

Denise Duffy & Associates, Inc.

PLANNING AND ENVIRONMENTAL CONSULTING

January 22, 2007

William J. Ziegler
30 Liberty Ship Way
Suite 3380
Sausalito, CA 94965

RE: Biological Assessment for Ziegler Ranch Subdivision

Dear Mr. Ziegler

DENISE DUFFY & ASSOCIATES, Inc. (DD&A) was contracted to assess the existing biological resources that may be impacted by the proposed Ziegler Ranch Subdivision project located approximately half way between Highway 68 and Carmel Valley Road at an elevation of approximately 1075 feet, off of Laurels Grade in Monterey County.

Introduction

The emphasis of this study is to describe existing biotic conditions in the vicinity of the project site, identify special-status botanical and wildlife species and sensitive habitats, assess impacts to these resources, and provide appropriate avoidance and mitigation measures that reduce those impacts.

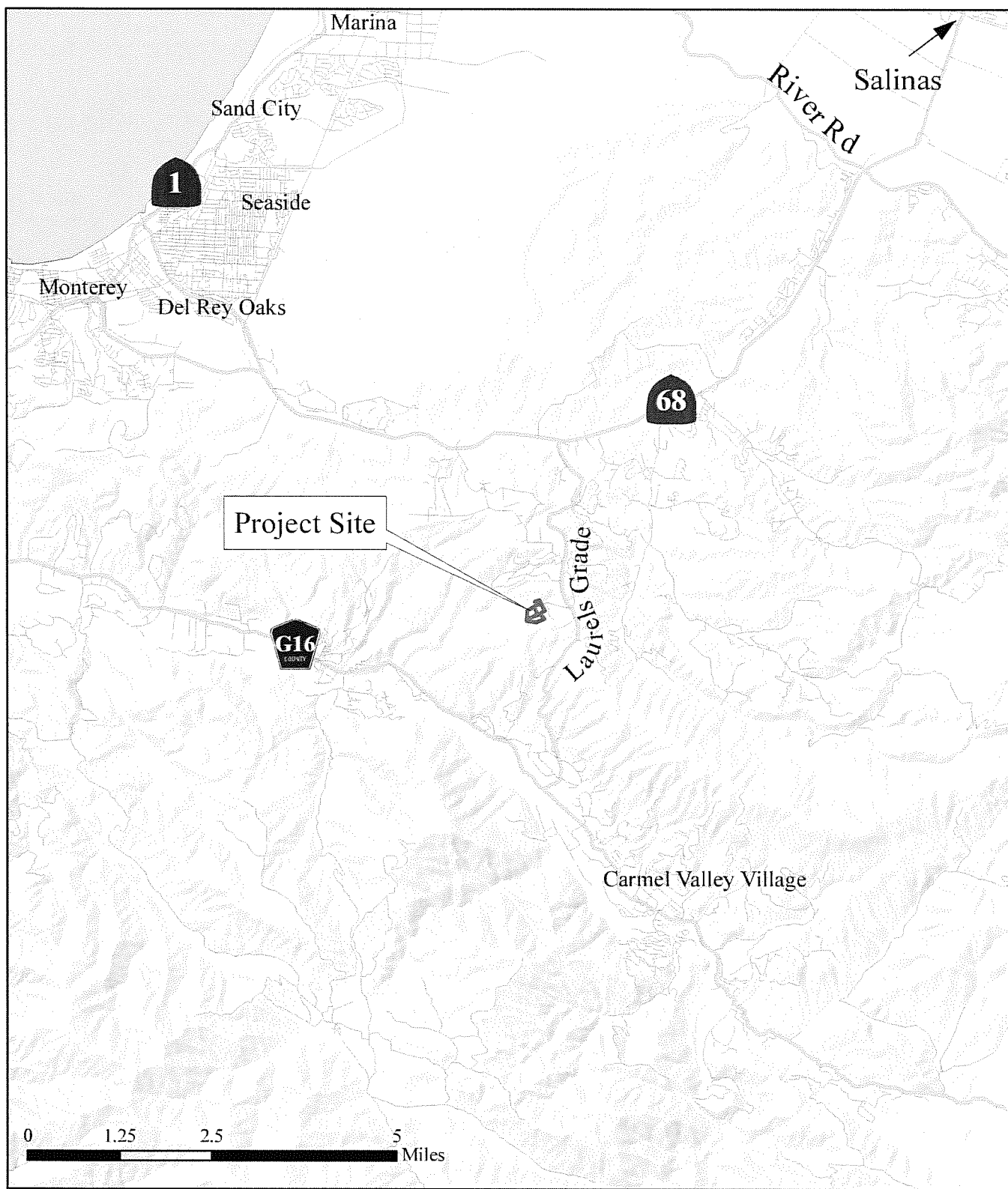
Project Description

The project is located on the Ziegler Ranch along Laurels Grade in Monterey County (Figure 1). The project site consists of three parcels totaling 29.36 acres. The project consists of constructing a single family residence and driveway on each parcel (Figure 2). Total cut expected from this construction effort is estimated at 700 cubic yards which will be stockpiled on site.

