



MAMMEN SINGLE-FAMILY RESIDENCE BIOLOGICAL RESOURCES ASSESSMENT

June 2015

PREPARED FOR

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Los Osos, CA 93402

PREPARED BY

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**Biological Resources Assessment
for the
Mammen Single-Family Residence
Los Osos, San Luis Obispo County, California**

Prepared for

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“As a County-approved biologist, I hereby certify that this Biological Resources Assessment was prepared according to the Guidelines established by the County of San Luis Obispo Department of Planning and Building and that the statements furnished in the report and associated maps are true and correct to the best of my knowledge and belief; and I further certify that I was present throughout the site visit(s) associated with this report.”



Signature

June 26, 2015

Date

EXECUTIVE SUMMARY/SYNOPSIS

SWCA Environmental Consultants (SWCA) has prepared this Biological Resources Assessment (BRA) at the request of Mr. Kurt Mammen. Mr. Mammen (applicant) is pursuing two project options for his parcel: 1) the sale of his parcel with environmental constraints resolved, or 2) construction of a single-family residence on the parcel. The parcel is zoned for Residential Single Family. Therefore, regardless of which option the applicant chooses, development of the parcel would likely include construction of a single-family residence. The purpose of this BRA is to document the biological resources on the parcel, identify impacts to natural resources that could occur from developing the parcel, and recommend avoidance and mitigation measures. At the time this BRA was produced, the applicant was in the early phases of project planning; therefore, this BRA assumes all project elements would be constructed within a conceptual building envelope that includes the entire parcel. The building envelope allows for sufficient space to construct a single-family residence with outdoor space and landscaped areas. The presence of the federally endangered Morro shoulderband snail (MSS; *Helminthoglypta walkeriana*) on the parcel has been confirmed and the applicant has initiated coordination with the USFWS to develop an HCP with an in-lieu fee mitigation strategy. The location, size, and layout of the conceptual building envelope area are subject to change as the project plans and agency coordination are refined.

SWCA biologists Travis Belt and Barrett Holland conducted a literature review and four surveys on the parcel. The surveys established the presence of live MSS and seven coast live oak (*Quercus agrifolia*) trees on the parcel. The timing of the surveys was sufficient to establish the absence of rare plant species on the parcel. The parcel supports suitable habitat for nesting birds protected under the Migratory Bird Treaty Act and silvery legless lizard (*Anniella pulchra pulchra*). Pre-construction surveys and initial disturbance monitoring are recommended to avoid impacts to nesting birds and minimize impacts to silvery legless lizard. All except one of the coast live oak trees have diameter at breast height less than 5 inches. Based on the conceptual site plan, the construction activities would occur on the southern portion of the parcel and would avoid impacts to the trees. The trees would remain for landscape purposes. Therefore, mitigation for impacts to these trees is not recommended.

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1 INTRODUCTION

1.1 Purpose of Biological Resources Assessment

SWCA Environmental Consultants (SWCA) has prepared this Biological Resources Assessment (BRA) at the request of Mr. Kurt Mammen for his proposed Single-Family Residence project (project). The purpose of this BRA is to document the biological resources on the project parcel and identify impacts that could occur from any reasonably foreseeable single-family residence development. This analysis assumes that the entire 0.35-acre parcel would be developed and has taken into consideration the biological resources that are known to occur within the vicinity of the project site. For those instances where potential impacts to sensitive biological resources may occur, SWCA has proposed mitigation measures and best management practices with the objective of avoiding or minimizing the impacts.

SWCA understands that this BRA would be used by Mr. Mammen, the County of San Luis Obispo Department of Planning and Building (County), and affected state or federal regulatory agencies during the environmental review process for the proposed project. This BRA has been prepared in accordance with the County's *Standard Guidelines for Biological Resources Assessments* (December 2009).

1.2 Project Location and Setting

The proposed project is located on Vista Del Osos just west of Covey Lane in Los Osos, San Luis Obispo County, California (refer to Figure 1). The project parcel (Assessor's Parcel Number 074-325-067) is approximately 0.35 acre situated between single-family residences to the north, east, and west, and an undeveloped parcel to the south. The project parcel is accessed via a dirt driveway and easement that is at the southern boundary of the neighboring parcel and intersects Covey Lane. The orientation of the parcel and driveway creates a classic "flag lot" development area that is situated among other developed parcels (refer to Figures 2 through 4).

1.2.1 Soils, Topography, and Elevation

The soil in the parcel is Baywood fine sand and the topography is nearly flat. Baywood fine sand is associated with stabilized sand dunes and is the dominating soil in the Los Osos area. Undisturbed Baywood fine sand in the Los Osos area typically supports coastal dune scrub, maritime chaparral, or oak woodland habitats. Based on the United States Geological Survey (USGS) Morro Bay South topographic quadrangle map, the parcel elevation is 280 feet above mean sea level (USGS 1994).

1.3 Project Description

Mr. Mammen (applicant) is pursuing two project options for his parcel: 1) the sale of his parcel with environmental constraints resolved, or 2) construction of a single-family residence on the parcel. The parcel is zoned for Residential Single Family. Therefore, regardless of which option the applicant chooses, development of the parcel would likely include construction of a single-family residence. For the purposes of this BRA, it is assumed that the project would develop the entire parcel. Project specifics are yet to be determined; however, the single-family residence would likely include an estimated 1,500- to 1,800-square-foot residence with three bedrooms and two and a half bathrooms, an approximately 500-square-foot attached garage, and outdoor patio space. Portions of the parcel that are not developed would be landscaped with drought tolerant plants, fruit trees, and/or raised beds for gardening.

Gas, electric, and water service would connect at existing mains located on Bay View Heights Drive. An estimated 1,200-gallon septic tank and a leach pit (or field) would be installed for wastewater. Figure 3 includes a conceptual site plan that is the basis for this evaluation; Figure 3 is conceptual and the actual construction plans are subject to change.

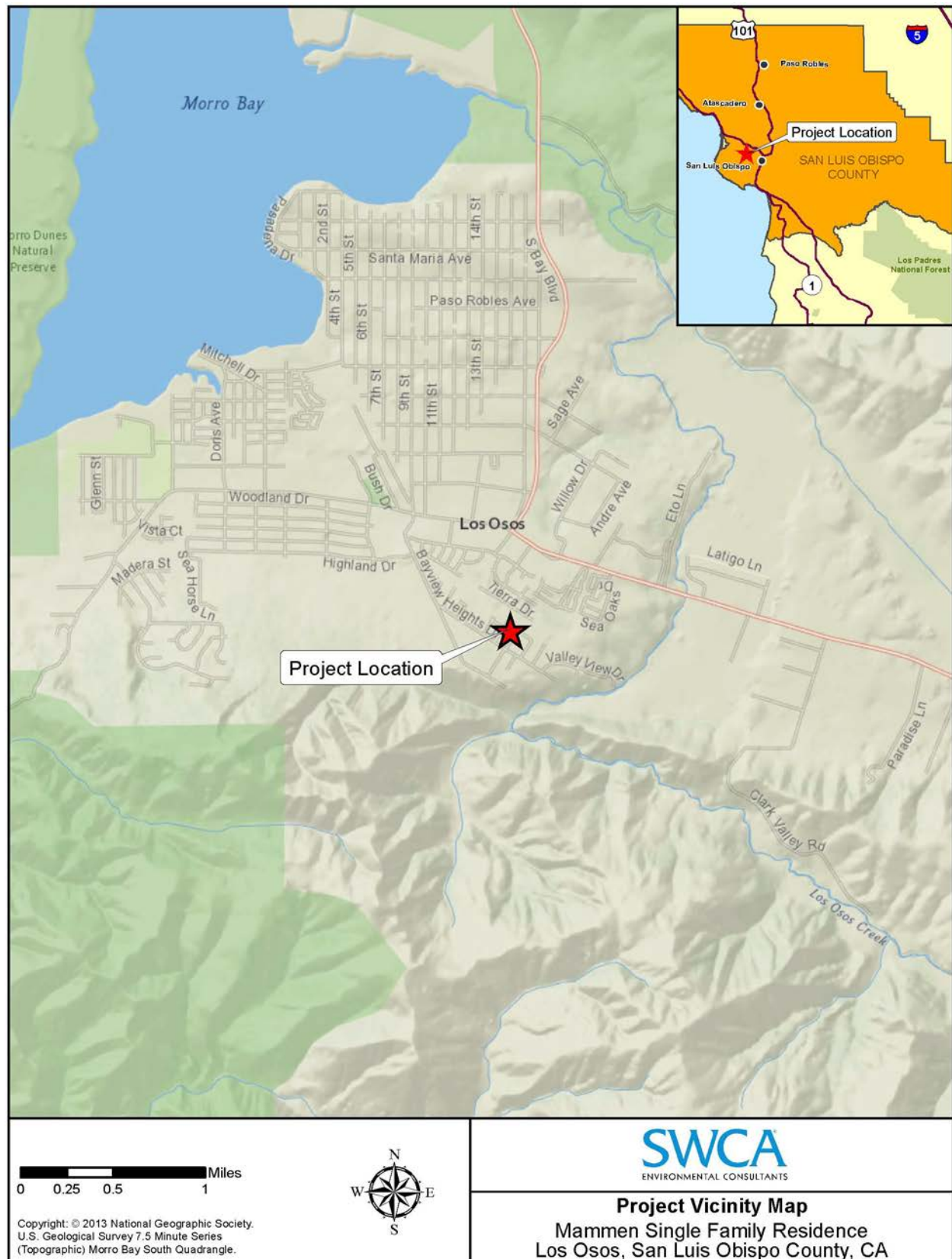
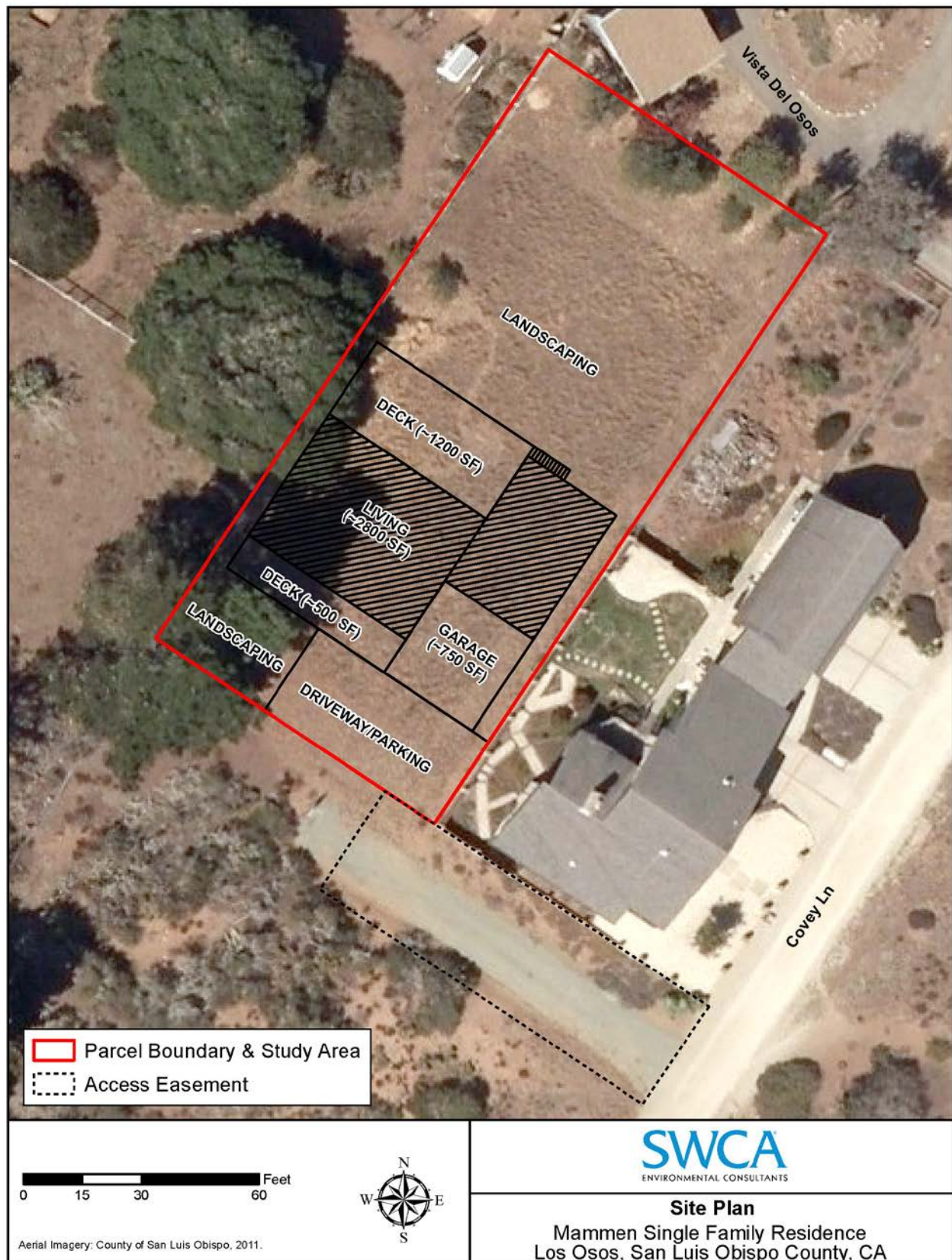
Figure 1. Project Vicinity Map

