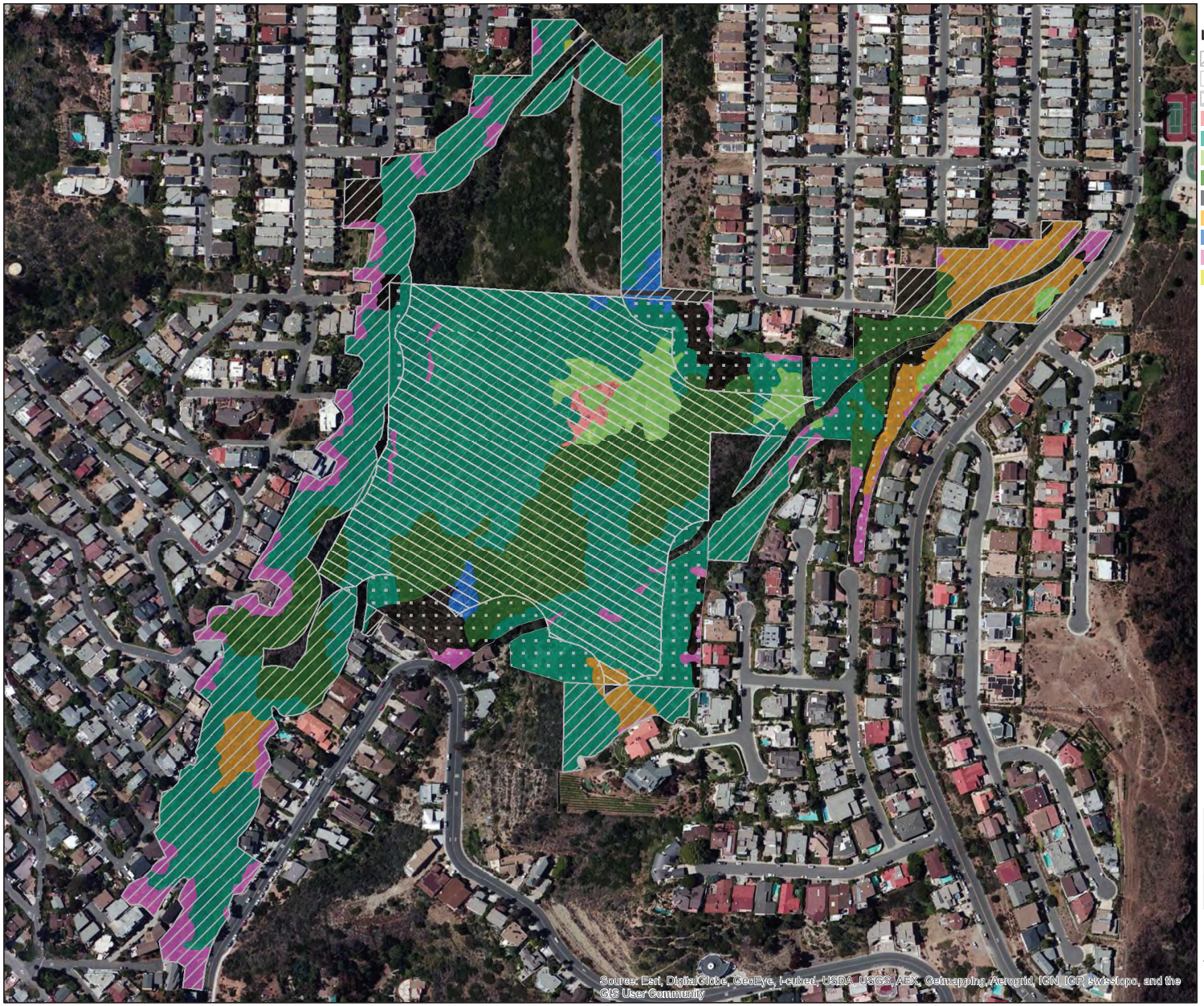
X:\00 - 0362 ONLY\0185-35ORO\185-35_GIS\SensitiveSpeciesGIS\185-35sensitivespecies.mxd

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

High Value Habitat Map

GLENN LUKOS ASSOCIATES

Exhibit 8



Legend

- City of Laguna Beach Fuel Modification Zone
- City of Laguna Beach Fuel Modification Zone that falls within Leckey Parcels
- Leckey Parcels (avoided)
- Bare
- Chaparral
- Coastal Sage Scrub
- Coastal Sage Scrub/Chaparral
- Disturbed
- Disturbed Chaparral
- Disturbed Coastal Sage Scrub
- Ornamental
- Sycamore

N

0 125 250 500

Feet

X:\00 - 0362 ONLY\0185-35ORO\185-35_GIS\VegetationGIS\185-35Vegetationprojectarea.mxd

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Vegetation/Impact Map

GLENN LUKOS ASSOCIATES

Exhibit 9

Legend

- Proposed Invasive Species Removal Areas - 0.30 acre
- City of Laguna Beach Fuel Modification Zone
- City of Laguna Beach Fuel Modification Zone that falls within Leckey Parcels
- Leckey Parcels

N

0 125 250 500

Feet

X:\00 - 0362 ONLY\0185-35ORO\185-35_GIS\MitigationGIS\185-35Mitigation.mxd

LAGUNA BEACH PROPOSED FUEL MODIFICATION ZONE

Proposed Mitigation Map

GLENN LUKOS ASSOCIATES

Exhibit 10

FLORAL COMPENDIUM

The floral compendium lists all species identified during floristic level/focused plant surveys conducted for the Project site. Taxonomy typically follows the Angiosperm Phylogeny Group (APG), which in some cases differs from The Jepson Manual (1993). Common plant names are taken from Hickman (1993), Munz (1974), and Roberts et al (2004) and Roberts (2008). An asterisk (*) denotes a non-native species.

SCIENTIFIC NAME	COMMON NAME

GYMNOSPERMS

CONIFEROPHYTA — CONE-BEARING PLANTS

PINACEAE	**Pine Family**
* *Pinus* halepensis	Aleppo pine

GNETALES

MONOCOTYLEDONS — MONOCOTS

AGAVACEAE	**Agave Family**
Yucca whipplei	our lord's candle
ARECACEAE	**Palm Family**
* *Washingtonia robusta*	Mexican fan palm
IRIDACEAE	**Iris Family**
Sisyrinchium bellum	California blue-eyed grass
POACEAE	**Grass Family**
* *Arundo donax*	giant reed
* *Avena barbata*	slender wild oat
* *Avena fatua*	common wild oat
* *Brachypodium distachyon*	purple false brome
* *Cortaderia selloana*	pampas grass
Elymus condensatus	giant wildrye
* *Pennisetum setaceum*	African fountain grass
Stipa pulchra	purple needlegrass
* *Bromus diandrus*	ripgut grass
* *Bromus hordeaceus*	soft chess
* *Bromus rubens*	red brome
* *Bromus tectorum*	cheatgrass

*	*Cynodon dactylon*	Bermuda grass
*	*Digitaria sanguinalis*	crab grass
	Hordeum jubatum	foxtail barley
*	*Schismus barbatus*	Mediterranean grass

EUDICOTYLEDONS

EUDICOTS

AIZOACEAE — **Carpet-Weed Family**

*	*Carpobrotus edulis*	hottentot-fig
*	*Mesembryanthemum crystallinum*	crystal ice plant

ANACARDIACEAE — **Sumac Family**

	Malosma laurina	laurel sumac
	Rhus integrifolia	lemonade berry
*	*Schinus terebinthifolius*	Brazilian pepper tree

APIACEAE — **Carrot Family**

*	*Foeniculum vulgare*	sweet fennel

ASTERACEAE — **Sunflower Family**

	Artemisia californica	California sagebrush
	Baccharis pilularis	coyote bush
*	*Centaurea melitensis*	tocalote
	Corethrogyne filaginifolia var. *virgata*	virgate sand aster
	Encelia californica	California encelia
	Eriophyllum confertiflorum var. *confertiflorum*	golden yarrow
	Hazardia squarrosa	saw-toothed goldenbush
	Isocoma menziesii var. *vernonioides*	coastal goldenbush
	Verbesina dissita	big-leaved crownbeard

BRASSICACEAE — **Mustard Family**

*	*Brassica nigra*	black mustard

CACTACEAE — **Cactus Family**

	Opuntia littoralis	coastal prickly pear

CLEOMACEAE — **Caper Family**

	Cleome isomeris	bladderpod

CONVOLVULACEAE — **Morning-Glory Family**

*	*Convolvulus arvensis*	field bindweed
	Cuscuta californica	California dodder

CRASSULACEAE — **Stonecrop Family**

	Dudleya pulverulenta subsp. *pulverulenta*	chalk dudleya

CUCURBITACEAE		**Gourd Family**
	Marah macrocarpus	wild cucumber
EUPHORBIACEAE		**Spurge Family**
	Euphorbia albomarginata	rattlesnake spurge
FABACEAE		**Legume Family**
*	*Acacia* sp.	acacia
	Lotus scoparius var. *scoparius*	coastal deerweed
FAGACEAE		**Beech Family**
	Quercus berberidifolia	California scrub oak
LAMIACEAE		**Mint Family**
*	*Marrubium vulgare*	horehound
	Salvia apiana	white sage
	Salvia clevelandii	Cleveland sage
	Salvia columbariae	chia
	Salvia mellifera	black sage
MALVACEAE		**Mallow Family**
	Malacothamnus fasciculatus	chaparral bush mallow
MYOPORACEAE		**Myoporum Family**
*	*Myoporum laetum*	myoporum
MYRTACEAE		**Myrtle Family**
*	*Eucalyptus camaldulensis*	river red gum
*	*Eucalyptus globulus*	Tasmanian blue gum
NYCTAGINACEAE		**Four O'Clock Family**
*	*Bougainvillea* sp.	Bougainvillea
	Mirabilis laevis var. *crassifolia*	California wishbone bush
PAPAVERACEAE		**Poppy Family**
	Romneya coulteri	Coulter's matilija poppy
PHRYMACEAE		**Monkeyflower Family**
	Mimulus aurantiacus	bush monkey flower
POLYGONACEAE		**Buckwheat Family**
	Eriogonum fasciculatum	California buckwheat
RHAMNACEAE		**Buckthorn Family**
	Ceanothus megacarpus var. *megacarpus*	bigpod lilac

ROSACEAE		**Rose Family**
	Heteromeles arbutifolia	toyon
RUBIACEAE		**Madder Family**
	Galium angustifolium subsp. *angustifolium*	narrow-leaved bedstraw
	Galium aparine	common bedstraw
RUTACEAE		**Rue Family**
	Cneoridium dumosum	bushrue
SCROPHULARIACEAE		**Figwort Family**
*	*Myoporum laetum*	myoporum
SOLANACEAE		**Nightshade Family**
	Lycium californicum	California box thorn
	Solanum xanti	chaparral nightshade

FAUNAL COMPENDIUM

The faunal compendium lists species that were either observed within or adjacent to the Study Area (denoted by a '*'), or that have some potential to occur within or adjacent to the Study Area (denoted by a '+'). Taxonomy and common names are taken from the California Wildlife Habitat Relationships System (CDFG 2003); AOU (1998) and CDFG (1990) for birds; Stebbins (1985), Collins (1990), Jones et al. (1992), and CDFG (1990) for reptiles and amphibians; and CDFG (1990) for mammals.

REPTILIA	REPTILES
PHRYNOSOMATIDAE	**Phrynosomatid Lizards**
Sceloporus occidentalis	western fence lizard
AVES	**BIRDS**
ODONTOPHORIDAE	**New World Quails**
Callipepla californica	California quail
ACCIPITRIDAE	**Hawks And Old World Vultures**
Accipiter cooperii	Cooper's hawk
Buteo lineatus	red-shouldered hawk
Buteo jamaicensis	red-tailed hawk
COLUMBIDAE	**Pigeons And doves**
Zenaida macroura	mourning dove
TROCHILIDAE	**Hummingbirds**
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
PICIDAE	**Woodpeckers And Allies**
Melanerpes formicivorus	acorn woodpecker
Picoides nuttallii	Nuttall's woodpecker
TYRANNIDAE	**Tyrant Flycatchers**
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Tyrannus verticalis	western kingbird
CORVIDAE	**Crows And Jays**
Aphelocoma californica	western scrub-jay
Corvus brachyrhynchos	American crow
Corvus corax	common raven

POLIOPTILIDAE	**Gnatcatchers**
Polioptila caerulea	blue-gray gnatcatcher
TIMALIIDAE	**Babblers**
Chamaea fasciata	wrentit
MIMIDAE	**Mockingbirds And Thrashers**
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
PARULIDAE	**Wood Warblers And Relatives**
Setophaga coronata	yellow-rumped warbler
EMBERIZIDAE	**Emberizids**
Pipilo maculatus	spotted towhee
Melozone crissalis	California towhee
Zonotrichia leucophrys	white-crowned sparrow
ICTERIDAE	**Blackbirds**
Icterus bullockii	Bullock's oriole
FRINGILLIDAE	**Fringilline And Cardueline Finches and Allies**
Haemorhous mexicanus	house finch
Spinus psaltria	lesser goldfinch
MAMMALIA	**MAMMALS**
CANIDAE	**Foxes, Wolves And Allies**
Canis latrans	coyote
PROCYONIDAE	**Raccoons And Allies**
Procyon lotor	raccoon
CERVIDAE	**Deer, Elk And Allies**
Odocoileus hemionus	mule deer

Taxonomy and nomenclature are based on the following.

