FROOM RANCH PROJECT
SAN LUIS OBISPO COUNTY, CALIFORNIA

BIOLOGICAL RESOURCES INVENTORY

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EXECUTIVE SUMMARY

Kevin Merk Associates, LLC (KMA) conducted a biological resources inventory to support development planning efforts on the Froom Ranch located in San Luis Obispo County, California. The purpose of the study was to characterize the existing conditions on the property and evaluate the potential for special status biological resources to be present within the study area. A background literature review, floristic inventory, tree inventory and special status species evaluation was conducted.

The study took place over the course of the winter, spring, summer and fall of 2015 to delineate and characterize plant communities onsite, conduct rare plant surveys, and identify any habitat that could potentially support special status species or otherwise be of concern to the United States Fish and Wildlife (USFWS), U.S. Army Corps of Engineers (USACE), NOAA Fisheries, California Department of Fish and Wildlife (CDFW), California Regional Water Quality Control Board (RWQCB), and the City of San Luis Obispo. As stated above, prior to field work, a background literature review including past biological studies conducted in the region and environmental documents from projects onsite and in the immediate area was conducted. The California Natural Diversity Data Base (CNDDB) maintained by the CDFW was queried to compile a list of special status resources known to occur in the area that could potentially be present onsite. The field effort mapped onsite habitat types, characterized natural drainage features, and identified all plants within the study area to a sufficient level to determine their respective rarity status. For special status wildlife, a habitat suitability analysis was used to determine the species that could potentially occur within the study area. The following findings were gathered in the report:

Existing Conditions. The site is a 111 acre working cattle/horse ranch that supports primarily grassland habitat (both native bunchgrass and non-native annual). Oak woodlands, coastal scrub, and serpentine outcrops were identified within the study area. Froom Creek and three tributary drainages are also present onsite. Froom Creek is a tributary to San Luis Obispo Creek located offsite to the southeast. A site location map, aerial overview map, soils map, habitat map, CNDDB botanical occurrences map, special status plant occurrences map, and CNDDB wildlife occurrences map are provided herein. A list of plant and animal species observed, special status species known to occur in the region and an evaluation of their potential to occur onsite, a photo plate, and tree inventory data are included as appendices.

Special Status Biological Resources. The site contains Froom Creek and associated tributary drainages. The upper elevation areas in the southwest of the site have serpentine derived soils and rock outcrops. Grasslands in the southwest part of the study area contain native species such as purple needlegrass (*Stipa pulchra*), and was mapped as serpentine bunchgrass grassland separated from the annual grassland that forms the dominant cover onsite. Other special status resources onsite include coast live oak/California bay woodland, and wetland and riparian habitat associated with natural drainage features. In addition, wetlands were delineated along Calle Joaquin and Los Osos Valley Road where surface and subsurface hydrology has been impounded due to the construction of roads and adjacent development.

The floristic inventory identified the following special status plants occurring in the serpentine bunchgrass grassland, wetlands and on scattered serpentine outcrops in the southwest part of the site:

- Blochman's dudleya (*Dudleya blochmaniae*; CRPR List 1B.1);
- Brewer's spineflower (*Chorizanthe breweri*; CRPR List 1B.3);
- Cambria morning glory (*Calystegia subacaulis* ssp. *episcopalis*; CRPR List 4.2);
- Chaparral ragwort (*Senecio aphanactis*; CRPR List 2.2);
- Chorro Creek bog thistle (*Cirsium fontinale* var. *obispoense*; federal and state endangered and CRPR List 1B.2);
- club hair mariposa lily (*Calochortus clavatus* ssp. *clavatus* CRPR List 4.3);

- Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*; CRPR List 1B.1);
- Eastwood's larkspur (*Delphinium parryi* ssp. *eastwoodiae*; CRPR List 1B.2);
- Jones's layia (*Layia jonesii*; CRPR List 1B.2);
- mouse-gray dudleya (*Dudleya abramsii* ssp*. murina*; CRPR List 1B.2);
- Palmer's spineflower (*Chorizanthe palmeri*: CRPR List 4.2);
- San Luis mariposa lily (*Calochortus obispoensis*; CRPR List 1B.2); and
- San Luis Obispo owl's-clover (*Castilleja densiflora* ssp. *obispoensis*; CRPR List 1B.2).

No rare animals were observed onsite during the field surveys, but based on a habitat suitability analysis, the following special status animals could potentially occur onsite:

- American badger (*Taxidea taxus*; species of special concern)
- Burrowing owl (*Athene cunicularia*; species of special concern);
- California homed lark (*Eremophila alpestris actia*; watch list);
- Cooper's hawk (*Accipiter cooperi*; watch list);
- Golden eagle (*Aquila chrysaetos*; watch list and CDFW Fully Protected);
- Loggerhead shrike (*Lanius ludovicianus*; species of special concern);
- Merlin (*Falco columbarius*; watch list);
- Northern harrier (*Circus cyaneus*; species of special concern);
- Purple martin (*Progne subis*; species of special concern);
- Sharp-shinned hawk (*Accipiter striatus*; watch list);
- Tricolored blackbird (*Agelaius tricolor*; candidate species and species of special concern);
- White-tailed kite (*Elanus leucurus*; CDFW Fully Protected);
- Yellow warbler (*Dendroica petechia brewsteri*; species of special concern);
- Big free-tailed bat (*Nyctinomops macrotis*; species of special concern;
- Hoary bat (*Lasiurus cinereus*; special animal);
- Pallid bat (*Antrozous pallidus*; species of special concern);
- San Diego woodrat (*Neotoma lepida intermedia*; species of special concern);
- Steelhead (*Oncorhynchus mykiss irideus*; federal threatened and species of concern);
- Townsend's western big-eared bat (*Corynorhinus townsendi townsendi*; species of special concern*)*;
- Western mastiff bat (*Eumops perotis californicus*; species of special concern);
- Western red bat (*Lasiurus blossevilli*; species of special concern); and
- Yuma Myotis (*Myotis yumanensis*; special animal).

A variety of birds and bats could also utilize the larger trees within the oak/bay woodland and riparian habitat for nesting and roosting activities. In addition, several bird species could potentially use the grassland habitat in the study area for nesting. Given the property contains a mosaic of habitat types, birds and bats would be expected to forage throughout the property.

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1.0 INTRODUCTION

Kevin Merk Associates, LLC (KMA) conducted a biological resources inventory on the Froom Ranch located just outside the current city limits of the City of San Luis Obispo, in San Luis Obispo County, California. The purpose of the investigation was to provide baseline information of the biological resources present or potentially present on the site for future development planning and review by the project team and the City of San Luis Obispo. The site is located in the eastern flank of the Irish Hills of the San Luis Range just north and west of Highway 101, and west of Los Osos Valley Road (please refer to Figures 1 and 2). The subject property is bounded by the Irish Hills Plaza to the north, Los Osos Valley Road (LOVR) to the east, the City of San Luis Obispo Irish Hills Natural Reserve to the west, and Mountainbrook Church and several hotels along Calle Joaquin to the south. The Froom Ranch has a long history as a working ranch composed of a diverse array of coastal habitats including annual and perennial grasslands, coastal scrub, chaparral, oak and bay woodland, riparian and wetland creating a mosaic of plant communities across the landscape.

The region is characterized as a Mediterranean climate with mild, wet winters and warm, dry summers. Due to the site's proximity to the Pacific Ocean, daily temperatures do not fluctuate as much as the County's interior northeast of the Santa Lucia Mountains. Average annual temperatures range from approximately 41 degrees Fahrenheit (F) to 71 degrees F, and annual precipitation in the San Luis Obispo area ranges from approximately 21 to 24 inches depending on location (Western Regional Climate Center and National Oceanic and Atmospheric Administration, 2015). Most of the rain occurs between November and March with a small amount attributed to coastal fog and monsoonal flow during the summer months.

The biological resources inventory was prepared at the request of Mr. John Madonna to identify plant communities, plants and wildlife present on the property that could be of special regulatory importance. In addition, a delineation of waters of the United States and State of California was conducted onsite (KMA 2015), and the report was reviewed by the U.S. Army Corps of Engineers (USACE). Based on field and office review of the delineation report, the USACE confirmed the maps identified the extent of their Clean Water Act jurisdiction (letter dated September 24, 2015).

2.0 METHODS

2.1 Background Literature Review

Prior to conducting field work, KMA's Principal Biologist, Kevin Merk, and Senior Biologist, Robert Sloan, reviewed pertinent background information from the general area. This included the review of past studies conducted by KMA and other biological consultants in the region and on the subject site. Portions of the study area and surrounding lands have been subject to previous biological studies. Several Environmental Impact Reports for nearby development projects were also reviewed. Several surrounding development projects included wetland delineations and some focused biological studies. In some instances, the focused studies included the northern and eastern parts of the study area (i.e.: Home Depot/Irish Hills Plaza and Calle Joaquin Improvement projects). Hydrologic studies and wetland mitigation plans and subsequent mitigation monitoring reports were also prepared and reviewed as part of the investigation. Clean Water Act permitting for the Home Depot project, and subsequent regulatory actions taken by the USACE for permit violations during the construction of Home Depot resulted in a settlement agreement (e.g., Consent Decree dated August 12, 2002) between the former owner of the property and the USACE. The Consent Decree has been resolved and all stipulations were met (letter from the USACE on 2/19/2015).

Sources: Sources: National Geographic, Esri, DeLorme, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
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N W E S

1 inch = 10,000 feet

Froom Ranch

John Madonna Construction, Inc.

Figure 1

Site Location

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N W E S

1 inch = 1,500 feet

Froom Ranch

John Madonna Construction, Inc.

Figure 2

Aerial Overview

The following documents were reviewed as part of the existing conditions characterization and preliminary biological constraints analysis:

- Madonna Eagle Hardware Environmental Impact Report (1998);
- Biological Resources Analysis Letter of Findings for the Los Osos Valley Road Improvement Project (Olberding Environmental, 2001);
- Wetland Restoration and Mitigation Plans Relating to the Froom Ranch/Home Depot Project (Olberding Environmental, 2002);
- San Luis Obispo Creek Watershed Enhancement Plan (Land Conservancy of San Luis Obispo County, 2002);
- Year 1 Wetland Monitoring Report for the Froom Ranch/Boysen Ranch Mitigation Sites (Olberding Environmental, 2003);
- Calle Joaquin Realignment Wetland Delineation (Morro Group, 2004);
- Irish Hills Plaza II Wetland Delineation Map (Morro Group, 2004);
- Froom Ranch Wetland Assessment (Morro Group, 2005);
- Hydrologic Monitoring Plan for Sustaining a Separated Wetland Near Calle Joaquin (Balance Hydrologics, 2005);
- Irish Hills Plaza Detention Basin Report (Wallace Group, 2006);
- Year 5 Wetland Monitoring Report for the Froom Ranch/Home Depot Site (Olberding Environmental, 2007);
- Los Osos Valley Road/U.S. 101 Interchange Improvements Project Biological Assessment for Central California Coast Steelhead (2008); and
- Irish Hills Natural Area Conservation Plan Update (2011).

The California Natural Diversity Database maintained by the California Department of Fish and Game (updated in 2015; CNDDB) was searched for special status biological resources documented within the United States Geological Survey's (USGS) 7.5-minute topographic quadrangle maps centered on and surrounding the site. This included the Morro Bay South, San Luis Obispo, Lopez Mtn., Port San Luis, Pismo Beach and Arroyo Grande NE quads. Given the project site's proximity to the Pacific Ocean and geographic setting within the San Luis Range in close proximity to San Luis Obispo, the focus on these six quads was deemed a sufficient search area to identify special status species occurring in the vicinity of the site for inclusion in the study. A larger search radius picks up a number of plants and animals known from higher elevations in the Santa Lucia Mountains and further south in the Callendar and Guadalupe Dunes that would not be expected to occur on this site based on the lack of suitable habitat and soils.

The Natural Resources Conservation Service (NRCS) Web Soil Survey was reviewed to determine the soil mapping units present within the study area (U.S. Department of Agriculture 2015). The U. S. Fish and Wildlife Service's online Wetland and Critical Habitat Mapper (http://www.fws.gov/wetlands/Data/Mapper.html; http://criticalhabitat.fws.gov/crithab/) were also reviewed to evaluate the extent of documented wetlands and designated critical habitat defined in the region.

2.2 Special Status Biological Resources Definition

For the purpose of this report, special status species are those plants and animals listed, proposed for listing, or candidates for listing as Threatened or Endangered by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA); those listed or proposed for listing as Rare, Threatened, or Endangered by the California Department of Fish and Wildlife

(CDFW) under the California Endangered Species Act (CESA); animals designated as "Species of Special Concern," "Fully Protected," or "Watch List" by the CDFW; and plants occurring on California Rare Plant Rank 1, 2, 3 and 4 developed by the CDFW working in concert with the California Native Plant Society (CNPS). The specific code definitions are as follows:

- *Rank 1A = Plants presumed extinct in California;*
- *Rank 1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat);*
- *Rank 1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened);*
- *Rank 1B.3 = Rare or endangered in California and elsewhere, not very endangered in California (<20% of occurrences threatened or no current threats known);*
- *Rank 2 = Rare, threatened or endangered in California, but more common elsewhere;*
- *Rank 3 = Plants needing more information (most are species that are taxonomically unresolved; few species on this list meet the definitions of rarity under CEQA); and*
- *Rank 4.2 = Plants of limited distribution (watch list), fairly endangered in California (20-80% occurrences threatened, seldom meets the definition of rarity under CEQA).*
- *Rank 4.3= Plants of limited distribution (watch list), not very endangered in California (seldom meets the definition of rarity under CEQA).*

Sensitive or special status natural communities are those plant communities listed as rare in the CNDDB queried in April and November 2015. In addition, those habitat types or plant communities that have special regulatory status such as riparian habitats protected by California Fish and Game Code or the Clean Water Act are also identified as special status biological resources.

2.3 Field Surveys

Kevin Merk and Robert Sloan were the primary investigators for all field work associated with the biological resources inventory. Additional field support was provided by KMA staff, Mr. Jaryd Block. Surveys were conducted on multiple days through the winter, spring, summer and fall of 2015. In addition, Mr. Merk conducted multiple site visits prior to, during and immediately following winter rain events during 2013/2014 to evaluate and characterize onsite wetlands to support the delineation of waters of the United States and state of California prepared by KMA in August 2015. A focused tree survey, a full floristic inventory, and a wildlife habitat assessment were conducted on the site.

The following table provides the date and personnel for each survey conducted in 2015:

Table 1. 2015 Survey Dates and Personnel.

Survey Date	Survey Personnel
January 28,	Merk, Sloan, Block
February 10	Sloan, Block
March 3	Merk, Sloan
March 11	Merk, Sloan, Block
March 20	Merk, Sloan
April 3	Merk, Sloan
April 24	Merk
May 22	Sloan
June 1	Merk, Sloan
June 19	Merk
July 21	Merk, Sloan
August 19	Merk
September 17	Merk
October 15	Merk

The entire property was included in the study. During each survey, the study area was traversed on foot with special attention given to the drainage features, wetlands, native grasslands and serpentine rock outcrops. Extensive time was spent onsite, especially in the lower elevation grasslands along Los Osos Valley Road and Calle Joaquin, to delineate the extent of federal and state jurisdictional wetlands and other waters (please refer to KMA's Delineation of Waters of the United States and State of California prepared in August 2015 for further information). Existing plant communities were mapped on an aerial photograph obtained from Google Earth and ESRI, both from 2015. Serpentine bunchgrass grassland was identified based on the dominant cover of native bunchgrasses and forb associates, and then delineated with a Trimble GPS unit. Historic aerial imagery obtained from Google Earth was also utilized to assess plant community distribution onsite during field surveys. Photos of notable features including special status plants were also taken to document existing conditions of the study area.

2.4 Tree Inventory

KMA Senior Biologist Robert Sloan with field support from Jaryd Block and Kevin Merk conducted an inventory of trees within the Froom Ranch property on February 10 and March 3, 2015. The survey covered the entire Froom Ranch property. Trees on the steep western hillside area were not tagged due to access and dense poison oak. All other trees located within the property with a diameter at breast height (about 4.5 feet above grade; DBH) of approximately four (4) inches or greater were identified, measured, tagged, and evaluated during the inventory. Tags consisted of aluminum disks numbered 1 through 96, and were attached with aluminum nails to the east side of the main trunk. The locations of all tagged trees were recorded with a Trimble GPS unit. Willow shrubs/trees along LOVR that were four inches DBH or greater were not tagged, but were counted and generally evaluated for health or vigor.

Basic tree characteristics and physical conditions were evaluated for each tagged tree, and overall health was evaluated based on vigor, presence of damage (i.e. pathogens, insect pests, and other forms of natural and human-caused damage), and comparison to the typical archetype of the same species. Field evaluations of all trees considered the following attributes:

Trunk diameter – The diameter of the trunk of each tagged tree was measured at approximately 4.5 feet above grade using a forester's steel diameter-equivalent tape measure. Trees with multiple trunks or stems were measured at the same height and measurements for all trunks larger than four inches were collected.

Damage – Identification of damage caused by pathogens or insect pests, by natural causes such as wildlife interaction, or by human activity was noted.

Vigor rating – All tagged trees were evaluated based on various parameters, including amount of new growth, leaf color, bark conditions, dead wood, evidence of wilt, excessive branch or leaf necrosis, thinning of crown, presence of exudate, etc. A subjective ranking was assigned to quantify the overall physical condition of each tree based on the ratings described below:

- High: A healthy and vigorously growing tree characteristic of its species and reasonably free of any visible signs of stress, disease, or pest infestation.
- Moderate: A healthy and vigorous tree with minor visible signs of stress, disease, and/or pest infestation. Some dead wood, broken branches, or yellowing leaves may be present.
- Low: A tree exhibiting signs of dieback, necrosis, stress, disease, or insect damage at levels above what is typically expected for the species. Symptoms could also include sparse leaf growth, predominately yellow leaves, dead or rotted wood in lower trunk, broken limbs, exposed roots, and parasite growth.
- Dead: Tree had no foliage and exhibited no sign of life or vigor.

2.5 Floristic Inventory

Kevin Merk and Robert Sloan conducted the botanical surveys in accordance with accepted protocols developed by the USFWS (U.S. Fish and Wildlife Service, 2000), CDFW (California Department of Fish and Wildlife, 2000), and CNPS (California Native Plant Society, 2001), which means: 1) survey personnel traversed all suitable habitat within the entire project area on foot by walking meandering transects to ensure thorough coverage of the area; 2) surveys were spaced throughout the late winter, spring, summer and fall seasons to document the site's flora; a 3) surveys were floristic in nature, and all plant species observed were recorded and identified to a sufficient level to determine rarity. Plant taxonomy followed nomenclature included in the Jepson Manual, second addition (Baldwin et al., 2012). Robert Hoover's *The Vascular Plants of San Luis Obispo County, California* (1970) was also used to identify plants observed onsite. Species not readily identifiable in the field were brought to the office for further analysis. Calflora (www.calflora .org) and the Consortium of California Herbarium were also accessed online to obtain records of special status plant observations from the region. Special status plant occurrences observed in the field were delineated using a Trimble GPS (GeoXH 6000) unit capable of sub-meter and decimeter accuracy.