Methods

Personnel and Survey Dates

The initial site visit was conducted by Josh Harwayne, Senior Environmental Scientist, and Matt Johnson, Assistant Environmental Scientist, on November 20, 2006. Biological surveys were conducted in November, 2006 to assess the environmental conditions of the site and its surroundings, evaluate the general habitat features and environmental constraints at the site and within the local vicinity, and provide a basis for recommendations to minimize and avoid impacts. Habitats within the project site were



Project Vicinity

Figure
1



Project Site Plans

Figure
2

characterized in the field to assess for potential project-related impacts to wildlife and wildlife habitats, and for potential occurrences of special-status wildlife species. DD&A Assistant Environmental Scientist, Matt Johnson, conducted these survey.

Special-Status Species

Special-status species are those plants and animals that have been formally listed or proposed for listing as Endangered or Threatened, or are Candidates for such listing under the federal Endangered Species Act (ESA) or the California Endangered Species Act (CESA). Listed species are afforded protection under the ESA and CESA. Plants on the California Native Plant Society (CNPS) lists are also treated as special-status species, as well as California Department of Fish and Game (CDFG) species of special concern. Although they have no special legal status, these species are given management consideration whenever possible. Impacts to these species may be considered significant under CEQA.

A list of special-status species known or which have the potential to occur within the vicinity of the project site, along with their legal status, habitat requirements, and brief statement of the likelihood to occur is presented in Appendix A. The candidates for this list were developed using the California Natural Diversity Database (CNDDDB) GIS data that occurred within the United States Geological Survey (USGS) Quadrangle where the project is located and the surrounding Quadrangles (Carmel Valley, Marina, Monterey, Mt. Carmel, Salinas, Seaside, Soberanes Point, and Spreckels). Possible species were also selected from local knowledge from within DD&A. The likelihood of each species occurring at the project site was then developed by comparing the geographic ranges and habitat requirements of special-status species documented to occur or with the potential to occur in the area to those conditions found at the project site.

Data Sources

The primary literature and data sources reviewed in order to determine the occurrence or potential for occurrence of special-status species at the project site are as follows: current agency status information was obtained from the Service and CDFG (2006) for species listed, proposed for listing or candidates for listing as Threatened or Endangered under the ESA or CESA, and those considered CDFG “species of special concern;” the CNPS *Inventory of Rare and Endangered Vascular Plants of California* (2001), and the CDFG CNDDDB occurrence reports (2006).

Botany

The generalized vegetation classification schemes for California described by Holland (1986) and Sawyer and Keeler-Wolf (1995) were consulted in classifying the vegetation of the project site. The final classification and characterization of the vegetation of the project site is based on field observations. Information regarding the distribution and habitats of local and state vascular plants were reviewed (Howitt and Howell 1964 1973; Munz and Keck 1973; Hickman, 1993; Matthews, 1997). All plants observed within the

project site were identified to species or intraspecific taxon necessary to exclude them as being special-status using keys and descriptions in Hickman (1993) and Matthews (1997). Scientific nomenclature for plants in this report follows Hickman (1993) and common names follow Matthews (1997). A list of plant species observed within the project site is presented in Appendix B.

Wildlife

The following literature and data sources were reviewed: CDFG reports on special-status wildlife (Remsen, 1978; Williams, 1986; Jennings and Hayes, 1994; Thelander, 1994); California Wildlife Habitat Relationships Program (CWHRP) species-habitat models (Zeiner et al., 1988; Zeiner et al., 1990a; Zeiner et al., 1990b; Pisani, 2000); as well as general wildlife references (Stebbins, 1985). A list of wildlife species observed within the project site is presented in Appendix C.

Sensitive Habitats/Wetlands

The project site was surveyed for sensitive habitats. Sensitive habitats include riparian corridors, wetlands, habitats for legally protected species, areas of high biological diversity, areas supporting rare or special-status wildlife habitat, and unusual or regionally restricted habitat types. Habitat types considered sensitive include those listed on the CNDDDB's working list of high priority and rare natural communities habitats (i.e., those habitats that are Rare or Endangered within the borders of California) (CDFG, 2006), those that are critical habitat in accordance with the Endangered Species Act, and those that are defined as Environmentally Sensitive Habitat Areas (ESHA) under the Coastal Act.