Amphibians and reptiles: Crother, B.I. et al.(2000. Scientific and standard English names of amphibians and reptiles of North America north of Mexico, with comments regarding confidence in our understanding. *Herpetological Circular* 29; and 2003 update.) for species taxonomy and nomenclature; Stebbins, R.C. (2003. A Field Guide to Western Reptiles and Amphibians, third edition, Houghton Mifflin, Boston.) for sequence and higher order taxonomy.

Birds: American Ornithologists' Union (1998. The A.O.U. Checklist of North American Birds, seventh edition. American Ornithologists' Union, Washington D.C.; and 2000, 2002, 2003, and 2004 supplements.).

Mammals: Grenfell, W.E., Parisi, M.D. and McGriff, D. (2003. Complete list of amphibians, reptiles, birds and mammals in California. California Department of Fish and Game. http://www.dfg.ca.gov/whdab/pdfs/species_list.pdf).

Appendix B
Biological Technical Report Memorandum

MEMORANDUM

GLENN LUKOS ASSOCIATES
Regulatory Services

PROJECT NUMBER: 13970001OROL

TO: Merrick Leckey

FROM: Tony Bomkamp

DATE: December 4, 2018

SUBJECT: Update of Biological Technical Report for Parcels 674340, 674367, Included Within the Arch Beach Heights Fuel Modification Zones, Laguna Beach, California

---

A Biologist from Glenn Lukos Associates (GLA) conducted a site visit on November 2, 2018 to review the biological resources on the subject parcels to document the current conditions to determine whether conditions have changed from those documented for the 2015 Biological Technical Report that addressed expansion of the City of Laguna Beach Fuel Modification Zones in the Arch Beach Heights area.[1] Exhibit 1 – Vicinity Map and Exhibit 2 – Site Location Map, which depict the location of the parcels within the 2015 Biological Technical Report Study Area. It is important to note that the City of Laguna Beach approved the proposed fuel modification zones, which are depicted on Exhibit 2. As depicted on Exhibit 2 and Exhibit 3 – Vegetation Map, Parcel 656-032-03 is the easterly parcel and is entirely within the City's approved Fuel Modification Zone (FMZ). Parcel 656-032-20 is the westerly parcel and much of the parcel is also within the FMZ.

METHODOLOGY

As noted, the site was visited on November 2, 2018 and viewed from various locations with access from Marlin and Alisos Avenue with direct access to the site obtained from Marlin. The site was traversed on foot with areas of dense vegetation viewed from various locations that allowed the best viewing opportunities. Updates to the vegetation mapping was done by comparing the previous vegetation mapping with the current vegetation cover and adjustments were made where it was determined appropriate. Surveys conducted for the 2015 Biological Technical Report did not detect any special status plants or animals within the subject parcels and based on the review of the site it was determined that there was no potential for special-status plants or animals within the parcels, consistent with the previous survey results. Exhibit 2 depicts the location of special-status plants in the Biological Technical Report Study Area.

[1] Glenn Lukos Associates. January 2015. *Biological Technical Report for Proposed Fuel Modification Zone and Leckey Property in the Arch Beach Heights Area of Laguna Beach, Orange County, California.* Prepared for the Laguna Beach Fire Department.

29 Orchard ▪ Lake Forest ▪ California 92630-8300
Telephone: (949) 837-0404 Facsimile: (949) 837-5834

RESULTS

As discussed in the sections below, the subject parcels do not support special-status vegetation alliances, special-status plants, or special-status animals. Both parcels include areas of High Value Habitat as mapped on the City of Laguna Beach GIS database as depicted on Exhibit 2. It is important to note that areas mapped as High Value Habitat have been subject to authorized fuel modification and no longer exhibit the habitat values typical of undisturbed areas. The City's GIS database also depicts a "significant water course" as traversing the parcels as depicted on Exhibit 2, which is also depicted as an unnamed "blue-line" drainage on the USGS 7.5' Topographic Map Laguna Beach 1965 (Photorevised 1981), as well as a smaller significant water course on Parcel 656-032-20. Much of the area mapped as significant water course was graded and filled years ago by a prior owner. It is also important to note that the small tributary significant water course is not associated with at topographic feature on the USGS map that would be consistent with the presence of a stream. Significant water courses are considered ESHA pursuant to the City of Laguna Beach LCP.

Vegetation Alliances

Vegetation on the parcels consist of a mosaic of coastal sage scrub, a mix of coastal-sage scrub and chaparral, areas with ornamental vegetation and areas that have been previously disturbed and consist of predominately non-native grasses and forbs. Exhibit 4 depicts the vegetation mapping for the 2015 Biological Technical Report and the previously referenced Exhibit 3 depicts the current vegetation. Table 1 below, provides a side-by-side comparison from the 2015 Biological Technical Report and the current condition. The vegetation mapping was updated to conform with the Manual of California Vegetation, Second Edition[2] (MCVII), which the Coastal Commission currently relies upon for describing vegetation alliances and determining their rarity status. Because of various site disturbance, exact correspondence with the MCVII was not possible and the alliances listed below best match the conditions on the parcels. None of the vegetation alliances on the site are considered "Rare" based in the Rarity Rankings in the MCVII.

As noted, all of Parcel 656-032-03 is entirely within the City's approved Fuel Modification Zone (FMZ) and substantial portions of Parcel 656-032-20 is within the City's approved FMZ. Fuel modification activities have been conducted and generally have focused on areas within 100 feet of residences. The descriptions below reflect the current conditions on the subject parcels.

[2] Sawyer, J.O., T. Keeler-Wolf, and J. Evens. 2008. *A Manual of California Vegetation, Second Edition*. California Native Plant Society.

Table 1. Summary of Vegetation/Land Use Types for Subject Parcels

2015 Vegetation/Land Use Type		2018 Vegetation/Land Use Type	
Vegetation Type	Acres	Vegetation Alliance	Acres
Chaparral	0.87	Laurel Sumac Chaparral	0.14
Disturbed Chaparral	0.38		
		Coyote Brush Scrub	0.77
Coastal Sage Scrub	0.51	Disturbed Coyote Brush Scrub	0.24
		Black Sage Scrub	0.72
Coastal Sage Scrub/Chaparral	1.04	Coastal Sage Scrub/Chaparral	0.79
		Disturbed Coastal Sage Scrub/Chaparral	0.11
Ornamental	0.26	Ornamental	0.25
Disturbed	0.52	Disturbed	0.56
Total Vegetation/Land Use Acreage	3.58		3.58

***Malosma laurina* Shrubland Alliance (Laural Sumac Scrub) (G4 S4)** occurs along the easterly edge of Parcel 656-032-03 and includes areas previously mapped in 2015 as "Disturbed Chaparral". Portions of theses area are consistent with the Laurel Sumac Scrub alliance and is considered disturbed as all the area mapped as ("Disturbed") Laurel Sumac Scrub is within areas subject to ongoing fuel modification activities and vegetation cover is less than 50-percent due to brush thinning by Laguna Beach Fire Department pursuant to the approved Coastal Development Permit for fuel modification in the area.

***Baccharis pilularis* Shrubland Alliance (Coyote Brush Scrub) (G5 S5)** occurs on the northeast quadrant of Parcel 656-032-03 and replaces areas previously mapped as coastal sage scrub, disturbed areas, disturbed chaparral and coastal sage scrub-chaparral. Coyote brush is the dominant species in this area and based on the membership rules in the MCVII is the best fit for this area. Other species include laurel sumac, black sage (*Salvia mellifera*), California sage brush (*Artemisia californica*), and non-native pride of Maderia (*Echium candicans*), which has colonized previously disturbed areas and is common within this alliance. Areas of coyote brush scrub that have been subject to fuel modification activities are designated as "Disturbed" on Exhibit 3.

***Salvia mellifera* Shrubland Alliance (Black Sage Scrub) (G4 S4)** occurs on Parcel 656-032-20 and is dominated by black sage and also included California sagebrush, coyote brush and coast brittle bush (*Encelia californica*).

Areas mapped as **Coastal Sage Scrub – Chaparral** occur in both parcels and do not exhibit exact correspondence with the membership rules for any of the alliances in the MCVII and this vegetation cover type, used in the 2015 Biological Technical Report, has been retained. Note,

because there is no correspondence with alliances in MCVII, there is no designated rarity ranking; however, based on the species present in this land cover type, areas of coastal sage scrub – chaparral would not be considered "rare". These areas support a mix of large evergreen shrubs including laurel sumac, toyon (*Heteromeles arbutifolia*), and lemonade berry (*Rhus integrifolia*) mixed with sage scrub species, including black sage, California sagebrush and coyote brush. Areas of coastal sage scrub – chaparral have been subject to fuel modification activities by the Laguna Beach Fire Department pursuant to the approved Coastal Development Permit for fuel modification in the area and are designated as "Disturbed" on Exhibit 3.

Areas mapped as **Ornamental** occur within Parcel 656-032-03 and include (but are not limited to) non-native ornamental trees and shrubs including myoporum (*Myoporum laetum*), privet (*Ligustrum* sp.), golden wattle (*Acacia redolens*), and blue gum (*Eucalyptus globulus*). All areas mapped as "Ornamental" fall within approved fuel modification zones.

Areas mapped as **Disturbed**, with the exception of a narrow strip in Parcel 656-032-20, occur within both parcels and include areas where ongoing brush thinning has previously occurred. These areas currently support a predominance of non-native grasses and forbs, with occasional native shrubs. All areas mapped as "Disturbed" fall within approved fuel modification zones.

Special-Status Plants and Animal

The 2015 Biological Technical Report did not identify any special-status plants or animals within the subject parcels. One special-status plant: Coulter's matilija poppy (*Romneya coulteri*) was detected immediately to the northwest of Parcel 656-032-20; however, this species does not occur within the subject parcels. One other special-status plant was depicted in the 2015 Report to the southwest of the subject parcels: big-leaved crown beard (*Verbesina dissita*); however, this species exhibits a strong association with southern maritime chaparral, which does not occur on the subject parcels and thus, there is no suitable habitat and this species does not occur within the subject parcels.

Similarly, no special-status animals were detected by surveys in support of the 2015 Biological Technical Report, and the current conditions are consistent with the lack of suitable habitat for special-status animals addressed in the 2015 Biological Technical Report.

Significant Water Courses Mapped on the City's GIS Database

As depicted on Exhibit 2, the City's GIS Database depicts a significant water course, that originates to the northeast of Parcel 656-032-03, and is depicted as extending to the southwest across Parcel 656-032-03 and then traversing the southeast corner of Parcel 656-032-20 before exiting the parcel as depicted on Exhibit 2. This significant water course is depicted on the USGS 7.5' Topographic Map Laguna Beach 1965 (Photorevised 1981). A small tributary

significant water course is shown on the City's GIS Database that originates near the northeast corner of Parcel 656-032-20; however, this feature is not shown on the above-referenced USGS Map and the USGS Map does not show a topographic feature that would be consistent with a water course at the location depicted.

The area depicted on Parcels 656-032-03 and 656-032-20 as a significant water course has been subject to previous fill. Given that the USGS Map is from 1965 with photorevisions in 1981, it is likely that the fill was either not detected in 1981 or it is possible that the fill was placed after 1981. In either case, there is no significant water course ESHA on Parcel 656-032-03 as depicted on the City's Database and the area also lacks riparian habitat typical of many of the significant water courses in the City. Similarly, as noted above, the small tributary significant water course depicted on Parcel 656-032-20 does not currently exist and, the USGS Map from 1965 with photo-revisions in 1981 do not show topography consistent with the presence of a potentially significant water course. Parcel 656-032-20 was not subject to fill and a segment of the former stream is still present just north of the southern parcel boundary as depicted on Exhibit 5.

IMPACTS ASSOCIATED WITH THE APPROVED FUEL MODIFICATION PLAN

The Mitigated Negative Declaration prepared for the Fuel Modification Zone expansion identified the following significant impacts that with mitigation, would be reduced to less-than-significant:

- Impacts to coastal sage scrub – chaparral (ecotone);
- Impacts to nesting migratory birds;
- Impacts to the Significant Water Courses (ESHA).

Impacts to coastal sage scrub – chaparral, associated with the proposed fuel modification expansion were fully mitigated in accordance with the Mitigation Monitoring Program adopted by the City to offset impacts to this vegetation alliance.

Potential impacts to nesting migratory birds were addressed through Mitigation Measure 3(a) of the Mitigation Monitoring Program.

Potential impacts to the significant water courses were addressed through avoidance as set forth in Mitigation Measure 3(a) of the Mitigation Monitoring Program. It is important to note that the City did not address the fact that the USGS Blueline significant water course no longer occurs within Parcel 656-032-03 with only a short segment near the southeast corner of Parcel 656-032-20, and the adopted Mitigation Measures assumed the presence of the significant water course across both parcels.