Figure 2. Project Location Map

Figure 3. Conceptual Site Map



2 METHODOLOGY

2.1 Literature Review

Prior to conducting a field survey, SWCA conducted a literature review to gain insight on what species have known occurrences in the project vicinity. The review was initiated with a query of the most recent version of the California Department of Fish and Wildlife (CDFW) California Natural Diversity Database (CNDDDB) to identify reported occurrences of sensitive resources within the Morro Bay South, USGS 7.5-minute quadrangle and the surrounding six quadrangles: Morro Bay North, Atascadero, Port San Luis, Cayucos, San Luis Obispo, and Pismo Beach.

In addition to the CNDDDB query, the California Native Plant Society (CNPS) Electronic Inventory of Rare and Endangered Plants of California (CNPS 2015b) was reviewed to provide additional information on rare plants that are known to occur in the area. SWCA has extensive experience with natural resources in Los Osos; therefore, the literature review for this BRA included existing environmental documents and reports prepared by SWCA.

2.2 Field Surveys

SWCA conducted four field surveys on the parcel. SWCA biologists Barrett Holland and Travis Belt timed and conducted the surveys to satisfy Morro shoulderband snail (MSS; *Helminthoglypta walkeriana*) and botanical survey requirements. Table 1 provides the survey dates and conditions. The purpose of the field surveys was to: (1) characterize the existing conditions on the parcel; (2) determine the presence or absence of MSS; (3) determine the presence or absence of sensitive plant species; (4) evaluate the site's potential to support other sensitive wildlife species; and (5) identify those biological resources that could be impacted by the proposed project.

SWCA conducted MSS surveys in accordance with the 2003 United States Fish and Wildlife Service (USFWS) *Protocol Survey Guidelines for the Morro Shoulderband Snail*. The survey effort included walking the parcel over a 60- to 90-minute period and using hand search methods to find MSS under live vegetation, woody debris, and refuse. The entire parcel and access easement was thoroughly examined during each survey to determine the presence of live MSS, empty shells, and suitable MSS habitat. The survey protocol requires that five protocol surveys be performed during rain or heavy fog conditions to establish the absence of MSS. Mr. Belt and Mr. Holland conducted three MSS surveys, under the authorization of federal permit PRT-824123-5, during protocol conditions. Mr. Holland conducted the first two surveys on February 20 and 24, 2010. The presence of MSS was confirmed on the parcel during the second survey; therefore, the applicant delayed the survey efforts and the project. On October 2, 2014, Mr. Belt called and spoke with Julie Vanderwier of the USFWS to discuss the need for completing the remaining protocol surveys. Since the presence and distribution of MSS on the parcel was determined during the first two surveys, Ms. Vanderwier requested that a third protocol survey be conducted to update the survey record (Vanderwier 2014). Mr. Belt conducted the third survey on January 27, 2015, which updated the survey data for this BRA and a pending Habitat Conservation Plan (HCP).

A fourth survey that focused on botanical resources was conducted on May 8, 2014. During the surveys, SWCA inventoried the botanical resources observed on the parcel using dichotomous keys as necessary (Baldwin et al. 2012). The surveys were scheduled to correlate with the blooming period for those rare plant species with potential to occur on the parcel. Wildlife species were documented based on visual observation, auditory cues (i.e., calls and songs), and indirect signs (e.g., tracks, scat, skeletal remains, burrows, etc.). A list of species observed is included in Appendix A (refer to Tables A-1 and A-2).

Table 1. 2010 and 2015 Survey Dates, Time, and Findings

Survey Number	Survey Date and Time	Rainfall Activity	Survey Focus	Findings*	Biologist
1	02/20/2010 10:00 a.m. to 11:45 a.m.	Showers amounting to 0.12 inch on survey day.	MSS and Botanical	MSS: 0 live, 1 Class B, and 1 Class C shells <i>Helix aspersa</i> : 3	B. Holland
2	02/24/2010 8:00 a.m. to 9:30 a.m.	Showers amounting to 0.47 inch on survey day.	MSS and Botanical	MSS: 1 live <i>Helix aspersa</i> : 3	B. Holland
3	01/27/2015 11:00 a.m. to 12:30 p.m.	Showers amounting to 0.05 inch in 24 hours prior to survey.	MSS and Botanical	MSS: 0 live, 2 Class B and 2 Class C shells Cellar glass: 1 Live <i>Helix aspersa</i> : 2	T. Belt
4	05/08/2015 2:00 p.m. to 3:30 p.m.	Clear and dry	Botanical	Refer to Species list in Appendix A	T. Belt

**Helix aspersa* = Common brown garden snail

3 RESULTS

3.1 Habitat Types

The parcel supports non-native grassland that is dominated by veldt grass (*Ehrharta calycina*). The non-native grassland community is discussed in detail below. Seven small planted coast live oak (*Quercus agrifolia*), a pepper tree (*Schinus* sp.), one hop-bush (*Dodonaea* sp.), and a bottlebrush (*Callistemon* sp.) line the northern property boundary. Six of the seven coast live oak trees are less than 5 inches diameter at breast height (dbh); the seventh coast live oak is 8.5 inches dbh. All the coast live oaks appear to be planted and do not comprise a coast live oak dominated community.

The access easement at the southern property boundary includes an unpaved driveway that is bordered with various landscape succulents on the northern edge of the driveway and intact maritime chaparral on the southern edge of the driveway. The maritime chaparral covers most of the neighboring parcel but does not extend into the subject parcel. Veldt grass borders both sides of Covey Lane between the access drive and Bayview Heights Drive. The habitat conditions are mapped on Figure 4. Site photographs are included in Appendix B.

3.1.1 Veldt Grass- Non-native Grassland

Veldt grass dominates the vegetative cover on the parcel. Veldt grass is a bunch or tussock forming grass that invades disturbed areas in Los Osos, Nipomo, and other sandy areas in San Luis Obispo County. This species is native to Africa and has been introduced for use as ornamentals and erosion control. In Los Osos, veldt grass grasslands typically support remnant patches of native shrubs and harbors common wildlife species including western fence lizard (*Sceloporus occidentalis*) and small rodents such as deer mice (*Peromyscus* spp.) and rabbits (*Sylvilagus* spp.). Some hardy but uncommon native plant species can be found in veldt grass grassland.

Figure 4. Existing Natural Resources Map



The non-native veldt grass grassland on the parcel contains approximately 80% cover of veldt grass with the remaining 20% being comprised of bare ground and some croton (*Croton californicus*) occurrences. The veldt grass has been mowed on an annual basis for fire control purposes. As a result, there is a lack of duff and/or dead material under the veldt grass culms. Other plant species observed in the veldt grass included tansy mustard (*Descurainia pinnata*), rat-tail fescue (*Festuca myuros*), California saltbush (*Atriplex californica*), and California poppy (*Eschscholzia californica*).

3.2 Special-status Species

The following describes those sensitive biotic resources that have been documented within the Morro Bay South USGS Quadrangle and the surrounding six quadrangles. Sensitive biotic resources include sensitive plant and/or animal species as described below.

3.2.1 Special-Status Plant Species

For the purposes of this section, special-status plant species are defined as the following:

- Plants listed or proposed for listing as threatened or endangered under the Federal Endangered Species Act (FESA) (50 Code of Federal Regulations [CFR] 17.12 for listed plants and various notices in the Federal Register for proposed species).
- Plants that are candidates for possible future listing as threatened or endangered under the FESA.
- Plants that meet the definitions of rare or endangered species under the California Environmental Quality Act (CEQA) (State CEQA Guidelines §15380).
- Plants considered by the CNPS to be “rare, threatened, or endangered” in California (Ranks 1B and 2 in CNPS 2015a).
- Plants listed by CNPS as plants about which we need more information and plants of limited distribution (Ranks 3 and 4 in CNPS 2015a).
- Plants listed or proposed for listing by the State of California as threatened or endangered under the California Endangered Species Act (CESA) (14 California Code of Regulations [CCR] 670.5).
- Plants listed under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.).
- Plants considered sensitive by other Federal agencies (i.e., U.S. Forest Service, Bureau of Land Management), state and local agencies, or jurisdictions.

Based on the literature review for this project, a total of 62 special-status plant species have been documented in the queried quadrangles (refer to Table 2). Because the plant list presented in Table 2 is regional, SWCA evaluated the listed species to identify which special-status plant species have the potential to occur on the parcel. SWCA compared the known habitat requirements of those 62 species to the parcel’s existing conditions, elevation, and soils. The analysis determined that the parcel supports suitable conditions for the following plant species:

- Hoover's bent grass
(*Agrostis hooveri*)
- Morro Manzanita
(*Arctostaphylos morroensis*)
- surf thistle
(*Cirsium rhotophilum*)
- popcorn lichen
(*Cladonia firma*)
- mesa horkelia
(*Horkelia cuneata* ssp. *puberula*)
- coastal goosefoot
(*Chenopodium littoreum*)
- compact cobwebby thistle
(*Cirsium occidentale* var. *compactum*)
- Blochman's leafy daisy
(*Erigeron blochmaniae*)
- southern curly-leaved monardella
(*Monardella sinuata* ssp. *sinuata*)
- sand almond
(*Prunus fasciculata*)

Although the subject parcel supports suitable soils and or habitats for these species, no rare plant species were observed on the parcel during surveys conducted in the appropriate blooming season. The vegetation on the parcel is dominated by non-native species. The lack of native and rare plant species on the parcel is likely due to annual mowing for fire suppression.