2.6 Wildlife Assessment

Direct observations of wildlife including their sign (i.e.: tracks and scat) were noted in the field and are included on the species list in Appendix A. The evaluation of special status animal species and identification of habitat that could support these species was based on our field observations coupled with an understanding of the species biology. Definitive or protocol-level surveys to determine the presence or absence of the animal species that may occur within the project area were not conducted. USFWS protocol surveys for special status wildlife species, such as the federal threatened California red-legged frog (*Rana draytonii*; CRLF), require extensive field time to be

conducted only at certain times of the year. In addition, given that 2015 is the fourth year of an ongoing drought, no sufficient aquatic habitat was present to search for species such as the CRLF. Further, we relied on survey data from the immediate project vicinity contained in the CNDDB and conducted by other knowledgeable biologists to conclude whether or not certain special status animals were expected to occur onsite. Known occurrence records in the region coupled with our site-specific observations were used to make presence/absence determinations for special status wildlife potentially occurring onsite.

3.0 RESULTS

The Froom Ranch covers approximately 111 acres spanning two Assessor's parcels (APN 067-241-030 and 067-241-031). The ranch has been grazed by cattle and horses for many years, and is composed of a mix of habitat types, including annual grassland, serpentine bunchgrass grassland, coastal scrub/chaparral, coast live oak/California bay woodland, wetland, and riparian. Also present are developed and disturbed (or ruderal) areas including existing buildings, roads, an active mine in the northwestern part of the site, and storm water detention facilities for the neighboring Irish Hills Plaza to the north. Planted trees such as blue gum eucalyptus (*Eucalyptus globulus*) and pepper tree (*Schinus molle*) are also present.

The primary parent material underlying the site is serpentinite with varying amalgamations of serpentine derived clays that affect the distribution of vegetation on the site. Serpentine rock outcrops are scattered across the upper western part of the site and support a diverse assemblage of native plants adapted to the high metal content, including some that have special regulatory status. Many of the native plants are endemic to this area, and occur nowhere else on earth. Hoover (1970) referred to this biological hot spot, which is within an approximate ten-mile radius around San Luis Obispo, as the Obispoan pocket of endemism.

Froom Creek and three small tributary drainages are present on the study area. In several areas, the drainages include pockets of wetland habitat. In addition, the steeper hillsides in the southwestern part of the site contain springs, or seeps, where fresh water "daylights" out of the ground. Coastal scrub/chaparral occurs on drier, shallow rocky soils on the steep slopes in the upper western part of the site. Coast live oak/California bay woodlands are present along drainage courses (identified as Drainages 1 and 2) and more north-facing slopes in the southwestern part of the site. As stated above, wetlands are present at seeps and springs formed at fractures in the serpentinite bedrock, along drainages, and along Los Osos Valley Road and Calle Joaquin where the roads have impounded surface and subsurface flow. Riparian habitat is also present onsite, but primarily restricted to the drainage ditch constructed along Los Osos Valley Road.

A total of 204 plant species were identified in the study area, including 151 native species and 53 non-natives. Thirteen of the native plants are special status species as defined in this report. Of this number one plant is a federal and state endangered species, nine (9) are California Rare Plant Rank (CRPR) List 1B species and one (1) is a CRPR List 2 species. Three (3) are CRPR List 4 species, which is a watch list. The endangered and List 1B and 2 species meet the rarity threshold defined in Section 15380 of the California Environmental Quality Act (CEQA). List 4 species typically do not. 37 animal species were observed within the project area during field surveys.

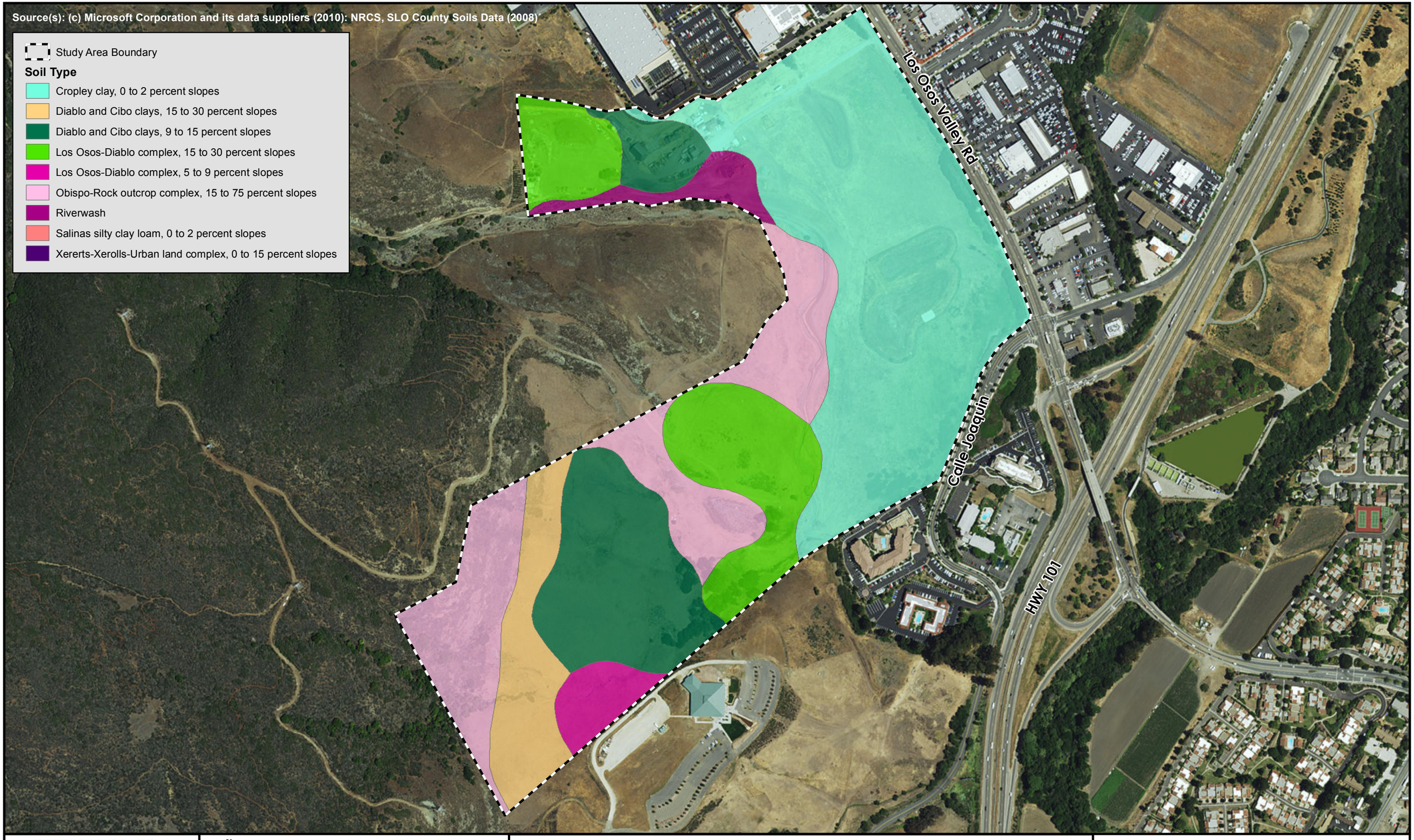
A soils map is provided as Figure 3 to illustrate soil map units present onsite, and Figure 4 illustrates the plant communities, or habitat types, present onsite. A list of plants and animals observed during the surveys is included as Appendix A. Appendix B includes a list of all special status species and plant communities identified in the CNDDB, and identifies whether they were

Source(s): (c) Microsoft Corporation and its data suppliers (2010): NRCS, SLO County Soils Data (2008)

Study Area Boundary

Soil Type

- Cropley clay, 0 to 2 percent slopes
- Diablo and Cibo clays, 15 to 30 percent slopes
- Diablo and Cibo clays, 9 to 15 percent slopes
- Los Osos-Diablo complex, 15 to 30 percent slopes
- Los Osos-Diablo complex, 5 to 9 percent slopes
- Obispo-Rock outcrop complex, 15 to 75 percent slopes
- Riverwash
- Salinas silty clay loam, 0 to 2 percent slopes
- Xererts-Xerolls-Urban land complex, 0 to 15 percent slopes



KEVIN MERK ASSOCIATES

N W E S

1 in = 400 ft

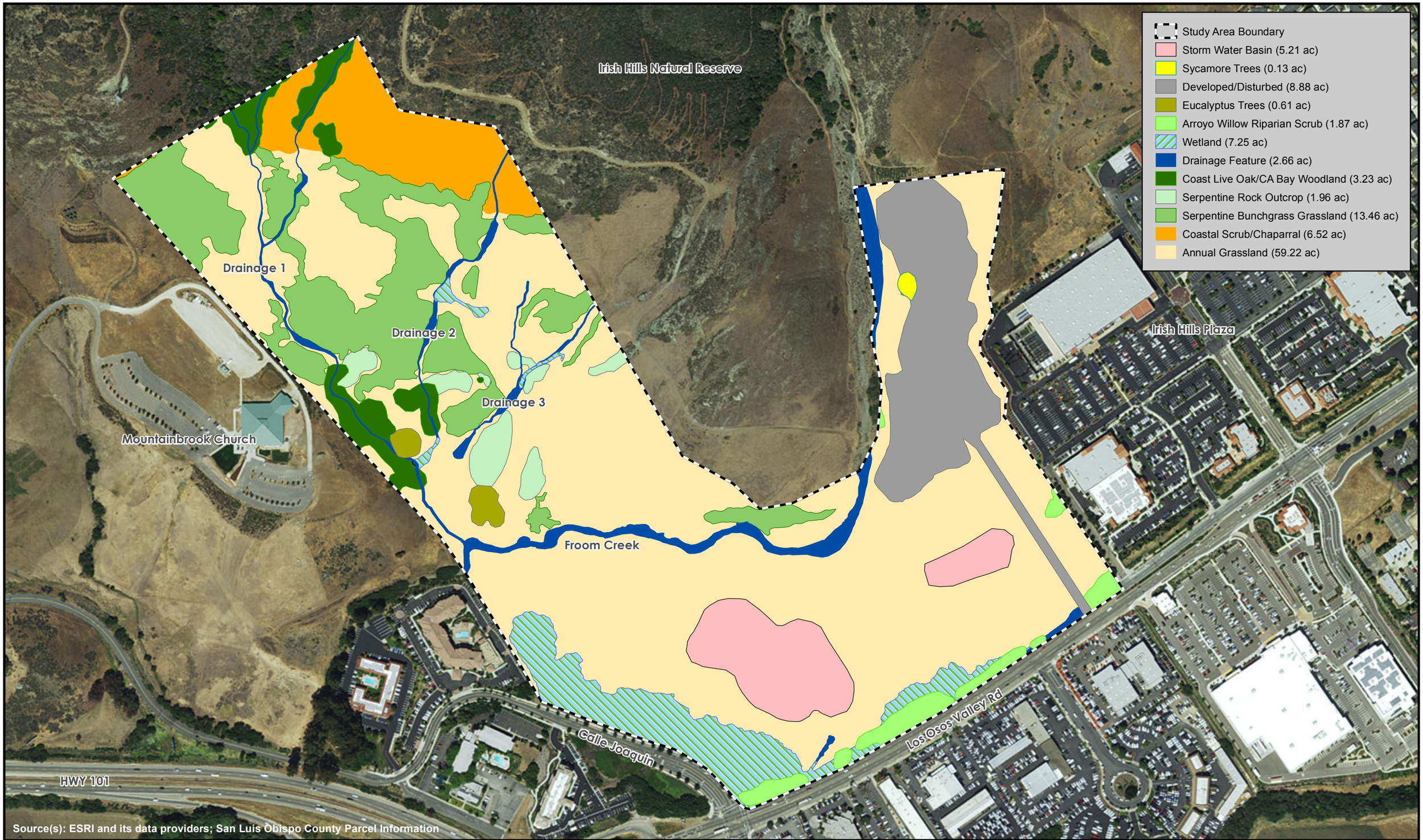
0 115 230 460 690 920 Feet

Froom Ranch

John Madonna Construction, Inc.

Figure 3

Soils Map



KEVIN MERK ASSOCIATES

1 in = 400 ft

0 115 230 460 690 920 Feet

Froom Ranch

John Madonna Construction, Inc.

Figure 4

Habitat Map

observed onsite. If they were not observed, an evaluation as to their potential to occur onsite is provided. Appendix C includes a series of photographs of representative areas of the site and special status plants taken during the field surveys. Appendix D includes the tree inventory data.

3.1 Habitat Types

Six primary habitat types, or plant communities, were observed within the project site, and included native bunchgrass grassland (Valley and Foothill Grassland/Serpentine Bunchgrass Grassland), non-native annual grassland, coastal scrub, coast live oak woodland, wetland, and riparian. In addition, serpentine rock outcrops are present throughout the study area that support an interesting assemblage of native plants that thrive due to the lower competition from non-native species as a result of the higher metal content. The characterizations of these plant communities generally follow those of Holland's (1986) vegetation classification system and the plant community descriptions in the Manual of California Vegetation, second edition (Sawyer, Keeler-Wolf, and Evens; 2009). Other mapped features onsite included natural drainage features that traverse the property and horticultural plantings of Monterey cypress (*Hesperocyparis macrocarpa*) and blue gum eucalyptus (*Eucalyptus globulus*). The following discusses the habitat types delineated on Figure 4 and provides a characterization of the existing conditions.

3.1.1 Annual Grassland (Lolium perenne Semi-Natural Herbaceous Stands)

The primary grassland type observed onsite is dominated by annual species, and occurs on the flat portions of the property historically impacted by cattle and horse grazing. The annual grassland habitat type corresponds to the perennial rye grass fields described in the Manual of California Vegetation (2009, second edition) with the exception that it is dominated by the annual Italian rye grass. It corresponds to the Non-native Grassland described by Holland (1986). The annual grassland onsite was dominated by Italian ryegrass (*Lolium multiflorum = Festuca perennis*). Other non-native grasses observed in this habitat type included wild oats (*Avena barbata*), false brome (*Brachypodium distachyon*), soft chess (*Bromus hordeacous*), and prickly sow thistle (*Sonchus asper*). Pockets of yellow star thistle (*Centaurea solstitialis*) were also present adjacent to disturbed areas. This grassland type was also present along the ranch roads as they become recolonized by vegetation.

Annual grasslands provide foraging, breeding habitat and movement corridors for many wildlife species. Several mammals, such as the California ground squirrel (*Spermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), and deer mice (*Peromyscus* spp.) were observed within this habitat type. Numerous invertebrate species (such as insects), many of which provide a food source for larger animals such as lizards, birds and some small mammals can also be found within grassland communities. A variety of birds rely on open expanses of grasslands for foraging habitat. Grasslands that are bordered by habitats containing trees are particularly important for raptors because the birds can use the large trees as nesting, roosting, and as observation points to locate potential prey within nearby grassland habitats. Reptiles are also frequently found in grasslands. In addition, in areas where grasslands surround creeks, wetlands and seasonal water availability is important for wildlife.

3.1.2 Serpentine Bunchgrass Grassland

Native grassland composed of purple needlegrass (*Stipa pulchra*) along with a mix of native and non-native species was present primarily in the upper elevation southwest portion of the study area where serpentine soils influence plant distribution. The native grassland onsite corresponds to

the Valley Needlegrass and Serpentine Bunchgrass Grasslands described by Holland (1986) and the *Nassella* (or *Stipa*) *pulchra* Herbaceous Alliance (purple needlegrass grassland) described by Sawyer, Keeler-Wolf and Evens (2009). Occurrences of non-native species, such as red-stemmed filaree (*Erodium cicutarium*), cat's ear (*Hypochaeris glabra*), and hairy vetch (*Vicia villosa* ssp. *villosa*) were observed scattered in this habitat on the site, but for the most part, the area was dominated by native species such as yarrow (*Achillea millefolium*), Cambria morning glory (*Calystegia subacaulis* ssp. *episcopalis*), checker bloom (*Sidalcea malviflora*), blue-eyed grass (*Sisyrinchium bellum*), and western vervain (*Verbena lasiostachys*).

Similar to the wildlife habitat discussion above, this grassland type provides suitable habitat for a number of species common to the area.

3.1.3 Coastal Scrub/Chaparral

The shrubland association found on the project site was dominated by open to dense stands of California sagebrush (*Artemisia californica*), with other shrub constituents such as black sage (*Salvia mellifera*) primarily occurring on drier serpentine soils and rock outcrops in the steep upper reaches of the project site. This habitat type was described by Sawyer, Keeler-Wolf and Evens as the *Artemisia californica- Salvia mellifera* Shrubland Alliance (Manual of California Vegetation, 2009), and the Central Lucian Coastal Scrub by Holland (1986). In some areas, the scrub vegetation segued into more chaparral habitat with species such as buck brush (*Ceanothus* cuneatus) forming the dominant cover. Also included in this shrub habitat were occurrences of poison oak (*Toxicodendron diversilobum*), bush monkey flower (*Mimulus aurantiacus*), California fuchsia (*Epilobium canum*), and deerweed (*Acmispon glaber*). The understory was composed of leaf litter in may places, but in some open areas the herbaceous layer consisted of scattered occurrences of non-native grasses such as ripgut brome (*Bromus diandrus*) and rattail fescue (*Festuca myuros*) with pockets of purple needlegrass also present.

Coastal scrub/chaparral communities provide cover and nesting habitat for a variety of animals such as western fence lizard (*Sceloporus occidentalis*), western rattlesnake (*Crotalis viridis*), blue-gray gnatcatcher (*Polioptila caerulea*), wrentit (*Chamae fasciata*), California towhee (*Melazone crissalis*), California mouse (*Peromyscus californicus*), and gray fox (*Urocyon cinereoargentus*). Larger mammals such as coyote (*Canis latrans*) and bobcat (*Lynx rufus*) would also be expected to occur onsite and use the entire property. Mountain lions (*Felix concolor*) have also been documented in the region and could occur onsite as a rare transient.

3.1.4 Coast Live Oak/California Bay Woodland

The woodland community observed in the study area was dominated by coast live oak and California bay trees. This habitat type corresponds to the coast live oak woodland and California bay forest (*Quercus agrifolia* and *Umbellularia californica* woodland alliances) described by Sawyer et al. in the Manual of California Vegetation (2009). Holland (1986) classified this community as the coast live oak woodland and California bay forest. Shrubs and understory species observed in this part of the site consisted of toyon (*Heteromeles arbutifolia*), California coffeeberry (*Rhamnus =Frangula californica*), poison oak, and hummingbird sage (*Salvia spathacea*). In areas where California bay trees formed the dominant cover, the understory was sparse and consisted mostly of leaf litter. Similarly, very little understory vegetation was present where the oak tree canopy was dense.