IMPACTS ASSOCIATED WITH THE LOT LINE ADJUSTMENT

The lot line adjustment will result in reconfiguration of the subject parcels; however, no other development activities are proposed in association with the proposed lot line adjustment. Often, lot line adjustments can result in the potential for additional development on lots that have been reconfigured resulting in potential "intensification of land uses." Although the lots have been reconfigured, as noted by the City in its staff report, the characteristics of the lots remain unchanged. Since there are no applications for development of any sort for either parcel, this report evaluates the biological resources on the parcels and identifies potential constraints consistent with the Fuel Modification expansion approved in 2015.

Thus, in accordance with the approved Fuel Modification expansion, potentially significant impacts associated with the lot-line adjustment would be:

- Impacts to mapped Significant Water Courses (ESHA).
- Impacts to coastal sage scrub – chaparral (ecotone);
- Impacts to nesting migratory birds;

Impacts to Mapped Significant Water Courses (ESHA)

As noted above, the City's GIS Database depicts a significant water course, that originates to the northeast of Parcel 656-032-03, and is depicted as extending to the southwest across Parcel 656-032-03 and then traversing the southeast corner of Parcel 656-032-20 before exiting the parcel as depicted on Exhibit 2. This stream is depicted on the USGS 7.5' Topographic Map Laguna Beach 1965 (Photorevised 1981). A small tributary significant water course is shown on the City's GIS Database that originates near the northeast corner of Parcel 656-032-20; however, this feature is not shown on the above-referenced USGS Map and the USGS Map does not show a topographic feature that would be consistent with a water course at the location depicted.

Requirements for the treatment of significant water courses on the Major Watershed and Drainage Courses Map in the City's GIS database is provided in "Topic 9: Watersheds and Watercourses" of the Laguna Beach General Plan – Open Space/Conservation Plan. Section "a" of Policy 9C (9C-(a)) specifies the following: "… a minimum setback of 25 feet from the top of the stream's bank. A greater setback may be necessary in order to protect all riparian habitat based on a site-specific assessment. No disturbance of major vegetation, or development, shall be allowed within the setback area." It should be noted that the significant water courses depicted on the subject parcels contain no riparian habitat and thus any setbacks would be measured from the mapped edge of the "stream bank".

Thus, any future development on the subject parcels or on the reconfigured parcels following the lot line adjustment would be required to avoid the significant water courses and would also be

required to provide a 25-foot setback from the edge of the stream bank given the complete lack of riparian vegetation. With such avoidance, any future development on the existing or reconfigured parcels would not result in significant impacts to the significant water course ESHA.

Impacts to Coastal Sage Scrub – Chaparral (Ecotone)

The Biological Technical Report determined that impacts to coastal sage scrub – chaparral mapped within areas of "High Value Habitat: in the City's GIS Database would be significant. Any future development on the subject parcels or on the reconfigured parcels following the lot line adjustment would be required to avoid impacts to the maximum extent feasible either through removal or through fuel modification. Where avoidance is not possible, mitigation would be required to reduce any proposed impacts to less-than significant as addressed below. Because impacts associated with the approved Fuel Modification expansion within the areas designated on Exhibit 3 have been previously mitigated by the City, any fuel modification is the previously approved areas would not be considered significant; whereas removal of the vegetation would be considered significant as addressed in the mitigation section below.

Impacts to Nesting Birds

Removal of vegetation during the avian breeding season (February 15 to August 31) has the potential to impact nesting birds. The subject parcels currently contain groundcover, trees, and shrubs that have the potential to support nesting birds. Impacts to migratory nesting birds are prohibited under the Migratory Bird Treaty Act (MBTA)[3]. However, adherence to the MBTA's requirements would ensure potential impacts would be less than significant.

MITIGATION

Mitigation for Impacts to Mapped Stream Courses (ESHA)

In accordance with the Topic 9: Watersheds and Watercourses of the Laguna Beach General Plan – Open Space/Conservation Plan. Section "a" of Policy 9C (9C-(a)) avoidance of the mapped stream courses including a 25-foot buffer would ensure that there would be no significant impact to the significant water courses.

[3] The MBTA makes it unlawful to take, possess, buy, sell, purchase, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.F.R.21). In addition, sections 3505, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs.

Mitigation for Impacts to Nesting Birds

The following requirements under the MBTA and California Fish and Game Code Sections 3503.5, 3503, and 3513 would be implemented to ensure that nesting birds are not harmed during construction activities associated with future development. It should be noted that raptor species are not expected to nest within the Development Area due to a lack of suitable habitat:

1. If feasible, the removal of vegetation should occur outside of the nesting season, generally recognized as February 15 to August 31 (potentially earlier for raptors). If vegetation removal must occur during the nesting season, then a qualified biologist shall conduct a nesting bird survey prior to any vegetation removal. If active nests are identified, the biologist shall flag vegetation containing active nests. The biologist shall establish appropriate buffers around active nests to be avoided until the nests are no longer active and the young have fledged. Buffers will be based on the species identified, but generally will consist of 50 feet for non-raptors and 300 feet for raptors.

2. If for some reason it is not possible to remove all vegetation during the non-nesting season, then vegetation to be removed during the nesting season must be surveyed by a qualified biologist no more than three days prior to removal. If no nesting birds are found, the vegetation can be removed. If nesting birds are detected, then removal must be postponed until the fledglings have vacated the nest or the biologist has determined that the nest has failed. Furthermore, the biologist shall establish an appropriate buffer zone where construction activity may not occur until the fledglings have vacated the nest or the biologist has determined that the nest has failed.

Mitigation for Impacts to Coastal Sage Scrub – Chaparral (Ecotone)

As noted above, impacts to coastal sage scrub – chaparral were determined to be significant in the Biological Technical Report and required mitigation to compensate for the impacts.

Because the fuel modification program resulted in removal of up to 50-percent of native shrubs, only a 50-percent impact was assumed. Thus, for one acre of impact, the loss of scrub was established at one-half acre. Mitigation for impacts were established at 1:1 for onsite reestablishment or 3:1 of dedication of High or Very High Value as described on page 26 of the Biological Technical Report:

> Finally, as noted above, with the implementation of the mitigation measures, all significant impacts can be mitigated to less than significant within the Project limits with the exception of impacts to…chaparral and coastal sage scrub/chaparral ecotonal habitats…These impacts can be mitigated through 1:1 replacement of "in-kind" habitat or through 3:1 dedication of existing "in-kind"

habitat that has been mapped as High Value or Very High Value within City open space subject to confirmation by a qualified biologist that the areas identified meet the thresholds for High and/or Very High Value Habitat.

Therefore, impacts to areas previously approved for fuel modification would not require mitigation as the mitigation has been completed.

For removal of coastal sage scrub – chaparral within areas of approved fuel modification, one-half of the necessary mitigation has already been completed and thus for removal one-acre of coastal sage scrub – chaparral within approved fuel modification areas, mitigation would be based on one-half acre of impact.

For removal of coastal sage scrub – chaparral within areas that were not previously approved for development mitigation would be required on an acre for acre basis using the ratios of 1:1 for onsite and 3:1 for dedication as set forth above.

The 2015 Biological Technical Report also included a detailed description of avoidance measures, intended to further reduce impacts to native vegetation associated with thinning of habitat for fuel modification, which would also be required for the subject parcels:

- *In order to minimize impacts to native vegetation, thinning will focus on the removal of non-native species and dead or dying material to achieve a threshold of no more than fifty-percent vegetative cover. In areas dominated by non-native species or dead and dying material, cover may be reduced to less than fifty percent. Where it is not possible to reduce cover to at least fifty-percent through the removal of only non-natives, and dead or dying material, woody native species will be removed in accordance with the following hierarchy:*

    - *Initial vegetation removals will include all non-native species as well as dead and dying vegetation.*

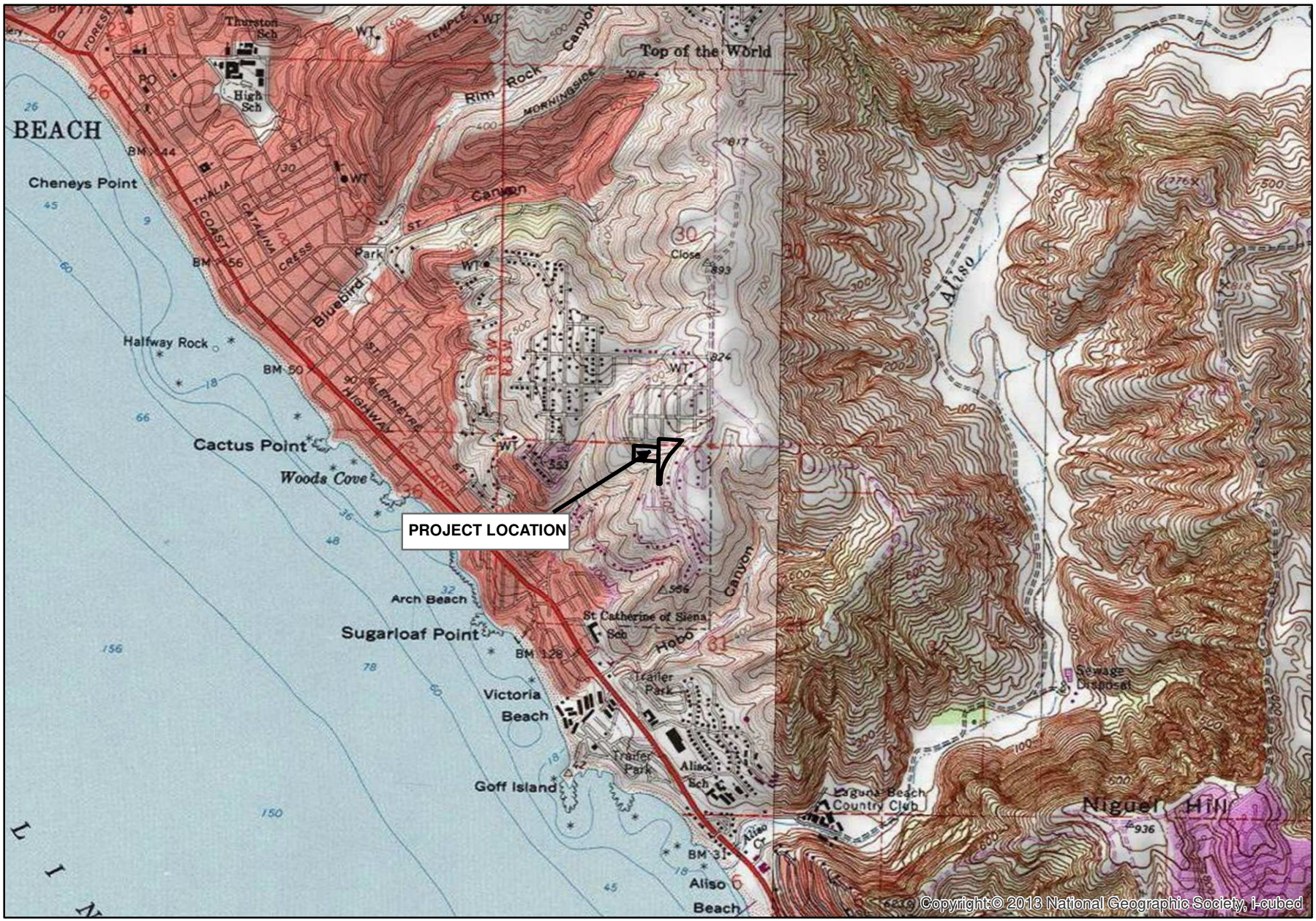
    - *If cover is not reduced to at least fifty-percent after removing non-native species and dead plant material, then non-special-status native species such as coastal goldenbush may be removed. If fifty-percent cover is not attained after removing coastal goldenbush, then California buckwheat will be removed followed by black sage and California sagebrush until fifty-percent cover is attained. If fifty-percent cover is not attained after removing coastal sage scrub elements, laurel sumac may be removed followed by toyon and lemonade berry until fifty-percent cover is attained. Big pod ceanothus and bush rue should be avoided to the maximum extent feasible. Native shrubs that are shading big-leaved crownbeard may not be removed.* [Please note that there is no big pod ceanothus or big-

leaved crownbeard on the subject parcels as these occur within other portions of the study area evaluated by the City and thus, these last two italicized sentences above do not apply to the subject parcels.]

With implementation of these measures impacts to coastal sage scrub – chaparral would be reduced to less than significant. It should also be noted that if in the future, an application were submitted for development for one or both of the parcels, the impacts of that future activity would be assessed and additional mitigation, if necessary, would be made a part of that future application. No additional measures are required in connection with the Lot Line Adjustment permit.

CONCLUSIONS

The subject parcels include a significant water course and small tributary also mapped as a significant water course, coastal sage scrub – chaparral, and the potential for nesting birds. As set forth above, avoidance of the water courses together with the provision of a 25-foot setback for any future development would ensure that there would be no significant impact to the significant water course ESHA. Potential impacts to nesting birds associated with potential future development would be fully mitigated through implementation of City-approved mitigation measures. Finally, impacts to coastal sage scrub – chaparral within the approved City of Laguna Beach Fire Department approved fuel modification zones has been mitigated and any potential impacts to coastal sage scrub – chaparral that occur outside of the approved fuel modification zones would be mitigated in a manner consistent with the previously approved fuel modification expansion project. Thus, no potential impacts would result from the Lot Line Adjustment, and any impacts associated with a future development application can be mitigated to less-than-significant through compliance with the identified measures.