3.2.2 Special-Status Animal Species

For the purposes of this section, special-status animal species are defined as the following:

- Animals listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.11 for listed animals and various notices in the Federal Register for proposed species).
- Animals that are candidates for possible future listing as threatened or endangered under the FESA.
- Animals that meet the definitions of rare or endangered species under CEQA (State CEQA Guidelines Section 15380).
- Animals listed or proposed for listing by the State of California as threatened and endangered under the CESA (14 CCR 670.5).
- Animal species of special concern to the CDFW (Remsen 1978 for birds; Williams 1986 for mammals).
- Animal species that are fully protected in California (California Fish and Game Code, Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

Based on a CNDDDB query and a review of existing literature, a total of 31 sensitive wildlife species have been documented as occurring in the queried quadrangles (refer to Table 3). Because this list of species is regional, an analysis of the range and habitat preferences of those animal species was conducted to identify which sensitive wildlife species have the potential to occur within the parcel. SWCA determined that the following four special-status animal species and migratory birds have potential to occur on the parcel:

- silvery legless lizard
(*Anniella pulchra pulchra*)
- black legless lizard
(*Anniella pulchra nigra*)
- Morro shoulderband snail
(*Helminthoglypta walkeriana*)
- loggerheaded shrike
(*Lanius ludovicianua*)
- California horned lark
(*Eremophila alpestris actia*)
- Class Aves
Other migratory bird species (nesting)

Based on presence of suitable foraging, roosting, or nesting habitat, the parcel supports suitable conditions for the species listed above and nesting migratory birds. Although all of the species listed above have potential to occur on the parcel, only MSS was observed during the surveys. MSS is discussed in more detail below.

3.2.2.1 MORRO SHOULDERBAND SNAIL (*HELMINTHOGLYPTA WALKERIANA*)

On December 15, 1994, the USFWS listed MSS as an endangered species under the FESA. MSS are a member of the land snail family Helminthoglyptidae and are found in association with sandy soils of coastal dune and coastal sage scrub communities near Morro Bay. MSS can be found in native and non-native habitats and are routinely observed in disturbed areas throughout Los Osos. MSS require shelter to avoid desiccation; therefore, MSS are closely associated with plants and debris that exhibit dense cover and ample contact with the ground. Plants that MSS are often found in association with include mock heather (*Ericameria ericoides*), seaside golden yarrow (*Eriophyllum staechadifolium*), deerweed (*Acmispon glaber*), sand almond, horkelia (*Horkelia* spp.), and ice plant (*Carpobrotus edulis*). Other plants that commonly occur in areas occupied by this species include black sage (*Salvia mellifera*), dune buckwheat (*Eriogonum parvifolium*), California sagebrush (*Artemisia californica*), dune lupine (*Lupinus chamissonis*), veldt grass, and California croton (*Croton californicus*).

SWCA conducted three MSS surveys on the parcel during protocol conditions (refer to Table 1). One live MSS and six empty shells of varying condition were identified during the surveys. Due to the annual mowing that occurs on the parcel, very few MSS were found on the parcel. The annual mowing does not allow the veldt grass and other vegetation on the site to generate significant duff or woody debris that is necessary for MSS shelter. The individual observed on the parcel likely moved into the area from the adjoining undeveloped parcel located to the south of the subject parcel. The adjoining parcel supports a remnant patch of maritime chaparral that does provide adequate shelter for MSS (refer to Figure 4).

