Botanical Resources Survey Report
2049 Andre Street (APN 074-413-017), Los Osos, San Luis Obispo County, California

Prepared for:

Ms. Pat Desimone
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Prepared by:

EAM
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August 26, 2019

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I hereby certify that this Botanical Resources Survey Report 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 visits associated with this report.

Signature

August 26, 2019
Date

INTRODUCTION

The following botanical resources survey report has been prepared by Ecological Assets Management LLC (EAM), for Ms. Pat Desimone on her 1.0-acre parcel (subject parcel) located at 2049 Andre Street (APN 074-413-017), Los Osos, San Luis Obispo County, California. This report presents the methods and results of four focused botanical surveys conducted on the subject parcel.

In summary, the 2019 focused botanical survey efforts found the subject parcel to be slightly disturbed and dominated by Coast Live Oak Woodland and non-native annual grassland with smaller fragmented areas of Central Maritime Chaparral and Coastal Scrub habitats on Baywood fine sand. The survey efforts identified a total of twenty (20) plant species on the subject parcel, with seventeen (17) native and three (3) non-native species. Of the identified plant species, two were special-status plant species: Morro manzanita (*Arctostaphylos morroensis*) and Kellogg's horkelia (*Horkelia cuneata* var. *sericea*). In addition, coast live oak (*Quercus agrifolia*) trees were also present.

Morro manzanita is listed as a federally threatened species and also listed by the CNPS with a Rare Plant Rank as a 1B.1 (Rare, threatened, or endangered in California and elsewhere). Kellogg's horkelia is listed by the CNPS with a Rare Plant Rank of 1B.1 (Rare or endangered in California and elsewhere; seriously endangered in California) and both meet the definition of rare and endangered under the California Environmental Quality Act (CEQA). The proposed project will remove nine (9) Morro manzanita and impact (but not remove) five (5) coast live oak trees. Kellogg's horkelia will not be impacted from the proposed project. Preparation of a restoration plan is recommended in this report to mitigate the loss and impacts to these species. Additional avoidance and protection measures are proposed in this report to ensure project-related impacts to the retained special-status species on the subject parcel does not occur.

SITE LOCATION AND PROPOSED PROJECT

The subject parcel is located in western San Luis Obispo County, California, within the community of Los Osos (refer to Figure 1) at 2049 Andre Street (APN 074-413-017). The next closest main cross street is Nipomo Avenue located 0.15-mile to the north of the subject parcel.

The proposed project is the construction of a single-family residence with an attached garage. In addition, the project includes an improved decomposed granite driveway from Andre Street to the residence, two leach fields, potable water well, and associated hardscaped areas immediately adjacent to the residence (refer to Appendix E). The proposed project is within the Residential Suburban land use category and is in the Estero Planning Area.