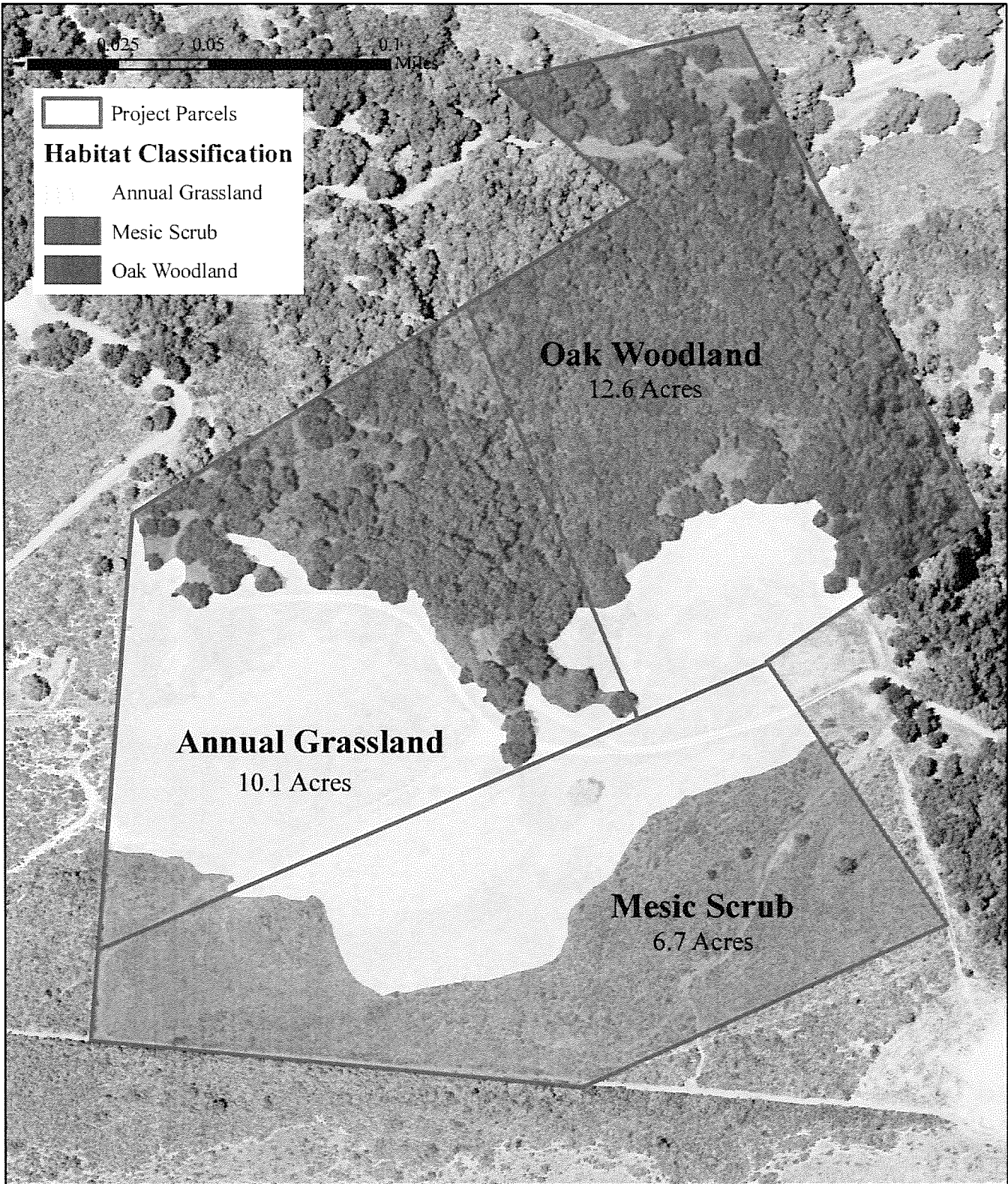
Results

Habitat Types

The project site consists of three different habitat types, which are described below.

Oak Woodland

Approximately 12.6 acres of coast live oak woodland were mapped on the Ziegler property (Figure 3). Oak woodland communities are dominated by open to nearly closed canopies of coast live oak (*Quercus agrifolia*). The understory of the oak woodland is dominated by poison oak (*Toxicodendron diversilobum*) and significant amounts of oak leaf litter. Sub-dominant plants present within the oak woodland habitat include wood fern (*Dryopteris arguta*), bedstraw (*Galium sp.*), coffeeberry (*Rhamnus californica*), poison hemlock (*Conium maculatum*), reed-grass (*Calamagrostis nukaensis*) and western ryegrass (*Elymus glaucus*). Woodrat nests are abundant throughout the oak woodland habitat. The oak woodland habitat type is located in the northern portion of the two northern parcels on the Ziegler property.



Habitat Classification Map

Figure
3

Annual Grassland

Approximately 10.1 acres of annual grasslands were mapped on the Ziegler property. The annual grassland on the Ziegler property is dominated by introduced annual grass species including wild oat (*Avena fatua*) and Spanish brome (*Bromus madritensis*). Present at a very low percent cover are native perennial grasses including needle grass (*Nassella* sp.) and onion grass (*Melica bulbosa*). The annual grassland habitat occurs through the middle of the project boundaries and can be found on all three parcels.

Coastal Scrub

Approximately 6.7 acres of coastal scrub were mapped on the Ziegler property. Coastal scrub communities are dominated by densely growing shrub plants including sticky monkey flower (*Mimulus aurantiacus*), coyote brush (*Baccharis pilularis*), poison oak, coffee berry and black sage (*Salvia mellifera*). The coastal scrub located on the Ziegler Ranch property is dense with no openings. The coastal scrub habitat is located on the southeastern portion of the southern most parcel on the Ziegler property.

Special-Status Plants

The project site was evaluated for the presence or potential presence of a variety of special-status plant species known to occur in Monterey County (Appendix A). Please note that the following species are discussed due to a reasonable expectation to occur in the vicinity of the project site. All other species presented in Appendix A are assumed “unlikely” for the species-specific reasons presented.

Carmel Valley Malacothrix

Carmel Valley malacothrix (*Malacothrix saxatilis* var. *arachnoidea*) is included by the California Native Plant Society on list 1B.2. It is a dicot in the family Asteraceae, a perennial herb (rhizomatous) that is native to California and is endemic to California alone. Carmel Valley malacothrix can be found along rocky outcrops in chaparral and scrub habitat types often on or near cliffs at elevations of 25 to 335 meters. This plant blooms from March to December. Appropriate habitat exists for this species on the project site and the closest known occurrence from the CNDDDB is approximately 1.5 miles away.