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/ State/CNPS	Rationale for Expecting Presence or Absence
Hoover's bent grass <i>Agrostis hooveri</i>	Sandy sites in chaparral, cismontane woodland, valley and foothill grassland. 60–600 meters.	April–July	--/--/1B.2	Suitable Conditions Present: The parcel supports sandy soil. However, routine mowing has reduced the parcels potential to support rare plants. Species Absent: Species was not observed during appropriately timed surveys.
Arroyo de la cruz manzanita <i>Arctostaphylos cruzensis</i>	Broadleaf upland forest, coastal scrub, closed cone coniferous forest, chaparral, and grassland. On sandy soils. 60–310 meters.	December–March	--/--/1B.2	Suitable Conditions Absent: The parcel does not support the appropriate habitats. Species Absent: Species was not observed during appropriately timed surveys. No <i>Arctostaphylos</i> species were observed on the parcel.
Santa Lucia manzanita <i>Arctostaphylos luciana</i>	Evergreen shrub; occurs on Chaparral with shale outcrops. 350–850 meters.	February–March	--/--/1B.2	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range. Species Absent: Species was not observed during appropriately timed surveys. No <i>Arctostaphylos</i> species were observed on the parcel.
Morro manzanita <i>Arctostaphylos morroensis</i>	Chaparral, cismontane woodland, coastal scrub, on stabilized coastal dunes. 5–205 meters.	December–March	FT/--/1B.1	Suitable Conditions Present. The parcel supports sandy soil. However, routine mowing has reduced the parcels potential to support rare plants. Species Absent: Species was not observed during appropriately timed surveys. No <i>Arctostaphylos</i> species were observed on the parcel.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Oso Manzanita <i>Arctostaphylos osoensis</i>	Evergreen shrub; occurs in chaparral and cismontane woodland associated with dacite porphyry (purple/red igneous volcanic rock) on buttes. 300–500 meters.	February–March	--/--/1B.2	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range and does not contain dacite soils or the appropriate community. Species Absent: Species was not observed during appropriately timed surveys. No <i>Arctostaphylos</i> species were observed on the parcel.
Pecho manzanita <i>Arctostaphylos pechoensis</i>	Closed coniferous forest, chaparral, and coastal scrub on siliceous shale. 125–850 meters.	November–March	--/--/1B.2	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range and does not contain the appropriate soil or habitats. No <i>Arctostaphylos</i> species were observed in the study area.
Santa Margarita manzanita <i>Arctostaphylos pilosula</i>	Evergreen shrub; occurs in closed coniferous forest, chaparral, and cismontane woodland on shale soils. 170–1,100 meters.	December–March	--/--/1B.2	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range and does not contain shale soils or the appropriated community. Species Absent: Species was not observed during appropriately timed surveys. No <i>Arctostaphylos</i> species were observed in the study area.
dacite manzanita <i>Arctostaphylos tomentosa</i> ssp. <i>dacitcola</i>	Evergreen shrub occurs in chaparral and cismontane woodland associated with dacite porphyry (purple/red igneous volcanic rock) on buttes. 100–300 meters.	March	--/--/1B.1	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range and does not contain dacite soils or the appropriate community. Species Absent: Species was not observed during appropriately timed surveys. No <i>Arctostaphylos</i> species were observed in the BSA.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
marsh sandwort <i>Arenaria paludicola</i>	Marshes and swamps. Grows through dense mats of <i>Typha</i> , <i>Juncus</i> , <i>Scirpus</i> , etc. in freshwater marsh. 10–170 meters.	May–August	FE/CE/1B.1	Suitable Conditions Absent: The parcel does not support any wetland features that would support this species. Species Absent: Species not observed during surveys conducted in the appropriate season.
Mile's milk vetch <i>Astragalus didymocarpus</i> var. <i>milesianus</i>	Annual herb; Occurs in coastal scrub on clay soils. 20–90 meters.	March–June	--/--/1B.2	Suitable Conditions Absent: Sandy soil on the parcel is not conducive to this species. Species Absent: Species not observed during surveys conducted in the appropriate period.
Coulter's saltbush <i>Atriplex coulteri</i>	Coastal bluff scrub, coastal dunes, coastal scrub, valley and foothill grassland/alkaline or clay. 3–460 meters.	March–October	--/--/1B.2	Suitable Conditions Absent: Sand soil on parcel is not conducive to this species. The parcel does not support associated habitats. Species Absent: Species not observed during surveys conducted in the appropriate season
San Joaquin spearscale <i>Atriplex joaquiniana</i>	Shrub occurs in chenopod scrub, meadows, seeps, playas, and valley and foothill grassland. Often in alkaline soils. 1–835 meters.	April–October	--/--/1B.2	Suitable Conditions Absent: The parcel does not contain alkali soils. The last recorded occurrence in the area was 1899. Species Absent: Species not observed during surveys conducted in the appropriate season.
twisted horsehair lichen <i>Bryoria spiralis</i>	An epiphytic lichen that is typically associated with conifers. Largest known population is on Samoa Peninsula in Humboldt County. 0–30 meters.	NA	--/--/1B.2	Suitable Conditions Absent: The parcel does not support any conifers. Species Absent: No lichens were observed on the parcel.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
round-leaved filaree <i>California macrophylla</i>	Annual herb occurs in cismontane woodland and valley and foothill grassland with clay soils. 15–1,200 meters	March–May	--/--/1B.1	Suitable Conditions Absent: Sand soil on parcel is not conducive to this species. The parcel does not support associated habitats. Species Absent: Species not observed during surveys conducted in the appropriate season
San Luis mariposa-lily <i>Calochortus obispoensis</i>	Chaparral, coastal scrub, valley and foothill grassland. Often in serpentine grassland. 75–665 meters.	May–July	--/--/1B.2	Suitable Conditions Absent: The parcel does not support serpentine soil. Species Absent: Species not observed during surveys conducted in the appropriate season.
San Luis Obispo mariposa lily <i>Calochortus simulans</i>	Chaparral, cismontane woodlands, lower montane coniferous forest, valley and foothill grassland; often in sandy, granitic, or serpentine soils. 395–1,100 meters.	April–May	--/--/1B.3	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range and does not support the appropriate habitats. Species Absent: Species not observed during surveys conducted in the appropriate season.
Cambria morning-glory <i>Calystegia subacaulis</i> ssp. <i>episcopalis</i>	Grassland and rocky areas associated with chaparral and cismontane woodland. 60–500 meters.	April–May	--/--/1B.2	Suitable Conditions Absent: The parcel does not support rocky soil. Species Absent: Species not observed during surveys conducted in the appropriate season.
Hardham's evening-primrose <i>Camissoniopsis hardhamiae</i>	An annual herb that is typically found in sandy decomposed carbonate soils. Especially in disturbed or burned areas among chaparral and cismontane woodland. 140–945 meters.	March–May	--/--/1B.2	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range and does not support carbonate soil or the appropriate habitat. Species Absent: Species not observed during surveys conducted in the appropriate season.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
San Luis Obispo sedge <i>Carex obispoensis</i>	Closed-cone coniferous forests, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland. Usually adjacent to seeps, springs, stream sides or other water source with sand, clay or serpentine. 5–790 meters.	April–June	--/--/1B.2	Suitable Conditions Absent: The parcel does not contain any wetland features that could support this species. Species Absent: Species not observed during surveys conducted in the appropriate season.
San Luis Obispo owls clover <i>Castilleja densiflora</i> ssp. <i>obispoensis</i>	Valley and foothill grassland. 10–215 meters.	April	--/--/1B.2	Suitable Conditions Absent: The parcel does not support valley and foothill grassland. No known occurrences in Baywood fine sand exist. Species Absent: Species not observed during appropriately timed surveys.
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	Depressional areas within valley and foothill grassland. 1–230 meters.	June–November	--/--/1B.2	Suitable Conditions Absent: The parcel does not support valley and foothill grassland or depressed areas subject to seasonal ponding.
coastal goosefoot <i>Chenopodium littoreum</i>	Annual herb that occurs on coastal dunes. 10–30 meters.	April–August	--/--/1B.2	Marginal Conditions Present. The parcel supports sandy soils and stabilized dunes but is at a higher elevation than the documented occurrences of this species. Species Absent: Species not observed during appropriately timed surveys.
dwarf soaproot <i>Chlorogalum pomeridianum</i> var. <i>minus</i>	Chaparral habitats with serpentine soils. 305–1,000 meters.	May–August	--/--/1B.2	Suitable Conditions Absent: The parcel does not contain serpentine soils and is located at a lower elevation than the species documented range. Species Absent: Species not observed during surveys conducted in the appropriate season.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
salt marsh bird's-beak <i>Chloropyron maritimus</i> ssp. <i>maritimus</i>	Annual herb; occurs in marshes and swamps on coastal dunes. 0–30 meters.	May–October	FE/SE/1B.2	Suitable Conditions Absent: The parcel does not support any wetland features that could harbor this species. Species Absent: Species not observed during surveys conducted in the appropriate season.
Brewer's spineflower <i>Chorizanthe breweri</i>	Chaparral, cismontane woodland, coastal scrub, closed-cone coniferous forest; rocky or gravelly serpentine sites; usually in barren areas. 45–800 meters.	May–August	--/--/1B.3	Suitable Conditions Absent: Soil on the parcel is not suitable for this species. Species Absent: Species not observed during surveys conducted in the appropriate season.
straight-awned spineflower <i>Chorizanthe rectispina</i>	Chaparral, cismontane woodland, coastal scrub. Often on granite in chaparral. 355–1,035 meters.	April–July	--/--/1B.3	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range. Soil on the parcel is not conducive to this species. Species Absent: Species not observed during surveys conducted in the appropriate season.
San Luis Obispo (Chorro Creek) fountain thistle <i>Cirsium fontinale</i> var. <i>obispoense</i>	Chaparral, cismontane woodlands; serpentine seeps or bogs. 35–380 meters.	February–July	FE/SE/1B.2	Suitable Conditions Absent: The parcel does not contain serpentine soil or wetland areas. Species Absent: Species not observed during surveys conducted in the appropriate season.
compact cobwebby thistle <i>Cirsium occidentale</i> var. <i>compactum</i>	A perennial herb that occurs in chaparral, coastal dunes, coastal prairie, and coastal scrub. Most occurrences of this species on the SLO north coast are on clay soils. 5–150 meters.	April–June	--/--/1B.2	Marginal Conditions Present. Stabilized dune habitat is appropriate for the species; however, routine mowing has reduced the silt potential to support rare plants. No documented occurrences in the Los Osos area. Species Absent: Species not observed during surveys conducted in the appropriate season.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Cuesta ridge thistle <i>Cirsium occidentale</i> var. <i>lucianum</i>	Perennial herb that occurs on steep rocky slopes and disturbed roadsides. Often found in openings among chaparral. Typically associated with serpentine. 500–750 meters.	April–June	--/1B.2	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range. Soil on the parcel and the parcel's topography are not conducive to this species. Species Absent: Species not observed during surveys conducted in the appropriate season.
surf thistle <i>Cirsium rhotophylum</i>	Coastal dunes, coastal bluff scrub. Open areas in central dune scrub; usually in coastal dunes. 3–60 meters.	April–June	--/CT/1B.2	Marginal Conditions Present. Soil on the site may be appropriate for this species. Historically, the parcel likely supported maritime chaparral, which this species is not associated with. The only documented occurrence is in Pismo Beach and is based on reference to the Vascular Plants of SLO County (R.F. Hoover 1970). Species Absent: Species not observed during surveys conducted in the appropriate season.
popcorn lichen <i>Cladonia firma</i>	A squamulose lichen that occurs on soil, detritus, or moss on stabilized coastal dunes among coastal scrub. Known in CA only from Morro Bay and Baywood-Los Osos areas. 30–75 meters.	NA	--/2B.2	Suitable Conditions Present. The parcel is located in stabilized dunes within the known range of this species. However, the repeated mowing has disrupted the establishment of lichens, mosses, and other biological soil crusts. Species Absent. Species not observed on the parcel.
Pismo clarkia <i>Clarkia speciosa</i> ssp. <i>immaculata</i>	Sandy soils, openings in chaparral, cismontane woodland, valley and foothill grassland. On ancient sand dunes not far from the coast. 25–185 meters.	May–July	FE/SR/1B.1	Suitable Conditions Absent: The parcel is north of this species documented range. There are no known occurrences in the Los Osos area. Species Absent: Species not observed during surveys conducted in the appropriate season.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Eastwood's larkspur <i>Delphinium parryi</i> ssp. <i>eastwoodiae</i>	Perennial herb. Occurs in openings among chaparral and valley and foothill grassland with serpentine soils. 75–500 meters.	February–March	--/--/1B.2	Suitable Conditions Absent: The parcel does not support the appropriate soil or habitats. Species Absent: Species not observed during surveys conducted in the appropriate season.
umbrella larkspur <i>Delphinium umbraculorum</i>	Perennial herb. Occurs in cismontane woodland. 400–1,600 meters.	April–June	--/--/1B.3	Suitable Conditions Absent: The parcel does not support the appropriate habitats and is located at a lower elevation than this species documented range. Species Absent: Species not observed during surveys conducted in the appropriate season.
beach spectaclepod <i>Dithyrea maritima</i>	Coastal dunes, coastal scrub. Sea shores, on sand dunes, and sandy places near the shore. 3–50 meters.	March–May	--/ST/1B.1	Suitable Conditions Absent: Stabilized sand dunes in the Los Osos area do not constitute sea shore habitats. Species Absent: Species not observed during surveys conducted in the appropriate season.
Betty's dudleya <i>Dudleya abramsii</i> ssp. <i>betinae</i>	Coastal scrub, valley and foothill grassland, chaparral; rocky barren serpentine exposures. 20–180 meters.	May–July	--/--/1B.2	Suitable Conditions Absent: The parcel does not contain serpentine outcrops, rocky places, or the appropriate habitat. Species Absent: Species not observed during surveys conducted in the appropriate season.
mouse-gray dudleya <i>Dudleya abramsii</i> ssp. <i>murina</i>	Serpentine outcrops in chaparral, cismontane woodland. 90–300 meters.	May–June	--/--/1B.3	Suitable Conditions Absent: The parcel does not contain serpentine outcrops. Species Absent: Species not observed during surveys conducted in the appropriate season.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Blochman's dudleya <i>Dudleya blochmaniae</i> ssp. <i>blochmaniae</i>	Coastal scrub, chaparral, and valley and foothill grassland habitats on rocky outcrops in clay or serpentine soils. 5–450 meters.	April–June	--/--/1B.1	Suitable Conditions Absent: The parcel does not contain rocky outcrops or clay soil. Species Absent: Species not observed during surveys conducted in the appropriate season.
Yellow-flowered eriastrum <i>Eriastrum luteum</i>	Annual herb occurs in broadleafed upland forest, chaparral, and cismontane woodland on sandy or gravelly soils. 290–1,000 meters.	May–June	--/--/1B.2	Suitable Conditions Absent: The parcel does not support the appropriate communities or soils and is located at a lower elevation than the species documented range. Species Absent: Species not observed during surveys conducted in the appropriate season.
Blochman's leafy daisy <i>Erigeron blochmaniae</i>	Perennial rhizomatous herb. Occurs in coastal dunes and coastal scrub on sandy soils. 3–45 meters.	July–August	--/--/1B.2	Marginal Conditions Present. The parcel supports the appropriate soil; however, may be at a higher elevation than this species range. There are many occurrences in the Los Osos area at lower elevations. Species Absent: Species not observed during surveys conducted in the appropriate season.
Indian knob mountainbalm <i>Eriodictyon altissimum</i>	Evergreen shrub. Occurs in maritime chaparral, cismontane woodland, and coastal scrub with sandstone substrates. 80–270 meters.	March–June	FE/SE/1B.1	Suitable Conditions Absent: The parcel does not contain sandstone substrates. Species Absent: Species was not observed during surveys conducted in the appropriate season.
Hoover's button-celery <i>Eryngium aristulatum</i> var. <i>hooveri</i>	Vernal pools in alkaline depressions near the coast. 5–45 meters.	July	--/--/1B.1	Suitable Conditions Absent: The parcel does not support vernal pools or alkaline substrate.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
San Benito fritillary <i>Fritillaria viridea</i>	Chaparral on serpentine slopes. 200–1,525 meters.	March–May	--/--/1B.2	Suitable Conditions Absent: The parcel does not support chaparral or serpentine substrate and is at a lower elevation than this species documented range. Species Absent: Species not observed during surveys conducted in the appropriate season.
mesa horkelia <i>Horkelia cuneata</i> ssp. <i>puberula</i>	Perennial herb that occurs in chaparral, cismontane woodlands, coastal scrub; in sandy or gravelly sites. 70–810 meters.	February–September	--/--/1B.1	Suitable Conditions Present. The parcel supports sandy soil. However, routine mowing has reduced the parcels potential to support rare plants. Species Absent: Species not observed during surveys conducted in the appropriate season.
Coulter's goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	Annual herb occurs in freshwater wetlands coastal salt marshes, wetland-riparian habitat, alkali sink, playas, vernal pools, and swamps. 1–1,220 meters.	February–June	--/--/1B.1	Suitable Conditions Absent: the parcel does not contain any wetland features that could support this species. Species Absent: Species not observed during surveys conducted in the appropriate season.
Jones's layia <i>Layia jonesii</i>	Chaparral and valley and foothill grassland on clay or serpentine outcrops. 5–400 meters.	March–May	--/--/1B.2	Suitable Conditions Absent: The parcel does not support the appropriate soil or habitats. Species Absent: Species not observed during surveys conducted in the appropriate season.
San Luis Obispo County lupine <i>Lupinus ludovicianus</i>	Chaparral, cismontane woodland. Open areas in sandy soils of the Santa Margarita formation. 50–525 meters.	April–July	--/--/1B.2	Suitable Conditions Absent: The parcel does not contain sandy soil of the Santa Margarita formation. Species Absent: Species not observed during appropriately timed surveys.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Santa Lucia bush-mallow <i>Malacothamnus palmeri</i> var. <i>palmeri</i>	Deciduous shrub occurs in chaparral with rocky substrates. 60–360 meters.	May–July	--/--/1B.2	Suitable Conditions Absent: Parcel does not contain rocky slopes, hillsides, or chaparral. Species Absent: Species not observed during surveys conducted in the appropriate season.
Palmer's monardella <i>Monardella palmeri</i>	Chaparral and cismontane woodland on serpentine slopes. 200–800 meters.	June–August	--/--/1B.2	Suitable Conditions Absent: The parcel is located at a lower elevation than the species documented range and does not support the appropriate communities or substrate.
southern curly-leaved monardella <i>Monardella sinuata</i> ssp. <i>sinuata</i>	Annual herb that occurs in sandy soil among chaparral, lower montane coniferous forest, coastal dunes, and coastal scrub with openings. 0–300 meters.	April–September	--/--/1B.2	Suitable Conditions Present: The parcel supports the appropriate soil and habitats. Species Absent: Repeated mowing has reduced the sites potential to support rare plant species. Species not observed during surveys conducted in the appropriate season.
woodland woollythreads <i>Monolopia gracilis</i>	An annual herb associated with serpentine soil. Often found in openings within broadleafed upland forest, chaparral, cismontane woodland, north coast coniferous forest, and valley and foothill grassland. 100–1,200 meters.	February–July	--/--/1B.2	Suitable Conditions Absent: The parcel does not support appropriate soil or habitat types and is at a lower elevation than this species range. Species Absent: Species was not observed during survey conducted in the appropriate season.
coast woolly-heads <i>Nemacaulis denudata</i> var. <i>denudata</i>	Annual herb that occurs on coastal dunes. 0–100 meters.	April–September	--/--/1B.2	Marginal Conditions Absent: The parcel supports sandy soil in a stabilized dune area. However, routine mowing has reduced the parcels potential to support rare plants. Species Absent: Species was not observed during appropriately timed surveys.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
hooked popcorn-flower <i>Plagiobothrys uncinatus</i>	Annual herb occurs in chaparral, cismontane woodland, and valley and foothill grassland with sandy soils. 300–760 meters.	April–May	--/--/1B.1	Suitable Conditions Absent: The parcel is located at a lower elevation than the species documented range and does not support the appropriate communities. Species Absent: Species not observed during surveys conducted in the appropriate season.
Diablo Canyon blue grass <i>Poa diaboli</i>	Rhizomatous herb occurs in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub with shale substrates. 120–400 meters.	March–April	--/--/1B.2	Suitable Conditions Absent: The parcel is located at a lower elevation than the species documented range and does not support shale substrates or the associated habitats. Species Absent: Species not observed during surveys conducted in the appropriate season.
Sand almond <i>Prunus fasciculata</i>	Perennial and deciduous shrub that occurs on sandy soil among maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub 15–200 meters.	March–April	--/--/4.3	Suitable Conditions Present: The parcel supports the appropriate soil and habitat and is within the vicinity of many known occurrences. Species Absent: Species not observed during surveys conducted in the appropriate season.
adobe sanicle <i>Sanicula maritima</i>	Moist seeps within coastal prairie, chaparral, meadows, and valley and foothill grassland habitats in clay or serpentine soils. 30–240 meters.	February–May	--/SR/1B.1	Suitable Conditions Absent: The site does not support appropriate habitat types or soils. Species Absent: Species not observed during surveys conducted in the appropriate season.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
black-flowered figwort <i>Scrophularia atrata</i>	Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub, riparian scrub. Around swales and in sand dunes. Sand, diatomaceous shale and soils derived from other parent material. 10–250 meters.	March–April	--/--/1B.2	Suitable Conditions Absent: The parcel does not support shale derived soil. All documented occurrences of this species are located south of Los Osos. Species Absent: Species was not observed during surveys conducted in the appropriate season.
rayless (chaparral) ragwort <i>Senecio aphanactis</i>	Chaparral, cismontane woodlands; coastal scrub/alkaline. 15–800 meters.	January–April	--/--/2.2	Suitable Conditions Absent: The parcel does not support the appropriate communities or alkaline soil. Species Absent: Species not observed during surveys conducted in the appropriate season.
Cuesta pass checkerbloom <i>Sidalcea hickmanii</i> ssp. <i>anomala</i>	Closed-cone coniferous forest with rocky serpentine slopes. 600–800 meters.	May–June	--/SE/1B.2	Suitable Conditions Absent: The parcel does not contain closed-cone coniferous forest or serpentine slopes. The elevation of the parcel is much lower than the range for this species. Species Absent: Species not observed during appropriately timed surveys.
most beautiful jewel-flower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	Chaparral, cismontane woodlands, valley and foothill grasslands on serpentine soil. 110–1,000 meters.	April–June	--/--/1B.2	Suitable Conditions Absent: The parcel is at a lower elevation than this species documented range. The parcel does not support appropriate habitat types or soils. Species not observed during appropriately timed surveys.
California seablite <i>Suaeda californica</i>	Low growing evergreen shrub occurs in coastal salt marshes and swamps. 0–15 meters.	July–October	--/--/1B.1	Suitable Conditions Absent: The parcel does not support any coastal salt marsh. Species Absent: Species not observed.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Splitting yarn lichen <i>Sulcaria isidifera</i>	An epiphytic lichen that occurs on branches of old growth oaks and shrubs in coastal scrub and woodland habitats. 20–30 meters.	NA	--/--/1B.1	Suitable Conditions Absent: The parcel does not support any old growth shrubs or trees. Species Absent: Species not observed on the parcel.
saline clover <i>Trifolium hydrophilum</i>	Annual herb that occurs in marshes and swamps, valley and foothill grassland (mesic, alkaline), and vernal pools. 0–300 meters.	April–June	--/--/1B.2	Suitable Conditions Absent: The parcel does not support any marshes, other mesic areas, or alkaline substrate. Species Absent: Species' not observed during appropriately times surveys.
Natural Communities of Concern				
central dune scrub	A back dune plant community characterized by low growing, drought tolerant shrubs that develop considerable cover. Diagnostic species include <i>Ericameria ericoides</i> and <i>Lupinus chamissonis</i> .			The parcel does not support central dune scrub community associates.
central foredunes	A foredune plant community characterized by scattered low growing perennial plants including <i>Abronia</i> sp. <i>Ambrosia</i> sp. and <i>Cackile</i> sp. Usually occurring in areas exposed to tidal action.			The parcel does not support any foredune habitats.
central maritime chaparral	A variable scrub community of moderate to high cover dominated by various <i>Arctostaphylos</i> sp. Found on well drained sandy soils in areas subject to summer fog.			The parcel does not support central maritime chaparral. However, the parcel likely supported this community in the past
coastal Brackish Marsh	Marsh habitat dominated by perennial, emergent, herbaceous monocots such as <i>Scirpus</i> sp. Salinity varies but is brackish from freshwater input. Usually located at interior edges of coastal bays and estuaries or in coastal lagoons.			The parcel does not support any wetland habitats.
coastal and valley freshwater marsh	A wetland community that is found in areas of permanently or prolonged freshwater saturation without significant current or flow. Vegetation is dominated by perennial emergent monocots including cattails and rushes.			The parcel does not support any wetland habitats.