Adapted from USGS Laguna Beach, CA quadrangle

N

0 1,000 2,000 4,000 Feet

LECKEY PROPERTY

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 1

Site Boundary

Parcel

Proposed Lot Line Adjustment

Big-leaved crownbeard

Coulter's matilija poppy

Location of Streams from Laguna Beach General Plan

2015 City of Laguna Beach Approved Fuel Modification Zone

2015 City of Laguna Beach Approved Fuel Modification Zone that falls within Leckey Parcels

City of Laguna Beach High Value Habitat - 27.32 ac.

N

0 150 300 600

Feet

1 inch = 300 feet

LECKEY PROPERTY

Overall Map

GLENN LUKOS ASSOCIATES

Exhibit 2

X:\1100 AFTER THE REST\1397-01OROL\1397-01_GIS\VegetationGIS\1397-01Overall.mxd

Parcel
Proposed Lot Line Adjustment
2015 Approved Fuel Modification
Black Sage Scrub - 0.72 ac.
Coastal Sage Scrub/Chaparral - 0.79 ac.
Coyote Brush Scrub - 0.77 ac.
Disturbed - 0.56 ac.
Disturbed Coastal Sage Scrub/Chaparral - 0.11 ac.
Disturbed Coyote Brush Scrub - 0.24 ac.
Disturbed Laurel Sumac - 0.14 ac.
Ornamental - 0.25 ac.

N

0 37.5 75 150
Feet

1 inch = 75 feet

LECKEY PROPERTY

2018 Vegetation Map

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\1100 AFTER THE REST\1397-01OROL\1397-01_GIS\VegetationGIS\1397-01VegetationMapping.mxd

- Parcel
- 2015 Approved Fuel Modification Zone
- Chaparral - 0.87 ac.
- Coastal Sage Scrub - 0.51 ac.
- Coastal Sage Scrub/Chaparral - 1.04 ac.
- Disturbed - 0.52 ac.
- Disturbed Chaparral - 0.38 ac.
- Ornamental - 0.26 ac.

N

0 37.5 75 150

Feet

1 inch = 75 feet

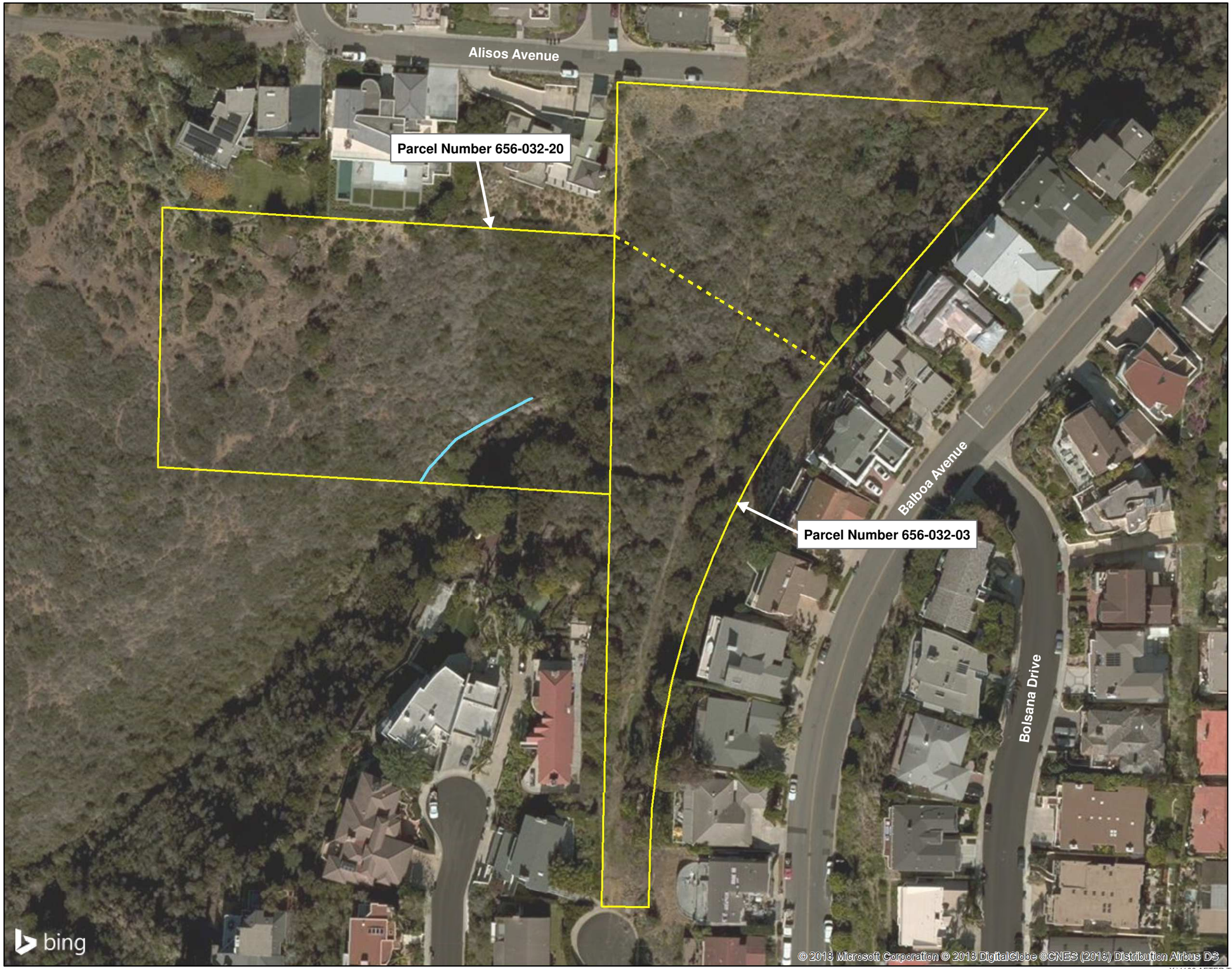
LECKEY PROPERTY

2015 Vegetation Map

GLENN LUKOS ASSOCIATES

Exhibit 4

X:\1100 AFTER THE REST\1397-01OROL\1397-01_GIS\VegetationGIS\1397-01_2015VegetationMapping.mxd



Parcel

Proposed Lot Line Adjustment

Blue Line

N

0 37.5 75 150

Feet

1 inch = 75 feet

LECKEY PROPERTY

Blue Line Map

GLENN LUKOS ASSOCIATES

Exhibit 5

X:\1100 AFTER THE REST\1397-01OROL\1397-01_GIS\VegetationGIS\1397-01BlueLineMap.mxd

Appendix C
Results of Protocol Coastal California Gnatcatcher Surveys

GLENN LUKOS ASSOCIATES
Regulatory Services

June 11, 2019

Stacey Love
U.S. Fish and Wildlife Service
2177 Salk Avenue, Suite 250
Carlsbad, California 92008

SUBJECT: Results of Protocol Coastal California Gnatcatcher Surveys for the 3.58-Acre Leckey Parcels Located in the City of Laguna Beach, Orange County, California

Dear Ms. Love:

This letter report documents the results of protocol presence/absence surveys conducted by Glenn Lukos Associates, Inc. (GLA) for the federally listed threatened coastal California gnatcatcher (*Polioptila californica californica*) at the above-mentioned property. Surveys were conducted from May 6, 2019 through June 11, 2019 in all areas of potentially suitable habitat within the survey area in accordance with U.S. Fish and Wildlife Service (USFWS) guidelines. No California gnatcatchers were detected within the specified survey area.

1.0 SITE LOCATION AND DESCRIPTION

The Leckey Parcels (the Project) are located within the City of Laguna Beach, Orange County, California [Exhibit 1 – Regional Map]. The Project site is located in Section 31 of Township 7S, Range 8W, of the Laguna Beach, California topographic quadrangle (dated 1965 and photorevised in 1981) [Exhibit 2 – Vicinity Map]. Approximate Universal Transverse Mercator (UTM) coordinates for the site are 429794.44 mE and 3709965.33 mN (Zone 11S). The Project site is located in an undeveloped area that is south of Alisos Avenue and northwest of Balboa Avenue in a canyon west of Moulton Meadows Park [Exhibit 3 – Site Map].

The Project site is composed of a vegetative mosaic of mixed chaparral and coastal sage scrub (CSS) species. Predominant chaparral species include toyon (*Heteromeles arbutifolia*), lemonade berry (*Rhus integrifolia*), laurel sumac (*Malosma laurina*), and coyote brush (*Baccharis pilularis*). The predominant CSS species are bush sunflower (*Encelia californica*) and California sagebrush (*Artemisia californica*). Other CSS species that occur, though more sporadically, include: black sage (*Salvia mellifera*), California buckwheat (*Eriogonum fasciculatum*), and sticky monkeyflower (*Diplacus grandiflorus*). Portions of the survey area exhibit vegetation that is suitable for and preferred by the California gnatcatcher. However, the

most suitable stands of California sagebrush and bush sunflower are isolated, limited in size, and interspersed with larger areas of dense chaparral which fragment the CSS communities typically utilized by the California gnatcatcher.

2.0 METHODOLOGY

Protocol surveys for the coastal California gnatcatcher were performed in accordance with the 1997 USFWS guidelines, which stipulate that during the breeding season, six surveys shall be conducted in all areas of suitable habitat with at least seven days between site visits. The USFWS survey guidelines also stipulate that no more than 80 acres of suitable habitat shall be surveyed per biologist per day. The Project site survey area covers approximately 3.58 acres in total. As such, the site consisted of one survey polygon requiring one "survey-day" per week.

GLA biologists Kevin Livergood (TE-172638-2) conducted the presence/absence surveys. 2019 breeding season surveys were conducted on May 6th, May 13th, May 20th, May 28th, June 4th, and June 11th. Areas of suitable habitat were surveyed by walking slowly and methodically along pre-determined transect routes. The location of survey routes was based on vegetation and topographic conditions. The presence/absence of coastal California gnatcatchers was determined through vocalization and visual identification. A combination of gnatcatcher vocalization recordings and "pishing" sounds were used (as needed depending on the vegetation density and topography) to elicit responses from gnatcatchers.

Weather conditions during the surveys were conducive to a high level of bird activity. All surveys were conducted during the morning hours and were completed before 12:00 P.M. No surveys were conducted during extreme weather conditions (i.e., winds exceeding 15 miles per hour, rain, or temperatures in excess of 95ºF/35ºC). Table 1 summarizes the survey dates/times and weather conditions.

Table 1. Summary of Survey Dates and Weather Data.

Date	Survey Time	Temperature (ºF)	Cloud Cover	Wind Speed (Mph)	Surveying Biologists
5/6/19	0800-0915	59-61	Mostly cloudy	1-3	K. Livergood
5/13/19	0815-1000	60-61	Overcast	0-3	K. Livergood
5/20/19	0800-1015	55-58	Mostly sunny	3-6	K. Livergood
5/28/19	0800-0945	58-60	Clear	1-3	K. Livergood
6/4/19	0900-1100	60-62	Overcast	1-3	K. Livergood
6/11/19	0730-1000	65-68	Overcast	1-3	K. Livergood

3.0. RESULTS

No California gnatcatchers were observed or detected during the protocol survey.

Other birds observed during the protocol surveys included the following: California quail (*Callipepla californica*), northern mockingbird (*Mimus polyglottos*), California thrasher (*Toxostoma redivivum*), house finch (*Carpodacus mexicanus*), Allen's hummingbird (*Selasphorus sasin*), Anna's hummingbird (*Calypte anna*), lesser goldfinch (*Carduelis psaltria*), hooded oriole (*Icterus cucullatus*), mourning dove (*Zenaida macroura*), greater roadrunner (*Geococcyx californianus*), Bewick's wren (*Thryomanes bewickii*), wrentit (*Chamaea fasciata*), Pacific-slope flycatcher (*Empidonax difficilis*), northern rough-winged swallow (*Stelgidopteryx serripennis*), hermit thrush (*Catharus guttatus*), California towhee (*Melozone crissalis*), spotted towhee (*Pipilo maculatus*), bushtit (*Psaltriparus minimus*), Cooper's hawk (*Accipiter cooperi*), California scrub-jay (*Aphelocoma californica*), and American crow (*Corvus brachyrhynchos*). See Appendix A for a complete list of all birds observed on site.

No brown-headed cowbirds (*Molothrus ater*) were detected on site during the protocol survey.

If you have any questions regarding the findings of this report, please contact me at klivergood@wetlandpermitting.com.

I certify that the information in this survey report and attached exhibits fully and accurately represents our work.

GLENN LUKOS ASSOCIATES, INC.