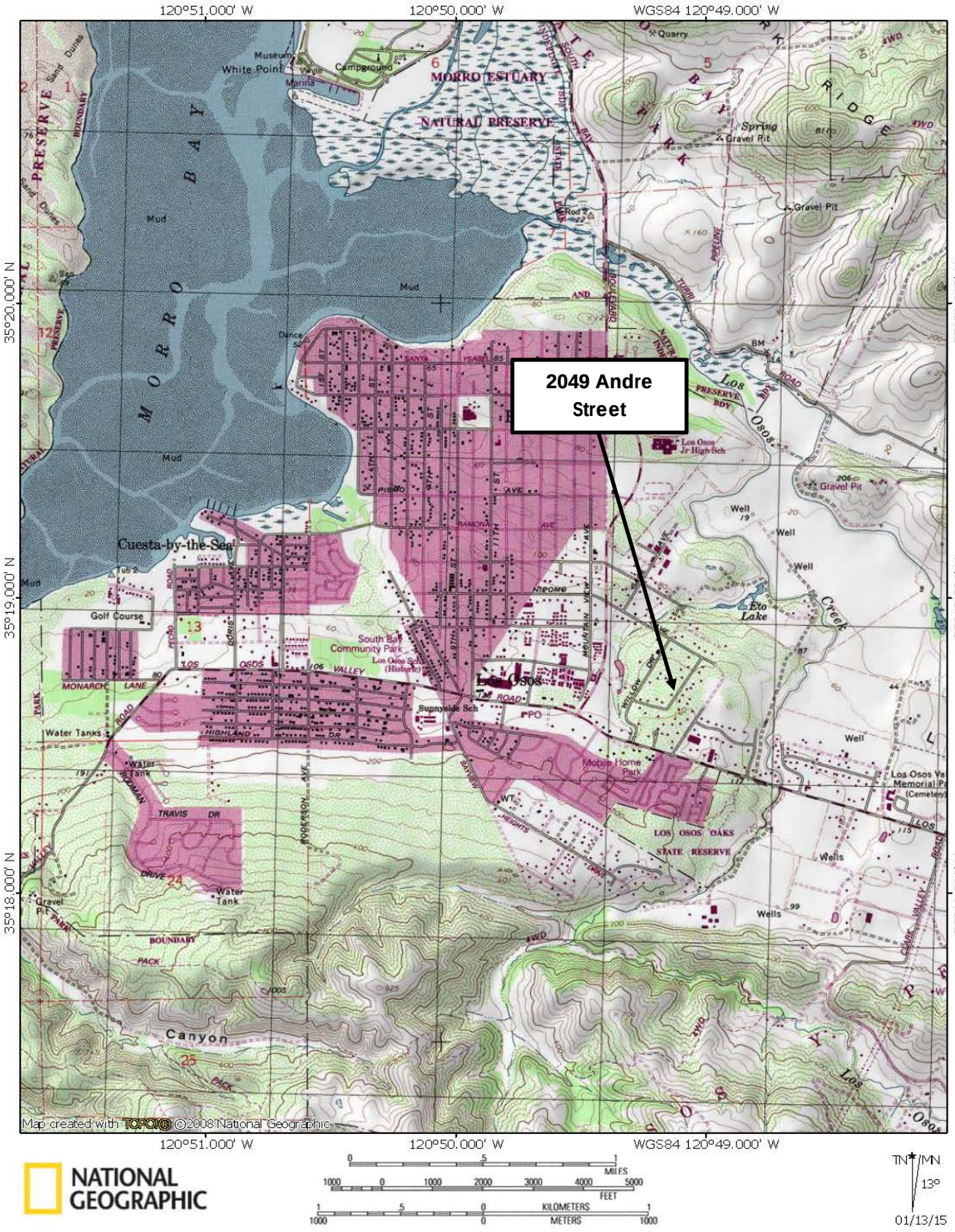

FIGURE 1. Location map of subject parcel in Los Osos, CA.

SURVEY METHODS

Literature Review

Prior to visiting the study area, EAM biologists reviewed the California Natural Diversity Data Base (CNDDB) results from a five-mile radius of the subject parcel to evaluate the potential for occurrence of special-status plants and habitats. The five-mile search radius included most of the Morro Bay South U.S. Geological Survey (USGS) 7.5-minute quadrangle and portions of the Morro Bay North, San Luis Obispo and Port San Luis quadrangles also. The five-mile review area was deemed appropriate based on the subject parcel's unique soil type (e.g. Baywood fine sands), coastal location, and elevation (<45 meters), because these features severely limit the potential number of special-status plants and plant communities that could be present. In addition to the review of the CNDDB, EAM reviewed the results from a search of the Morro Bay South quadrangle at the California Native Plant Society's online Inventory of Rare and Endangered Plants (http://www.rareplants.cnps.org/advanced.html).

Other literature reviewed for the project included recent environmental documents and reports from nearby areas, including the County of San Luis Obispo's Draft Environmental Impact Report for the Los Osos Wastewater Project, numerous other botanical resources survey reports previously prepared by EAM in Los Osos, and the botanical resources report prepared for this parcel by Morro Group in 2006.

For the purpose of this study, special status plants are vascular plants listed, proposed for listing, or candidates for listing as Threatened or Endangered by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA); those listed or proposed for listing as Rare, Threatened, or Endangered by the California Department of Fish and Wildlife (CDFW) under the California Endangered Species Act (CESA); and plants occurring on California Rare Plant Rank 1, 2, 3 and 4, as developed by the CDFW and the California Native Plant Society (CNPS). Sensitive natural communities are those plant communities listed as rare in the CNDDB.