Table 2. Special-Status Plant Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Flower Season	Legal Status Federal/ State/CNPS	Rationale for Expecting Presence or Absence
northern Coastal Salt Marsh	Marsh habitat supporting herbaceous, suffrutescent, salt tolerant hydrophytes often active in summer and dormant in winter. Characteristic species include <i>Jaumea carnosa</i> , <i>Limnium californicum</i> , and <i>Frankenia salina</i> . Developed around Humboldt Bay, Tomales Bay, San Francisco Bay, Elkhorn Slough, and Morro Bay.			The parcel does not support any wetland habitats.
northern interior cypress forest	An open serotinous forest that is often found on dry, rocky soils. Often associated with serpentine soils. Vegetation consists of dense to sparse stands of <i>Cupressus</i> species.			The parcel does not support northern interior cypress forest.
serpentine bunchgrass	An open grassland community that is dominated by perennial bunch grasses. Typically, total cover is low but native species' dominate the composition. Associated species include <i>Nassella cernua</i> , <i>N. lepida</i> , <i>N. pulchra</i> , and <i>Melica californica</i> . Always occurring on serpentine substrates.			The parcel does not support serpentine soil or native bunch grasses.
valley needlegrass grassland	Grassland reaching up to 2 feet tall and dominated by <i>Nassella</i> sp, which is a native tussock forming grass. Annual grasses occur between the perennials, often exceeding the bunch grasses in cover. Usually occurs on fine-textured soils that are wet in the winter and very dry in the summer.			The parcel does not support any native bunch grasses.

General references: CDFW 2015; Hickman (ed.) 1993; Munz 1974; CNDDDB 2015.

Status Codes

--= No status

Federal:

FE = Federal Endangered

FT = Federal Threatened

State:

SE = State Endangered

ST = State Threatened

SR = State Rare

California Native Plant Society (CNPS):

List 1B = rare, threatened, or endangered in California and elsewhere.

List 2 = rare, threatened, or endangered in California, but more common elsewhere.

List 3 = plants that about which more information is needed.

List 4 = a watch list plants of limited distribution.

Threat Code:

.1 = Seriously endangered I California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 = Fairly endangered in California (20-80% occurrences threatened)

.3 = Not very endangered I California (<20% of occurrences threatened or no current threats known)

Table 3. Special-Status Wildlife Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Legal Status Federal/State/ CDFW	Rationale for Expecting Presence or Absence
Gastropods			
Morro shoulderband snail <i>Helminthoglypta walkeriana</i>	The Morro shoulderband snail (MSS) is restricted to Baywood fine sand in coastal dune, coastal sage scrub, and non-native plant communities near Morro Bay. MSS are typically observed taking shelter under shrubs, woody debris, detritus, and other sites that exhibit dense, ground cover. Mock heather, seaside golden yarrow, deerweed, sand almond, and ice plant include some species the MSS utilize.	FE/--/--	Species is Present: One live individual observed on the parcel during protocol weather conditions.
Insects			
Monarch butterfly <i>Danaus plexippus</i>	Occurs along the coast from northern Mendocino to Baja California, Mexico. Winter roosts in wind protected tree groves (eucalyptus, Monterey pine and cypress), with nectar and water sources nearby.	--/SA/--	Suitable Conditions Absent: The parcel does not support eucalyptus, Monterey pine or other trees suitable for winter roosting. Species not observed during surveys.
Brachiopods			
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Occur in vernal pool habitats including depressions in sandstone, to small swale, earth slump, or basalt-flow depressions with a grassy or, occasionally, muddy bottom in grassland (Eriksen and Belk, 1999).	FT/--/--	Suitable Conditions Absent: The parcel does not support vernal pools.
California linderiella <i>Linderiella occidentalis</i>	Seasonal ponds in grasslands, sandstone depressions, and alluvial flats with hardpan beneath.	--/--/--	Suitable Conditions Absent: Site does not contain vernal pools or sandstone substrate.
Fish			
Tidewater goby <i>Eucyclogobius newberryi</i>	Occurs in brackish shallow lagoons and lower stream reaches where water is fairly still, but not stagnant.	FE/--/CSC	Suitable Conditions Absent: The parcel does not support any shallow brackish water.
Southern California coast steelhead DPS <i>Oncorhynchus mykiss irideus</i>	Clear, cool water with abundant in-stream cover, well-vegetated stream margins, relatively stable water flow, and a 1:1 pool-to-riffle ratio.	FT, PCH /--/CSC	Suitable Conditions Absent: The parcel does not contain any freshwater streams.