June 11, 2019

Kevin Livergood — Permit # — Date
Biologist

p:1397-2a.2019cagn.rpt.docx

Source: ESRI World Street Map

N

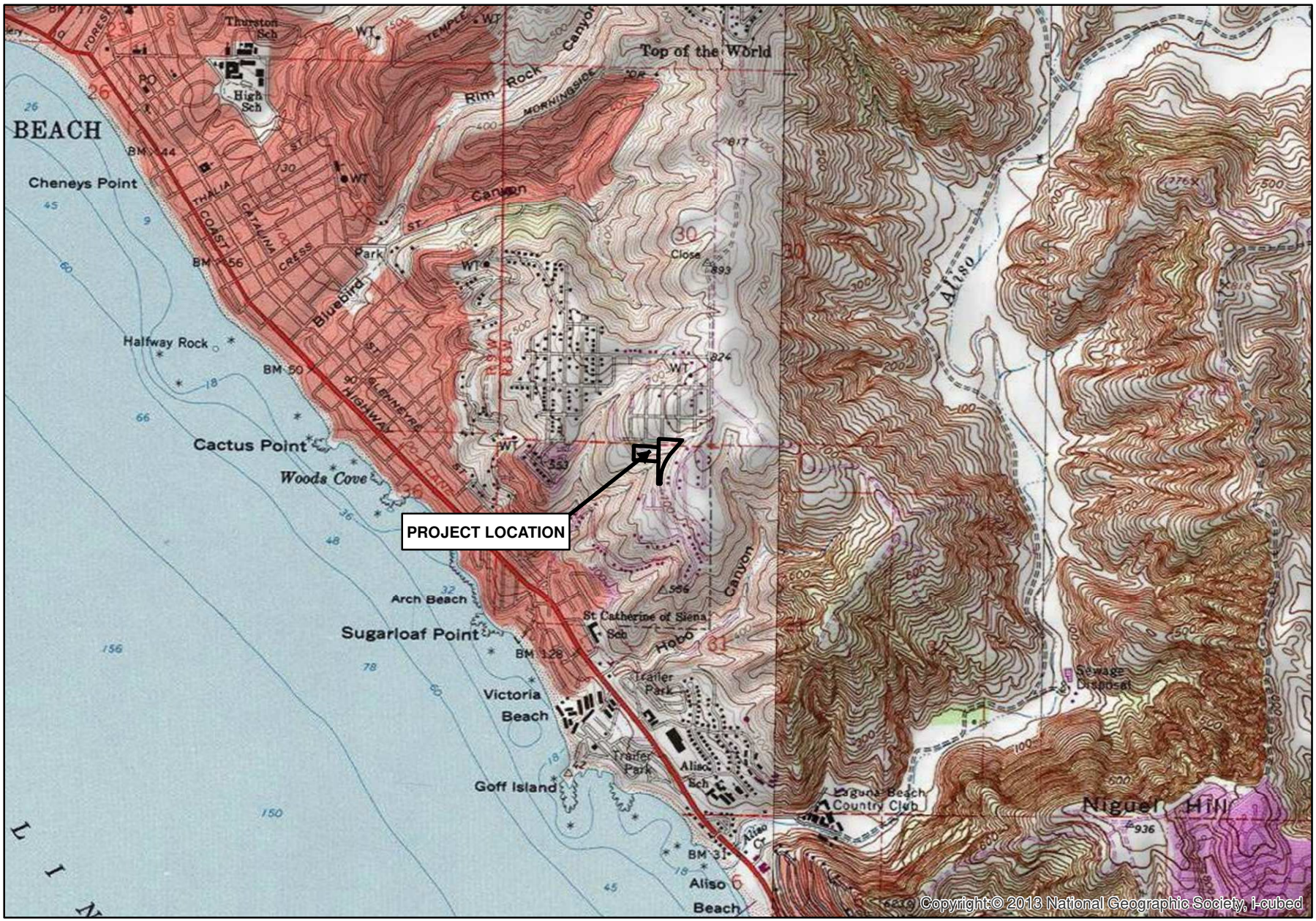
0 2 4 8 Miles

LECKEY PROPERTY

Regional Map

GLENN LUKOS ASSOCIATES

Exhibit 1



Adapted from USGS Laguna Beach, CA quadrangle

N

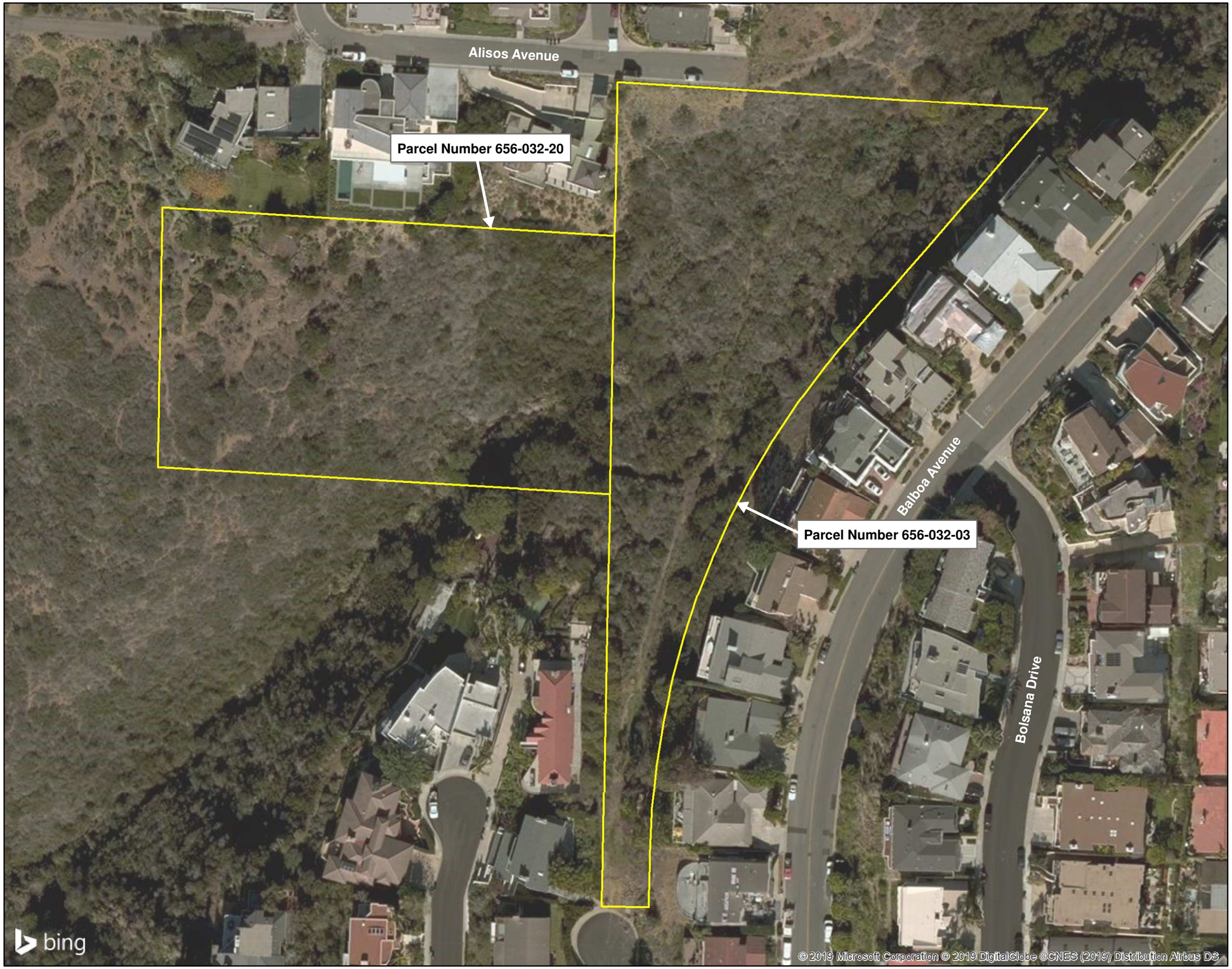
0 1,000 2,000 4,000 Feet

LECKEY PROPERTY

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2



Survey Area

N

0 37.5 75 150

Feet

1 inch = 75 feet

Coordinate System: State Plane 6 NAD 83
Projection: Lambert Conformal Conic
Datum: NAD83
Map Prepared by: B. Gale, GLA
Date Prepared: June 6, 2019

LECKEY PROPERTY

Gnatcatcher Survey Area Map

GLENN LUKOS ASSOCIATES

Exhibit 3

X:\1100 AFTER THE REST\1397-2CAGN\1397-2_GIS\CAGN\1397-2_CAGN.mxd

ACCIPITRIDAE	**HAWKS**
Accipiter cooperii	Cooper's hawk
AEGITHALIDAE	**BUSHTIT**
Psaltriparus minimus	bushtit
COLUMBIDAE	**PIGEONS AND DOVES**
Zenaida macroura	mourning dove
CORVIDAE	**JAYS AND CROWS**
Aphelocoma californica	California scrub-jay
Corvus brachyrhynchos	American crow
CUCULIDAE	**CUCKOOS & ALLIES**
Geococcyx californianus	greater roadrunner
EMBERIZIDAE	**EMBERIZIDS**
Pipilo crissalis	California towhee
Pipilo maculatus	spotted towhee
FRINGILLIDAE	**FINCHES**
Carpodacus mexicanus	house finch
Carduelis psaltria	lesser goldfinch
HIRUNDINIDAE	**SWALLOWS**
Stelgidopteryx serripennis	northern rough-winged swallow
ICTERIDAE	**ORIOLES**
Icterus cucullatus	hooded oriole
MIMIDAE	**THRASHERS**
Mimus polyglottos	northern mockingbird
Toxostoma redivivum	California thrasher
ODONTOPHORIDAE	**UPLAND GAME BIRDS**
Callipepla californica	California quail
SYLVIIDAE	**WRENTITS**
Chamaea fasciata	wrentit

TROCHILIDAE	**HUMMINGBIRDS**
Calypte anna	Anna's hummingbird
Selasphorus sasin	Allen's hummingbird
TROGLODYTIDAE	**WRENS**
Thryomanes bewickii	Bewick's wren
Troglodytes aedon	house wren
TURDIDAE	**THRUSHES & ALLIES**
Catharus guttatus	hermit thrush
TYRANNIDAE	**TYRANT FLYCATCHERS**
Empidonax difficilis	pacific-slope flycatcher
Sayornis nigricans	black phoebe

Appendix D
Geotechnical Evaluation

IAN S. KENNEDY, Inc. Engineering Geology • Soil Engineering • Geophysical Studies

Late Rec'd 11/9/00

INVESTIGATION

OF

GEOTECHNICAL CONDITIONS

14 ACRE PARCEL (END OF MARLIN DRIVE)

PORTION OF LOT 198 AND LOT "A" OF TRACT 6029

PORTAFINA AREA

LAGUNA BEACH, CALIFORNIA

Prepared For
Mr. Merrick W. Leckey

By
Ian S. Kennedy, Inc.
Engineering Geologist (CEG 1057)

April 22, 2000
(Revised October 31, 2000)
Job No: 99-137

1461 Regatta Rd. • Laguna Beach, CA 92651 • (949) 494-8114 • Fax (949) 497-1641

Leckey
Job No: 99-137

Investigation of Geotechnical Conditions
14 Acre Parcel (End of Marlin Drive)
Portion of Lot 198 and Lot "A" of Tract 6029, Laguna Beach, California

INTRODUCTION

An investigation of geology and soil conditions of the planned Marlin Drive extension and 8 lots for home sites has been completed. The property consists of approximately 14 acres of land, and is located northerly end of Marlin Drive in the City of Laguna Beach, California.

The objective of the investigation were:

1. To identify the geologic and soil conditions that would affect development of the street extension and the property for residential use;
2. To provide geotechnical input;
3. To provide recommendations for grading of the site area and construction on it.

This report presents the results of the investigation and the evaluation of the existing geologic and soil conditions and their effect on the proposed street and development, so that favorable conditions might be utilized to advantage and any adverse conditions compensated for by design.

SITE DESCRIPTION

The subject property is a rough quadrilateral shaped 14 acre parcel of raw land located north and

west of the end of Marlin Drive (Portafina Area), and above central Laguna Beach. The subject site is bounded on the north and east by existing residential development, and on the west by gentle to steep natural hillsides and a canyon that incise through the property to Nyes Place below. The road extension and future development consists of a north-south and east-west 32 foot wide right-a-way that would extend over the topographical bowl shape depression and the middle portion of the hillside and on top the marine terrace to the west.

The property also includes a fairly level area where artificial fill was placed in the past. The adjacent slopes varies from 1 to 1 to 5 to 1(horizontal to vertical) slope ratios. Maximum relief of the site is approximately 450 feet with elevations ranging from 310 to 760 feet above mean sea level. Most of the surface is currently covered with a light to moderate growth of low trees, brushes, and grasses.

Previous grading for the in-road and level fill area left a variable fill slope that descends to the canyon below at a 1 ½ to 1 slope. Drainage on the site area is controlled by the existing topography and generally drains the canyon bottom that leads to Nyes Place below. Surface water runoff fluctuates with seasonal rainfall. Irrigation of the upper home sites located around the perimeter of the property add runoff water to portions of the subject site area. An active 8-inch water main crosses the property from Marlin Drive (north) to Alisos Avenue. The water main is maintained by the Laguna Beach Water District.

PROPOSED DEVELOPMENT

According to the Tentative Tract Map Plan and Development prepared by Toal Engineering, Inc. of San Clemente, California, building sites and the extension of Marlin Drive will be graded on the subject property. Eight residential parcels and the street extension comprise the subject site that consist of a 14 acre parcel located north and west of Marlin Drive. Due to the sloping steep topography comprising the majority of the site, the development of the property will be limited to the upper portions of the acreage. Proposed development is planned to consist of extending Marlin Drive 400 feet north along the existing road then West 640 feet to the topographical marine terrace. A 16-foot wide emergency service road extends from the half-pin turn and connects to Alisos Avenue above.