Santa Cruz microseris

Santa Cruz microseris (*Stebbinsoseris decipiens*) is included by the California Native Plant Society on list 1B.2. It is a dicot in the family Asteraceae, an annual herb that is native to California and is endemic to California alone. Santa Cruz microseris can be found in broad-leaved upland forest, closed-cone coniferous forest, chaparral, coastal prairie and coast scrub. This plant blooms from April to May. Appropriate habitat exists for this species on the project and the closest known occurrence is less than 0.5 miles away across Laurels Grade.

Special-Status Wildlife

Monterey Dusky-Footed Woodrat

The Monterey dusky-footed woodrat (*Neotoma macrotis luciana*) is a CDFG species of special concern. This is a subspecies of the dusky-footed woodrat (*Neotoma macrotis*), which is common to oak woodlands throughout California. This species is frequently found in forest habitats with moderate canopy cover and a moderate to dense understory; however, they may also be found in chaparral communities. Relatively large nests are constructed of grass, leaves, sticks, and feathers and are built in protected spots, such as rocky outcrops or dense brambles of blackberry (*Rubus ursinus*) and/or poison oak. Typical food sources for this species include: leaves, flowers, nuts, berries, and truffles. This species may be a significant food source for small to medium-sized predators. Populations of this species may be limited by the availability of nest material. Within suitable habitat, nests are often found in close proximity to each other. Nests for the Monterey dusky-footed woodrat were observed throughout the oak woodland habitat type within the project parcels.

Nesting Raptors

Raptors and their nests are protected under CDFG Code and the Migratory Bird Treaty Act (MBTA), and some are further designated as state species of special concern. Most raptors are breeding residents throughout most of the wooded portions of the state. Stands of live oak, riparian deciduous, or other forest habitats, as well as open grasslands, are used most frequently for nesting. Prey for these species includes small birds, small mammals, and some reptiles and amphibians. Many raptor species hunt in open woodland and habitat edges. Examples of species that have the potential to nest at the project site include, but are not limited to, the Cooper's hawk and red-tailed hawk. While the life histories of these species vary, overlapping nesting and foraging similarities (Breeding occurs between March and August, with peak activity May through July) allows for their concurrent discussion.

California coast horned lizard

The Coast Horned lizard (*Phrynosoma coronatum*) is currently a California Special Concern species (DFG-CSC). California Department of Fish and Game gives them full protection from collecting. The Coast Horned Lizard's range extends from northern California to the tip of Baja California. It frequents areas with abundant, open vegetation such as chaparral or coastal sage scrub. The species can also be found in broad-leaved woodlands and conifer forests. A ground dweller, it's rarely seen climbing into shrubs or trees, or onto the sides of large boulders. Typical food sources for this species include ants (harvester and other native species), termites, beetles, wasps, flies and grasshoppers. The Coast Horned Lizard produces clutches of 6 to 49 eggs from April to July. Hatching occurs in August and September.

Impacts and Mitigation

Impact 1 Construction activities associated with the project may result in impacts to the Carmel Valley malacothrix and Santa Cruz microseris if they are present within the project site.

Mitigation 1 Surveys shall be conducted prior to the construction and at the appropriate blooming time for Carmel Valley malacothrix and Santa Cruz microseris. Both of these plants are CNPS list 1B and should be avoided if they are found on the project site. However, if impacts cannot be avoided, the individual plants shall be translocated to a undisturbed portion of the project site and monitored annually for three years. If the transplanted species fail to survive during this monitoring period, they shall be replaced at a ratio of 1:1.

Impact 2 Construction activities associated with the project may result in impacts to the raptors and other protected birds of prey.

Mitigation 2 Pre-construction surveys shall be conducted for nesting avian species (including raptors) within 300 feet of proposed construction activities, if construction is to be initiated between February 15 and August 1. If nesting raptors (or any other nesting birds) are identified during the pre-construction surveys, an appropriate buffer should be imposed within which no construction activities or disturbance should take place (generally 300 feet in all directions for raptors; other avian species may have species-specific requirements) until the young of the year have fledged, as determined by a qualified biologist. Alternatively, construction activities that may affect raptors or other nesting avian species can be timed to avoid the nesting season.

Impact 3 Construction activities associated with the project may result in impacts to Monterey dusky-footed woodrats and California coast horned lizard.

Mitigation 3 A qualified biologist shall conduct pre-construction surveys for woodrat nests. All woodrat nests shall be flagged for avoidance of direct construction impacts, where feasible. Nests that cannot be avoided shall be manually deconstructed and woodrats, if present, shall be relocated. The biologist shall contact CDFG and inquire as to the current appropriate relocation methodology prior to initiating the survey.

Mitigation 3a A qualified biologist shall conduct an Education Program for construction crew prior to construction activities. A qualified biologist shall meet with the construction crew at the onset of construction at the project site to educate the construction crew on the following: the special-status species that may be present, the specific mitigation measures that will be incorporated into the construction effort, and the proper procedures if a special-status animal is encountered within the project site.