The specific Rare Plant Rank code definitions are as follows:

- *Rank 1A = Plants presumed extinct in California;*
- *Rank 1B.1 = Rare or endangered in California and elsewhere; seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat);*
- *Rank 1B.2 = Rare or endangered in California and elsewhere; fairly endangered in California (20-80% occurrences threatened);*
- *Rank 1B.3 = Rare or endangered in California and elsewhere, not very endangered in California (<20% of occurrences threatened or no current threats known);*
- *Rank 2 = Rare, threatened or endangered in California, but more common elsewhere;*

- *Rank 3 = Plants needing more information (most are species that are taxonomically unresolved; some species on this list meet the definitions of rarity under CNPS and CESA); and*
- *Rank 4.2 = Plants of limited distribution (watch list), fairly endangered in California (20-80% occurrences threatened).*
- *Rank 4.3= Plants of limited distribution (watch list), not very endangered in California.*

EAM biologists conducted approximately 5.25 person-hours of focused botanical surveys and special-status species assessments on the subject parcel in the spring and early summer of 2019 (refer to Table 1). The focused surveys involved walking all portions of the subject parcel and identifying all plant species observed. Due to the ease of site access, gentle sloping terrain, and good visibility, survey efforts were able to thoroughly cover 100 percent (%) of the subject parcel during each site visit. Plants were identified to species, or sub-species, with dichotomous keys used as necessary (Hoover, 1970; Hickman, ed. 1993). The surveys were timed to cover the spring and early summer flowering periods of all special-status plant species with potential for occurrence within the general area of the subject parcel.

Table 1. List of site visits to 2049 Andre Street, Los Osos, San Luis Obispo County, California.

Survey #	Survey Date	Surveyor(s)	Purpose of Site Visit
1	4/22/2019	D. Oberhoff, B. Sloan	Focused Botanical Survey
2	5/3/2019	D. Oberhoff	Focused Botanical Survey
3	5/23/2019	D. Oberhoff	Focused Botanical Survey
4	6/6/2019	D. Oberhoff	Focused Botanical Survey, Special-status Species Assessment
5	8/13/2019	D. Oberhoff	Special-status Species Assessment

Two site visits to the subject parcel were conducted in June and August 2019 to conduct an assessment on the distribution and number of special-status plant species observed during the surveys. A map of the locations of the special-status species on the subject parcel is included in Appendix D. In addition, a CNDDB species occurrence discussion table is included in Appendix A, a list of plant species observed on the subject parcel during the surveys is included in Appendix B, and photos are included in Appendix C.

EXISTING SITE CONDITIONS

The subject parcel is an undeveloped 1.0-acre lot located in the eastern portion of Los Osos and is surrounded by similar large residential parcels. The subject parcel is bordered on all sides by existing developed single-family residences.

During the surveys, the subject parcel was observed to gently slope downward from the southeast to the northwest with an elevation range of 135 to 147 feet (36.8 to 39.7 meters) above mean sea level. The University of California Davis, Soil Resource Laboratory website, SoilWeb (http://casoilresource.lawr.ucdavis.edu/), maps a single soil unit on the subject parcel. The mapped soil unit is: Baywood fine sand, 2 to 9 percent (%) slopes.

The eastern portion of the subject parcel adjacent to Andre Street has been subjected to regular mowing for fire hazard abatement per the requirements of California Department of Forestry and Fire Protection (CAL FIRE). The rear portion of the subject parcel appears to have been disturbed in the past due to the presence of veldt grass in this area, but was not mowed during the site visits conducted for these survey efforts.

Four plant communities were observed on the subject parcel during the site visits (refer to Table 2). Native habitats observed on the subject parcel were Coast Live Oak Woodland, Central Maritime Chaparral and Coastal Scrub. The Coast Live Oak Woodland on the subject parcel is dominated by coast live oak trees (*Quercus agrifolia*) with very little understory vegetation. The areas of Central Maritime Chaparral on the subject parcel were dominated by buckbrush (*Ceanothus cuneatus*), but scattered Morro manzanita (*Arctostaphylos morroensis*) were also present. The few small isolated areas with Coastal Scrub were dominated by mock heather (*Ericameria ericoides*) and black sage (*Salvia mellifera*) with dune buckwheat (*Eriogonum parvifolium*) as an occasional component. Non-native annual grassland is also present on the subject parcel which is dominated by sparse clumps of veldt grass (*Ehrharta calycina*) and included scattered individual mock heather and bush monkey flower (*Mimulus aurantiacus*) shrubs. Photos of the subject parcel and the habitats present are included in Appendix C.