Oak/bay woodlands, in general, provide quality habitat for a large variety of wildlife species. Large

trees provide nesting sites and cover for birds and many mammals. Dead and decaying trees with few branches or no leaves provide "hawking sites" for raptors and perches for other bird species. They also contribute woody debris to the duff in the woodland understory, which provides foraging areas for small mammals and microclimates suitable for amphibians and reptiles in addition to fungi. Acorns are a valuable food source for many animal species, including acorn woodpecker (*Melanerpes formicivorus*), scrub jay (*Aphelocoma corulescens*), western gray squirrel (*Sciurus griseus*), and black-tailed deer (*Odocoileus hemionus*). Scrub jay, western bluebird (*Sialia mexicana*), turkey vulture *(Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), and black-tailed deer were observed within oak/bay woodlands onsite. Other representative animal species that could potentially occur in the oak dominated woodland on-site include western screech owl (*Otus kennicottii*), oak titmouse (*Baeolophus inornatus*), and Virginia opossum (*Didelphis virginianus*).

3.1.5 Wetland

This habitat type is a combination of the Coastal and Valley Freshwater Marsh and Vernal Marsh vegetation communities described by Holland (1986). Sawyer, Keeler-Wolf and Evens have several classifications for wetlands that describe the perennial and seasonal wetlands onsite, including the *Eleocharis macrostachya, Juncus effusus, Juncus patens,* and *Juncus phaeocephalus* Herbaceous Alliances (spike rush, soft rush, and western marshes). In the wetland area adjacent to Calle Joaquin, a more perennial wetland was observed that supports occurrences of other wetland plants such as round-leaf leather root (*Hoita orbicularis*), seep spring monkey flower (*Mimulus guttatus*), silverleaf (*Potentilla anserina*), California bulrush (*Schoenoplectus californicus*), and rough sedge (*Carex senta*). Seasonal wetlands consisted of species such as rabbitfoot grass (*Polypogon monspeliensis*), Italian ryegrass, and grass poly (*Lythrum hyssopifolia*).

Wetlands occur in nutrient-rich mineral soils that are saturated through part or all of the year. Wetland communities are best developed in locations with slow-moving, stagnant or ponded shallow water, which is the case with the impounded hydrology created by the construction of Los Osos Valley Road and Calle Joaquin. In between the large constructed basin and the mapped wetland along Calle Joaquin, an extensive reed fescue occurrence was observed, most likely due to the historic grazing regime on the site.

Small ponded areas within these wetlands may provide habitat for aquatic invertebrates such as water striders (family Gerridae) and boatmen (family Carixidae), and more opportunistic amphibians such as the Pacific chorus frog (*Psuedacris regilla*). Seasonal ponded water would also be expected to be used as a drinking source for larger animals, and also a potential stop over or foraging site for ducks and great blue herons (*Ardea herodias*).

3.1.6 Riparian

This habitat on-site is consistent with the Arroyo Willow Shrubland Alliance as described by Sawyer, Keeler-Wolf and Evens (2009), and corresponds to the Central Coast Arroyo Willow Riparian Scrub community described by Holland (1986). This vegetation community was restricted to the lower reach of the study area along LOVR. This habitat was mostly dominated by arroyo willow (*Salix lasiolepis*) and contained a few young cottonwoods in the ditch behind TJ Maxx. The dry ephemeral nature of Froom Creek and historic grazing pressure limited the extent of riparian vegetation development. In one location in the northwestern part of the site, a small occurrence of riparian scrub was observed on the creek bank, south of the existing buildings and equipment storage yard. Common plant species observed in this habitat included Himalayan blackberry (*Rubus discolor*), poison oak, and stinging nettle (*Urtica dioica)*. Central Coast Arroyo Willow

Riparian Scrub is a form of forested wetland that is considered a sensitive natural community by the CDFW.

Riparian communities along larger drainage courses are important for many wildlife species since the abundance of moisture and associated vegetation provide structure, materials, and food sources for nesting and roosting animals. However, the onsite riparian habitat consists of a relatively young monoculture of arroyo willows growing along a constructed roadside ditch. This severely limits the forage value within the understory and expected use of this habitat as cover or as a corridor for movement along the edges of open areas. In addition, people have been using the riparian habitat in this area as shelter.

Given the limited extent of this habitat onsite, common wildlife such as the Pacific chorus frog, western fence lizard, raccoon (*Procyon lotor*), opossum, and striped skunk (*Mephitis mephitis*) would be expected to use this area periodically. While nesting habitat is limited in this area, house wren (*Troglodytes aedon*), ruby-crowned kinglet (*Regulus calendula*), song sparrow (*Melospiza melodia*), black phoebe (*Sayornis nigricans*), and goldfinches (*Carduelis* spp.) could potentially nest, perch and forage in this habitat. As stated above, the willows are relatively young, and would not be expected to provide suitable nesting or perching habitat for larger raptors such as the red-tailed hawk that are present in the area.

Seasonal water and the wetness of the soil would typically increase the value of this habitat for wildlife if it wasn't associated with a roadside ditch. This riparian habitat likely improves water quality by protecting the ditch from erosion, and filtering sediment and some pollutants from runoff before it drains to the Calle Joaquin wetland area, and eventually offsite towards San Luis Obispo Creek.

3.1.7 Developed/Disturbed (Ruderal)

The existing ranch roads, equipment storage area, buildings and active mine were mapped as Developed/Disturbed (also known as ruderal) habitat based on the presence of bare soils, base rock, and structures. Developed/Disturbed (Ruderal) habitat is not a native plant community, nor is it described by the vegetation classification systems used in this study since it is an anthropogenic influenced land type. Along road margins, high concentrations of invasive, non-native species were present, likely due to the historic disturbance. Some plants characteristic of the onsite annual grassland habitat described above were present, in addition to dominant weedy species such as Italian thistle (*Carduus pycnocephalus*) and yellow star thistle. Because of the highly disturbed nature of this habitat, it is of marginal value to wildlife. Nonetheless, its proximity to the natural plant communities onsite allow several common species such as the western fence lizard and California ground squirrel to utilize disturbed or ruderal areas of the site for basking in the sun and foraging.

3.1.8 Serpentine Rock Outcrop

Scattered throughout the steeper portions of site, primarily in the southwest part of the study area, are areas of serpentine rock outcroppings. The exposed serpentine rocks were mostly bare, but did support native plants in cracks or areas of talus accumulation. Species observed included several species of mariposa lily (*Calochortus clavatus* ssp. *clavatus, C. obispoensis*), cryptantha (*Cryptantha clevelandii*), mouse gray dudleya (*Dudleya abramsii* ssp. *murina*), Blochman's dudleya (*Dudleya blochmaniae*), and stinging phacelia (*Phacelia imbricata*).

3.1.9 Eucalyptus and Sycamore Trees

Within the study area, several planted blue gum eucalyptus trees were present. In addition, several sycamore (*Platanus racemosa*) trees were identified in the active mine in the northwestern part of the site. The extent of tree canopies was delineated on the habitat map included as Figure 4. While bird nests were not observed during surveys, these trees provide perching and nesting opportunities for a variety of birds, including raptors such as great horned owl and red-tailed hawk.

3.2 Tree Survey

A total of 96 trees with DBH of four (4) inches or greater were tagged within the study area, and included five (5) species of native trees and two (2) non-native tree species. Please refer to Figure 5 – the Tree Survey Map. Trees were concentrated primarily along Drainage 1. Native trees recorded included 41 Coast live oak (*Quercus agrifolia*), 31 California bay (*Umbellularia californica*), three (3) western sycamore (*Platanus racemosa*), three (3) Fremont cottonwood (*Populus fremontii*), three (3) arroyo willow (*Salix lasiolepis*), and one (1) holly-leaf cherry (*Prunus ilicifolia*). Non-native trees present included 12 blue gum eucalyptus (*Eucalyptus globulus*), and two (2) Peruvian pepper (*Schinus molle*). Generally, the majority of trees present exhibited high or moderate vigor. Several large oak and bay trees exhibited hollow or dead main trunks, but had large, healthy secondary trunk growth. Several trees exhibited sparse canopy growth and poor leaf development.

The very steep upper portion of Drainage 1 in the southwestern corner of the site contained oak and bay trees in a narrow canyon area. This area was not accessible due to steep terrain, dense vegetation and poison oak.

The LOVR roadside channel contained approximately 200 arroyo willow shrubs/trees that have established along the channel over the last 10 years. These willows consisted primarily of multi-stemmed specimens (some with 10 or more trunks) located mostly within the centerline of the ditch. The willow occurrences were mapped as riparian habitat as part of the plant community or habitat type mapping effort, and the areal extent calculated.

3.3 Drainage Features

3.3.1 Froom Creek and Tributaries

Froom Creek is an intermittent stream with a relatively small watershed that originates in the Irish Hills to the southwest of the study area. The creek channel bisects the study area in a generally north to south direction, and ultimately passes beneath Calle Joaquin and U.S. Highway 101 via two concrete box culverts, heading to its confluence with San Luis Obispo Creek. San Luis Obispo Creek flows in a westerly direction ultimately connecting to the Pacific Ocean at Avila Beach. Due to the lack of dominant wetland vegetation within or adjacent to the channel, Froom Creek was classified as Riverine Intermittent Streambed per Cowardin, and as non-wetland waters of the U.S. and state of California subject to USACE, RWQCB and CDFW jurisdiction.

Three small ephemeral drainage features (identified as Drainages 1, 2, and 3) are present in the southwestern portion of the study area that are tributaries to Froom Creek. Due to the presence of a defined bed and bank, OHWM, and hydrologic connectivity to Froom Creek, these small features were classified as Riverine Intermittent Streambed per Cowardin, and constitute jurisdictional non-wetland waters of the U.S. and state of California. While these drainages were mostly comprised of

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1 in = 400 ft

0 115 230 460 690 920 Feet

Froom Ranch

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Figure 5

Tree Survey Map

upland vegetation, areas of wetland habitat were observed and mapped in specific locations. In addition, several seeps or springs were observed originating on adjacent hillsides and were hydrologically connected to the drainage feature. In-channel areas and abutting areas dominated by wetland vegetation are classified as Palustrine Emergent Wetland per Cowardin, and constitute wetlands under USACE, RWQCB and CDFW jurisdiction.

3.3.2 LOVR Roadside Channel

The LOVR Roadside Channel is located along the northern property boundary, and contained a dense willow canopy and wetland understory, along a narrow and shallow constructed channel area. The willow canopy has developed since the ditch was constructed, and the channel appears to have lost capacity due to vegetative growth and sediment accumulation. Current channel dimensions in this area ranged from six inches to two feet deep, and one to four feet wide. Willow canopy and wetland vegetation extended beyond the channel banks into the adjacent meadow area, apparently the result of the constructed roadways impounding seasonal surface and subsurface water. Because the majority of in-channel and abutting areas were dominated by wetland vegetation, the LOVR Roadside Channel is classified as Palustrine Emergent Wetland per Cowardin, and constitutes wetland waters under USACE, RWQCB and CDFW jurisdiction. Jurisdictional boundaries in this area were mapped into the LOVR right-of way to the road shoulder, which was outside the Froom Ranch property line. Please refer to the KMA Delineation of Waters of The U.S. and State of California for further detail.

3.3.3 Detention Basins

The northern basin is an approximately one-acre temporary basin constructed in upland grassland areas to receive runoff during the construction of Home Depot. During construction of the Irish Hills Plaza, a swale and culverts were installed behind the current Whole Foods and TJ Maxx buildings to direct surface runoff into this basin and then let it spread overland to support the historic wetland feature in the area. Seasonally ponded water was evident in the basin during aerial photograph review, and patchy occurrences of seasonal wetland vegetation were noted during field work conducted in 2015 confirming some wetland habitat attributes are still present. However, it is our understanding that once the Home Depot and surrounding areas were constructed, surface runoff from this development was directed into the larger basins constructed further south. As a result, this temporary basin was not identified as a potential jurisdictional feature subject to Clean Water Act regulation since it was constructed in an upland as a temporary basin to support construction of the neighboring project.

The approximately 3.2-acre southern basin is a permanent feature constructed in upland grassland habitat to receive runoff from the Plaza Hills I development fronting LOVR. Following development of the Home Depot project, surface runoff was then directed into this basin. It consists of two basins and a spillway, and was sized to contain runoff from any future Phase II development within the study area (Wallace Group, 2006). This basin releases water to the LOVR Roadside Channel by a storm drain and swale. During large storm events, it was designed to discharge water into the wet meadow area along Calle Joaquin via a concrete spillway. Otherwise, water leaves the basin through evaporation and percolation into the ground. This feature was also not identified as a potential jurisdictional feature since it was constructed in an upland area and is part of the neighboring project's storm drainage system.

Because both basins are man-made structures constructed in uplands that are fed primarily by concentrated hardscape runoff from neighboring development, these basins and associated swales

are not expected to be subject to Clean Water Act or California Fish and Game Code requirements. The 2015 USACE verification of the Wetland Delineation does not include these features as Waters of the U.S.

3.4 Soils

The NRCS identified eight soil map units as occurring on the study area (refer to Figure 3). Of these map units, Riverwash, and Xererts-Xerolls are listed as hydric soils by the NRCS California Hydric Soils List for San Luis Obispo County. An unnamed component of Cropley clay, 0-2 % slopes, is also considered hydric, when present in drainageways.

Cropley clay 0-2 % slopes. Cropley clay consists of a dark gray or black (10YR 4/1, 3/1, 2/1 moist) clay horizon about 36 inches thick, underlain by a light brown calcareous clay loam to 60 inches or more. Permeability of this soil is slow and the available water capacity is high. Cropley soils formed in alluvium developed from sedimentary rocks. An unnamed component of Cropley clay is listed as a hydric soil when present in drainageways. This inclusion is typically very dark gray throughout, with mottles present in the lower horizons. This dark gray soil was not observed on-site. Mapped inclusions within this series include Diablo clay, Los Osos loam, and Salinas silty clay loam.

Diablo and Cibo clays 9-15 and 15 - 30 % slopes. Diablo clay consists of a 0 to 23 inch, black (10YR 2/1) clay formed in residual material weathered from sandstone, shale, or mudstone, commonly displaying fine roots to four inches. The structure is granular to 4 inches, and coarse, angular, and blocky to 23 inches. This moderately to steeply sloping soil is very poorly drained. The soil has moderate erodibility and high shrink-swell characteristics, and has potential septic system constraints due to steep slopes and slow percolation.

Cibo clay consists of a 0 to 31 inch, dark brown (7.5YR 3/2) clay formed in residual material weathered from hard metasedimentary rocks, and commonly displaying fine roots. The structure is coarse and angular blocky. This moderately to steeply sloping soil is considered very poorly drained. The soil has moderate erodibility and high shrink-swell characteristics, and potential septic system constraints due to steep slopes, shallow depth to bedrock, and slow percolation.

Los Osos-Diablo Complex 5-9 and 15-30 percent slopes. Los Osos-Diablo Complex consists of about 40 percent Los Osos soil, and 35 percent Diablo soil, found on foothills and mountain ridge tops. These soils are moderately deep, well drained, and have low permeability. Typical Los Osos-Diablo Complex soil (moist) consists of a very dark grayish brown (10YR 3/2) loam or black (10YR 2/2) clay, 40-60 inches thick. Permeability of Los Osos-Diablo Complex soil is rapid, and the available water capacity is low. The available water capacity of Los Osos-Diablo Complex soil is low to very high, while surface runoff is rapid.

Obispo-Rock outcrop 15-75% slopes. Obispo-Rock outcrop consists of about 50 percent Obispo soil and 30 percent Rock outcrop. Obispo soils are shallow, well drained, slowly permeable soils formed in residual materials weathered from serpentine rock. Typical Obispo soil (moist) consists of a black (10YR 2/1) clay to a depth of about 18 inches, underlain by serpentine rock. The available water capacity of Obispo-Rock outcrop soil is low, while surface runoff is rapid or very rapid.

Riverwash includes soils found in active stream and river channels, and consists of excessively drained, water deposited sand, loamy sand, and sandy loam with varying amounts of gravel and cobbles present. Riverwash soils located in and along stream channels are generally subject to

flooding during and immediately after every storm. Riverwash soils are typically excessively drained, but can be somewhat poorly drained in low lying areas. Permeability is very rapid, surface runoff is very slow, and the erosion hazard is variable. Typical inclusions include Psamments and Fluvents, and Corralitos soils. Riverwash and Psamments and Fluvents located in drainageways are listed as hydric soils. These soils have a Hydric Criteria Code of 4: *soils that are frequently flooded for long or very long duration during the growing season.*

Xererts-Xerolls-Urban land complex 0-15% slopes. The Xererts-Xerolls-Urban land complex consists of nearly level to strongly sloping soils and miscellaneous areas that are covered by urban structures. Most areas of these soils are used for urban development. The soil materials have been modified by earthmoving equipment or covered by urban structures so that much of their original shape and physical characteristics have been altered. The Xererts of this complex are Cropley or Los Osos-Diablo soils. The percentage of the various soils in this complex and the degree of urbanization vary from place to place (SCS 1984). An unnamed inclusion of the Xererts-Xerolls-Urban land complex associated with depressions has a Hydric Criteria Code of 2A: *soils in Aquic suborder that are somewhat poorly drained and have a frequently occurring water table less than 0.5 feet from the surface for a significant period (usually 14 consecutive days or more) during the growing season.*

3.5 Special Status Biological Resources

The San Luis Obispo area supports numerous special status, or rare, plant communities, and species of plants and animals. As stated in the methodology section above, the biological resources inventory used a six quadrangle search of the CNDDB in addition to the review of environmental documents prepared for projects in the area to identify special status resources that could be present onsite. Appendix B provides a table with the special status biological resources occurrence data, listing status for all special status species and habitats, the results of the surveys, and an evaluation of wildlife presence or potential to occur onsite. The following discussion provides further detail regarding the special status biological resources occurring or potentially occurring on the Froom Ranch study area.

3.5.1 Special Status Natural Communities

The CNDDB search identified occurrences of nine (9) special status plant communities within the general area and included Central Dune Scrub, Central Foredunes, Central Maritime Chaparral, Coastal Brackish Marsh, Coastal and Valley Freshwater Marsh, Northern Coastal Marsh, Northern Interior Cypress Forest, Serpentine Bunchgrass, and Valley and Foothill Grassland. Please refer to Figure 6 illustrating the botanical data obtained from the CNDDB. Our observations onsite identified another special status natural community in the area, consisting of the riparian habitat along LOVR and Froom Creek. Three special status natural communities, including the Coastal and Valley Freshwater Marsh (Wetland), Riparian, and the Serpentine Bunchgrass Grassland were observed onsite (please refer to Figure 6) and meet the special status natural communities definition pursuant to the CDFW. In addition, special status plants occur on serpentine rock outcrops or in areas of annual grassland, these features should also be considered special status resources since they support special status plants.