Appendix A
Special Status Species List

Scientific Name	Common Name	Status (USFWS/ CDFG/ CNPS)	General Habitat	Potential Occurrence within Project Vicinity
Amphibians				
<i>Ambystoma californiense</i>	California tiger salamander	FT, CSC	Annual grassland and grassy understory of valley-foothill hardwood habitats in central and northern California. Need underground refuges and vernal pools or other seasonal water sources.	Unlikely No appropriate habitat present within project boundaries The closest known CNDDDB occurrence is approximately 3.5 miles
<i>Rana aurora draytonii</i>	California red-legged frog	FT, CSC	Lowlands and foothills in or near permanent or late-season sources of deep water with dense, shrubby, or emergent riparian vegetation. During late summer or fall adults are known to utilize a variety of upland habitats with leaf litter or mammal burrows.	Unlikely No appropriate habitat present within project boundaries The closest known occurrence is approximately 2.5 miles away on the southern side of Carmel Valley Road
Birds				
<i>Agelaius tricolor</i>	tricolored blackbird	CSC	Nest in colonies in dense riparian vegetation, along rivers, lagoons, lakes, and ponds. Forages over grassland or aquatic habitats.	Unlikely No appropriate habitat present within project boundaries
<i>Athene cunicularia</i>	burrowing owl	CSC	Burrows are protected. Require	Unlikely No appropriate

			open grassland habitats with low-growing vegetation and abandoned burrows. Prefers these areas assoc. with some raised perches.	habitat present within project boundaries
<i>Buteo regalis</i>	ferruginous hawk	CSC	Found in plains and prairies.	Low Potential Although this species may occur in the vicinity, appropriate nesting and foraging habitat do not exist within project boundaries.
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	FT, CSC	Sandy beaches on marine and estuarine shores, also salt pond levees and the shores of large alkali lakes. Requires sandy, gravelly or friable soil substrate for nesting.	Unlikely No appropriate habitat present within project boundaries
<i>Cypseloides niger</i>	black swift	CSC	Regularly nests in moist crevice or cave on sea cliffs above the surf, or on cliffs behind, or adjacent to, waterfalls in deep canyons. Forages widely over many habitats.	Unlikely No appropriate habitat present within project boundaries
<i>Eremophila alpestris acita</i>	California horned lark	CSC	Stubble, grass, and fallow lands near cultivated fields. The majority of the birds live in the wide expanses of the deserts, foothills, and dry grasslands that	Unlikely No appropriate habitat present within project boundaries

			encircle the farming areas.	
<i>Falco mexicanus</i>	prairie falcon	CSC	Annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannas, rangeland, some agricultural fields, and desert scrub areas.	Low Potential Although this species may occur in the vicinity, appropriate nesting and foraging habitat within project boundaries is somewhat degraded.
<i>Pelecanus occidentalis californicus</i>	California brown pelican	FE, SE	Shallow inshore waters such as estuaries and bays.	Unlikely No appropriate habitat present within project boundaries
Fish				
<i>Eucyclogobius newberryi</i>	tidewater goby	FE, CSC	Brackish water habitats, found in shallow lagoons and lower stream reaches.	Unlikely No appropriate habitat present within project boundaries
<i>Onchorhynchus mykiss irideus</i>	steelhead – south/central California coast esu	FE, SE	Coastal perennial and near perennial streams, with suitable spawning and rearing habitat and no major barriers.	Unlikely No appropriate habitat present within project boundaries
Invertebrates				
<i>Danaus plexippus</i>	monarch butterfly		Overwinters in coastal California using colonial roosts generally found in Eucalyptus, pine and acacia trees. Overwintering habitat for this species within the Coastal Zone represents ESHA. Local ordinances often protect this	Unlikely No appropriate habitat present within project boundaries

			species as well.	
<i>Euphilotes enoptes smithi</i>	Smith's blue butterfly	FE	Most commonly associated with coastal dunes and coastal sage scrub plant communities in Monterey and Santa Cruz Counties. Plant hosts are <i>Erigonum latifolium</i> and <i>E. Parvifolium</i> .	Unlikely No appropriate habitat present within project boundaries Host plant is two species of <i>Eriogonum</i> that were not observed on project site.
Mammals				
<i>Neotoma fuscipes</i>	Monterey dusky-footed woodrat	FE, CSC	Forest habitats of moderate canopy with moderate to dense understory. Also occurs in chaparral habitats.	Known Habitat exists within project boundaries and nests have been observed on site.
<i>Reithrodontomys megalotis distichlis</i>	Salinas harvest mouse	CSC	Known only to occur from the Monterey Bay region. Occurs in fresh and brackish water wetlands and probably in the adjacent uplands around the mouth of the Salinas River.	Unlikely No appropriate habitat present within project boundaries
<i>Taxidea taxus</i>	American badger	CSC	dry, open grasslands, fields, and pastures	Unlikely No appropriate habitat present within project boundaries
Reptiles				
<i>Anniella pulchra nigra</i>	black legless lizard	CSC	Requires moist, warm habitats with loose soil for burrowing and prostrate plant cover, often forages in leaf litter at plant bases; may be found on beaches, sandy	Unlikely No appropriate habitat present within project boundaries Soils found on the project site are not ideal for this species soil is much more shale than sand