Table 3. Special-Status Wildlife Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Legal Status Federal/State/ CDFW	Rationale for Expecting Presence or Absence
Amphibians			
foothill yellow-legged frog <i>Rana boylei</i>	Nests in dense colonies on sandy estuarine shores, on levees in salt ponds, and on islands in alkali and freshwater lakes.	--/--/CSC	Suitable Conditions Absent: The parcel lacks shoreline with sandy substrate.
California red-legged frog <i>Rana draytonii</i>	Aquatic habitats with little or no flow and surface water depths to at least 2.3 feet. Presence of fairly sturdy underwater supports such as cattails.	FT /-- /CSC	Suitable Conditions Absent: The parcel does not support freshwater habitat with vegetative structure.
Coast range newt <i>Taricha torosa torosa</i>	Breed in ponds, reservoirs, and slow-moving streams. Frequents terrestrial habitats such as oak woodlands.	--/--/CSC	Suitable Conditions Absent: The parcel does not support freshwater habitat or woodland community.
Reptiles			
silvery legless lizard <i>Anniella pulchra pulchra</i>	Sandy or loose loamy soils with high moisture content under sparse vegetation.	--/--/CSC	Suitable Conditions Present: Species not observed during the surveys. However, based on numerous known occurrences in the Los Osos area, this species should be assumed to be present on the parcel.
black legless lizard <i>Anniella pulchra nigra</i>	Sandy or loose loamy soils with high moisture content under sparse vegetation.	--/--/CSC	Suitable Conditions Present: Species not observed during the surveys.
western pond turtle <i>Emys marmorata</i>	Quiet waters of ponds, lakes, streams, and marshes. Typically in the deepest parts with an abundance of basking sites.	--/--/CSC	Suitable Conditions Absent: Site does not support freshwater habitat with basking structures.
Coast horned lizard <i>Phrynosoma coronatum (blainvillii</i> population)	Frequents a wide variety of habitats, commonly occurring in lowlands along sandy washes, coastal sage scrub and chaparral in arid and semi-arid climate conditions. Species prefers friable, rocky or shallow sandy soils.	--/--/CSC	Suitable Conditions Absent: Although the general habitat type on the parcel can support this species, the parcel is isolated from other habitat and heavily disturbed. Due to these conditions, coast horned lizards cannot sustain a population on the parcel.

Table 3. Special-Status Wildlife Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Legal Status Federal/State/ CDFW	Rationale for Expecting Presence or Absence
Birds			
Cooper's hawk <i>Accipiter cooperii</i>	Deciduous riparian woodland habitat throughout California. Cooper's hawks nest in deciduous, mixed-deciduous, and evergreen forests, as well as in suburban and urban environments. Cooper's hawks tend to nest in more open areas that have older and larger trees.	MBTA/--/--	Suitable Conditions Absent: The parcel does not support any tall trees that are suitable for Cooper's hawk nesting.
tricolored blackbird <i>Agelaius tricolor</i>	(Nesting colony); requires open water, protected nesting substrate such as cattails or tall rushes, and foraging area with insect prey.	MBTA/--/CSC	Suitable Conditions Absent: The parcel does not support any open water habitat with suitable nesting substrate.
golden eagle <i>Aquila chrysaetos</i>	Usually occurring in mountainous areas with varying vegetative cover; removed from people. May forage in grasslands and other open habitats. Nests on cliff edges and rarely in tall trees.	MBTA/-- /FP, Sec.3503.5	Suitable Conditions Absent: The parcel is not located in mountainous areas or have suitable nesting and foraging habitats.
burrowing owl <i>Athene cunicularia</i>	Open, dry grasslands, deserts and scrublands. Subterranean nester, dependent upon burrowing mammals.	MBTA/-- /CSC	Suitable Conditions Absent: The parcel does not support a significant burrowing mammal population to provide burrows. This species is an uncommon winter visitor to the coast.
ferruginous hawk <i>Buteo regalis</i>	(Wintering) open grasslands, sagebrush flats, desert scrub, low foothills, and fringes of pinyon-juniper habitats; eats lagomorphs, ground squirrels, and mice.	MBTA/--/--	Suitable Conditions Absent: The small size and isolation of the parcel make it unsuitable for this uncommon winter visitor.
western snowy plover <i>Charadrius alexandrinus nivosus</i>	Occurs on sandy beaches, salt pond levees, and shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	MBTA, FT/ -- /CSC	Suitable Conditions Absent: The site does not include any shoreline habitat suitable for snowy plover nesting.
western yellow-billed cuckoo <i>Coccyzus americanus</i>	Forests to open riparian woodlands with thick under story.	FC, MBTA/SE/ --	Suitable Conditions Absent: The parcel does not support any riparian habitats.
white-tailed kite <i>Elanus leucurus</i>	Open grasslands, meadows, or marshlands for foraging close to isolated trees for nesting and perching.	MBTA/--/FP	Suitable Conditions Absent: The parcel does not support any trees for nesting and has very limited foraging habitat.

Table 3. Special-Status Wildlife Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Legal Status Federal/State/ CDFW	Rationale for Expecting Presence or Absence
California horned lark <i>Eremophila alpestris actia</i>	Occurs in short grass prairies, coastal plains, fallow grain fields and alkali flats. Found in coastal regions from Sonoma to San Diego county, and west to the San Joaquin Valley. .	MBTA/--/--	Marginal Conditions Present: This species does not occur in the Los Osos area with any regularity, but could forage or nest on the parcel. Species not observed during the surveys. Nesting bird avoidance measures are recommended.
loggerheaded shrike <i>Lanius ludovicianua</i>	A predatory passerine that frequents open areas with scattered shrubs. Commonly observed foraging in grassland, desert scrubs, and waste places. Builds nests in isolated trees or shrubs in the vicinity of foraging areas.	-- / -- / CSC	Suitable Conditions Present: Loggerheaded shrike may forage for insects on the parcel. Species not observed during surveys. Nesting bird avoidance measures are recommended.
California black rail <i>Laterallus jamaicensis coturniculus</i>	Shore birds known to frequent tidal salt marshes. Utilize densely vegetated mud flats and high tide line in salt water marsh systems.	--/ST/--	Suitable Conditions Absent: The parcel does not contain tidal salt marshes or densely vegetated mudflats.
purple martin <i>Progne subis</i>	Occupies valley foothill and montane hardwood forests, conifer forests, and riparian habitats. May nest in old woodpecker cavities or in human-made structures such as bridges and culverts. Feeds on insects.	--/--/CSC	Suitable Conditions Absent: The parcel does not support suitable nesting substrate. Pre-disturbance nesting bird surveys are proposed to avoid impacts to nesting birds. Species not observed during the surveys.
California clapper rail <i>Rallus longirostris obsoletus</i>	Occurs within salt and brackish marshes dominated by pickleweed and Pacific cordgrass. Currently, this species is restricted to marsh areas within the vicinity of San Francisco Bay. The last California clapper rail to be sighted in Morro Bay was documented in 1939.	FE/SE/--	Suitable Conditions Absent: The parcel does not contain tidal salt marshes or densely vegetated mudflats.
Class Aves Other migratory bird species (nesting)	Annual grasslands, coastal scrub, chaparral, and oak woodlands may provide nesting habitat.	MBTA/--/--	Suitable Conditions Present: Potential nesting habitat occurs throughout the site. Pre-disturbance nesting bird surveys are proposed to avoid impacts to nesting birds.

Table 3. Special-Status Wildlife Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Legal Status Federal/State/ CDFW	Rationale for Expecting Presence or Absence
Mammals			
Pallid bat <i>Antrozous pallidus</i>	Prefers rocky outcrops, cliffs, and crevices with access to open habitats for foraging. Day roosts are in caves, crevices, mines, and occasionally in hollow trees and buildings. Night roosts may be in more open sites, such as porches and buildings.	--/--/CSC	Suitable Conditions Absent: The parcel does not support rocky outcrops or crevices for roosting.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Occurs in a wide variety of habitats; most common in mesic (wet) sites. May use trees for day and night roosts; however, requires caves, mines, rock faces, bridges or buildings for maternity roosts. Maternity roosts are in relatively warm sites.	--/--/CSC	Suitable Conditions Absent: The parcel does not support any structures for roosting.
Morro Bay kangaroo rat <i>Dipodomys heermanni morroensis</i>	Typically occurs in habitats associated with stabilized dunes and coastal dune scrub communities with dominant vegetation including mock heather, buck brush, and deer weed.	FE/SE/--	Suitable Conditions Absent: The parcel is within the historical range of this species. However, the small size, lack of shelter and forage vegetation, and location between developments renders the parcel unsuitable for this species.
Western mastiff bat <i>Eumops perotis</i>	Found in many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc.; roosts in crevices in cliff faces, high buildings, trees, and tunnels.	--/--/CSC	Suitable Conditions Absent: The parcel does not support any structures for roosting.
San Diego desert woodrat <i>Neotoma lepida intermedia</i>	Ranges from Baja California northward to northern San Luis Obispo County. Typically occurs in woodlands and coastal scrub habitats. Desert woodrats build nests within cracks and rock crevices, or in clumps of cactus.	--/--/CSC	Suitable Conditions Absent: The open habitat with minimal grass cover does not provide suitable shelter for this species. No woodrat dens were observed on the parcel.
big free-tailed bat <i>Nyctinomops macrotis</i>	Rare vagrant in California, probable resident in Texas, New Mexico, and southern Arizona. Probably does not breed in California. Prefers rugged, rocky canyons but will roost on buildings or in caves and trees.	--/--/CSC	Suitable Conditions Absent: The parcel does not support any suitable roosting structure.

Table 3. Special-Status Wildlife Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Legal Status Federal/State/ CDFW	Rationale for Expecting Presence or Absence
American badger <i>Taxidea taxus</i>	Occurs in open stages of shrub, forest, and herbaceous habitats; needs uncultivated ground with friable soils.	--/--/CSC	Suitable Conditions Absent: The parcel is within the historical range of this species. However, the small size, lack of shelter vegetation, and location between developments renders the parcel unsuitable for this species.

General references: Unless otherwise noted all habitat and distribution data provided by California Natural Diversity Database

Status Codes

--= No status

Federal:

FE = Federal Endangered

FT= Federal Threatened

FC= Federal Candidate

MBTA= Protected by Federal Migratory Bird Treaty Act

State:

SE= State Endangered

ST= State Threatened

California Department of Fish and Game:

CSC= California Special Concern Species

FP= Fully Protected Species

SA= Not formally listed but included in CDFG "Special Animal" List.

4 REGULATORY OVERVIEW

4.1 Federal Policies and Regulations

4.1.1 Federal Endangered Species Act of 1973

The FESA provides legislation to protect federally listed plant and animal species. Impacts to listed species resulting from the implementation of a project would require the responsible agency or the applicant to formally consult with the USFWS or National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) to determine the extent of impact to a particular species. If USFWS or NOAA Fisheries determine that impacts to a federally listed species would likely occur, alternatives and measures to avoid or reduce impacts must be identified. USFWS and NOAA Fisheries also regulate activities conducted in federal critical habitat, which are geographic units designated as areas that support primary habitat constituent elements for listed species.

4.1.2 Migratory Bird Treaty Act of 1918

The Migratory Bird Treaty Act (MBTA) protects all migratory birds, including their eggs, nests, and feathers. The MBTA was originally drafted to put an end to the commercial trade in bird feathers, popular in the latter part of the 1800s. The MBTA is enforced by the USFWS, and potential impacts to species protected under the MBTA are evaluated by the USFWS in consultation with other federal agencies.