Study Area Boundary

USGS Quadrangle

Search Radius (5 miles)

CNDDB Occurrences (CDFW October 2014)

- Agrostis hooveri
- Arctostaphylos cruzensis
- Arctostaphylos morroensis
- Arctostaphylos pechoensis
- Arctostaphylos pilosula
- Astragalus didymocarpus var. milesianus
- Calochortus obispoensis
- Calochortus simulans
- Calystegia subacaulis ssp. episcopalis
- Carex obispoensis
- Castilleja densiflora var. obispoensis
- Centromadia parryi ssp. congdonii
- Chorizanthe breweri
- Cirsium fontinale var. obispoense
- Cirsium occidentale var. lucianum
- Clarkia speciosa ssp. immaculata
- Delphinium parryi ssp. blochmaniae
- Delphinium parryi ssp. eastwoodiae
- Dudleya abramsii ssp. bettinae
- Dudleya abramsii ssp. murina
- Dudleya blochmaniae ssp. blochmaniae
- Eriodictyon altissimum
- Eryngium aristulatum var. hooveri
- Fritillaria viridea
- Horkelia cuneata var. puberula
- Layia jonesii
- Lupinus ludovicianus
- Monardella palmeri
- Monardella sinuata ssp. sinuata
- Monolopia gracilens
- Sanicula maritima
- Scrophularia atrata
- Senecio aphanactis
- Streptanthus albidus ssp. peramoenus
- Trifolium hydrophilum
- Central Maritime Chaparral
- Coastal and Valley Freshwater Marsh
- Serpentine Bunchgrass

USGS QUAD MORRO BAY SOUTH

USGS QUAD SAN LUIS OBISPO

USGS QUAD LOPEZ MTN.

USGS QUAD PORT SAN LUIS

USGS QUAD PISMO BEACH

USGS QUAD ARROYO GRANDE NE

Source(s): ESRI and its data providers: CDFW, CNDDB, October 2014; USFWS Critical Habitat Data, September 2015

KEVIN MERK ASSOCIATES

N W E S

1 in = 8,000 ft

0 2,350 4,700 9,400 14,100 18,800 Feet

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Figure 6

CNDDB Botanical Occurrences Map

3.4.2 Special Status Plants

The CNDDB contains records of many special status plant species that are known to occur within the greater San Luis Obispo area (please refer to Figure 6). Special status plant species typically have highly localized habitat requirements and many are known to occur on serpentine rock outcrops and soils, active and stabilized coastal dunes, or in maritime chaparral, and brackish marsh habitats. Coastal dunes, central maritime chaparral and brackish marsh habitats do not occur on the property, and therefore, species such as beach spectacle pod (*Dithyrea maritima*), Morro manzanita (*Arctostaphylos morroensis*), and salt marsh bird's beak (*Chloropyron maritimum*) are not expected to occur onsite based on the lack of suitable habitat. In addition, a number of species identified in the database search occur at higher elevations in the Santa Lucia Mountains further to the north of the Ranch. This includes species such as the San Benito fritillary (*Fritillaria viridea*), hooked popcorn flower (*Plagiobothrys uncinatus*), and Cuesta Pass checkerbloom (*Sidalcea hickmanii* ssp. *anomala*).

While elevation alone is not sufficient to rule out a species from a particular study area, these species were not observed during the focused surveys of the property at a time of year when they would have been identifiable. Therefore, it is reasonable to conclude that they are not expected to occur onsite. Moreover, special status perennials would have been identifiable at the time the field surveys were conducted. Perennial shrubs such as Arroyo de la Cruz manzanita (*Arctostaphylos cruzensis*), Santa Lucia manzanita (*Arctostaphylos luciana*), and Santa Margarita manzanita (*Arctostaphylos pilosula*) were not observed during field surveys, and as a result, are not expected to occur on the project site.

Special status plants identified in the area by the CNDDB that are known to occur on serpentine based soils were identified as having potential to occur onsite and put on the target search list during the surveys (please refer to Appendix B for further detail). Surveys conducted in 2015 located the 13 special status plants listed below. Please refer to Figure 7 for species locations.

- Blochman's dudleya (*Dudleya blochmaniae*; CRPR List 1B.1);
- Brewer's spineflower (*Chorizanthe breweri*; CRPR List 1B.3);
- Cambria morning glory (*Calystegia subacaulis* ssp. *episcopalis*; CRPR List 4.2);
- Chaparral ragwort (*Senecio aphanactis*; CRPR List 2.2);
- Chorro Creek bog thistle (*Cirsium fontinale* var. *obispoense*; federal and state endangered and CRPR List 1B.2);
- club hair mariposa lily (*Calochortus clavatus* ssp. *clavatus* CRPR List 4.3);
- Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*; CRPR List 1B.1);
- Eastwood's larkspur (*Delphinium parryi* ssp. *eastwoodiae*; CRPR List 1B.2);
- Jones's layia (*Layia jonesii*; CRPR List 1B.2);
- mouse-gray dudleya (*Dudleya abramsii* ssp*. murina*; CRPR List 1B.2);
- Palmer's spineflower (*Chorizanthe palmeri*: CRPR List 4.2);
- San Luis mariposa lily (*Calochortus obispoensis*; CRPR List 1B.2); and
- San Luis Obispo owl's-clover (*Castilleja densiflora* ssp. *obispoensis*; CRPR List 1B.2).

Even though drought conditions were experienced in the project region over the course of the last four years, sufficient rain fell during the 2015 growing season to allow an accurate inventory of the site's vegetation and identification of special status plants on the study area as shown on Figure 7 – the Special Status Plant Occurrences Map.

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1 in = 350 ft

0 100 200 400 600 800 Feet

Froom Ranch

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Figure 7

Special Status Plant Occurrences Map

3.4.3 Special Status Animals

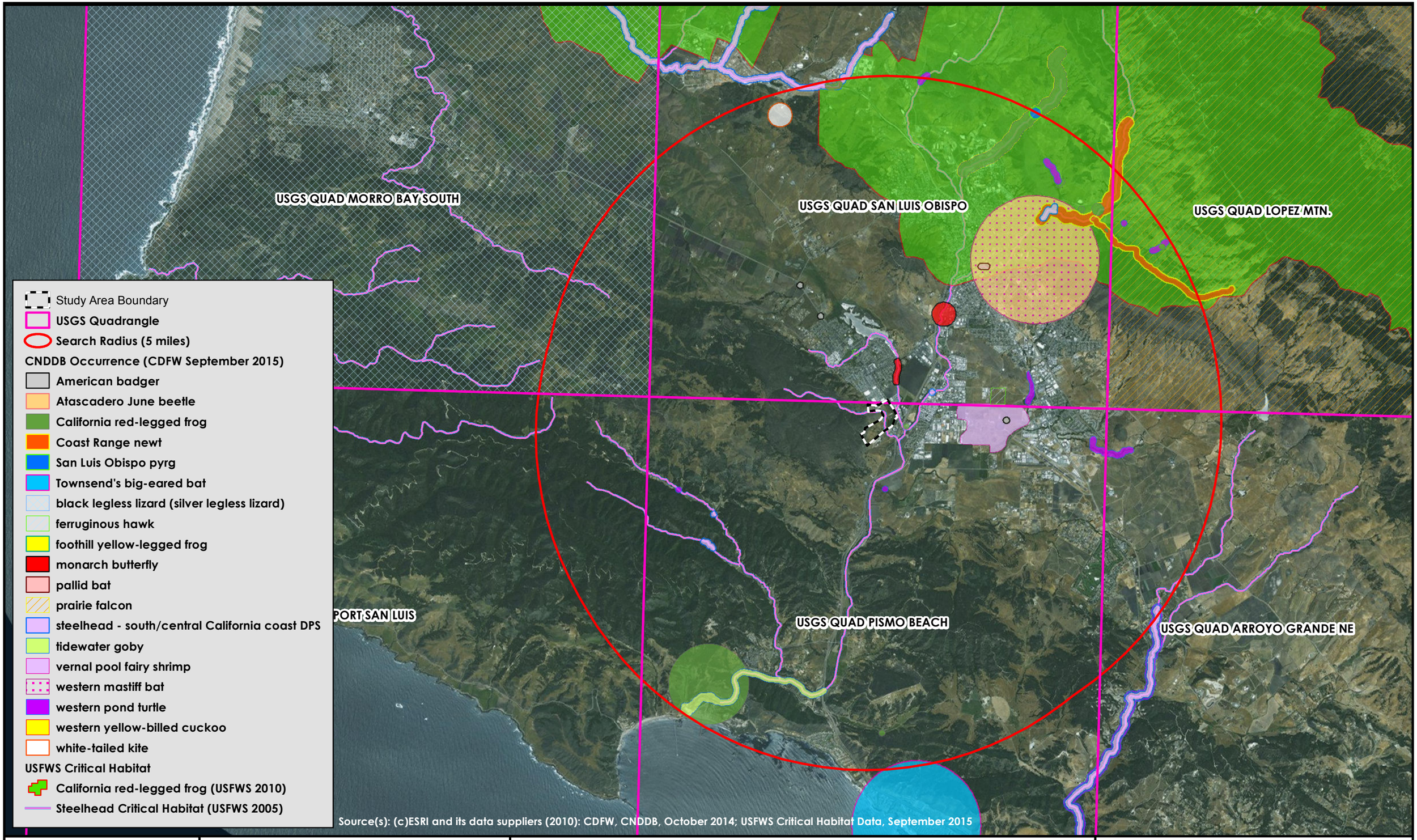
The CNDDB contained occurrence data for numerous special status animal species in the general area. Please refer to Figure 8 and Appendix B for the special status animals that were evaluated in this study, and a determination as to their potential to occur onsite. Similar to the plant evaluation above, many of these special status animal species are not expected to occur on the subject site due to the lack of suitable habitat. Species such as California black rail (*Rallus longirostris obsoletus*), western snowy plover (*Charadrius alexandrines nivosus*), Morro shoulderband snail (*Helminthoglypta walkeriana*), and Morro Bay blue butterfly (*Plebejus icarioides morroensis*) are coastal species that have specific habitat attributes and requirements that are not present onsite, and therefore, are not expected to occur on the property because suitable habitat is not present.

A number of avian species are known from the general area and could potentially utilize the grasslands, coast live oak/California bay woodland, coastal scrub, and eucalyptus stands for nesting and foraging. Given the large expanses of open grasslands and mixed shrub/woodlands on the property, many of the special status birds known from the general area could potentially occur on the property at least as transients moving through the region seasonally. Ground nesting birds, and small songbirds could potentially use the site for nesting activities. Special status species identified in the CNDDB and that could potentially occur onsite include the grasshopper sparrow (*Ammodramus savannarum*), ferruginous hawk (*Buteo regalis*), peregrine falcon (*Falco peregrinus anatum*), Cooper's hawk (*Accipiter cooperii*), burrowing owl (*Athene cunicularia*), and white-tailed kite (*Elanus leucurus*).

Bat species, such as the pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), and various species of *Myotis* have large home ranges, and could forage over and around the site, as well as roost in trees and under the eves of existing structures. The Monarch butterfly (*Danaus plexippus*) is a relatively common species from the general area, and could forage onsite. It would not be expected to overwinter on the Ranch because the species requires specific autumnal and overwintering habitat attributes typically observed closer to the coast. The small grouping of eucalyptus trees, and riparian oak and bay trees that are present in the study area are not suitable to support monarch butterfly overwintering habitat.

Based on the lack of suitable sandy soils, the legless lizard (*Anniella pulchra*) and coast horned lizard (*Phrynosoma blainvillii*) are not expected to occur in the coastal scrub habitat mapped onsite. The heavy clay soils on the property preclude fossorial (burrowing) reptiles such as the legless lizard from occurring under shrubs on the slopes or flatter areas of the site. Species such as the San Diego woodrat (*Neotoma lepida intermedia*) and American badger (*Taxidea taxus*) could potentially occur onsite, and woodrat nests were observed in dense oak/California bay woodland areas in the southwestern part of the property.

The portion of Froom Creek within the site does not appear to contain appropriate aquatic and riparian habitat to support the federally threatened California red-legged frog (*Rana draytonii*; CRLF). The closest known occurrence is from the waste water treatment ponds on the east side of Highway 101. No records of CRLF in the immediate project area were found. It appears that Froom Creek does not contain flowing water or any deep pools during the late spring or summer months to support a breeding population of CRLF. The small tributary drainages in the higher elevations of the study area also



KEVIN MERK ASSOCIATES

N W E S

1 in = 7,000 ft

0 2,050 4,100 8,200 12,300 16,400 Feet

Froom Ranch

John Madonna Construction, Inc.

Figure 8

CNDDB Wildlife Occurrences Map

did not contain suitable aquatic habitat to support CRLF. The constructed detention basins onsite lack suitable aquatic habitat with a sufficient hydroperiod to support CRLF, and did not contain any emergent vegetation.

Southern steelhead (*Oncorhynchus mykiss irideus*) are known to occur further to the southeast of the project site in San Luis Obispo Creek. They have also been identified as occurring within the upper reaches of Froom Creek outside the study area (personal communication with Freddy Otte, City of San Luis Obispo Biologist). Also, other highly aquatic species such as the western pond turtle (*Emys marmorata*), the two-striped garter snake (*Thamnophis hammondii*), and the Coast Range newt (*Taricha torosa torosa*) are not expected to occur onsite in Froom Creek, its tributaries or the constructed basins based on the lack of seasonally flowing and ponded water.

The USFWS has identified critical habitat for steelhead and CRLF in the region. The project site, however, does not occur in the critical habitat polygons developed for CRLF, but Froom Creek is identified as critical habitat for southern steelhead. It is highly unlikely, however, that Froom Creek supports a steelhead run since it is separated from San Luis Obispo Creek by a series of culverts and man-made ditches.

The Coast Range newt is a species of concern known to occur in the Santa Lucia Mountains and Santa Margarita region north of the project site. This species lives in terrestrial habitats and breeds in ponds and slow moving streams during winter months. Although the species is not documented from the Irish Hills of the San Luis Range, there is potential for this animal to occur further upstream in the watershed. It is unlikely to occur within the study area due to the lack of suitable habitat.

The evaluation of special status species occurrences onsite was based on a habitat suitability analysis coupled with on the ground observations. Please refer to Appendix B for further detail. The investigation did not include definitive surveys to determine the presence or absence of species such as the CRLF, but did include direct observation of onsite and offsite conditions, inspection of the drainage channels and their respective hydrologic regime, and review of biological reports and the CNDDB records documenting recorded occurrence data from the area to conclude whether or not a particular species could be expected to occur. Based on this analysis, the following species have the potential to be present within the project study area at some point in time:

- American badger (*Taxidea taxus*; species of special concern)
- Burrowing owl (*Athene cunicularia*; species of special concern);
- California homed lark (*Eremophila alpestris actia*; watch list);
- Cooper's hawk (*Accipiter cooperi*; watch list);
- Golden eagle (*Aquila chrysaetos*; watch list and CDFW Fully Protected);
- Loggerhead shrike (*Lanius ludovicianus*; species of special concern);
- Merlin (*Falco columbarius*; watch list);
- Northern harrier (*Circus cyaneus*; species of special concern);
- Purple martin (*Progne subis*; species of special concern);
- Sharp-shinned hawk (*Accipiter striatus*; watch list);
- Tricolored blackbird (*Agelaius tricolor*; candidate species and species of special concern);
- White-tailed kite (*Elanus leucurus*; CDFW Fully Protected);
- Yellow warbler (*Dendroica petechia brewsteri*; species of special concern);
- Big free-tailed bat (*Nyctinomops macrotis*; species of special concern;
- Hoary bat (*Lasiurus cinereus*; special animal);

- Pallid bat (*Antrozous pallidus*; species of special concern);
- San Diego woodrat (*Neotoma lepida intermedia*; species of special concern);
- Steelhead (*Oncorhynchus mykiss irideus*; federal threatened and species of concern);
- Townsend's western big-eared bat (*Corynorhinus townsendi townsendi*; species of special concern*)*;
- Western mastiff bat (*Eumops perotis californicus*; species of special concern);
- Western red bat (*Lasiurus blossevilli*; species of special concern); and
- Yuma Myotis (*Myotis yumanensis*; special animal).

As stated above, CRLF, western pond turtle, Coast Range newt, and two-striped garter snake are known from the region. Given Froom Creek's inconsistent flow regime, these species are not expected to occur onsite based on the lack of seasonal aquatic habitat. Under above average rainfall years when Froom Creek is flowing and seasonal in-channel pools persist for a longer period, it is possible, albeit unlikely, that these species could find their way onto the site. Furthermore, seasonally ponded water along Calle Joaquin could also potentially provide seasonal habitat for these highly aquatic species.

5.0 CONCLUSION

The Froom Ranch is situated in a biologically rich area of San Luis Obispo County composed of a mosaic of annual and native grasslands, coast live oak/California bay woodland and coastal scrub/chaparral habitats bisected by natural drainages in the northeastern flank of the Irish Hills of the San Luis Range. Froom Creek traverses the site in a mostly north to south direction and joins San Luis Obispo Creek south of the site before flowing to the Pacific Ocean in Avila Beach. Wetland habitat occurs along the unnamed tributary drainages to Froom Creek, and in flat grassland areas where surface and subsurface water is impounded by LOVR and Calle Joaquin. The LOVR Roadside Channel also contained riparian habitat composed of an arroyo willow monoculture. The most significant biological resources present onsite are the natural drainage features (i.e.: Froom Creek and its three tributary drainages) and associated wetland and riparian habitats, and the native serpentine bunchgrass grassland and serpentine rock outcrops supporting a suite of special status plant species, many of which are endemic to the San Luis Obispo area.

Non-native annual grassland was the dominant plant community on the ranch, primarily occurring in the flatter portions of the site where past disturbances such as cattle/horse feeding has occurred. The southwestern part of the site contained native serpentine bunchgrass grassland where rock outcrops and thinner, less developed soils were present. The wetland, riparian, and native bunchgrass grassland habitats delineated on the habitat map were identified as special status natural communities.

Occurrences of special status plants were identified within the study area and their occurrences shown on Figure 7, the Special Status Plant Occurrence Map. Nine of the special status plants are California Rare Plant Rank List 1B species, and one is a List 2 species. List 2 means that the species is rare in California but more widespread elsewhere. The federal and state endangered and CRPR List 1B Chorro Creek bog thistle was also identified onsite, and was confined to wetland areas in Drainages 1 and 2 in the southwestern part of the study area. List 4 species are on a watch list and are relatively common in the project area. No special status wildlife species were observed onsite, but Froom Creek could potentially provide a movement corridor for the federal threatened southern steelhead between upstream breeding areas and San Luis Obispo Creek when flowing water was present. In addition, a number of species of special concern including a diverse range of birds, (including raptors), and bats could potentially occur onsite on a seasonal basis.

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APPENDIX A

List of Plants and Animals Observed

KMA

Appendix A – List of Plants and Animals Observed Onsite During 2015 Field Surveys.