			washes, and in woodland, chaparral, and riparian areas.	
<i>Clemmys marmorata pallida</i>	southwestern pond turtle	CSC	Inhabits permanent or nearly permanent bodies of water in many habitat types. Requires basking sites such as partially submerged logs, vegetation mats, or open mud banks.	Unlikely No appropriate habitat present within project boundaries There are no aquatic resources found on the project site
<i>Phrynosoma coroatum (frontale population)</i>	Coast (California) horned lizard	CSC	Associated with open patches of sandy soils in washes, chaparral, scrub, and grasslands.	Medium Potential Appropriate habitat exists within project boundaries but the closest known occurrence is almost 10 miles away
<i>Thamnophis hammondi</i>	two-striped garter snake	CSC	Typically associated with wetland habitats such as streams, creeks and pools. It is closely associated with streams with rocky beds and bordered by willows also ponds, lakes, wetlands and vernal pools. It also occurs in mixed oak, oak woodlands and chaparral on coastal slopes of mountains and foothills to sea level.	Medium potential Some potential appropriate habitat present within project boundaries, however wetlands necessary to support this species are not present
Plants				
<i>Allium</i>	Hickman's	1B	Closed cone coniferous forests,	Unlikely

<i>hickmanii</i>	onion		chaparral, coastal prairie, coastal scrub, valley-foothill grasslands.	While some habitat does exist this species tends toward clay soils that do not exist on-site
<i>Arctostaphylos edmundsii</i>	Little Sur manzanita	1B	Great Basin scrub, chaparral, sandy. Shrub. Blooms Nov-April.	Unlikely Large perennial species not identified during surveys
<i>Arctostaphylos hookeri ssp. hookeri</i>	Hooker's manzanita	1B	Closed-cone coniferous forest	Unlikely Large perennial species not identified during surveys
<i>Arctostaphylos montereyensis</i>	Monterey manzanita	1B	Chaparral, coastal prairie, coastal scrub/ serpentinite outcrop; elevation 45-215 meters.	Unlikely Large perennial species not identified during surveys
<i>Arctostaphylos pajaroensis</i>	Pajaro manzanita	1B	Chaparral/ sandy.	Unlikely Large perennial species not identified during surveys
<i>Arctostaphylos pumilla</i>	sandmat manzanita	1B	Closed-cone coniferous forests, chaparral, coastal dunes, coastal scrub/ sandy.	Unlikely Large perennial species not identified during surveys
<i>Astragalus tener var. tener</i>	alkali milk-vetch	1B	Playas, valley and foothill grassland (adobe clay), vernal pools/ alkaline; elevation 1-60 meters. Annual herb, blooms March-June.	Unlikely No appropriate habitat present within project boundaries
<i>Astragalus tener var. titi</i>	coastal dunes milk-vetch	FE, SE, 1B	Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic); elevation 1-50 meters. Annual herb, blooms March-	Unlikely No appropriate habitat present within project boundaries

			May.	
<i>Centromadia parryi ssp. congdonii</i>	Congdon's tarplant	1B	Valley and foothill grassland (alkaline); elevation 1-230 meters. Annual herb, blooms June-November	Unlikely No appropriate habitat present within project boundaries
<i>Chorizanthe pungens var. pungens</i>	Monterey spineflower	FT, 1B	Open sandy or gravelly soils in coastal dune, coastal scrub, and maritime chaparral habitats; elevation 30-1450 meters. Annual herb, blooms April-July.	Unlikely While coastal scrub does exist on-site it is too dense for this species to exist Soils found on-site do not support crust necessary for this species
<i>Chorizanthe robusta var. robusta</i>	robust spineflower	FE, 1B	Open sandy or gravelly soils in coastal dune, coastal scrub, and maritime chaparral habitats; elevation 3-300 meters. Annual herb, blooms April-September.	Unlikely While coastal scrub does exist on-site it is too dense for this species to exist Soils found on-site do not support crust necessary for this species
<i>Clarkia jolonensis</i>	Jolon clarkia	1B	Cismontane woodland, chaparral, coastal scrub.	Unlikely While some habitat may exist for this species on-site the closest occurrence was last observed in 1928
<i>Collinsia multicolor</i>	San Francisco collinsia	1B	Closed-cone coniferous forest, coastal scrub / sometimes serpentinite; elevation 30-250 meters	Unlikely While some habitat may exist for this species on-site the closest occurrence was last observed in 1903

<i>Cordylanthus rigidus ssp. littoralis</i>	seaside bird's-beak	SE, 1B	Closed-cone coniferous forests, chaparral, cismontane woodlands, coastal dunes, coastal scrub/ sandy, often disturbed sites; elevation 0-215 meters. Annual herb (hemiparasitic), blooms May-October	Unlikely While some habitat may exist for this species on-site the closest occurrence is approximately 5 miles away, also project site is too far inland to for the coastal influence needed to support this species
<i>Cupressus goveniana ssp. goveniana</i>	Gowen cypress	FT, 1B	Closed cone coniferous forest, chaparral (maritime); elevation 30-300 meters. Tree (evergreen).	Unlikely Large perennial species not identified during surveys
<i>Cupressus macrocarpa</i>	Monterey cypress	1B	Closed cone coniferous forest. Tree (Evergreen).	Unlikely Large perennial species not identified during surveys
<i>Delphinium hutchinsoniae</i>	Hutchinson's larkspur	1B	Broadleafed upland forest, chaparral, coastal scrub, coastal prairie; elevation 0-400 meters. Perennial herb, blooms March-June.	Unlikely While some habitat may exist for this species on-site the closest occurrence is approximately 7 miles away, also project site is too far inland to for the coastal influence needed to support this species
<i>Ericameria fasciculate</i>	Eastwood's goldenbush	1B	Dunes and sandy areas near the coast, blooming from August to	Unlikely No appropriate habitat present within project boundaries