The Tentative Tract Map shows variable sloping and level building pads with low interior and exterior cut and fill slopes. Fill slope planned for portions of the site area would descend and ascend within the tract boundary at a maximum slope ratio of 2 to 1 (horizontal to vertical) with a maximum height of approximately 55 feet and the maximum cut slope would be 40 feet in height. The remaining portion of the proposed development area is bounded by descending natural slopes. The southerly facing existing fill slope located in the north-east corner area is planned for the proposed emergency service road. The maximum height of this slope is estimated to be on the order of 40 feet.

It is anticipated that custom residential parcels with foundations designed for natural and fill slopes

will be constructed on the site.

SCOPE OF INVESTIGATION

The investigation that is the subject of this report has consisted of:

1. Reviewing available geologic maps and literature;
2. Studying aerial photographs;
3. Mapping the geologic features;
4. Excavating and examining exploratory test pits and drilled borings.
5. Logging, sampling, and testing of soil and rock materials encountered;
6. Preparation of cross sections of the site and the slopes to be graded as a part of the proposed scheme of development; and
7. Preparing this report.

Field exploration began in February, and was completed in March 2000. Field exploration consisted of examining the site and mapping geologic features noted, and excavating nineteen (19) test pits and three (3) borings. The test pits varied from two to ten feet in depth and the borings from 12 to 25 feet in depth. The soils and bedrock materials in the test pits were examined and logged by an engineering geologist. Representative undisturbed and bulk soil samples were obtained from the pits for classification and laboratory testing. Logs of the test pits are attached at the end of this report. Locations of the pits and the borings are shown on the accompanying Preliminary Grading Plans.

The geologic data obtained during field exploration were plotted on the Preliminary Grading Plans prepared by Toal Engineering, at a scale of 1" = 40 feet. Geologic Cross Sections were drawn at 1" = 20 foot scale, both horizontally and vertically, to illustrate relationships between subsurface conditions and proposed final ground surface. The resulting Geologic Map and Cross Sections are enclosed (in pocket at end of report).

GEOLOGIC SETTING

The City of Laguna Beach is situated on the seaward slope of the San Joaquin Hills, an uplifted and erosion-dissected, faulted block composed of Tertiary sedimentary rocks locally intruded and topped by remnants of Quaternary terrace deposits. In the geologic past, these rocks have been faulted and tilted during several episodes of uplift in this region.

Deformation resulting from broad, gentle folding, north-south faulting, and regional uplift in the last four million years have exposed these bedrock units at the surface, where subsequently they have been locally modified by incise canyons and landslides and capped by Quaternary surficial units including alluvium, slopewash soils, marine terrace deposits, and artificial fill.

The bedrock in the vicinity and on the subject site contains massive beds of breccia and sandstone of the San Onofre Formation. Generally, obscure bedding planes in the bedrock are widely spaced (2 to 10 feet) and are fairly hard to define. Surface exposures in the nearby cut areas exhibit fairly

consistent bedding and generally dip toward the southeast at angles of inclination of 30 to 45 degrees, thus an into-slope bedrock structural condition and steep angle slopes promote gross bedrock slope stability. Fractures consisting of joints and joint sets were found to be striking in the northeasterly and northwesterly directions and dipping at steep angles across bedding. Due to the massive nature of the breccia, bedding plane and joint fractures disappear with depth.

Low angle shears (stress release joints) dipping roughly parallel to the natural slope were noted in the zone of transition from residual soil to the fairly massive bedrock at depth. These features are discontinuous and would be related to the tectonic movements that were found in the test pits and nearby road cuts.

SLOPE STABILITY

No evidence of former gross bedrock instability such as slumps or wedge failures was detected during the field investigation, literature-map review or aerial photographic review. Acceptable future gross site stability is anticipated on the basis of good previous slope stability history and generally favorable geologic conditions with down slope supported bedrock strata.

Near surface materials on the slope, including residual soil, marine terrace soils, and slopewash soils, will continue to experience a slight creep movement towards the canyon bottom. It should be noted that the proposed grading will remove creep prone materials on the graded lots. **Note:** 1. Due to the

very thin veneer of sandy, overburden soils, a mud flow condition is considered to be remote.

2. Stability analysis were conducted utilizing a balance of horizontal forces method for planar potential failure surfaces as depicted on the attached Stability Sections. The results of stability analysis indicate that the factors of safety for static and pseudo static conditions is in excess of 1.5 and 1.1, respectively. Surficial stability analysis for 2:1 (horizontal:vertical) cut and fill slopes were also conducted and indicate adequate factors of safety for the proposed slopes. Site specific direct shear laboratory test results were used for stability analysis.

SITE GEOLOGY

San Onofre Formation (Tso) The slope on which the subject property is situated is underlain by sedimentary rock that has been assigned to the San Onofre Formation that is of marine origin and middle to upper Miocene age. The bedrock materials consisting of breccia and sandstone beds are exposed in the steep and ragged portions of the upper and lower road cuts that surround the subject property.

The San Onofre Formation consists predominantly of massive beds of sand to boulder size angular fragments of metamorphic rock materials (primarily schist) that are poorly sorted and indistinctly bedded. Sub-parallel orientation of flattened rock fragments or variations in the coarseness of the fragments of which portions of the rock are composed are the only suggestions of bedding within the breccia.

Interspersed within the breccia are occasional beds of conglomerate and sandstone. These beds are composed of fine to very coarse, poorly sorted sand similar to the matrix of the breccia. They vary from 5 foot to as much as 20 feet in thickness with the thinner beds being discontinuous or lenticular in shape.

Prior to its exposure as a result of up-lift and erosion of the San Joaquin Hills, the San Onofre formation sediments were deeply buried, well consolidated, and moderately cemented. Because of its predominantly massive structure and moderate cementation, the San Onofre Breccia is one of the more stable and erosion resistant rock units exposed along this portion of the coastline.

Bedrock Structure The sedimentary bedrock sequence beneath the subject property is inclined or tilted so that it dips uniformly toward the southeast at angles that vary from 30 to 45 degrees below the horizontal. Bedding within the massive breccia does not readily part so these features do not constitute structural planes of significant weakness. The attitude of bedding noted is favorable with respect to most portions of the slope areas in which the bedrock is exposed.

Residual Soils (Qrs). A residual soil profile has developed on the breccia and sandstone bedrock uplifted block. It is characterized by a layer of breccia and sandstone fragments and blocks, in a medium to fine sandy clay matrix. The soil materials were found to be dry and loose to dense. The residual soils were found to be as much as several feet in thickness.

Slopewash Soils (Qsw). Slopewash deposits were found blanketing some of the slope area of the subject site. These light to reddish-brown materials washed down-slope from higher exposures of bedrock and residual soils above and are of the same general composition. They were generally found to be loose and are prone to creep on steep slopes when wet.

Marine Terrace Deposits (Qtm). Sedimentary deposits of marine origin and Pleistocene age rest on the well rounded bench cut that was created in the bedrock by wave erosion prior to emergence of the coastal terrace on the westerly portion of the property. The marine terrace deposits consist of tan to rusty brown, fine to medium sand. The base of these deposits commonly include gravel and some cobbles that were derived from wave erosion of the underlying sandstone bedrock. These deposits are well consolidated, and are poorly cemented.

Artificial Fill (Af). Deposits of overburden soils consisting of artificial fill that apron the downhill side of the road that extends from Marlin Drive to the infilled canyon portion of the subject property has been noted. The fill materials were found to be as much as 14 feet in thickness and consist of silty to clayey sands and gravel to boulder size rock fragments. The fill materials vary from dry to very moist, and are considered to be poorly to slightly compacted. Also; wood, concrete, asphalt, and vegetation and tree limbs were found dispersed within the fill that would be from end-dumping during the construction of the nearby home sites.

FAULTING

Three earthquake epicenters have been instrumentally recorded to have occurred within the general region on land, and three epicenters have been located less than 1 mile off the coast. These earthquakes had magnitudes less than 4 except for a magnitude 4.5 event located offshore 2 miles west of the City of Laguna Beach. However, the site is in a seismically active region, as is all of Southern California, and large earthquakes of magnitudes greater than 7.0 can be expected to occur within the lifetime of most structures. There are, however, no known active faults on or immediately adjacent to the site. Moreover, the site is located outside of any fault hazard zones as designated by the Alquist-Priolo Special Studies Zones Act of 1972 (Special Publication 42, revised 1991). The principal seismic hazard to be considered for design purposes is seismically induced ground shaking resulting from earthquakes on distant faults. Cracking of the ground due to shaking from distant events is not considered a significant hazard. The major faults in Southern California, as shown on Figure 2, that are most likely to generate earthquakes capable of producing destructive seismic ground shaking at the site are the Newport-Inglewood, located approximately 2.47 miles offshore to the west, and the Elsinore located approximately 23 miles to the east-northeast, the Whittier located approximately 26 miles northeast, and the San Andreas located approximately 60 miles east-northeast.

The closest major active fault (fault with documented surface rupture within the last 11,000 years) within an Alquist-Priolo Special Studies Zone is the Newport-Inglewood fault zone. The Newport-

Inglewood structural zone of folds and faults forms a northwesterly trending line of topographic features which extend from Newport Mesa to beyond the Ballona Gap (Barrows, A.G., 1974). This fault zone has been the subject of numerous studies regarding the seismicity of the metropolitan Los Angeles area. Evidence to support this system's status as an active fault is well documented and includes late Quaternary to Holocene offset stratigraphy and aquicludes. Furthermore, historic seismic events associated with the Newport-Inglewood fault zone include incidents with the following dates and magnitudes: October 22, 1941, magnitude 4.9; June 19, 1944, magnitude 4.5; and the damaging March 11, 1933, Long Beach Earthquake, magnitude 6.2 (Ziony, J.I. and Yerkes, R.F., 1985, and Hileman, F.A., et al., 1973).

Located approximately 6.0 miles west of the project area is the offshore extension of the Newport-Inglewood fault zone. On land the zone is marked at the surface by low eroded fault scarps along recently active northwest-trending staggered faults, and by a chain of elongated low hills and mesas that extend from Los Angeles to near the vicinity of Newport Bay where it extends offshore toward San Diego.

An inactive fault, the Laguna Canyon fault zone is included in this discussion because of its presence in the area, even though it is not considered as being active during the last 11,000 years.. The Laguna Canyon fault zone is a regional structural feature which extends north-northwest from a few miles north of Dana Point to near the northern terminus of the San Joaquin Hills in the vicinity of Irvine, a total exposed distance of about 15 miles. The zone consists of a complex system of anastomosing

shears with two principal, essentially parallel northwest-trending normal faults southeast of Laguna Canyon and a single fault located north of the canyon.

There are several possible faults that have cut through the sedimentary bedrock within the site area. The faults shown on the attached Site Area Geologic Map are based on field exposures mapped by others, and the coincidence of topographic features with contacts between contrasting geologic units.

SEISMICITY OF THE SITE AREA

Due to the proximity of the site to active faults, it is reasonable to assume that the site will undergo moderate to severe ground shaking as the result of an earthquake occurring on a nearby active fault. The Newport-Inglewood fault zone is the most likely source of significant ground shaking at the site.

The following table lists the major active faults, their distance from the site, maximum probable earthquakes, and peak ground accelerations, which may be expected at the site:

TABLE 1

Fault	Distance & Direction to Causative (Miles)	Maximum Probable Earthquake (Richter Mag.)	Predominant Period Tp (Sec.)	Peak Ground Acceleration (Gravity)	Peak High* Ground Acceleration (Gravity)
Newport-Inglewood	3.5 SW	6.5	0.3	0.5	0.325
San Andreas	60 NE	8	0.5	0.2	0.013

Whittier-Elsinore	23 NE	7.2	0.32	0.22	0.142
San Jacinto	45 NE	7.5	0.45	0.14	0.091

*Note: Assuming an earthquake, focus depth of 6km with an epicenter distance of 10km, a peak rock acceleration of 0.6g could be generated by 6.0-6.4 magnitude earthquake (Boore, 1978). Ploessel and Slosson, (1974) suggest 65% of anticipated peak acceleration be used in design purposes in the absence of more site specific data to determine the repeatable high ground acceleration which normally follows the peak acceleration in a seismic wave train. This 65% value would be 0.4g, a value very similar to that suggested by the Uniform Building Code.

RECENT EARTHQUAKES

1. February 1971 - Sylmar earthquake in the San Fernando Valley (M=6.4) occurred on the Sierra Madre Fault and was centered in the San Gabriel Mountains.

2. July 1986 - The site was shaken by a magnitude M=6.0 earthquake that was centered on the Mission Hills Fault (within the San Andreas Fault zone), located northwest of Palm Springs. Subsequently on July 13, 1986, the site was again shaken by an earthquake centered ±28 miles off shore from Oceanside in San Diego County. The causative fault of the July 13 event has not been determined, but it may have been associated with the system of unnamed faults in the deep water area known as the San Diego Trough.