Scientific Name	Common Name
Plants	
Achillea millefolium	Yarrow
Achyrachaena mollis	Blow wives
Acmispon americanus var. *americanus*	Spanish lotus
Acmispon glaber (=Lotus scoparius)	Deer weed
Acmispon wrangelianus	Lotus
Agrostis pallens	Bent grass
*Aira caryophyllea**	Silver hair grass
Allium crispum	Crinkled onion
Ambrosia psilostachys	Ragweed
Amsinckia intermedia	Common fiddleneck
Anagallis arvensis	Scarlet pimpernel
*Anthriscus caucalis**	Bur chervil
Aquilegia eximia	Vanhouette's columbine
Artemisia californica	California sagebrush
Artemisia douglasiana	Mugwort
*Asphodelus fistulosus**	Onionweed
Astragalus curtipes	South coast milkvetch
Astragalus gambelianus	Gambel's dwarf locoweed
*Avena barbata**	Slender wild oats
Baccharis pilularis	Coyote brush
Bloomeria crocea	Golden stars
*Brachypodium distachyon**	False brome
*Brassica nigra**	Black mustard
Brodiaea terrestris	Dwarf brodiaea
Bromus carinatus	California brome
*Bromus diandrus**	Ripgut brome
*Bromus hordeacous**	Soft chess
Bromus madritensis ssp. *rubens**	Red brome
Calandrinia ciliata	Red maids
Calochortus argillosus	Clay mariposa lily
Calochortus clavatus* ssp. *clavatus	**Club-hair mariposa lily (List 4.3)**
Calochortus obispoensis	**San Luis mariposa lily (List 1B.2)**
Calystegia macrostegia ssp. *cyclostegia*	Coast morning glory
Calystegia subacaulis* ssp. *episcopalis	**Cambria morning glory (List 4.2)**
Cardamine californica	California toothwort
*Carduus pycnocephalus**	Italian thistle
Carex praegracilis	Clustered field sedge
Carex senta	Rough sedge
Castilleja densiflora* ssp. *obispoensis	**San Luis Obispo owl's clover (List 1B.2)**
Ceanothus cuneatus	Buck brush
*Centaurea solstitialis**	Yellow star thistle
Centromadia parryi* ssp. *congdonii	**Congdon's tarplant (List 1B.1)**
*Chenopodium album**	Goosefoot
Chlorogallum pomeridianum var. *pomeridianum*	Soap plant
Chorizanthe breweri	**Brewer's spineflower (List 1B.3)**
Chorizanthe palmeri	**Palmer's spineflower (List 4.2)**
Cirsium fontinale* var. *obispoense	**Chorro Creek bog thistle (FE, SE, List 1B.2)**
*Cirsium vulgare**	Bull thistle

Scientific Name	Common Name
Clarkia bottae	Botta's clarkia
Claytonia perfoliata	Miner's lettuce
*Conium maculatum**	Poison hemlock
Conyza canadensis	Horseweed
Corethrogyne filaginifolia	Corethrogyne
Crassula connata	Pygmy weed
Cryptantha clevelandii	Cryptantha
*Cynodon dactylon**	Bermuda grass
Cyperus eragrostis	Tall flatsedge
Deinandra fasciculata	Yellow tarweed
Delphinium parryi* ssp. *eastwoodiae	**Eastwood's larkspur (List 1B.2)**
Dichelostemma pulchra	Blue dicks
*Dipsacus fullonum**	Fuller's teasel
Distichlis spicata	Saltgrass
Dodecatheon clevelandii	Padre's shooting star
Dudleya abramsii* ssp. *murina	**San Luis Obispo serpentine dudleya (List 1B.2)**
Dudleya blochmaniae	**Blochman's dudleya (List 1B.1)**
Eleocharis macrostachya	Spike rush
Elymus glaucus	Western wild rye
Epilobium canum	California fuchsia
Erigeron philadelphicus	Philadelphia fleabane
Eriogonum fasciculatum	California buckwheat
Eriogonum parvifolium	Coastal buckwheat
Eriophyllum confertiflorum	Golden yarrow
*Erodium botrys**	Filaree
*Erodium cicutarium**	Red-stemmed filaree
Eschscholzia californica	California poppy
*Eucalyptus globulus**	Blue gum eucalyptus
*Euphorbia peplus**	Petty spurge
Euphorbia spathulata	Spurge
*Festuca arundinaceae**	Tall fescue
Festuca microstachys	Eastwood fescue
*Festuca perennis**	Italian rye grass
Filago californica	California filago
*Filago (=Logfia) gallica**	Narrowleaf cottonrose
*Foeniculum vulgare**	Fennel
Fritillaria biflora var. *biflora*	Chocolate lily
Galium aparine	Bedstraw
Galium porrigens	Climbing bedstraw
*Gastridium ventricosum**	Nit grass
*Genista monspessulana**	French broom
*Geranium dissectum**	Cut-leaf geranium
Gilia achilleifolia	California gilia
Gilia capitatum	Blue field gilia
Gnaphalium californica	California everlasting
Gnaphalium purpureum	Purple everlasting
Hazardia squarrosa	Saw-tooth golden bush
Helminthotheca echioides	Prickly ox tongue
Hemizonia congesta ssp. *luzulifolia*	Hayfield tarweed
Hesperocyparis (=Cupressus) macrocarpa	Monterey cypress
Hesperoyucca whipplei	Chaparral yucca

Scientific Name	Common Name
Heteromeles arbutifolia	Toyon
*Hirschfeldia incana**	Summer mustard
Hoita orbicularis	Round-leaf leather root
Hordeum brachyantherum	Meadow barley
Hordeum marinum ssp. *gussoneanum**	Mediterranean barley
Hordeum murinum ssp. *leporinum**	Foxtail
*Hypochaeris glabra**	Smooth cat's ear
Juncus bufonius	Toad rush
Juncus effusus	Spreading rush
Juncus patens	Common rush
Juncus phaeocephalus	Brown headed rush
Koeleria micrantha	June grass
*Lactuca serriola**	Wild lettuce
*Lamarckia aurea**	Goldentop
Lasthenia californica	Common goldfields
Layia jonesii	**Jones's layia (List 1B.2)**
Leptosiphon parvifolius	Variable linanthus
Leymus condensatus	Giant wild rye
Leymus triticoides	Creeping wild rye
Lomatium utriculatum	Biscuit root
Lotus corniculatus	Birdsfoot trefoil
Lupinus bicolor	Miniature lupine
Lupinus microcarpus	Chick lupine
Lupinus nanus	Sky lupine
Lupinus succulentus	Succulent lupine
*Lythrum hyssopifolium**	Grass poly
*Malva nicaaensis**	Bull mallow
*Matricaria matricarioides**	Pineapple weed
*Medicago polymorpha**	Bur clover
Melica californica	California melic
Melica imperfecta	Melic grass
*Melilotus sativa**	Sweet cicily
Microseris douglasii	Douglas' microseris
Mimulus aurantiacus	Sticky monkey flower
Mimulus guttatus	Seep monkey flower
Muhlenbergia stricta	Deer grass
Nicotiana glauca	Tree tobacco
Oenanthe sarmentosa	Water parsley
Opuntia ficus-indica	Prickly pear cactus
Oxalis pes-caprae	Bermuda buttercup
Pellaea mucronata	Birdfoot fern
*Pennisetum setaceum**	Fountaingrass
Phacelia imbricata	Stinging phacelia
Plagiobothrys nothofulvus	Popcorn flower
Plantago erecta	California plantain
*Plantago lanceolata**	English plantain
Platanus racemosa	Sycamore
Platystemon californicus	Cream cups
*Polypogon monspeliensis**	Rabbitfoot grass
Populus fremontii	Fremont cottonwood
Potentilla anserina	Silverweed

Scientific Name	Common Name
Prunus ilicifolia	Holly-leaved cherry
Psilocarphus tenellus	Wooly marbles
Quercus agrifolia	Coast live oak
Ranunculus californicus	California buttercup
*Raphanus sativa**	Wild radish
Rhamnus (=Frangula) californica	Coffeeberry
Rosa californica	California rose
Rubus discolor	Himalayan blackberry
Rubus ursinus	California blackberry
*Rumex acetosella**	Sheep sorrel
*Rumex crispus**	Curly dock
*Rumex pulcher**	Fiddle dock
Salix lasiolepis	Arroyo willow
Salvia columbariae	Chia sage
Salvia mellifera	Black sage
Salvia spathacea	Hummingbird sage
Sanicula bipinnatifida	Purple sanicle
Sanicula crassicaulis	Common sanicle
Sanicula laciniata	Coast sanicle
*Schinus molle**	Peruvian pepper
Schoenoplectus acutus var. *occidentalis*	California tule
Schoenoplectus californicus	California bulrush
Scirpus microcarpus	Panicled bulrush
Scrophularia californica	California bee plant
Senecio aphanactis	**Rayless ragwort (List 2.2)**
Sidalcea malviflora	Checker bloom
Silene californica	California catch-fly
*Silybum marianum**	Milk thistle
Sisyrinchium bellum	Blue-eyed grass
Solanum xantii	Purple nightshade
*Sonchus asper**	Prickly sow thistle
Stachys pycnantha	Short spike hedge nettle
Stipa (=Nassella) pulchra	Purple needlegrass
Symphoricarpos mollis	Creeping snowberry
Toxicodendron diversilobum	Poison oak
Trifolium depauperatum var. *depauperatum*	Dwarf sack clover
Trifolium fucatum	Sour clover
*Trifolium hirtum**	Rose clover
*Trifolium subterraneum**	Subterranean clover
Trifolium willdenovii	Tomcat clover
Triphysaria eriantha ssp. *eriantha*	Butter and eggs
Typha latifolia	Cattail
Umbellularia californica	California bay laurel
Urtica dioica ssp. *holosericea*	Stinging nettle
Verbena lasiostachys	Western vervain
Veronica anagallis-aquatica	Water speedwell
*Vicia sativa**	Spring vetch
Vicia villosa ssp. *villosa**	Hairy vetch
Viola pedunculata	Johnny jump up
Woodwardia fimbriata	Giant chain fern
Xanthium spinosum	Spiny cocklebur

Scientific Name	Common Name
Xanthium strumarium	Cocklebur
Zeltnera davyi	Davy's centaury
Zigadenus fremontii	Star lily
Animals	
Accipiter cooperi	Cooper's hawk
Agelaius phoenicius	Red-winged blackbird
Ammodramus savannarum	Grasshopper sparrow
Aphelocoma corulescens	Scrub jay
Ardea herodias	Great blue heron
Bubo virginianus	Great horned owl
Buteo jamaicensis	Red-tailed hawk
Buteo lineatus	Red-shouldered hawk
Callipepla californica	California quail
Calypte anna	Anna's hummingbird
Canis latrans	Coyote
Carpodacus mexicanus	House finch
Cathartes aura	Turkey vulture
Chamae fasciata	wrentit
Circus cyaneus	Northern harrier
Egretta thula	Snowy egret
Elgaria multicarinata	Alligator lizard
Euphagus cyanocephalus	Brewer's blackbird
Icterus bullockii	Bullock's oriole
Melanerpes formicivorus	Acorn woodpecker
Melazone crissalis	California towhee
Mimus polyglottos	Northern mockingbird
Odocoileus hemionus	Black-tailed deer
Pituophis catenifer catenifer	Pacific gopher snake
Procyon lotor	Raccoon
Regalus calendula	Ruby crowned kinglet
Sayornis nigricans	Black phoebe
Sceloporis occidentalis	Western fence lizard
Setophaga townsendi	Townsend's warbler
Sialia mexicana	Western blue bird
Spermophilus beecheyi	California ground-squirrel
Sturnella neglecta	Meadowlark
*Sturnus vulgaris**	European starling
Thomomys bottae	Botta's pocket gopher
Tyrannus verticalis	King bird
Zenaida macroura	Mourning dove
Zonotrichia leucophorys	White crowned sparrow

*Asterisk identifies non-native species; species in bold type are special status species.

APPENDIX B

Special Status Biological Resources Known to Occur or Potentially Occurring Onsite

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Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
LICHENS/BRYOPHYTES			
Firm cup lichen *Cladonia firma*	--/--/--	Lichen known from maritime habitats in Europe and North America on stabilized sand dunes on the coast. Documented in the Morro Bay/Los Osos area on sands of marine origin.	No suitable habitat present onsite. Not expected to occur.
Splitting yarn lichen *Sulcaria isidiifera*	--/--/--	Known from the Los Osos area growing on branches of coast live oak and maritime chaparral plants in sandy areas.	No suitable habitat present onsite. All reported collections are from the Baywood fine sands of Los Osos. Not expected to occur based on the lack of suitable habitat.
PLANTS			
Adobe sanicle *Sanicula maritima*	--/R/1B.1	Perennial herb; blooms February through March; ranges from 30 to 240 meters; Occurs on clay and serpentine soils in chaparral, coastal prairie, meadows, seeps, and valley and foothill grassland.	Potential habitat present in on-site grasslands in proximity to serpentine rock outcrops. Not observed within the study area during floristic surveys. Not expected to occur.
Arroyo de la Cruz manzanita *Arctostaphylos cruzensis*	--/--/1B.2	Perennial shrub; blooms from December to March; occurs between 60 and 310 meters in sandy soils; found in broadleaved upland forest, coastal bluff scrub, closed-cone coniferous forest, chaparral, coastal scrub and valley and foothill grassland.	This perennial shrub would have been easily identifiable during surveys. Not observed during surveys. Not present onsite.
Beach spectaclepod *Dithyrea maritima*	--/T/1B.1	Rhizomatous, perennial herb; blooms March through May; found in sandy soils, usually near shore, in coastal dunes and coastal scrub habitats; ranges from 3 to 50 meters in elevation.	Site is too far from the immediate coast for this species to occur. Species only known to occur on sand dunes along the coast. Not observed during surveys. Not present onsite.
Betty's dudleya *Dudleya abramsii* ssp. *bettinae*	--/--/1B.2	Perennial succulent; blooms May through July and is endemic to coastal San Luis Obispo County west of Cerro Romualdo; found in chaparral, coastal scrub, and valley and foothill grasslands, usually on serpentine outcrops or shallow rocky soils; ranges in elevation from 20 to 180 meters.	Suitable serpentine soils present on-site, but this particular subspecies is known to occur further west of the property towards Morro Bay and Cayucos. The Dudleya observed onsite was D. abramsii ssp. murina. Betty's dudleya was not observed onsite and is not expected to occur.
Black-flowered figwort *Scrophularia atrata*	--/--/1B.2	Perennial herb; blooms April through July; ranges from 10 to 500 meters in elevation; occurs in closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, and riparian scrub habitats, typically on sandy or diatomaceous shale soils.	Marginal habitat present along the edges of coast live oak woodland and riparian habitats on-site. Not observed during surveys, and not expected to occur. S. californica was identified on site.
Blochman's dudleya ***Dudleya blochmaniae* ssp. *blochmaniae***	**--/--/1B.1**	**Perennial herb; blooms April through June; found on rocky, often clay or serpentine soils in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland; ranges from 5 to 450 meters in elevation.**	**This species was observed growing on rock outcrops in select locations in the southwestern part of the study area.**
Blochman's leafy daisy *Erigeron blochmaniae*	--/--/1B.2	Rhizomatous perennial herb; blooms July through August; ranges from 3 to 45 meters in elevation and occurs in coastal dunes and coastal scrub.	This species is restricted to coastal dunes typically along the immediate coastline. No suitable habitat or soils present onsite. Not observed during surveys, and not expected to occur onsite.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Brewer's spineflower ***Chorizanthe breweri***	**--/--/1B.3**	**Occurs in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub habitats on serpentine derived soils and rock outcrops, mostly in rocky and gravelly areas; ranges in elevation from 45 to 800 meters; annual herb; blooms May through August.**	**This species was observed growing on serpentine rock outcrops and gravelly soils in the southwestern part of the study area.**
California seablite *Suaeda californica*	E/--/1B.1	Perennial succulent shrub that grows along the margins of coastal salt marshes in a narrow elevational range from 0 to 5 meters; known to occur in the Morro Bay area	Not expected to occur onsite due to the lack of suitable habitat (i.e., no coastal salt marsh habitat present).
Cambria (San Luis Obispo County) morning-glory ***Calystegia subacaulis* ssp. *episcopalis***	**--/--/4.2**	**Rhizomatous, perennial herb; blooms from April to May; occurs in chaparral, cismontane woodland, and sparse to dense grassland covering sloped or flat areas in clay-rich soils; ranges from 60-500 meters; restricted to outer South Coast ranges in SLO and Santa Barbara Counties.**	**Observed as a component of onsite serpentine bunchgrass grasslands. Present in varying densities throughout the western part of the study area.**
Caper-fruited tropidocarpum *Tropidocarpum capparideum*	--/--/1B.1	Annual herb; blooms March through April; ranges from 1 to 455 meters and is found on alkaline clay soils in valley and foothill grassland.	Potentially suitable habitat present in onsite grassland habitats. Not observed during surveys when species would have been in flower and identifiable. Not expected to occur onsite.
Chorro Creek bog thistle (San Luis Obispo fountain thistle) ***Cirsium fontinale* var. *obispoense***	**E/E/1B.2**	**Perennial herb; blooms February to July; ranges from 35 to 365 meters in elevation; occurs in chaparral and cismontane woodland habitats, often in serpentine seeps.**	**Species was observed in wetland habitat along the upper portions of Drainages 1 and 2.**
Club-haired mariposa lily ***Calochortus clavatus* ssp. *clavatus***	**--/--/4.3**	**Perennial bulbiferous herb known to occur on serpentine rock outcrops, valley grassland (i.e., perennial bunchgrass), chaparral, and foothill woodland; typically blooms from May to June.**	**Species was observed in the extreme southwestern portion of the study area growing on rocky serpentine soils in coastal scrub and native grasslands.**
Coast woolly threads *Nemacaulis denudata* var. *denudata*	--/--/1B.2	Annual herb that grows in coastal sand dunes in open spaces of the coastal strand; known to occur in the Montana de Oro area in sandy soils.	No suitable habitat present. Not observed during surveys, and not expected to occur onsite.
Coastal goosefoot *Chenopodium littoreum*	--/--/1B.2	Annual herb that grows on sandy flats in coastal dunes along wetland and salt marsh habitat. Typically found between 30 and 100 meters, and is known from the Morro Bay estuary.	No suitable habitat present onsite for this species. Not observed during surveys, and not expected to occur onsite.
Congdon's tarplant ***Centromadia parryi* ssp. *congdonii***	**--/--/1B.2**	**Annual herb; blooms from June to November; occurs in moist alkaline conditions in marshes, swamps, vernal pools, and valley and foothill grassland habitats; ranges from 1 to 230 meters in elevation.**	**Species was observed growing in the temporary stormwater basin in the northern part of the site.**