			November	
<i>Eriogonum nortonii</i>	Pinnacles buckwheat	1B	Chaparral, valley and foothill grassland/ sandy, often on recent burns; elevation 300-975 meters. Annual herb, blooms May-June.	Unlikely While some habitat may exist for this species on-site the closest occurrence is approximately 8.5 miles away, the project site is north of the northern range of this species
<i>Erysimum ammophilum</i>	coast wallflower	1B	Chaparral (maritime), coastal dunes, coastal scrub/ sandy, openings; elevation 0-60 meters. Perennial herb, blooms February-June.	Unlikely No appropriate habitat present within project boundaries project site is too far inland to support this species
<i>Erysimum menziesii</i> ssp, <i>menziessii</i>	Menzie's wallflower	FE, SE, 1B	Coastal dunes. Perennial herb, blooms March-June.	Unlikely No appropriate habitat present within project boundaries
<i>Erysimum menziesii</i> ssp. <i>yadonii</i>	Yadon's wallflower	FE, SE, 1B	Coastal dunes; elevation 0-35 meters. Perennial herb, blooms March-June.	Unlikely No appropriate habitat present within project boundaries
<i>Fritillaria liliacea</i>	fragrant fritillary	1B	Coastal prairie, coastal scrub, valley and foothill grassland in heavy clay soil, often serpentinite; elevation 3-410 meters. Perennial herb (bulbiferous),	Unlikely While some habitat may exist for this species on-site the closest occurrence was last observed in 1931, clay soils not present on-site

			blooms February-April.	
<i>Gilia tenuiflora</i> <i>ssp. arenaria</i>	sand gilia	FE, ST, 1B	Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub/ sandy, openings; elevation 0-45 meters. Annual herb, blooms April-June.	Unlikely While coastal scrub does exist on-site it is too dense for this species to exist Soils found on-site do not support crust necessary for this species
<i>Horkelia cuneata</i> <i>ssp. sericea</i>	Kellogs horkelia	1B	Closed cone coniferous forests, chaparral, (maritime), coastal scrubs/ sandy or gravelly, openings; elevation 10-200 meters. Perennial herb, blooms April-September.	Unlikely While coastal scrub does exist on-site it is too dense for this species to exist Soils found on-site do not support crust necessary for this species
<i>Lasthenia conjugens</i>	Contra Costa goldfields	FE, 1B	Valley and foothill grassland (mesic), vernal pools Annual herb, blooms Mar-June	Unlikely While some habitat may exist for this species on-site the closest occurrence is approximately 7 miles away, grasslands on the project site are not mesic
<i>Layia carnosa</i>	beach layia	FE, SE, 1B	Coastal dunes., coastal scrub (sandy; elevation 0-60 meters. Annual herb, blooms March-July.	Unlikely While some habitat may exist for this species on-site the closest occurrence is approximately 10 miles away and project site is too far inland to support this species

<i>Lupinus tidestromii</i>	Tidestrom's lupine	FE, SE, 1B	Coastal dunes; elevation 0-100 meters. Perennial herb (rhizomatous), blooms April-June.	Unlikely No appropriate habitat present within project boundaries
<i>Malcothamnus palmeri</i> var. <i>involucratus</i>	Carmel Valley Bush mallow	1B	Chaparral, cismontane woodland, coastal scrub; elevation 30-1100 meters. Shrub (deciduous), blooms May-October.	Unlikely Large perennial species not observed during surveys
<i>Malcothamnus palmeri</i> var. <i>palmeri</i>	Santa Lucia bush mallow	1B	Chaparral, cismontane woodland, coastal scrub; elevation 30-1100 meters. Shrub (deciduous), blooms May-October.	Unlikely Large perennial species not observed during surveys
<i>Malacothrix saxatilis</i> var. <i>arachnoidea</i>	Carmel Valley malacothrix	1B	Chaparral (rocky) coastal sage scrub; elevation 25-335 meters. Perennial herb (rhizomatous), blooms March-December.	High Potential Habitat exists on project site although it was not observed during surveys several occurrence within 1 mile of project site
<i>Microseris paludosa</i>	marsh microseris	1B	Closed- cone coniferous forest, Cismontane woodland, Coastal scrub, and Valley and foothill grasslands	Unlikely While some habitat may exist for this species on-site the closest occurrence the most recent observation was 1942
<i>Pinus radiata</i>	Monterey pine	1B	Closed-cone coniferous forest Tree (evergreen)	Unlikely No appropriate habitat present within project boundaries
<i>Piperia yadonii</i>	Yadon's rein	FE, 1B	Sandy soils in	Unlikely