3. October 1987 - The Whittier Narrows Earthquake (M=5.9) was centered ±60 miles northwest of the site. The event produced vertical movement that indicated the causative fault was not the high angle strike-slip Whittier Fault, as thought initially. Rather, it was a low angle unnamed fault that trends east-west. The most sever property damage was concentrated in the older established portions of Whittier, as well as in nearby areas of San Gabriel Valley (to

the north and northwest) and East Los Angeles. Orange County, which was as close as 5 to 6 miles southeast of the epicenter, experienced relatively minor damage.

4. February 1990 - The Upland Earthquake (M=5.5) occurred on the Sierra Madre Fault and was centered in the foothills of the San Gabriel Mountains northerly of Upland.

5. June 1991 - The Sierra Madre Earthquake (M=5.0) occurred on the Sierra Madre Fault and was centered in the San Gabriel Mountains above Sierra Madre (east of Pasadena).

6. April 1992 - The Desert Hot Springs Earthquake (M=6.1) was reported to have occurred on the San Andreas Fault and was centered 15 miles northeast of Palm Springs.

7. June 1992 - The Landers (M=7.6) and Big Bear (M=6.7) Earthquakes rattled Southern California and caused localized damage and casualties. The Faults were reported to be centered on splay faults of the San Andreas Fault.

SEISMIC CONDITIONS

There are a number of active faults in the Southern California region, and earthquakes occur in the region rather frequently. One of those active faults is the Newport-Inglewood Fault, which lies beneath the surface of the sea only about 2.47 miles from the subject property. There are larger and more active faults around, but they are much farther from this location. As a result, greatest seismic threat is the Newport-Inglewood Fault.

No known active faults or projections of active faults are depicted upon published regional maps as

transecting the property. Therefore, potential damage to the property due to surface faulting is considered remote (Jennings, 1979; Real, 1978).

Figure 2 depicts the location of regionally active faults which could generate earthquakes capable of shaking the site, and the location of historic epicenters in the Southern California area.

The Newport-Inglewood Structural Zone (NISZ) which is located 6± miles west of the site is considered to be a major active fault capable of producing significant ground-shaking at the site in the event of a nearby earthquake along it. A maximum credible earthquake of Richter Magnitude 7.0 on the NISZ is possible (Greensfelder, 1974).

The most significant historical earthquake affecting the site was the Magnitude 6.3 earthquake on March 10, 1933 which is attributed to an earthquake centered on the NISZ with an epicenter located 10 to 12 miles northwesterly of the property. Damage from this earthquake was reported in the Newport Beach area.

Boore (1978) provides data for estimating peak base rock accelerations for earthquakes in California based upon hypocentral distance. For this site, if one assumes a hypocentral depth of 6 km for an earthquake at an epicentral distance of 10 km on the NISZ, Boore's data suggests peak horizontal accelerations of 0.3 g during a 6.0 to 6.4 magnitude earthquake. Based upon empirically derived data compiled following the 1971 Sylmar earthquake, Ploessel and Slosson (1974) suggest that a value

of 65 percent of anticipated peak acceleration be used for design purposes in the absence of more site specific response spectral data. The computed 65 percent value for this site corresponds to 0.20 g associated with Repeatable High Ground Acceleration (RHGA) which normally follow the peak acceleration in the seismic wave train. This RHGA value is essentially that acceleration assumed in the Uniform Building Code (0.18 g). **Note:** The residential structure would be constructed based on the minimum U.B.C. standards for seismic area 4. Using the 1997 U.B.C. code, the following seismic coefficients should be used in the structural design (minimum values). See Table I (attached).

U.B.C. Section 1636 (1997 edition)
Table 16-1 Seismic Zone #4 Z=0.40
Table 16-J Soil Profile Type S_b=Rock
Table 16-Q Seismic Coefficient S_b=0.40 N_a
Table 16-R Seismic Coefficient C_v=0.40 N_v
Table 16-S Near Source Factor N_a=1.0
Table 16-T Near Source Factor N_v=1.2
Table 16-U Seismic Source Type = B

CONCLUSIONS

1. **Favorable Geotechnical Conditions**

   A. In our opinion, the Tentative Tract can be developed for the proposed purpose from a geotechnical point of view, provided that recommendations and geotechnical data included in this report and addendum reports are implemented and utilized in preparation of grading plans.

   B. Overall geologic structure within the San Onofre Formation is generally favorable with respect to the proposed development. The property as a whole is grossly stable.

C. No groundwater or subsurface seepage was encountered on the site. Although phreatofytes (water loving plants) were found in the filled in portion of the canyon.

D. The on-site materials are suitable for use as structural fill.

E. Standard seismic parameters (Uniform Building Code, 1997) may be utilized in the design of structures on the subject property.

F. No active faults are known to cross the proposed development, and the hazard of surface fault rupture at the site is considered to be nil.

G. Liquefaction or seismically-induced settlement is not considered to be a problem on this site due to the nature and structure of the bedrock at depth. Also, the potential for earthquake induced landsliding or surficial slumping on the site is considered to be low.

H. Fill slopes with inclinations of 2 to 1 (horizontal to vertical) and overall heights of up to 40 feet are generally expected to be stable against rotational failure, if the on-site soil materials are used as fill. **Note:** All designed fill slopes will be studied and analyzed.

I. Due to the nature of the site geology and bedrock structure, the proposed 1½ to 1 cut slopes within the proposed tract would be considered to be stable. However, adequate stabilization measures such as buttress fills, shear keys or retaining walls may be required.

J. The proposed development at the subject site will not adversely impact adjoining properties provided the geotechnical recommendations are implemented in the design,

construction and maintenance of the subject site.

2. **Unfavorable Geotechnical Conditions**

A. Cut slopes within bedrock having out-of-slope bedding may require stabilization or buttress fills.

B. Cut slopes in non-bedrock materials (such as residual soils, slopewash, or marine terrace soils) are subject to erosion and/or slump-type failures, and will require stabilization or buttress fills.

C. Areas underlain by loose (non compacted) fill and thick overburden soils, will require analysis on an individual basis and would require deep removal and re-compaction, special foundations.

D. Deeper cuts in the upper portions of the site may encounter very hard breccia which may require double-headed single-shank ripping.

E. Large boulders generated by grading may require special handling or disposal off-site.

F. Vegetation and heavy brush will have to be removed and hauled from the site.

RECOMMENDATIONS

1. **Review of Grading Plans** Final grading plans should be reviewed by an engineering geologist and soil engineer in order to confirm compliance with these general recommendations. If more detailed recommendations are considered necessary, they should be made at that time.

2. **General Specifications for Grading** Site grading and excavating are to be performed in compliance with the General Specifications for Grading that are attached to this report (Appendix I).

3. **Geologic Inspection of Grading** Cut slopes and excavations should be inspected by an engineering geologist as they are made. Geologic conditions exposed should be mapped. If preliminary estimates made regarding subsurface geologic conditions are not confirmed by inspection, the cause and the extent of any differences should be determined by further inspection or further investigation. Differing geologic conditions discovered by inspection or further investigation should be reported to all parties responsible for performance or inspection of grading, and such conditions should be evaluated by the soil engineer to confirm that approved plans and specifications, and preliminary recommendations remain applicable. If not, appropriate revisions should be recommended and implemented.

4. **Soil Engineering Inspection of Grading** All grading should be performed under the inspection of a soil engineer, and compacted fills placed should be tested by the soil engineer or his authorized representative in the field. Compliance with these recommendations should be confirmed by inspection and by the results of appropriate tests performed as the fills are placed and compacted (refer to General Specifications for Grading). Additional recommendations pertaining are as follows:

   A. All earthwork and construction should conform to the criteria and recommendations

in this report and the requirements of the City of Laguna Beach.

B. The design recommendations in this report should be reviewed at the time of finalization of grading plans and during grading. As soil and bedrock conditions are exposed, significant variations may require that these recommendations be modified.

C. We consider that the anticipated grading will not adversely affect, nor be adversely affected by, adjoining property, with due precautions being taken. The final grading plans, crib wall plans, retaining wall plans and foundation plans should be reviewed by the geotechnical engineer prior to construction.

5. **Processing of On-Site Soils** Prior to placing fill, loose and porous artificial fill, topsoil, marine terrace soils, and weathered bedrock materials should be removed to the underlying moist, dense bedrock under the observation of the geotechnical engineer. The estimated maximum removal depths for these materials are as follows:

Surficial Unit	Estimated Removal Depth (feet)
Artificial Fill	14
Marine Terrace Soils and Slopewash Soils	4
Residual Soils and Weathered Bedrock	2

Actual depths should be confirmed during grading. All of these materials on-site may be reused as compacted fill provided that roots, trash, rocks larger than 6 inches in diameter, and other deleterious materials are removed. Prior to the placement of fill, the bottom of the excavation should be scarified to a depth of 6 inches, moisture conditioned to approximate optimum moisture content, and compacted to at least 90 percent relative compaction based

on ASTM: D 1557-91.

6. **Over-Excavation** Finished grade of building pads should either be entirely cut into moist, dense bedrock or be founded on a minimum of 3 feet of compacted fill. Transition pads and shallow fill pads should be over-excavated to provide a minimum of 3 feet of compacted fill beneath finished pad grade. Pads exposing different rock type (bedrock contact or shear zones associated with the Laguna Canyon fault zone) may also require over-excavation to provide a uniform fill layer under the future structure.

7. **Excavating Conditions** Excavation of on-site materials may be accomplished with standard heavy-duty earthmoving equipment. Hard rock may be encountered where the breccia is highly cemented, but all of these materials should be rippable with heavy grading equipment. In our experience, trenching for underground utilities within the San Onofre Formation can largely be accomplished with standard equipment, but that hoe-rams or jack hammers may become necessary where well cemented bedrock is encountered. During grading, it is possible that large rocks may be generated from cut areas.

8. **Rock Disposal** Some amount of over-size material is likely to be generated during grading operations. Fill material should, in general, not contain rocks over 6 inches in their largest dimension. Over-size materials, if produced during grading, will require special handling.

9. **Slope Stability** The stability of both cut and fill slopes is dependent upon the strength characteristics of the bedrock and soils. Laboratory tests conducted on representative samples of the on-site materials and local experience indicate that the San Onofre Formation bedrock materials found on this site typically exhibit moderate to high shear strengths.

10. **Cut Slopes** On-site formational materials generally consist of bedrock materials that are generally massive to moderately bedded and gravel to boulder size detritus in a matrix of clayey sand. Proposed cut slopes in formational materials will have favorable factors of safety against mass failure in excess of generally accepted design criteria (1.5 for static conditions and 1.1 for pseudo static conditions). This presumes that adverse geologic or soil conditions are not exposed in slope faces. Where adverse conditions are exposed, or surficial instability conditions exist, construction of buttress or stabilization fills will be required to provide stable slope conditions.

11. **Fill Slopes**

A. **General** The predominant material anticipated for use in fill slope grading will be silty sands and gravelly sands associated with the San Onofre Formation. Also, surficial overburden soil materials consisting of silty and clayey sands will also be utilized as fill. Fill slopes comprised of these materials will have factors of safety against arcuate

failures in excess of generally accepted minimum design criteria (factor of safety greater than 1.5 for static conditions, and 1.1 for pseudo static conditions) provided they are constructed in accordance with the recommendations contained herein. The maximum planned fill slope height will not exceed 40 feet in height.

B. **Fill Keys** Fill keys should be constructed at daylight fill contacts as designed at the time of the grading plan review, and fill slopes benched into the competent bedrock materials at depth. As a preliminary recommendation, fill keys should generally have a width equal to one-third the height of the slope and a depth of 3 to 5 feet.

12. **Fill-Over-Cut Slopes** In general, fill-over-cut slopes should be minimized during design and, if necessary, replaced with a stabilization blanket fill during construction. Construction of the blanket fills should begin with the excavation of minimum 15 foot wide keys at the toes of the slopes. Key width greater than 15 feet may be required if the cut portion of the slope exceeds 30 feet in height.

13. **Surficial Stability**

A. **Cut and Fill Slopes** The results of our analyses indicate that proposed cut and fill slope construction be at a minimum ratios of 1½ to 1 to 2 to 1 (horizontal to vertical), respectively, and should possess surficial stability in excess of generally accepted minimum criterion (i.e., Factor of Safety - 1.5), provided these slopes are constructed

in accordance with the recommendations provided herein. Slope maintenance and erosion control measures should be implemented.

B. **Natural Slopes** Natural slopes at the subject site may be subject to surficial instability, especially during period of heavy rainfall or when drainage and/or runoff is concentrated in up slope areas. At the time of the investigation, no significant surficial instability was observed.

14. **Stabilization Fills** If constructed at a 2 to 1 inclination, proposed cut slopes that do not expose unfavorable geologic structural features are considered to be grossly and surficially stable to the maximum height shown on the plans. If excavations for cut slopes expose day-lite bedding, or loose cohesion-less soils, significantly fractured, and otherwise unsuitable materials; over-excavation and replacement of the unsuitable materials with a compacted stabilization fill will be required.

15. **Buttress Fills** Cut slopes exposing adverse geologic structure, such as out-of-slope bedding, in conjunction with weak clay seams or sheared zones, should be constructed with buttress fills to mitigate potential gross instability. If field review of the cut slopes reveal shear zones, clay seams, or other sources of potential instability, specific design of buttress key dimensions will be required. This condition is not anticipated based on the results of this investigation due to the generally massive nature of the San Onofre Formation breccia materials.