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Coulter's goldfields *Lasthenia glabrata* ssp. *coulteri*	--/--/1B.1	Annual herb that grows in coastal salt marshes, playas, valley and foothill grassland, and vernal pools usually on alkaline soils from 1-1,400 meters.	Marginal habitat present in onsite wetlands and seeps. Only *Lasthenia californica*, a common species, was observed growing in and around the serpentine outcrops. Not observed during surveys, and not expected to occur onsite.
Coulter's saltbush *Atriplex coulteri*	--/--/1B.2	Perennial herb grows in coastal bluff scrub, sandy dune habitat as well as in valley grassland and coastal sage scrub.	Marginal habitat present onsite. Not observed during surveys, therefore, not expected to occur.
Crisp monardella *Monardella crispa*	--/--/1B.2	Rhizomatous, perennial herb; blooms April through August; ranges from 10 to 120 meters in elevation and occurs on sandy soils in coastal dunes and coastal scrub.	Species typically occurs in coastal dunes in close proximity to the Pacific Ocean, and the site is therefore outside the species range. Not observed during surveys. Not expected to occur onsite.
Cuesta Pass checkerbloom *Sidalcea hickmanii* ssp. *anomala*	--/R/1B.2	Perennial herb; blooms May through June; ranges from 600 to 800 meters and is found on serpentine soils in closed-cone coniferous forest; known from only three occurrences on Cuesta Ridge in San Luis Obispo County.	Project site is outside the known range for this species. Although suitable serpentine soils are present onsite, only the common checkerbloom, *Sidalcea malviflora,* was observed in bunchgrass grassland on the site. Cuesta Pass checkerbloom was not observed during surveys and is not expected to occur onsite.
Cuesta Ridge thistle *Cirsium occidentale* var. *lucianum*	--/--/1B.2	Perennial herb known to occur along the Cuesta Ridge in openings on steep rocky serpentinite slopes from 500 to 750 meters.	Although suitable serpentine-based soils are present onsite, the study area is lower in elevation than areas in the Santa Lucia Mountains where this species has been observed. This species was not observed during field surveys, and is not expected to occur onsite.
Dacite manzanita *Arctostaphylos tomentosa* ssp. *daciticola*	--/--/1B.1	Perennial shrub known to occur in chaparral and cismontane woodland. Only one known occurrence of this species in SLO County on the porphyry buttes (Hollister Peak) east of Morro Bay	No suitable habitat for this species present onsite. Perennial shrub would have been identifiable if encountered during the surveys. Not expected to occur onsite.
Diablo Canyon blue grass *Poa diabolic*	--/--/1B.2	Perennial rhizomatous herb known from highly localized areas along the coast from Montana de Oro south onto Diablo Nuclear Power Plant property. Chaparral, cismontane woodland, coastal scrub and closed cone coniferous habitat types on shale.	Marginal habitat present onsite. This species was not observed during surveys of the site at times when it would have been identifiable if encountered. Given it is a highly restricted species known to occur on the western flank of the San Luis Range, and there are no shale outcroppings onsite, this species is not expected to occur.
Dune larkspur *Delphinium parryi* ssp. *blochmaniae*	--/--/1B.2	Perennial herb; blooms April through May; occurs in maritime chaparral and coastal dune habitats at elevations ranging from 0 to 200 meters, typically on volcanic soils and/or rocky slopes.	No suitable habitat present onsite due to lack of sandy soils. Not observed during spring surveys. Not expected to occur onsite. A closely related species was observed onsite – see below.
Dwarf soaproot *Chlorogalum pomeridianum* var. *minus*	--/--/1B.2	Bulbiferous, perennial herb; blooms May to August; occurs on serpentine soils in chaparral and valley and foothill grassland habitats, ranging from 305 to 1000 meters in elevation.	Suitable habitat present at serpentine rock outcrops and thin soils in native bunchgrass grassland. Only the common soaproot, *Chlorogalum pomeridianum* var. *pomeridianum* was observed onsite. Dwarf Soaproot was not observed during rare plant surveys. Not expected to occur onsite.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Eastwood's larkspur ***Delphinium parryi* ssp. *eastwoodiae***	**--/--/1B.2**	**Perennial herb known to occur on serpentine based soils (clays) and outcrops in the general San Luis Obispo area with collections made on Camp San Luis Obispo. Blooms March to May.**	**Species was observed in the southwestern portion of the study area growing in coastal scrub and native grasslands on rocky serpentine soils.**
Hardham's evening-primrose *Camissoniopsis hardhamiae*	--/--/1B.2	Annual herb known to occur in chaparral and foothill woodland habitats; typically blooms from March to May. Only one recorded occurrence in the region from sandy openings in oak woodland in Los Osos.	No suitable sandy soils present onsite. Not observed during field surveys, therefore, it is not expected to occur onsite.
Hooked popcorn flower *Plagiobothrys uncinatus*	--/--/1B.2	Annual herb known to occur in the Santa Lucia Mountains growing in chaparral typically on shale and sandstone soils.	No suitable habitat present onsite. Not observed during surveys, and not expected to occur.
Hoover's bent grass *Agrostis hooveri*	--/--/1B.2	Stoloniferous, perennial herb; blooms April to July; occurs between 60 and 600 meters on sandy soils in chaparral, cismontane woodland, and valley and foothill grassland habitats.	No suitable sandy soils present to support this species. Grassland and oak woodland areas were searched for this species, but it was not observed. Not expected to occur onsite.
Hoover's button-celery *Eryngium aristulatum* var. *hooveri*	--/--/1B.1	An herb that can occur as either an annual or a perennial; blooms in July and occurs at elevations ranging from 3 to 45 meters; found in vernal pools, seasonally wet grasslands, and often in roadside ditches.	Marginal habitat present in wetlands on-site. Seasonally wet areas were searched for this species and it was not observed. Not expected to occur onsite.
Indian Knob mountainbalm *Eriodictyon altissimum*	E/E/1B.1	Evergreen shrub; blooms March through June; ranges in elevation from 80 to 270 meters and occurs in maritime chaparral, cismontane woodland, and coastal scrub, usually on sandstone; often found in open disturbed areas.	Marginal habitat identified in oak woodland and coastal scrub habitats on-site. No suitable sandstone based soils present. Not observed during surveys. Not expected to occur onsite.
Jones' layia ***Layia jonesii***	**--/--/1B.2**	**Annual herb; blooms March through May; occurs on clay soils and serpentine outcrops in chaparral and valley and foothill grassland; ranges in elevation from 5 to 400 meters.**	**Species was observed in the southwestern portion of the study area growing in native grasslands on rocky serpentine soils.**
Leafy tarplant *Deinandra increscens* ssp. *foliosa*	--/--/1B.2	Annual herb; blooms June through September; typically found in sandy soils in valley and foothill grassland, and ranges from 300 to 500 meters in elevation.	No suitable sandy soils present on-site to support this species. Leafy tarplant is known to occur further east on the Arroyo Grande NE quad. Not observed during surveys and not expected to be present onsite.
Marsh sandwort *Arenaria paludicola*	E/E/1B.1	Stoloniferous, perennial herb; blooms May to August; occurs in freshwater marshes and swamps, bogs and fens, and some coastal scrub, ranging from 3 to 170 meters in elevation; common associates include Typha, Juncus, and Scirpus.	Marginal habitat was identified in Drainage 1. Species was not observed during surveys. Not expected to occur onsite.
Mesa horkelia *Horkelia cuneata* ssp. *puberula*	--/--/1B.1	Sandy or gravelly sites in chaparral, coastal scrub and cismontane woodland; 70 to 700 meter elevation range.	Marginal habitat identified in coastal scrub and oak woodland on-site, but this species typically occurs in sandy soils not on clay and serpentine. Not observed during surveys. Not expected to occur onsite.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Miles' milk-vetch *Astragalus didymocarpus* var. *milesianus*	--/--/1B.2	Annual herb; blooms March to June; found in coastal scrub habitats, typically occurring on clay soils; ranges in elevation 20 to 90 meters.	Suitable habitat identified in coastal scrub and adjacent bunchgrass grassland habitats on-site. Not observed during surveys. Not expected to occur within the site.
Morro manzanita *Arctostaphylos morroensis*	T/--/1B.1	Evergreen shrub; blooms December through March; ranges in elevation from 5 to 205 meters; typically found on sandy-loam or Baywood sands in chaparral, woodlands, coastal dunes and coastal scrub.	Project site is outside the known range for this species. Not observed during surveys. Not expected to occur onsite.
Most beautiful jewel-flower *Streptanthus albidus* ssp. *peramoenus*	--/--/1B.2	Annual herb; blooms April through June; occurs on serpentine soils in chaparral, valley and foothill grassland, and cismontane woodland, ranging from 120 to 1000 meters in elevation.	Suitable serpentine soils and rock outcrops present. Not observed during surveys when this species would have been in identifiable condition. Not expected to occur onsite.
Mouse-gray dudleya (aka San Luis Obispo dudleya) ***Dudleya abramsii* ssp. *murina***	**--/--/1B.3**	**Perennial succulent herb; blooms May through June; occurs in chaparral and cismontane woodland, usually on serpentine rock outcrops, at elevations ranging from 90 to 300 meters.**	**Species was observed in the western portion of the study area growing in coastal scrub and native grasslands on rocky serpentine soils, and in the northern portion of Froom Creek.**
Oso manzanita *Arctostaphylos osoensis*	--/--/1B.2	Perennial shrub known to occur in chaparral and cismontane woodland on the porphyry buttes east of Morro Bay.	No suitable habitat present. Shrub would have been identifiable if encountered during surveys. Not expected to occur.
Palmer's monardella *Monardella palmeri*	--/--/1B.2	Rhizomatous, perennial herb; blooms June through August; occurs on serpentine soils in chaparral and cismontane woodland habitats at elevations ranging from 200 to 800 meters.	Suitable serpentine soils and habitat present onsite. Not observed during surveys. Not expected to occur onsite.
Palmer's spineflower ***Chorizanthe palmeri***	**--/--/List 4.2**	**Annual herb known to occur on serpentine-based soils in grassland and coastal scrub habitats in the outer coast ranges of Monterey, San Luis Obispo, and Santa Barbara Counties. Blooms from April through August**	**Species was observed in the western portion of the study area growing in native grasslands on thin rocky and clay derived serpentine soils.**
Pappose tarplant *Centromadia parryi* ssp. *parryi*	--/--/1B.2	Annual herb known to occur in coastal prairie, meadows and seeps, coastal salt marsh and valley and foothill grasslands typically vernally mesic; elevation ranges from 2 – 420 meters.	Only occurrence of this species in the area is known from the Boysen Ranch wetland mitigation area at Foothill Blvd. and Los Osos Valley Road in seasonal wetlands on the valley floor east of Laguna Lake. It is possible that this occurrence was confused with Congdon's tarplant, which is known from the Boysen Ranch. Not observed during surveys, and not expected to occur.
Pecho manzanita *Arctostaphylos pechoensis*	--/--/1B.2	Perennial shrub; blooms November to March; occurs on siliceous shale in closed-cone coniferous forest, chaparral, and coastal scrub habitats, ranging from 170 to 1100 meters in elevation.	No suitable habitat present. Not observed during surveys. Not expected to occur onsite.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Pismo clarkia *Clarkia speciosa* ssp. *immaculata*	E/R/1B.1	Annual herb; blooms May through July; ranges from 25 to 185 meters in elevation and occurs in sandy soils in chaparral (margins, openings), cismontane woodland, and valley and foothill grassland.	No suitable habitat present. Not observed during surveys, and not expected to occur onsite.
Rayless (chaparral) ragwort ***Senecio aphanactis***	**--/--/2.2**	**Annual herb; blooms January through April; ranges from 15 to 800 meters in elevation; typically found on drying alkaline flats, serpentine soils and barren gravelly or sandy slopes in chaparral, cismontane woodland, and coastal scrub habitats.**	**Three plants were observed at one location in the southwestern portion of the study area, growing on rocky serpentine soils.**
Saline clover *Trifolium hydrophilum*	--/--/1B.2	Annual herb; blooms April through June; ranges from 0 to 300 meters in elevation and occurs in mesic and alkaline conditions in marshes and swamps, valley and foothill grasslands, and vernal pools.	Marginal habitat identified in wetlands on-site, however not observed during surveys. Not expected to occur onsite.
Salt marsh bird's-beak *Chloropyron maritimum* ssp. *maritimum*	E/E/1B.2	Annual herb known to occur along margins of salt marsh habitat and coastal dunes. Limited to the higher zones of the Morro Bay estuary.	No suitable habitat present onsite. Not observed during surveys. Species not expected to occur onsite.
San Benito fritillary *Fritillaria viridea*	--/--/1B.2	Bulbiferous, perennial herb; blooms March to May; ranges from 200 to 1525 meters in elevation and occurs in chaparral on serpentine soils.	Suitable serpentine soils present. Not observed during surveys. Only *Fritillaria biflora* observed onsite. Not expected to occur onsite.
San Joaquin spearscale *Atriplex joaquinana*	--/--/1B.2	Annual herb that grows in seasonal alkali wetlands and alkali sink scrub typically found in the San Joaquin Valley. One recorded occurrence of this species from 1899 in CNDDB was from the vicinity of Morro Bay.	Unlikely that this species occurs in the project area. No alkali meadow habitat present, or other indicator species such as *Distichlis spicata* or *Frankenia salina*. Not observed during surveys, and not expected to occur onsite.
San Luis mariposa-lily ***Calochortus obispoensis***	**--/--/1B.2**	**Bulbiferous, perennial herb; blooms May to July; ranges from 75 to 730 meters on sandstone, serpentine and/or sandy soils in chaparral, coastal scrub and valley and foothill grassland; endemic to San Luis Obispo County and is known from localized occurrences in the San Luis Obispo and Arroyo Grande region.**	**Species was observed in the southwestern portion of the study area growing in native grasslands on rocky serpentine soils.**
San Luis Obispo (La Panza) mariposa-lily *Calochortus simulans*	--/--/1B.3	Bulbiferous, perennial herb; blooms April to May; occurs in sandy, often granitic, sometimes serpentine soils in chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland; ranges from 395 to 1100 meters in elevation.	Suitable serpentine soils present in western portion of site. Not observed during surveys. Not expected to occur onsite.
San Luis Obispo County lupine *Lupinus ludovicianus*	--/--/1B.2	Perennial herb; blooms April through July; commonly found on sandstone or sandy soils in chaparral and cismontane woodland, ranging in elevation from 50 to 525 meters.	Suitable habitat identified in oak woodlands and adjacent scrub/grasslands on-site, but no suitable soil substrate given the serpentine and clay soils. Not observed during surveys. Not expected to occur onsite.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
San Luis Obispo monardella *Monardella frutescens*	--/--/1B.2	Rhizomatous, perennial herb; blooms May through September; ranges from 10 to 200 meters and occurs on sandy soils in coastal dunes and coastal scrub.	Species is known to occur in sand dunes along Pacific Ocean. No suitable habitat present. Not observed during surveys. Not expected to occur onsite.
San Luis Obispo owl's clover ***Castilleja densiflora* ssp. *obispoensis***	**--/--/1B.2**	**Annual herb; blooms in April; ranges from 10 to 400 meters in elevation and occurs in meadows, seeps, and valley and foothill grassland.**	**Occurrences of this species were observed in the southwestern portion of the study area, growing in native grasslands on rocky serpentine and clay soils.**
San Luis Obispo sedge *Carex obispoensis*	--/--/1B.2	Rhizomatous, perennial herb; blooms April to June; ranges from 10 to 790 meters; occurs in closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland (usually near seeps and springs); Usually occurs in transition zone on sand, clay or serpentine.	Suitable soils and wetland/seep habitat present on-site. Suitable habitat was searched, but species was not observed during surveys. Not expected to occur onsite.
Santa Lucia manzanita *Arctostaphylos luciana*	--/--/1B.2	Perennial shrub; blooms February to March; occurs on shale outcrops in chaparral and cismontane woodland habitats; ranges from 350 to 850 meters in elevation.	Site lacks shale outcrops and is well outside known range for this species. Perennial shrub would have been identifiable during field surveys. Not observed during surveys. Not expected to occur onsite.
Santa Margarita manzanita *Arctostaphylos pilosula*	--/--/1B.2	Perennial shrub; blooms December to March; occurs in Closed cone coniferous forests, cismontane woodland, and chaparral, typically on shale outcrops/soils in San Luis Obispo and Monterey counties; ranges from 170 to 1100 meters in elevation.	Potentially suitable habitat identified in oak woodland on-site. Perennial shrub would have been identifiable during field surveys. Not observed during surveys. Not expected to occur onsite.
Straight-awned spineflower *Chorizanthe rectispina*	--/--/1B.3	Annual herb; blooms May through July; occurs in chaparral, cismontane woodland, and coastal scrub habitats, ranging in elevation from 200 to 1035 meters; has even been found in vineyards and other frequently disturbed areas. Found in granite sand or disintegrating shale.	Marginal habitat present in coastal scrub and oak woodland habitat on-site. Unlikely to occur on serpentine-based soils. Not observed during surveys. Not expected to occur onsite.
Surf thistle *Cirsium rhothophilum*	--/T/1B.2	Perennial herb; blooms April through June; ranges in elevation from 3 to 60 meters; occurs in coastal dune and coastal bluff scrub communities in close proximity to the ocean.	No suitable habitat present. Not observed during surveys. Not expected to occur onsite.
Woodland woolly threads *Monolopia gracilens*	--/--/1B.2	Annual herb known to occur in chaparral, valley and foothill grasslands and cismontane woodlands growing on serpentine soils.	Potentially suitable habitat present in grasslands near serpentine rock outcrops. This species was not observed within the project area. Not expected to occur.
INVERTEBRATES			
Atascadero June beetle *Polyphylla nubila*	--/SA/--	Sand dunes.	No suitable habitat. Not expected to occur.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
California linderiella *Linderiella occidentalis*	--/SA/--	Seasonal pools in grasslands underlain by hardpan or in sandstone depressions.	Marginal habitat identified in seasonally wet areas. Site does not appear to support necessary habitat attributes to support the species. Further, no vernal pool habitat present onsite or in the immediate vicinity. Unlikely to occur.
Globose dune beetle *Coelus globosus*	--/SA/--	Inhabits coastal sand dune habitat in foredunes and sand hummocks most common beneath dune vegetation.	No suitable habitat present. Not expected to occur onsite
Mimic tryonia (=California brackishwater snail) *Tryonia imitator*	--/SA/--	Found only in permanently submerged areas in coastal lagoons.	No suitable habitat present. Not expected to occur.
Monarch butterfly *Danaus plexippus*	--/SA/--	Wind-protected tree groves of eucalyptus, Monterey pine and cypress with nectar and water sources nearby.	No suitable overwintering habitat present on-site. Eucalyptus trees present do not create the necessary microclimate needed for overwintering. Species expected to forage onsite, but is not expected to use the project area for overwintering.
Morro Bay blue butterfly *Plebejus icarioides moroensis*	--/SA/--	Inhabits stabilized dunes and adjacent areas of coastal San Luis Obispo and NW Santa Barbara counties.	No suitable habitat present. Not expected to occur.
Morro shoulderband snail *Helminthoglypta walkeriana*	E/--/--	Known to occur in coastal sage scrub and dune scrub habitats on Baywood fine sands on the southside of Morro Bay.	No suitable habitat present. Not expected to occur.
San Luis Obispo pyrg *Pyrgulopsis taylori*	--/SA/--	Freshwater habitats in San Luis Obispo County.	Marginal habitat present in lower wetlands of project area, but unlikely since they are man-induced wetlands. Unlikely to occur.
Sandy beach tiger beetle *Cicindela hirticollis gravida*	--/SA/--	Inhabits area adjacent to non-brackish water along the coast of California from San Francisco Bay to Northern Mexico.	No suitable habitat present. Not expected to occur.
Vernal pool fairy shrimp *Branchinecta lynchi*	T/SA/--	Endemic to grasslands of central coast mountains; opportunistic species inhabits a variety of small clear-water pools including sandstone depressions and grassland swales that contain surface water for approximately 30 days during the winter and spring rain season.	Marginal habitat identified in seasonally wet areas at Calle Joaquin wetland. Nearest observation of vernal pool fairy shrimp is on the Chevron Tank Farm near the San Luis Obispo Airport. Past studies for Calle Joaquin improvements did not locate this species. Unlikely that this species would have colonized the site in a short period of time. Unlikely to occur.
White sand bear scarab beetle *Lichnanthe albipilosa*	--/SA/--	Coastal sand dunes of San Luis Obispo County, in the vicinity of dune lakes.	No suitable habitat present. Not expected to occur.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
FISH			
Steelhead – South/Central California ESU *Oncorhynchus mykiss irideus*	T/SSC/--	Fresh water, fast flowing, highly oxygenated, clear, cool stream where riffles tend to predominate pools.	Suitable habitat present further upstream offsite in Froom Creek. SLO Creek is identified by USFWS as critical habitat for the species, and Froom Creek is shown as a steelhead stream. Potentially could occur onsite during high rainfall years when flowing water is present. Not expected to spawn onsite, but would use this portion of Froom Creek as a movement corridor to areas of suitable habitat further upstream in the Irish Hills Natural Reserve.
Tidewater goby *Eucyclogobius newberryi*	E/SSC/--	Brackish water habitats along the California coast from San Diego county to Del Norte county.	No suitable habitat present. Not expected to occur.
AMPHIBIANS/REPTILES			
California red-legged frog *Rana draytonii*	T/SSC/--	Lowland and foothills in or near permanent or semi-permanent sources of deep water (at least 0.5 meter) bordered by emergent wetland and/or riparian vegetation. May use a variety of aquatic and upland habitats during the year for refugia and dispersal.	Potential habitat was identified in several locations onsite including a ponded culvert at Calle Joaquin wetland. Onsite portion of Froom Creek does not contain aquatic habitat with any frequency to support this species, which reduces the potential for red-legged frogs to successfully breed onsite. Nearest recorded occurrence is from the wastewater treatment ponds to the east of San Luis Obispo Creek that are separated from the site by Highway 101 and Los Osos Valley Road. No direct surveys were conducted as part of this investigation due to the lack of aquatic habitat greater than 12 inches deep due to the ongoing drought. Unlikely to occur onsite due to the lack of suitable aquatic habitat at least on a seasonal basis.
Coast horned lizard *Phrynosoma blainvillii*	--/SSC/--	Frequents a wide variety of habitat including sandy washes with scattered shrubs and open areas for sunning. Loose soils for burial.	Marginal habitat present on-site given dense clay soils and rock outcroppings. Even though site does not contain loose friable sandy soils, species could potentially occur in onsite coastal scrub habitat in upper elevations, but appears unlikely.
Coast Range newt *Taricha torosa torosa*	--/SSC/--	Coastal drainages from Mendocino County to San Diego County. Lives in terrestrial habitat and breeds in ponds, reservoirs and slow moving streams.	No suitable habitat present in this portion of Froom Creek. The onsite tributary drainages are highly ephemeral in nature and lack suitable in channel ponds and vegetative cover to support breeding. Known records of this species are in Santa Lucia Mountains to the north and Arroyo Grande Creek to the south. Not expected to occur based on the lack of suitable habitat.
Foothill yellow-legged frog *Rana boylii*	--/SSC/--	Occurs in partly shaded, shallow streams and riffles with a rocky substrate in a variety of habitats typically in the upper mountainous reaches of drainages in the outer coast ranges. Species needs at least some cobble-sized substrate for egg-laying and 15 weeks of aquatic habitat to attain metamorphosis.	No suitable habitat present onsite given the highly ephemeral nature of the drainages. Two old occurrence records in CNDDB from upper San Luis Obispo Creek and upper Lopez Canyon. Unlikely that this species occurs onsite due to lower elevation of the Ranch and lack of typical habitat.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Silvery legless lizard *Anniella pulchra pulchra*	--/SSC/--	Sandy or loamy soils in valley and foothill woodlands, chaparral, coastal scrub and coastal dunes.	No suitable habitat present onsite due to the heavy clay soils and rocky serpentine outcrops. Not expected to occur.
Southern Pacific (western) pond turtle *Emys marmorata*	--/SSC/--	Basking sites such as partially submerged logs, vegetation mats, or open mud banks.	No suitable habitat present in onsite drainages, and marginal habitat present seasonally within the Calle Joaquin wetland. Species known to occur in San Luis Obispo Creek where perennial water is present. Unlikely to occur onsite due to barriers such as Highway 101 and LOVR.
Two-striped garter snake *Thamnophis hammondii*	--/SSC/--	Perennial and intermittent streams bordered by dense vegetation; stock ponds bordered by dense emergent riparian vegetation.	Small highly ephemeral drainages and wetlands do not provide sufficient habitat for this species. Not expected to occur.
Western spadefoot *Spea hammondii*	--/SSC/--	Grassland habitats and vernal pools for breeding/egg-laying with loose friable soils for burrowing.	No suitable vernal pool habitat present nor are suitable loose friable soils present to support burrowing during dry summer/fall months. Not expected to occur.
BIRDS			
Burrowing owl *Athene cunicularia*	--/SSC/-- (burrow sites and wintering sites)	Grasslands; nests in burrows. They prefer areas with low vegetation on small hills that provide a vantage point of the surrounding areas.	Suitable habitat present in grasslands, however extensive burrowing mammal activity was not observed within the project area. Could occur as a seasonal transient overwintering on and around the site, but would not be expected to breed onsite.
California black rail *Laterallus jamaicensis coturniculus*	--/T/--	Freshwater marshes, wet meadows and shallow margins of saltwater marshes bordering larger bays. Needs water depths of about 1 inch that does not fluctuate and dense vegetation for nesting.	No suitable habitat present. Not expected to occur.
California clapper rail *Rallus longirostris obsoletus*	E/E/--	Occurs in salt-water and brackish marshes traversed by tidal sloughs with abundant growths of pickleweed.	No suitable habitat present. Not expected to occur.
California condor *Gymnogyps californianus*	E/E/--	Roosts in cliffs or ledges; feeds in open areas up to 100 miles from roost.	No suitable roosting or nesting habitat on-site, but could forage in grasslands as a very rare transient. Unlikely to occur.
California homed lark *Eremophila alpestris actia*	--/WL/--	Sparse coastal sage scrub and grasslands.	Suitable foraging and nesting habitat in grasslands on-site. Could occur.
California least tern *Sterna antillarum browni*	E/E/--	Nests along coast from San Francisco Bay to northern Baja California. Nests on sandy beaches, alkali flats, landfills or paved areas.	No suitable habitat present. Not expected to occur.
Cooper's hawk *Accipiter cooperii*	--/WL/-- (nesting)	Wooded areas. Nests in tall trees and often hunts around human structures.	Potentially suitable nesting habitat present in oak/bay woodlands and eucalyptus/sycamore trees on-site. Could also forage across the site. Could occur.
Ferruginous hawk *Buteo regalis*	--/WL/-- (nonbreeding/ wintering)	Open grasslands, sagebrush flats, desert scrub, low foothills and fringes of pinyon-juniper habitats. Eats mostly lagomorphs, ground squirrels and mice.	Suitable foraging habitat present in grasslands on-site, however this species typically does not nest in California. Could occur as a seasonal transient during fall/winter months.
Golden eagle *Aquila chrysaetos*	--/WL, FP/-- (nesting & nonbreeding/ wintering)	Nests on cliffs and rocks and forages in open country, grasslands.	Suitable foraging habitat in grasslands on-site. Unlikely to nest on the property, but rock outcroppings and cliff faces in the upper elevations outside the study area could be used for nesting.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Loggerhead shrike *Lanius ludovicianus*	--/SSC/-- (nesting)	Nests in shrubs in coastal sage scrub and chaparral habitats or in trees that overlook grasslands; preys over semi-open habitats and feeds primarily on large insects and often skewers prey on a barb or thorn to cache for later feeding.	Suitable woodland, grassland, and scrub habitat present for foraging and nesting. Could occur.
Merlin *Falco columbarius*	--/WL/-- (nonbreeding/ wintering)	Nests outside of California; forages in a variety of habitats. Uses clumps of trees or windbreaks for roosting.	Suitable foraging habitat present on-site. Could occur.
Northern harrier *Circus cyaneus*	--/SSC/-- (nesting)	Forages and nests in grasslands and marshes. Requires large expanses of habitat for foraging.	Suitable habitat present onsite for this species as the grassland habitat is expansive and connected to large open space. Observed foraging across the site, but no signs of nesting behavior. Could occur.
Prairie falcon *Falco mexicanus*	--/WL/-- (nesting)	Catches pray in air and in open ground in grasslands. Nests in cliffs overlooking large areas.	No nesting habitat present, but rocky outcrops in hills outside study area could potentially support nesting activities. Potential foraging habitat present on-site. Unlikely to occur.
Purple martin *Progne subis*	--/SSC/-- (nesting)	Nests in cavities of large trees in oak and riparian woodlands, and low elevation coniferous forests; rare; usually found near water.	Suitable nesting habitat present in oak woodland and marginal habitat present in riparian habitat along LOVR. Could occur.
Sharp-shinned hawk *Accipiter striatus*	--/WL/-- (nesting)	Prefers riparian plant communities, but can be found in pine and oak woodlands on north-facing slopes.	Potentially suitable foraging and nesting habitat in oak//bay woodland and large trees present onsite. Could occur.
Tricolored blackbird *Agelaius tricolor* (nesting colony)	C/SSC/-- (nesting colony)	Found near freshwater habitats where it nests in emergent freshwater or riparian vegetation. This species prefers nesting in dense thickets of cattails and tules. Due to their highly colonial nature, nesting areas must be large enough to support a colony of about 50 pairs.	No suitable nesting habitat present in onsite detention basins or along the Froom Creek corridor. While a patch of tules is present along Calle Joaquin the area does not appear to be large enough to support nesting tricolored blackbirds. Not observed during surveys and unlikely to nest within the study area. Could occur as an uncommon transient and potentially nest onsite should the tule patch enlarge.
Western snowy plover *Charadrius alexandrinus nivosus*	T/SSC/-- (nesting)	Sandy beaches, salt pond levees or shores of large alkali lakes. Sandy, gravelly or friable soils required for nesting. Federal listing refers only to the Pacific coastal population.	No suitable habitat present. Not expected to occur.
Western yellow-billed cuckoo *Coccyzus americanus occidentalis*	C/E/-- (nesting)	Nests and forages in dense lowland riparian vegetation during summer.	Marginal habitat present in onsite riparian habitat along OVR. Last CNDDB record for the County was in 1921, and given the riparian habitat is comprised of a thin band of willows along a busy road, it is unlikely that this species would nest onsite.
White-tailed kite *Elanus leucurus*	--/FP/-- (nesting)	Riparian woodlands near agricultural fields; forages over open grasslands and scrub.	Suitable nesting habitat in oak, bay, eucalyptus and sycamore trees on-site, with good quality foraging habitat in grasslands throughout the Ranch. Not observed during surveys and no stick nests observed that could be used by this species for nesting activities. Known to occur further north of the site in the Los Osos Valley, and could occur onsite during foraging activities. Could also potentially nest onsite in the future.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Yellow warbler *Dendroica petechia brewsteri*	--/SSC/-- (nesting)	Riparian plants, prefers willows, cottonwoods, aspens, sycamores and alders for resting and foraging.	Marginal habitat is present in willow riparian area along the LOVR ditch, especially considering the well developed riparian corridor along San Luis Obispo Creek to the east. Could potentially occur in more dense riparian habitat but unlikely to nest onsite given disturbance along LOVR.
MAMMALS			
American badger *Taxidea taxus*	--/SSC/--	Friable soils and open, uncultivated ground for denning. Preys on burrowing rodents such as groundsquirrels.	Suitable habitat is present in grassland on-site, but heavy clay soils likely preclude badgers from being regular residents onsite. No dens or large ground squirrel colonies observed within the project area. Could potentially occur as a transient across the site.
Big free-tailed bat *Nyctinomops macrotis*	--/SSC/--	Occurs in low lying arid areas of Southern California. Needs high cliffs or rocky outcrops for roosting sites. Feeds primarily on large moths.	Could potentially occur onsite, and use the upper rocky ridgelines and rock outcrops outside the study area for roosting sites. Not expected to roost onsite, but could forage over the grasslands, oak woodlands and coastal scrub areas.
Hoary bat *Lasiurus cinereus*	--/SA/--	Roosts in dense foliage of large trees. Requires water. Prefers open habitats or habitat mosaics with access to trees for cover and open areas of habitat edge for feeding.	Suitable foraging habitat on-site. Potentially suitable roosting habitat present in oak woodland especially in close proximity to confluence of Drainages 1, 2, and 3 with Froom Creek. Could occur.
Morro Bay kangaroo rat *Dipodomys heermanii morroensis*	E/E/--	Coastal sage scrub on the south side of Morro Bay. Needs sandy soil on stabilized dunes with vegetation.	No suitable habitat present. Not expected to occur.
Pallid bat *Antrozous pallidus*	--/SSC/--	Occurs in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts under bridges and in some areas in old structures such as barns.	Potentially suitable roosting habitat present in oak/bay woodland. Suitable foraging habitat in on-site grasslands and coastal scrub. Could occur.
San Diego woodrat *Neotoma lepida intermedia*	--/SSC/--	Coastal scrub, oak woodlands with moderate to dense canopies. Abundant in and around rock outcrops and rocky cliffs and slopes with shrub and tree cover.	Suitable habitat present in oak woodlands and coastal scrub throughout the southwestern part of the site. Wood rat nests observed in upper reaches of the property in coastal scrub habitat. Could potentially occur.
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	--/-SSC/--	Requires caves, tunnels, mines, or similar man-made structures for roosting. This bat feeds primarily on moths, but will eat a variety of soft-bodied insects.	Suitable foraging habitat present throughout the site. Potential roosting habitat located at existing buildings. Could occur.
Western mastiff bat *Eumops perotis californicus*	--/SSC/--	Open, arid habitats including conifer and deciduous woodlands, coastal scrub, grassland, and chaparral. Roosts in crevices in cliffs faces high buildings, trees and tunnels.	Suitable foraging habitat in grasslands on-site. Potentially suitable roosting habitat present in oak woodland and large eucalyptus and sycamore trees. Could occur.
Western red bat *Lasiurus blossevilli*	--/SSC/--	Roosts in trees near open areas for foraging.	Potentially suitable roosting habitat present in oak/bay woodland and foraging habitat consists of onsite grasslands. Could occur.
Yuma myotis *Myotis yumanensis*	--/SA/--	Riparian, arid scrublands, deserts, and forests near permanent sources of water. Roosts in trees, rock crevices, trees hollows, mines, caves and a variety of manmade structures.	Potentially suitable roosting and foraging habitat on-site. Could occur.