4.2 State Policies and Regulations

4.2.1 California Endangered Species Act and Species of Concern

The CESA ensures legal protection for plants listed as rare or endangered, and wildlife species formally listed as endangered or threatened. The state also maintains a list of California Species of Special Concern (SSC). SSC status is assigned to species that have limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. Under state law, the CDFW is empowered to review projects for their potential to impact special-status species and their habitats. Under CESA, CDFW reserves the right to request the replacement of lost habitat that is considered important to the continued existence of CESA protected species.

4.2.2 California Fish and Game Code

California Fish and Game Code Section 3511 includes provisions to protect Fully Protected (FP) species, such as: (1) prohibiting take or possession “at any time” of the species listed in the statute, with few exceptions; (2) stating that “no provision of this code or any other law shall be construed to authorize the issuance of permits or licenses to “take” the species; and (3) stating that no previously issued permits or licenses for take of the species “shall have any force or effect” for authorizing take or possession. The CDFW is unable to authorize incidental take of “fully protected” species when activities are proposed in areas inhabited by those species. Sections 3503 and 3503.5 of the Fish and Game Code state that it is unlawful to take, possess, or destroy the nest or eggs of any bird, with occasional exceptions. In addition, Section 3513 states that it is unlawful to take or possess any migratory bird as designated in the MBTA or any part of such migratory birds except as provided by rules and regulations under provisions of the MBTA.

4.2.3 California Coastal Act

The California Coastal Act was enacted in 1976 to provide long-term protection of California’s coastal resources. The Act’s coastal resources management policies are based on recommendations contained in the California Coastal Plan. One such policy includes:

“Protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals.”

5 IMPACT ASSESSMENT AND MITIGATION

This impact assessment focuses on identifying potential impacts associated with implementation of the proposed project. The impact analysis is based on the site’s existing conditions, regulatory setting, and conceptual site map (refer to Figure 3). This section focuses on identifying potential biological constraints associated with any reasonably foreseeable development within the parcel. Impact calculations are based on the conceptual site map and are subject to refinement. The emphasis is on determining the potential effects of the project on special-status species, habitats, and jurisdictional areas within the parcel. Adverse impacts could occur if future uses of the parcel would result in temporary or permanent modification to sensitive habitats or to habitats occupied by special-status species. Where potential impacts to sensitive resources have been identified, measures for avoiding, minimizing, or mitigating adverse effects to these resources are recommended. The following section has been formatted to meet the general guidelines set forth by the County (December 2009).

5.1 Sufficiency of Biological Data

The biological surveys conducted in support of this BRA were sufficient to inventory the biological resources on the parcel. No additional field surveys or specialized investigation is needed to determine which resources may be impacted by the proposed project and the appropriate avoidance/mitigation measures. However, the impact calculations to habitat types are based on a conceptual building envelope that provides a reasonably foreseeable development area. Upon refinement of the project plans, the building envelope may change, which would result in changes to habitat impact calculations.

5.2 Impacts

5.2.1 ***Project Effect on Unique or Special-status Species or their Habitats***

5.2.1.1 **SPECIAL-STATUS PLANT SPECIES**

The subject parcel does not support any special-status plant species. Therefore, the proposed project would not impact any plants considered sensitive under CEQA, CESA, or FESA.

5.2.1.2 **WILDLIFE**

The parcel provides suitable habitat for nesting bird species (including loggerheaded shrike and horned lark), silvery legless lizard, black legless lizard, and MSS. Common passerines may use the non-native grassland for nesting and/or foraging. The available nesting habitat would be impacted by project activities including grading and vegetation removal. If the project activities are conducted between March and September, birds may be nesting within or adjacent to the affected area and the individuals could be directly or indirectly impacted. Direct impacts may include loss of active nests during vegetation removal. Noise or other disturbances may cause an individual to abandon a nest resulting in an indirect impact. BIO-1 recommends measures to avoid impacts to nesting birds during development of the parcel.

Silvery legless lizard is relatively common in areas of Los Osos that contain Baywood fine sand. Silvery legless lizard is a fossorial species. Fossorial species spend most of their lives underground; therefore, they are difficult to detect without shallow excavation of the soil surface. Although silvery or black legless lizards were not observed on the parcel during the surveys, the presence of silvery legless lizard on

the parcel should be assumed. Grading for development of the parcel could result in the direct take of silvery and/or black legless lizard. Direct take may include being struck by equipment, entrapped in stockpiled materials or trenches, or trampled or collected by construction personnel. BIO-2 includes a measure to minimize impacts to silvery and black legless lizards during development of the parcel.

The non-native grassland on the parcel supports live MSS. Direct take of MSS may occur during development and future use of the parcel. Direct take during project development may include being struck by equipment, stepped on by crewmembers, or being uncovered and left to desiccate in the sun. The individual MSS that remain on the parcel after development is complete could be directly taken by landscape maintenance activities, being struck by resident's cars, or trampled by residents. BIO-3 includes the recommendation for the applicant to obtain an Incidental Take Permit (ITP) from USFWS to cover the project for impacts to MSS during and after development of the parcel.

At the time that this BRA was prepared, the applicant had already initiated coordination with the USFWS to develop a HCP and obtain an ITP for the project. Early coordination with USFWS has indicated that an ITP could be issued for the project provided mitigation in the form of monetary payment of an in-lieu fee is agreed upon by USFWS and the applicant.

5.2.2 Project Effect on Extent, Diversity, or Quality of Native or Other Important Vegetation

The parcel contains seven small coast live oak trees on the northern portion of the parcel. The County's stock *Project Specific Standard Mitigation Measures for Tree Removal and Protection* (County of San Luis Obispo 2005) requires mitigation/replacement of impacted or removed oak trees that are 5 inches or greater dbh. All except one of the coast live oak trees have dbh less than 5 inches. Based on the conceptual site plan, construction of the residence would occur on the southern portion of the parcel and would avoid impacts to the trees. The trees would remain on the parcel for landscape purposes. Since construction activities would avoid the seven trees on the parcel, mitigation for impacts to these trees is not recommended.

5.2.3 Project Effect on Wetland or Riparian Habitat

The parcel does not contain any wetland or riparian habitats.

5.2.4 Project Effect on Movement of Resident or Migratory Fish and Wildlife Species

The proposed project will have no direct or indirect effect on the movement of resident or migratory fish and wildlife species.

5.3 Avoidance and Mitigation Measures

BIO-1 To the maximum extent possible, site preparation, ground disturbing, and construction activities should be conducted outside of the migratory bird breeding season. If such activities are required during this period, the applicant should retain a County-approved biologist to conduct a nesting bird survey and verify that migratory birds are not occupying the site. If nesting activity is detected, the following measures should be implemented:

- a. The project should be modified or delayed as necessary to avoid direct take of identified nests, eggs, and/or young protected under the MBTA;

- b. The County-approved biologist should contact the USFWS and CDFW to determine an appropriate biological buffer zone around active nest sites. Construction activities within the established buffer zone will be prohibited until the young have fledged the nest and achieved independence; and,
- c. The County-approved biologist should document all active nests and submit a letter report to the County, USFWS, and CDFW, documenting project compliance with the MBTA and applicable project mitigation measures.

BIO-2 Within 30 days prior to site grading and during site grading, a County-approved biologist should conduct surveys for silvery legless lizards and other reptiles. The surveyor should utilize hand search or cover board methods in areas of disturbance where legless lizards are expected to be found (e.g., under shrubs, other vegetation, or debris). If cover board methods are used, they should commence at least 30 days prior to the start of construction. Hand search surveys should be completed immediately prior to and during grading activities. During grading activities, the County-approved biologist should walk behind the grading equipment to capture silvery legless lizards that are unearthed by the equipment. The surveyor should capture and relocate any legless lizards or other reptiles observed during the survey effort. The captured individuals should be relocated from the construction area and placed in suitable habitat on the parcel but outside of the work area. Following the survey and monitoring efforts, the County-approved biologist should submit to the County a project completion report that documents the number of silvery legless lizards captured and relocated, and the number of legless lizards taken during grading activities.

BIO-3 The proposed project would likely result in direct take of MSS. Prior to developing the parcel, the applicant should Consult with the USFWS to obtain an ITP to cover the project for take of MSS. Assuming the proposed project has no federal nexus (federal funding or other federal involvement), obtaining an ITP would require the development of an individual HCP or participation in a community-wide HCP. There are three potential options to consider for the development or participation in an HCP: (1) Development of an Individual HCP that mitigates project impacts through participation in an in-lieu fee program; (2) Development of an HCP that mitigates project impacts through MSS habitat preservation, or (3) Participation in a Community-wide HCP.

At the time that this BRA was prepared, the applicant had initiated coordination with the USFWS and begun preparing an HCP that includes mitigation through the in-lieu fee program. Therefore, this BRA and associated measure BIO-3 discusses the project mitigation with the assumption that the applicant will mitigate impacts to MSS via the in-lieu fee program.

1. HCP WITH AN IN-LIEU FEE PROGRAM

USFWS has established an in-lieu fee program that would provide funds to affect the recovery of MSS. This program requires preparation of an HCP with a mitigation mechanism that allows the applicant to contribute funds towards projects that include recovery actions for the species.

The in-lieu fee program is available to applicants with projects that can be categorically excluded from the National Environmental Policy Act (NEPA); this determination is made by the USFWS. Assuming the proposed project would not

significantly affect sensitive cultural resources, it is likely that it would be categorically excluded. If the project is determined to be categorically excluded from NEPA, it must also meet criteria A through D below to be eligible for the in-lieu fee program. SWCA's opinion is that the project does meet the following criteria and has provided reasons supporting our opinion.

- A. *The project site is outside of the boundaries of critical habitat units for MSS designated on February 7, 2001; 66 FR 9233 and/or Conservation Planning Areas intended to serve as defacto recovery units for the species, as identified in the Recovery Plan for Morro shoulderband snail and four plants from western San Luis Obispo County.*

The Mammen parcel is not located in any Critical Habitat Units for MSS Conservation or Planning Areas identified in the Species Recovery Plan. The parcel is approximately one-third of an acre, is currently zoned for residential uses, and located between existing developments. The Mammen parcel is within a developed area and is not connected to any larger tracks of land. Therefore, the value of on-site conservation to MSS is relatively low.

- B. *The project site does not provide habitat suitable to sustain a population of Morro shoulderband snail of sufficient size to withstand the risk of extirpation in the short-term (i.e., 50 years).*

The project site supports limited shelter opportunities for MSS and very few live MSS (only one observed). This is due to the annual fire suppression that is required because the parcel is situated among other residential structures. Considering the isolated situation of the relatively small MSS population and the marginal habitat conditions, it is reasonable to assume that the population is not of sufficient size to withstand the risk of extirpation in the short term.

- C. *The project would not result in take of any other state- or federally-listed species.*

Based on the four surveys conducted in support of this BRA, the parcel does not support any other species protected by FESA or CESA.