16. **Daylight Shear Keys** To mitigate progressive downhill movement of surficial soils (soil creep) at the outer edge of daylight cut lots, daylight shear keys should be constructed at the outer edge. Over-excavation of the entire pad may be necessary in order to eliminate the resulting cut-fill transition where houses are planned close to the top of slope.

17. **Construction Slopes** Except as noted herein, construction slopes in the San Onofre Formation may be cut at 1 to 1 (horizontal to vertical) to a maximum height of 25 feet. Above that height, temporary slopes should be cut at 1.5 to 1 (horizontal to vertical) or flatter subject to conditions encountered during grading. The temporary stability characteristics of the materials exposed may vary significantly throughout the site. Therefore, the recommended method to enhance the temporary stability of excavation slopes is by varying the slope inclinations. However, in no instance should temporary excavation slopes in excess of five feet high be steeper than a 1 to 1 (horizontal to vertical) ratio. All temporary excavations should be reviewed by the field geologist and engineer during excavation to confirm design assumption. If unanticipated conditions exist, alternate design may be recommended. If alternate methods of providing suitable stable excavations, such as shoring, etc., are required, this office can provide design recommendations. Excavation stability is time sensitive and the responsibility of the contractor. Our recommendations are based on excavations remaining open for generally short periods of time. If contractors envision

excavations being open for extended periods, or if our recommendations are considered impractical or unsafe, alternate designs can be provided.

18. **Sub-drains and Surface Drainage**

A. Sub-drains should be placed under all canyon fills located in established drainage courses and at identified or potential seepage areas as provided in the Development Plan. Specific sub-drain locations should be re-evaluated in the field during grading. General sub-drain locations are shown on the approved grading plan. Sub-drains should be approved by the Geotechnical Consultant prior to fill placement. To enhance future site performance, it is recommended that all roof and pad drainage should be collected and directed away from proposed structures to lined swales and channels. For soil areas, we recommend that a minimum of one percent gradient be maintained. It is important that drainage be directed away from foundations and that recommended drainage patterns be established at the time of fine grading and maintained throughout the life of the structures. Property owners should be aware that altering drainage patterns, landscaping, or the addition of patios, planters, and other improvements, as well as irrigation and variations in seasonal rainfall, all affect subsurface moisture conditions.

B. Graded berms, swales, area drains, terrace drains and brow ditches designed to carry surface water from pad and slope areas should not be blocked or destroyed. Regular clean out of these devices should be performed. Water should not be allowed to pond

in pad areas, or overtop and flow down graded or natural slopes. Sources of uncontrolled water, such as leaky water pipes, drain, etc., should be repaired if identified. Slopes should not be over watered, especially during winter months. Sub-drain outlets should be maintained to prevent burial or other blockage.

19. **Slope Planting and Landscape Irrigation** Constructed slopes should be planted or otherwise protected as soon as practical after grading so as to minimize the potential for slope erosion and sedimentation. The plant mix method of application, and maintenance requirements, are subject to the approval of a qualified landscape architect. Landscape irrigation pipes should be anchored to slope faces, not placed in trenches excavated into slope faces. Slope irrigation should be minimized. If automatic timing devices are utilized on irrigation systems, provisions should be made for interrupting normal irrigation during periods of rainfall. Though not a requirement, consideration should be given to the installation of near-surface moisture monitoring and control devices. Such devices can aid in the maintenance of relatively infirm and reasonably constant moisture conditions.

20. **Foundation Design Criteria** It is anticipated that custom homes will be constructed on the buildable lots within the subject tract. Foundation design criteria should be provided based on a specific geotechnical investigation of the individual lots once the nature and location of the proposed structures are known. Conventional one and two story wood frame structures

may be supported on shallow footings bearing in bedrock and compacted fill, or on caissons and grade beams for footings at depth. The estimated allowable soil bearing pressure for the bedrock on the site is 2,000 pounds per square foot.

21. **Building Setbacks** In order to provide for appropriate foundation bearing conditions for structures, including retaining walls, a footing setback will be necessary when structures are located near the top of a slope. All foundation designs under the influence of these recommendations should be forwarded to the Geotechnical Consultant for review. Stability analysis may be required. The following footing setback from the slope face is recommended:

$$\text{Descending Slope (Setback)} = \frac{\text{Vertical Height of Slope (ft)}}{3} \text{ (Not to exceed 40 feet)}$$

$$\text{Ascending Slope (Setback)} = \frac{\text{Vertical Height of Slope (ft)}}{2} \text{ (Not to exceed 15 feet)}$$

22. **Type of Cement for Construction** Based on sulfate testing of representative on-site soils, ordinary Type II Portland Cement may be used in the concrete structures in contact with the sub-grade soils.

23. **Retaining Walls**

A. **General** Retaining walls less than 10 feet in height should be designed in accordance with the following preliminary recommendations:

Earth Pressure Condition	Backfill Profile	Equivalent Fluid Pressure (Lb/ft²/ ft. Depth)
Active	Level	40
(Cantilever Walls)	2 to 1	50
At Rest	Level	60
Passive	Level	250

Friction Coefficient: 0.35

Retaining walls should be adequately drained to reduce potential hydrostatic pressure on the walls. All retaining walls should be constructed with a drain at the base consisting of a 4 inch diameter perforated pipe (PVC Schedule 40 or equal) surrounded with at least 3 ft³/lineal foot of graded filter rock or open graded gravel wrapped in geofabric (Supac 5NP, or equal). All retaining walls should be backfilled with a minimum of 2 foot thickness drainage zone directly behind the wall. The zone should extend up from the back drain to within 2 feet of final grade. The final 2 feet may consist of native soil backfill. Drainage zone material should consist of ¾ inch open graded rock. Walls subject to surcharge loads should be designed for an additional uniform lateral pressure equal to one-half the anticipated surcharge pressure in the case of restrained walls or one-third the surcharge pressure of unrestrained walls. Backfill should be placed under the observation and testing of the geotechnical engineer. Retaining wall footings should be embedded at a minimum depth of 2 feet below the lowest adjacent grade.

B. **Crib Walls** Crib walls should be designed using the lateral earth pressures given above. Crib walls should be founded in competent natural ground below overburden

soil materials. A minimum embedment depth at the front of the wall of 2 feet is recommended. Sub-drains should be installed behind crib walls as recommended above for retaining walls. An allowable bearing capacity of 2,000 psf is recommended.

24. **Trench Backfill** Utility trench backfill consisting of the on-site material types should be placed by mechanical compaction to a minimum of 90 percent of the laboratory maximum density. As an alternative, granular material (sand equivalent > 30) may be thoroughly jetted into place in lifts. However, jetting should only be considered to apply to trenches no greater than 2 feet in width. Following jetting operations, trench backfill should be thoroughly and mechanically compacted and/or wheel rolled in lifts to a minimum of 90 percent of the laboratory maximum density. Exterior trenches should not encroach within a 1 to 1 (horizontal to vertical) downward projection from the outer edge of foundations. If utility contractors indicate that it is undesirable to use compaction equipment in close proximity to a buried conduit, we would recommend the utilization of light-weight mechanical equipment and/or shading of the conduit with clean granular material, which could be thoroughly jetted in-place above the conduit, prior to initiating mechanical compaction procedures. Other methods of utility trench compaction may also be appropriate as approved by the Geotechnical Engineer at the time of construction.

Leckey
Job No: 99-137

This investigation was conducted in accordance with generally accepted practice in the soils engineering field. No other warranty is offered or implied. The conclusions and recommendations presented in this report are based on surface and subsurface conditions encountered and the present state of geologic knowledge. They are not intended to imply a control of nature. As site geotechnical conditions may alter with time, the recommendations presented in this report are considered valid for a period of one year from the report date. Changes in the proposed land use or development may require supplemental investigations or recommendations. Lastly, independent use of this report in any form cannot be approved unless specific, written verification of the applicability of the recommendations is obtained from this office. Thank you for the opportunity to be of service. If you have any questions, please call.

Ian S. Kennedy, Inc.

Ian S. Kennedy
Engineering Geologist (CEG 1057)
License expires 1/31/05

ISK:nmm

Specialty Construction Design

David A. Purkis
Civil Engineer (RCE 42810)
License Expires 3/31/04

Attachments:
1. List of References
2. Index Map
3. Site Geology Map
4. Site Area Geology Map
5. Major Earthquake and Recently Active Faults in Southern California Region
6. Appendix A
   - A. Boring Logs
   - B. Test Pit Logs
   - C. Laboratory Testing
   - D. Slope Stability Analysis
7. Appendix B
   - A. General Specifications for Grading
   - B. General Grading Recommendations - Details

In Pocket: Site Plan and Cross Sections A-A', B-B', C-C', D-D', E-E', F-F', G-G', H-H', I-I', and J-J'

Appendix E
Tribal Consultation Communications

November 22, 2022

Gabrielino-Tongva Tribe
Mr. Charles Alvarez
23454 Vanowen Street
West Hills, CA 91307

Dear Mr. Alvarez,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominguez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez
Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map

November 22, 2022

Juaneno Band of Mission Indians
Acjachemen Nation - Belardes
Chairperson Matias Belardes
32161 Avenida Los Amigos
San Juan Capistrano, CA 92675

Dear Chairperson Belardes,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominguez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez
Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map

November 22, 2022

California Cultural Resources Preservation Alliance
Dr. Patricia Martz, Ph.D.
P.O. Box 54132
Irvine, CA 92619-4132

Dear Dr. Martz,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominguez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez
Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map

November 22, 2022

Gabrielino Tongva Indians of California Tribal Council
Chairperson Robert Dorame
P.O. Box 490
Bellflower, CA 90707

Dear Chairperson Dorame,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominguez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez
Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map

November 22, 2022

Gabrielino/Tongva Nation
Chairperson Sandonne Goad
106 ½ Judge John Aiso Street
No. 231
Los Angeles, CA 90012

Dear Chairperson Goad,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominguez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez
Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map

November 22, 2022

Juaneno Band of Mission Indians
Chairperson Sonia Johnston
P.O. Box 25628
Santa Ana, CA 92799

Dear Chairperson Johnston,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominguez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez
Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map

November 22, 2022

Gabrieleno/Tongva San Gabriel
Band of Mission Indians
Chairperson Anthony Morales
P.O. Box 693
San Gabriel, CA 91778

Dear Chairperson Morales,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominguez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez
Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map

November 22, 2022

Juaneno Band of Mission Indians
Acjachemen Nation - Romero
Chairperson Teresa Romero
31411-A La Matanza Street
San Juan Capistrano, CA 92675

Dear Chairperson Romero,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominguez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez
Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map

November 22, 2022

Gabrieleno Band of Mission Indians
Kizh Nation
Chairperson Andrew Salas
P.O. Box 393
Covina, CA 91723

Dear Chairperson Salas,

The City of Laguna Beach is commencing its Assembly Bill (AB) 52 consultation process for the 749 Marlin Drive Road Extension (RD EXT-2021-10443/CDP-2022-2071) Project (Project). The Project site consists of an approximately one foot by 37-feet (37 square feet) portion of an approximately 1.96-acre parcel (APN 656-032-03), directly adjacent to the terminus of Marlin Drive. A map of the Project site is provided as Attachment 1.

The Project proposes a Road Extension and a Coastal Development Permit to extend the northerly end of Marlin Drive approximately one foot by 37 feet in order to provide access from Marlin Drive for the potential future development of a single-family residence. No development is proposed at this time. The environmental analysis is limited to the assessment of the potential impacts associated with the proposed dedication of the approximately one-foot by 37 feet portion of the larger parcel to public right-of-way and the potential improvements that would occur to extend the paved road approximately one foot into the existing parcel as part of the driveway, including the construction of a concrete curb cut and drive apron per City standards and relocation of existing utilities (as necessary).

The proposed Project is consistent with the corresponding General Plan and Zoning designations. The project would require approval of a Coastal Development Permit and Road Extension by the City of Laguna Beach City Council.

The City of Laguna Beach maintains a list of interested tribes pursuant to AB 52. You are receiving this letter because you appear on the AB 52 list and wish to be contacted for CEQA projects.

Your participation in this local planning process is important. If you possess any information or knowledge regarding Native American Sacred Lands or other cultural resources in and around the Project site, and wish to consult with the City of Laguna Beach, please contact Chris Dominuez, Senior Planner at the City. Please consider this letter as the initiation of the process required pursuant to AB 52. Pursuant to Public Resources Code (PRC) Section 21080.3.1(d), your organization has 30 days upon receipt of this letter to submit a written request for AB 52 consultation on the Project to the City of Laguna Beach. Should consultation be desired, please identify a primary point of contact for the Tribe in your written request.

Thank you very much for your assistance. We look forward to your response.

Sincerely,

Chris Dominguez

Chris Dominguez (Nov 21, 2022 22:08 PST)

Chris Dominguez, Senior Planner
City of Laguna Beach
505 Forest Avenue, Laguna Beach, CA 92651
(949) 497-0745 | cdominguez@lagunabeachcity.net

Attachments: Project Location Map