Appendix B. Special-Status Biological Resources Present or Potentially Occurring Onsite

Species	Status* Fed/CA/CRPR	Habitat Requirements	Project Site Suitability/Observations
Plant/Natural Communities			
Central Dune Scrub			Not present
Central Foredunes			Not present
Central Maritime Chaparral			Not present
Coastal Brackish Marsh			Not present
Coastal and Valley Freshwater Marsh			Present. In select areas in Drainages 1, 2, and 3 and along LOVR and Calle Joaquin
Northern Coastal Salt Marsh			Not present
Northern Interior Cypress Forest			Not present
Serpentine Bunchgrass Grassland			Present. Identified on the habitat map as Native Bunchgrass habitat.
Valley Needlegrass Grassland			Present. Synonymous with the above Serpentine Bunchgrass Grassland habitat.

**E = Endangered; T = Threatened; R = Rare CL = Candidate for Listing Status; SSC = California Species of Special Concern; FP = Fully Protected; WL = Watch List; SA – Special Animal; '—' = no status; List 1B – Rare, threatened, or endangered in California and elsewhere; List 2 – Rare, threatened or endangered in California, but more common elsewhere; List 4 – Limited distribution (Watch List). Source: California Natural Diversity Database (CDFW 2015); California Native Plant Society Online Inventory of Rare Plants, accessed April and November 2015 (online at www.cnps.org); and background literature review.*

APPENDIX C

Photo Plate

KMA

PHOTO PLATE

Photo 1. Northwesterly view of annual grassland in the flat areas adjacent to the Calle Joaquin wetland. In the distance is the large detention basin and spreading occurrence of reed fescue.

Photo 2. Representative view of serpentine bunchgrass grassland with Eastwood's larkspur in flower on the slopes in the southwest part of the site.

Photo 3. Northerly view of the Calle Joaquin wetland area showing tules growing in shallow surface water.

Photo 4. Overview of annual grassland and serpentine bunchgrass grassland in the southwest part of the site. Oak/bay woodland can be seen near the confluence of Drainages 1, 2 and 3. Coastal scrub/chaparral habitat is in the foreground with black sage, buck brush and California sagebrush present.

Photo 5. View of wetland habitat at seep dominated by sedges and rushes adjacent to Drainage 2.

Photo 6. Wetland habitat in the upper reach of Drainage 2 with young Chorro Creek bog thistle plants present. Steep hillside in the distance is composed of coastal scrub/chaparral habitat.