- D. *Impacts to Morro shoulderband snail and its habitat must be minimized to the maximum extent practicable and the result of otherwise lawful activities.*

The proposed project is subject to discretionary approval by the County. Issuance of building permits would require the project to be conducted in accordance with all pertinent regulations, including the ESA. Permit requirements and the established HCP would include measures designed to minimize impacts to MSS and its habitat. The following measures are anticipated to be included in the HCP and ITP conditions:

I. Environmental Awareness Training

The monitoring biologist will conduct an orientation program for all persons who will work on-site during grading and construction. The program will consist of a brief presentation about the biology of the MSS and the terms and conditions of the ITP/HCP. The purpose of the orientation will be to inform contractors and equipment operators of construction activity

restrictions and the ramifications of non-compliance. There will also be a discussion of the appropriate protocol should MSS be encountered during construction activities.

II. Pre-construction Survey and MSS Capture and Relocation

To reduce the potential for direct injury or mortality of individual snails, a USFWS-approved biologist holding a valid Section 10(a)(1)(A) permit for MSS will survey the impact areas and clear them, to the greatest extent feasible, of all live snails in all life stages as well as empty shells of the species. All living snails, in all life stages, that are identified will be captured and moved to suitable areas to be established in coordination with the USFWS. The size, age-class, location of capture, and release site location will be recorded for each individual MSS moved from the affected work area. Empty shell locations will be noted on a map, and shells will be counted and classified by size and age. These shells will be left in place on the site. The biologist will document all activities associated with all surveys, and reports will be submitted to the USFWS in accordance with the ITP conditions.

Surveys will be conducted immediately prior to commencement of initial ground disturbance activities. If pre-construction surveys occur during the summer months (April through October), when MSS are aestivating, one intensive survey conducted by at least two permitted biologists immediately prior to construction should be sufficient to remove the MSS from the impact areas. The survey process will involve moving and searching under all vegetation and other shelter present (e.g., woodpiles, debris), and will result in destruction or uprooting of vegetation. If pre-construction surveys occur during the rainy season (November through March), multiple surveys prior to initial disturbance may be needed to remove MSS.

The intent of the pre-construction survey(s) is to remove all MSS observed during an intensive search of the impact area. However, previous experience has shown that due to the small size and cryptic nature of the species, some individuals can be missed during even the most thorough effort, and may then become visible during ground disturbance. To address this possibility, a permitted biologist will be present to capture and move any additional MSS discovered during all grading and grubbing activities.

If major construction activities that have the potential to affect MSS or their habitat, such as grading and cement pouring, occur during the rainy season, daily surveys will be conducted at the beginning of each work day to check for and remove any MSS that may have entered the construction area.

III. Exclusion Fencing

Before equipment work begins at the project site, the development area will be fenced to establish the limits of construction. The fencing will be installed along the southern property boundary including the boundary of the access drive. This fence location is intended to exclude construction-related disturbances to the maritime chaparral that is located on the adjacent parcel and outside the impact area. The fencing will consist of temporary orange construction fencing.

IV. Construction Monitoring

The applicant will retain a USFWS-approved MSS biologist to conduct compliance monitoring during construction of the project. This monitoring biologist will ensure that the required minimization measures, such as protective fencing, environmental training, and construction monitoring, are implemented. Results of the compliance monitoring will be reported in the first annual report for the project.

6 REFERENCES

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Appendix A. List of Species Observed

Table A-1. Plant Species Observed on the Mammen Parcel

Scientific Name	Common Name	Native	Species Status / Notes
Vascular Plants nomenclature follows "The Jepson Manual" and http://ucjeps.berkeley.edu/interchange.html			
ANGIOSPERMS (DICOTS)			
Aizoaceae	Fig-marigold Family		
<i>Aptenia cordifolia</i>	red apple	No	
<i>Conicosia pugioniformis</i>	false ice plant	No	Invasive weed
<i>Tetragonia tetragonioides</i>	New Zealand spinach	No	
Agavaceae	Century Plant Family		
<i>Agave americana</i>	century plant		
Anacardiaceae	Sumac Family		
<i>Schinus molle</i>	Peruvian pepper tree	No	
Asteraceae	Sunflower Family		
<i>Heterotheca grandiflora</i>	telegraph weed	Yes	
<i>Logfia gallica</i>	narrow-leaved filago	No	
Brassicaceae	Mustard Family		
<i>Descurainia pinnata</i>	yellow tansy mustard	No	
Caryophyllaceae	Pink Family		
<i>Cardionema ramosissimum</i>	sand mat	Yes	
Chenopodiaceae	Goosefoot Family		
<i>Chenopodium californicum</i>	California pigweed	Yes	
Crassulaceae	Stonecrop Family		
<i>Crassula ovata</i>	jade plant	No	
Cucurbitaceae	Gourd Family		
<i>Marah fabaceus</i> var. <i>fabaceus</i>	wild cucumber	Yes	
Euphorbiaceae	Spurge Family		
<i>Croton californicus</i>	croton	Yes	
Fabaceae	Pea Family		
<i>Acmispon glaber</i>	deer weed	Yes	
Fagaceae	Oak Family		
<i>Quercus agrifolia</i>	coast live oak	Yes	
Geraniaceae	Geranium Family		
<i>Erodium cicutarium</i>	red-stemmed filaree	No	

Scientific Name	Common Name	Native	Species Status / Notes
Malvaceae	Mallow Family		
<i>Malva neglecta</i>	common mallow	No	
Oxalidaceae	Woodsorrel Family		
<i>Oxalis pes-caprae</i>	Creeping woodsorrel	No	
Papaveraceae	Poppy Family		
<i>Eschscholzia californica</i>	California poppy	Yes	
Phrymaceae	Lopseed Family		
<i>Mimulus auranticus</i>	sticky monkeyflower	Yes	
Rosaceae	Rose Family		
<i>Horkelia cuneata</i> ssp. <i>cuneata</i>	Coast horkelia	Yes	
Solanaceae	Nightshade Family		
<i>Solanum nigrum</i>	black nightshade	No	
Urticaceae	Nettle Family		
<i>Urtica urens</i>	dwarf nettle	No	
Poaceae	Grass Family		
<i>Avena barbata</i>	oats	No	
<i>Bromus diandrus</i>	ripgut brome	No	
<i>Bromus hordeaceus</i>	soft chess brome	No	
<i>Bromus madritensis</i>	red brome	No	
<i>Ehrharta calycina</i>	veldt grass	No	
<i>Festuca myuros</i>	rattail fescue	No	
<i>Lamarkia aurea</i>	goldentop	No	
Xanthorrhoeaceae	Grass Family		
<i>Phorium</i> sp.	New Zealand flax		Escaped cultivar

Table A-2. Wildlife Species Observed on Mammal Parcel

Scientific Name	Common Name	Notes
BIRDS		
<i>Diurnal Raptors</i>		
Cathartes aura	turkey vulture	Fly over
Buteo jamaicensis	red-tailed hawk	Fly over
<i>Upland Game Birds</i>		
Callipepla californica	California quail	
<i>Pigeons and Doves</i>		
Zenaidura macroura	mourning dove	Fly over
<i>Hummingbirds</i>		
Calypte anna	Anna's hummingbird	
<i>Woodpeckers</i>		
Melanerpes formicivorus	acorn woodpecker	call
<i>Jays, Crows, and Allies</i>		
Corvus brachyrhynchos	American crow	Fly over
<i>Chickadees, Nuthatches, and Allies</i>		
Baeolophus inornatus	oak titmouse	call
Psaltirparus minimus	bush tit	
<i>Dipper and Wrentit</i>		
Chamaea fasciata	wrentit	call
<i>Thrushes</i>		
Toxostoma redivivum	California thrasher	call
<i>Mimids</i>		
Mimus polyglottos	northern mockingbird	Call and fly over
<i>Emberizine Sparrows and Allies</i>		
Zonotrichia leucophrys	white-crowned sparrow	
<i>Finches, and Old World Sparrows</i>		
Carpodacus mexicanus	house finch	
MAMMALS		
<i>Felidae</i>		
Felis catus	domestic cat	
<i>Lagomorphs</i>		
Sylvilagus bachmanii	brush rabbit	

Scientific Name	Common Name	Notes
REPTILES		
Sceloporus occidentalis	western fence lizard	
GASTROPODS		
Helminthoglypta walkeriana	Morro shoulderband snail	
Helix aspersa	common garden snail	
Oxychilus cellarius	cellar glass snail	

Appendix B. Photo Documentation

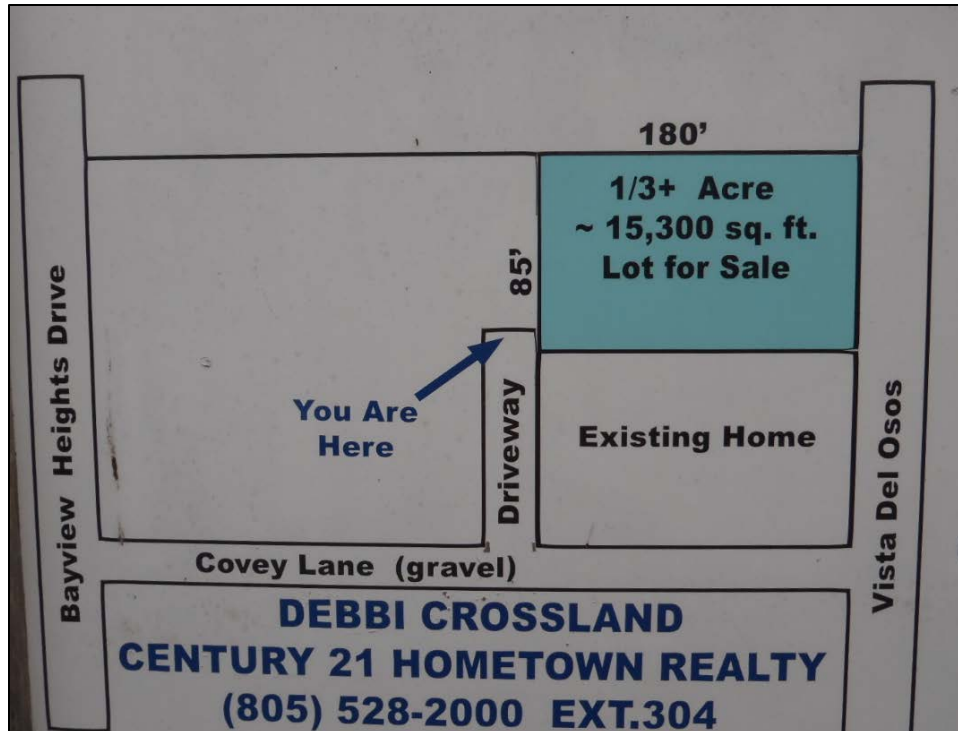
**PHOTO 1:**

Photo of the realtors sign showing the spatial situation of the parcel.

Photo taken on January 27, 2015.

**PHOTO 2:**

View of the parcel looking north from the southern boundary. The photographer is standing at the sign seen in Photo 1.

Photo taken on January 27, 2015.



PHOTO 3:

View of the parcel from the northern boundary looking south toward the access driveway.

Photo taken on January 27, 2015.



PHOTO 4:

View of the southern parcel boundary and the maritime chaparral that is located on the adjacent parcel. The sign observed in the left of the picture is at the end of the access drive.

Photo taken on January 27, 2015.



PHOTO 5:

View of the oaks that line the northern border of the parcel.

Photo taken on January 27, 2015.



PHOTO 6:

View of the largest oak (8.5-inch dbh).

Photo taken on January 27, 2015.

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