	orchid		coastal bluff scrub, closed-cone coniferous forest, and maritime chaparral. Annual.	No appropriate habitat present within project boundaries
<i>Plagiobothrys uncinatus</i>	hooked popcorn-flower	1B	Chaparral, Cismontane woodlands, Valley-foothill grasslands.	Unlikely While some habitat may exist for this species on-site the closest occurrence is approximately 9 miles away
<i>Potentilla hickmanii</i>	hickman's cinquefoil	FE, SE, 1B	Coastal bluff scrub, closed cone coniferous forests, meadows(vernally mesic), marshes and swamps (freshwater). Perennial herb, blooms April-August.	Unlikely No appropriate habitat present within project boundaries
<i>Rosa pinetorium</i>	pine rose	1B	Closed-cone coniferous forest.	Unlikely No appropriate habitat present within project boundaries
<i>Sidalcea malachroides</i>	maple-leaved checkerbloom	1B	Broad-leafed upland forest, coastal prairie, coastal scrub, north coast coniferous forest, often in disturbed areas; elevation 2-700 meters. Perennial herb, blooms April-August.	Unlikely While some habitat may exist for this species on-site the last observed occurrence was in 1960
<i>Stebbinsoseris decipiens</i>	Santa Cruz microseris	1B	Broad-leafed upland forest, close cone coniferous forests, chaparral,	High Potential Known occurrence across Laurels Grade

			coastal prairies, coastal scrub/ open areas; elevation 10- 500 meters. Annual herb, blooms April-May	observed in 2000
<i>Tortula californica</i>	California screw-moss	1B	Chenopod scrub, valley and foothill grassland	Unlikely While some habitat may exist for this species on-site the closest occurrence is approximately 11 miles away and the only known occurrence within the study area is unconfirmed
<i>Trifolium buckwestiorum</i>	Santa Cruz clover	1B	Broad-leafed upland forest, cismontane woodland, coastal prairie, endangered margins; elevation 105-610 meters. Annual herb, blooms April- October.	Unlikely No appropriate habitat present within project boundaries
<i>Trifolium polypodon</i>	Pacific Grove clover	1B	Broad-leafed upland forest, cismontane woodland, coastal prairie, endangered margins; elevation 105-610 meters. Annual herb, blooms April- October.	Unlikely No appropriate habitat present within project boundaries
<i>Trifolium trichocalyx</i>	Monterey clover	FE, SE , 1B	Closed-cone coniferous forest (sandy openings, burned areas); elevation 30-240 meters	Unlikely No appropriate habitat present within project boundaries

			Annual herb, blooms April-June.	
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Key to Status Codes	
CSC	CDFG Species of concern
CFP	CDFG Fully Protected Animal
SE	State Endangered
ST	State Threatened
FE	Federal Endangered
FT	Federal Threatened
PT	Officially proposed as Threatened
PX	Proposed as critical habitat essential to species recovery
C	Candidate to be Proposed
1B	CNPS 1B List, Endangered, Threatened or Rare in California

- X **Unlikely:** The project area and/or immediate vicinity do not provide suitable habitat for a particular species. Project area is outside of the species range.
- X **Low Potential:** Project area and/or immediate vicinity provides only limited habitat for a particular species. The known range for a particular species may be outside of the project area.
- X **Medium Potential:** The project area and/or immediate vicinity provide suitable habitat for a particular species, though there are no known sightings in the area.
- X **High potential:** The project area and/or immediate vicinity provide ideal habitat conditions for a particular species and/or the species is known to occur in the area.
- X **Known:** The species has been identified within the project boundaries.

Appendix B Observed Plant List

Family	Scientific Name	Common Name	Native
<i>Dicotyledoneae</i>			
<i>ANACARDIACEAE</i>	<i>Toxicodendron diversilobum</i>	Poison oak	Yes
<i>APIACEAE</i>	<i>Conium maculatum</i>	Poison hemlock	No
<i>ASTERACEAE</i>	<i>Baccharis pilularis</i>	coyote bush	Yes
	<i>Carduus pycnocephalus</i>	italian thistle	No
<i>DRYOPTERIDACEAE</i>	<i>Dryopteris arguta</i>	wood fern	Yes
<i>FABACEAE</i>	<i>Lotus scoparius</i>	deerweed	Yes
<i>HIPPOCASTANACEAE</i>	<i>Aesulus californica</i>	buckeye	Yes
<i>LAMIACEAE</i>	<i>Salvia mellifera</i>	black sage	Yes
	<i>Stachys bullata</i>	hedge nettle	Yes
<i>POLYGONACEAE</i>	<i>Quercus agrifolia</i>	Coast Live Oak	Yes
<i>QUERCUS</i>	<i>Rhamnus californica</i>	California coffeeberry	Yes
	<i>Rubus ursinus</i>	California Blackberry	Yes
<i>RHAMNUSACEAE</i>	<i>Mimulus aurantiacus</i>	Sticky monkey flower	Yes
	<i>Rubus parviflorus</i>	Thimble berry	Yes
<i>ROSACEAE</i>	<i>Holodiscus discolor</i>	ocean spray	Yes
<i>SAXIFRAGACEAE</i>	<i>Ribes sp.</i>	gooseberry	Yes
<i>Monocotyledoneae</i>			
<i>POACEAE</i>	<i>Agrostis sp.</i>	bent grass	Yes
	<i>Calamagrostis nutkaensis</i>	reed-grass	No
	<i>Avena fatua</i>	wild oat	No
	<i>Bromus madritensis</i>	Spanish brome	No
	<i>Elymus glaucus</i>	western ryegrass	Yes
	<i>Melica bulbosa</i>	onion grass	
	<i>Nasella sp.</i>	needle grass	

Appendix C
Observed Wildlife List

Family	Scientific Name	Common Name
<i>FELIDAE</i>	<i>Lynx rufus</i>	bobcat