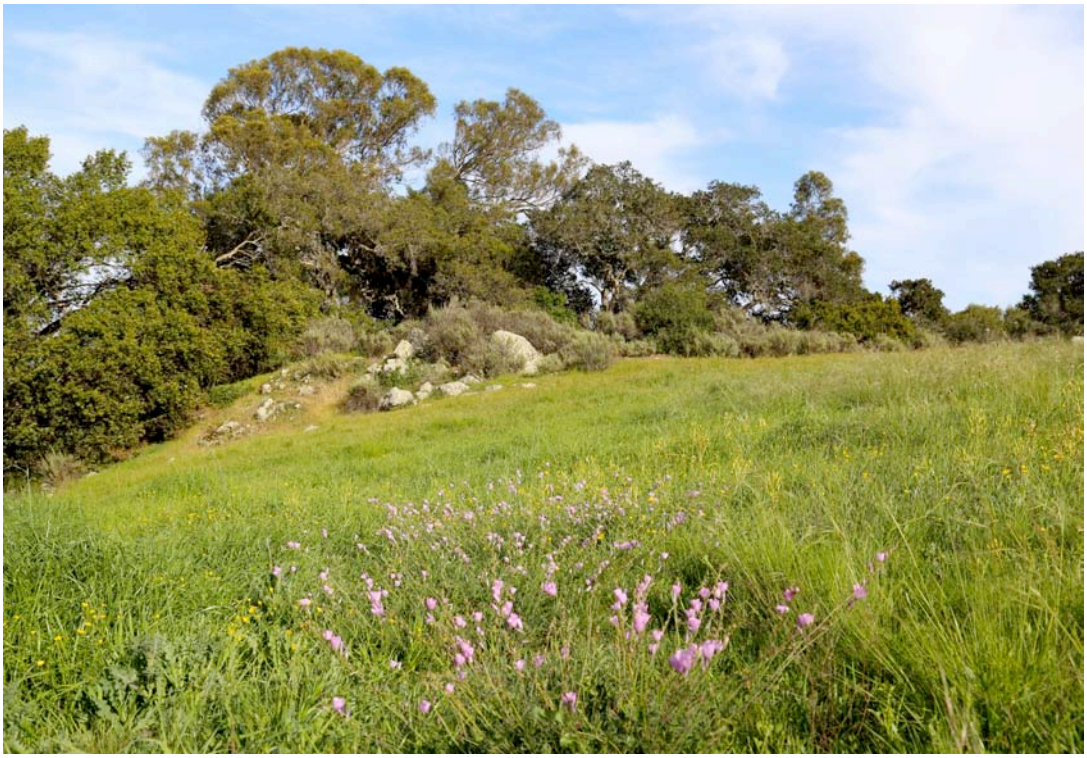

Photo 7. View of oak/bay woodland with large eucalyptus present near confluence of Drainages 1 and 2. Native serpentine bunchgrass grassland with associated wildlfowers is in the foreground.

Photo 8. Westerly view of the upper reach of Drainage 1 showing purple needlegrass in flower (beige color) on opposite sides of the drainage. Oak/bay woodland and coastal scrub/chaparral is visible on the hillside in the distance.

Photo 9. Southerly view of Froom Creek traversing the center of the site. Channel is composed of serpentine cobble and gravel substrate with very little in-channel vegetation.

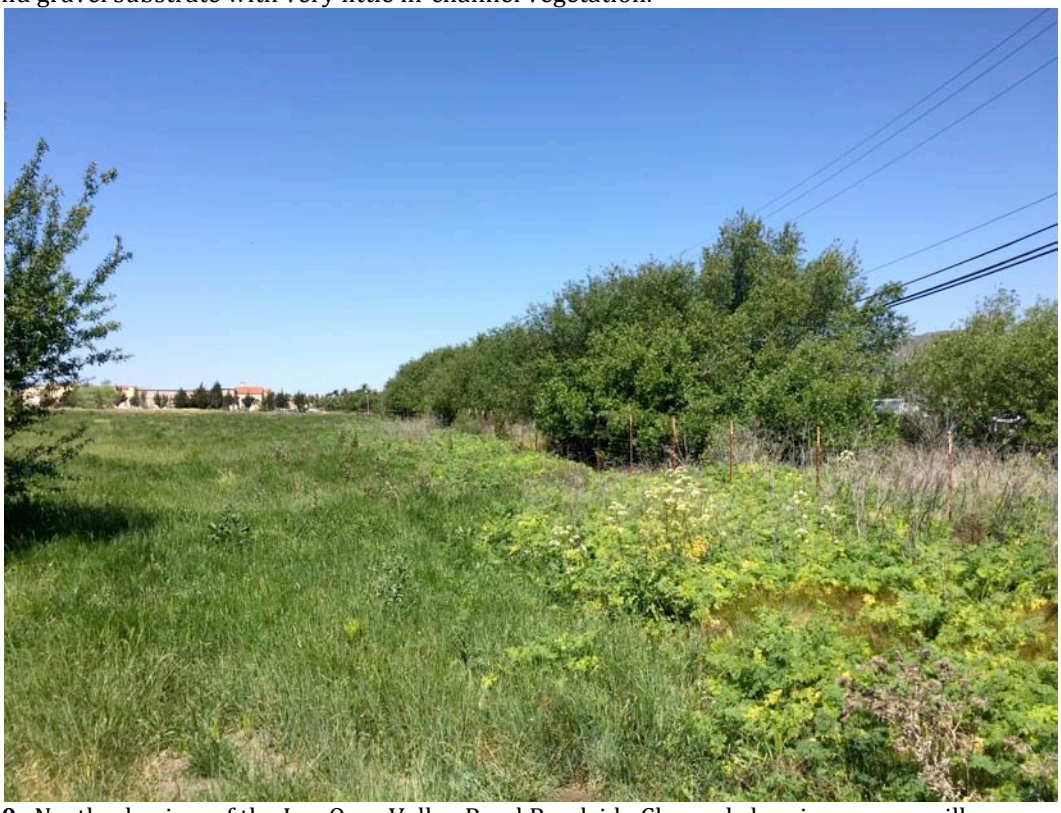

Photo 10. Northerly view of the Los Osos Valley Road Roadside Channel showing arroyo willows growing in the constructed channel. Wetland vegetation was also present with poison hemlock visible in the lower right.

Photo 11. *Calochortus obispoensis* observed growing in the upper elevations of the southwestern part of the study area in thin rocky serpentine soils.

Photo 12. *Castilleja densiflora* ssp. *obsipoensis* growing in serpentine bunchgrass grassland in the southwestern part of the site. Photo to the right shows stigma extending beyond corolla lip.

Photo 13. *Centromadia parryi* ssp. *congdonii* observed in the constructed Home Depot detention basin in the northeastern part of the site.

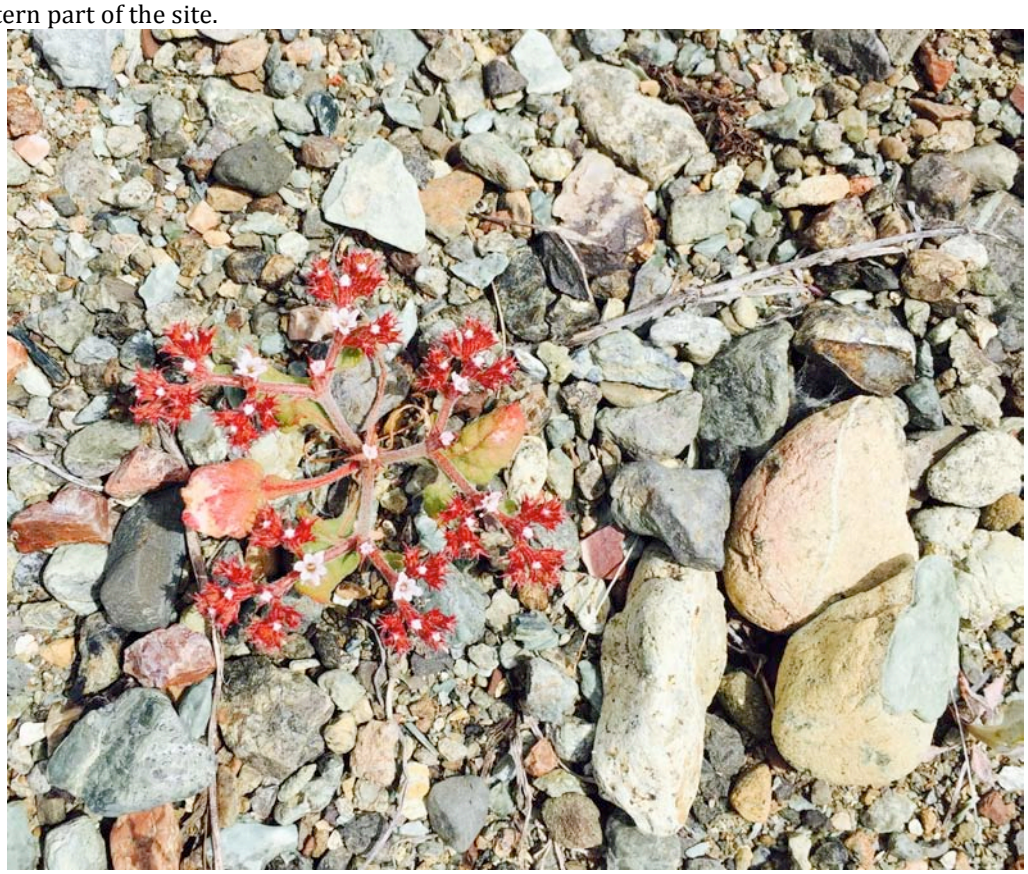

Photo 14. *Chorizanthe breweri* growing in serpentine gravelly soils along Froom Creek.

Photo 15. *Cirsium fontinale* var. *obispoense* growing in wetland habitat along Drainage 2.

Photo 16. *Delphinium parryi* ssp. *eastwoodiae* growing in serpentine bunchgrass grassland in southwest part of the site.

Photo 17. Serpentine rock outcrop with *Dudleya abramsii* ssp. *murina*.

Photo 18. Young *Dudleya blochmaniae* plants observed in small occurrences in the southwest part of the site.

Photo 19. *Layia jonesii* growing in the southwest part of the site.

Photo 20. *Senecio aphanactis* growing along top of serpentine rock outcrop north of Drainage 3.

APPENDIX D

Tree Inventory Data Form

KMA

Tree Survey Monitoring Form

Date_____2/10/15____ **Surveyor_____Sloan, Block_____**

Tag #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	GPS Point	Notes / Observations
1	Umbellularia californica	California Bay	H	16, 11, 12	154	large healthy tree
2	Umbellularia californica	California Bay	M	12, 12, 11, 10	153	one 12" is dead
3	Umbellularia californica	California Bay	H	13	155	young healthy tree
4	Umbellularia californica	California Bay	H	9	156	young healthy tree
5	Umbellularia californica	California Bay	H	8, 8, 11, 7, 12	157	large healthy tree
6	Umbellularia californica	California Bay	M	14, 10, 9, 14	158	old tree, large burl, poor condition
7	Umbellularia californica	California Bay	H	12	159	young healthy, edge of channel
8	Umbellularia californica	California Bay	H	9	160	young healthy, edge of channel
9	Umbellularia californica	California Bay	M	7, 9, 14, 8	161	some splitting at base, old, large burl
10	Umbellularia californica	California Bay	H	19, 12	162	old tree
11	Umbellularia californica	California Bay	H	15	163	young tree
12	Quercus agrifolia	Coast Live Oak	H	6, 7	164	young tree
13	Quercus agrifolia	Coast Live Oak	H	4, 7, 7, 7	165	young tree

Tag #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	GPS Point	Notes / Observations
14	Quercus agrifolia	Coast Live Oak	H	10, 8	166	young healthy tree
15	Quercus agrifolia	Coast Live Oak	M	11, 11	167	weak crotch on one trunk, main trunk splitting at base
16	Quercus agrifolia	Coast Live Oak	H	21, 22, 28	168	very old large tree
17	Quercus agrifolia	Coast Live Oak	L	26	169	old, low vigor, small canopy
18	Umbellularia californica	California Bay	H	7	170	young healthy tree
19	Umbellularia californica	California Bay	H	5	171	young healthy tree, numerous trunks under 4”
20	Quercus agrifolia	Coast Live Oak	L	10	172	Spanish moss, thin canopy, unhealthy
21	Quercus agrifolia	Coast Live Oak	H	13	173	healthy tree
22	Quercus agrifolia	Coast Live Oak	H	13, 5	174	healthy tree
23	Quercus agrifolia	Coast Live Oak	H	14, 7, 11, 9	175	healthy tree
24	Quercus agrifolia	Coast Live Oak	M	6, 4, 5	176	Spanish moss on base, stunted, small
25	Umbellularia californica	California Bay	L	6, 5, 4	177	Spanish moss, 2 trunks under 4”
26	Quercus agrifolia	Coast Live Oak	M	13	178	old tree, rotten bark on main trunk
27	Quercus agrifolia	Coast Live Oak	H	20	179	old tree, leaning, lichens on bark
28	Umbellularia californica	California Bay	H	10, 13	180	healthy tree
29	Quercus agrifolia	Coast Live Oak	H	12	181	very large burl, in lower creek bank
30	Umbellularia californica	California Bay	M	22, 23	182	very large burl, old tree

Tag #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	GPS Point	Notes / Observations
31	Quercus agrifolia	Coast Live Oak	L	12	183	small, split at base
32	Quercus agrifolia	Coast Live Oak	L	22	184	hollow, large cavity at base
33	Umbellularia californica	California Bay	H	18, 23, 22	185	large healthy tree
34	Quercus agrifolia	Coast Live Oak	H	27	186	large healthy tree
35	Umbellularia californica	California Bay	L	9	187	small, sparse canopy
36	Umbellularia californica	California Bay	H	8	188	small healthy tree
37	Umbellularia californica	California Bay	M	9, 10, 8	189	sparse canopy
38	Quercus agrifolia	Coast Live Oak	M	32	190	splits in bark, old, large tree
39	Quercus agrifolia	Coast Live Oak	H	14, 16	191	large healthy tree
40	Quercus agrifolia	Coast Live Oak	H	6	192	small tree, 2 stems under 4” dbh
41	Prunus ilicifolia	Hollyleaf Cherry	M	7	193	very large old specimen
42	Quercus agrifolia	Coast Live Oak	M	28	194	large old tree
43	Quercus agrifolia	Coast Live Oak	M	31	195	large old tree
44	Umbellularia californica	California Bay	H	37, 16	196	large old tree
45	Umbellularia californica	California Bay	M	5, 4, 6, 5	197	one dead trunk, moderate health
46	Umbellularia californica	California Bay	H	45	198	very large tree, leaning over channel
47	Eucalyptus globulus	Blue Gum	H	23	199	tall, straight, on bank

Tag #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	GPS Point	Notes / Observations
48	Umbellularia californica	California Bay	M	5, 5, 4	200	hollow base, split trunk
49	Umbellularia californica	California Bay	H	16, 22, 21	201	large, within the channel bank
50	Quercus agrifolia	Coast Live Oak	H	23, 34	202	big, old, pruned up from ground
51	Quercus agrifolia	Coast Live Oak	L	15, 27, 22	203	big, old, leaning, hollow base
52	Quercus agrifolia	Coast Live Oak	H	8	204	young healthy tree
53	Umbellularia californica	California Bay	M	24, 13, 5	205	largest trunk hollow, others healthy
54	Umbellularia californica	California Bay	M	16, 4, 15, 21, 28	206	bark damage/cuts from campers
55	Quercus agrifolia	Coast Live Oak	H	24	208	large, healthy tree
56	Quercus agrifolia	Coast Live Oak	H	24, 15	209	large tree, in channel
57	Quercus agrifolia	Coast Live Oak	H	12, 23	210	lower branches pruned up from ground
58	Quercus agrifolia	Coast Live Oak	M	17	211	large broken branch, on bank
59	Quercus agrifolia	Coast Live Oak	H	39, 30	212	big, old, on bank of channel
60	Umbellularia californica	California Bay	H	20, 10, 10, 12, 14, 6, 22	213	old, healthy, large burl
61	Eucalyptus globulus	Blue Gum	H	97	215	very large old tree, upland area
62	Eucalyptus globulus	Blue Gum	H	83	216	very large old tree, upland area
63	Eucalyptus globulus	Blue Gum	H	22	217	young tree, upland area

Tag #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	GPS Point	Notes / Observations
64	Eucalyptus globulus	Blue Gum	H	16, 16, 8,13	218	upland area
65	Quercus agrifolia	Coast Live Oak	M	32, 36	214	old, large, thin canopy
66	Umbellularia californica	California Bay	M	25	219	old, thin canopy, many burl sprouts
67	Quercus agrifolia	Coast Live Oak	M	21	220	thin canopy, hill top
68	Quercus agrifolia	Coast Live Oak	M	26	221	thin canopy, hill top
69	Quercus agrifolia	Coast Live Oak	M	48	222	thin canopy, hill top
70	Quercus agrifolia	Coast Live Oak	L	42	223	hollow trunk, sparse canopy
71	Umbellularia californica	California Bay	M	8, 10, 15, 8, 21, 26	224	large burl, lichen on trunk, hollow
72	Quercus agrifolia	Coast Live Oak	M	20	225	small, sparse canopy
73	Quercus agrifolia	Coast Live Oak	H	21	231	lichen on trunk
74	Quercus agrifolia	Coast Live Oak	M	5	232	hilltop, young, sparse canopy
75	Quercus agrifolia	Coast Live Oak	L	7	233	hilltop, moss, few leaves
76	Quercus agrifolia	Coast Live Oak	H	19	234	in channel, thick canopy
77	Quercus agrifolia	Coast Live Oak	M	30		in channel, sparse canopy
78	Schinus molle	Peruvian Pepper	M	34	235	very old, hollow, many new sprouts
79	Eucalyptus globulus	Blue Gum	H	35	236	very large, upland area
80	Eucalyptus globulus	Blue Gum	H	12	236	upland area
81	Eucalyptus globulus	Blue Gum	H	32	237	upland area

Tag #	Scientific Name	Common Name	Vigor Rating	DBH (inches)	GPS Point	Notes / Observations
82	Eucalyptus globulus	Blue Gum	H	51	237	upland area
83	Eucalyptus globulus	Blue Gum	H	22	238	upland area
84	Eucalyptus globulus	Blue Gum	H	36	238	upland area
85	Eucalyptus globulus	Blue Gum	H	53	238	upland area
86	Schinus molle	Peruvian Pepper	M	12, 12, 8, 9	239	old, moss/lichens, young sprouts at base
87	Populus fremontii	Fremont Cottonwood	H	14, 10	277	young, healthy, dormant
88	Populus fremontii	Fremont Cottonwood	H	9, 9, 8, 6	278	young, healthy, starting to leaf out
89	Salix lasiolepis	Arroyo Willow	H	many, 4-12 inches	279	large base, 10 to 12 trunks
90	Salix lasiolepis	Arroyo Willow	H	many, 4-10 inches	280	at culvert, 8 trunks observed
91	Populus fremontii	Fremont Cottonwood	H	11	281	starting to leaf out
92	Salix lasiolepis	Arroyo Willow	H	11	282	at culvert
93	Umbellularia californica	California Bay	H	49, 32, 27, 14, 12	303	rock outcrop on hillside, very large tree
94	Platanus racemosa	Western Sycamore	H	18, 6	304	upland area near road base mining / storage activity
95	Platanus racemosa	Western Sycamore	H	16, 14	305	upland area near road base mining / storage activity
96	Platanus racemosa	Western Sycamore	H	16	306	upland area near road base mining / storage activity