Table 2. Observed habitats and coverage on the subject parcel.

Observed Habitats	Square Feet	Percent Cover (%)
Non-native Grassland	20,918	48.0
Central Maritime Chaparral	5,659	13.0
Coast Live Oak Woodland	15,746	36.1
Coastal Scrub	1,237	2.8
Totals	43,560	100

SURVEY RESULTS

The survey efforts identified a total of twenty (20) vascular plant species on the subject parcel. A list of all species observed on the subject parcel during the surveys is provided in Appendix B. Of the total species observed, seventeen (17) were native and three (3) were nonnative species.

The CNDDB and CNPS searches identified seventy-one (71) special status plant species known to occur within a five-mile radius of the subject parcel and within the Morro Bay South 7.5-minute quadrangle. Appendix A contains a table of all special-status plant species identified by the CNDDB and the CNPS database. This list covers a broad range of habitats, soil types, and elevations not found in the survey area.

Many of the seventy-one (71) special-status plant species identified by the CNDDB and CNPS search have highly specialized habitat requirements such as such as serpentine rock outcrops and soils, clay soils, broadleaf or coniferous forests, grasslands, saltwater marsh, or freshwater marsh, that are not present within or adjacent to the subject parcel (refer to Appendix A). Many of the numerous special-status plant species known from the general area they either all occur within coast scrub and/or on sandy soils or are perennial species that would have been identifiable during the site visits.

Of the seventy-one (71) total species identified in the CNDDB and CNPS searches, the following twenty-two (22) special-status are known to occur on sandy soils in coastal scrub habitat and/or have been previously identified in close proximity to the subject parcel.

- Red sand verbena (*Abronia maritima*)
- Arroyo de la Cruz manzanita (*Arctostaphylos cruzensis*)
- Morro manzanita (*Arctostaphylos morroensis*)
- Coulter's saltbush (*Atriplex coulteri*)
- Hardham's evening-primrose (*Camissoniopsis hardhamiae*)
- Lompoc ceanothus (Ceanothus cuneatus var. fascicularis)
- Coastal goosefoot (*Chenopodium littoreum*)
- Popcorn lichen (*Cladonia firma*)
- Dune larkspur (*Delphinium parryi* ssp. *blochmaniae*)
- Beach spectaclepod (*Dithyrea maritima*)
- Blochman's leaf daisy (*Erigeron blochmaniae*)
- Indian Knob mountainbalm (*Eriodictyon altissimum*)
- San Luis Obispo wallflower (*Erysimum capitatum var. lompocense*)
- Suffrutescent wallflower (*Erysimum suffrutescens*)
- Mesa horkelia (*Horkelia cuneata var. puberula*)
- Kellogg's horkelia (*Horkelia cuneata var. sericea*)
- Perennial goldfields (*Lasthenia californica ssp. macrantha*)
- Southern curly-leaved monardella (*Monardella sinuata ssp. sinuata*)

- San Luis Obispo monardella (*Monardella frutescens*)
- Sand almond (*Prunus fasciculata var. punctate*)
- Blochman's ragwort (*Senecio blochmaniae*)
- Splitting yarn lichen (*Sulcaria isidiifera*)

Of these twenty-two (22) species, Morro manzanita (*Arctostaphylos morroensis*) and Kellogg's horkelia (*Horkelia cuneata* var. *sericea*) were observed during the focused botanical surveys conducted on the subject parcel.

Morro manzanita (*Arctostaphylos morroensis*)

Morro manzanita is listed as a federally threatened species and also listed by the CNPS with a Rare Plant Rank as a 1B.1 (Rare, threatened, or endangered in California and elsewhere). A total of twenty-six (26) Morro manzanita were observed on the subject parcel during the assessment of special-status species conducted on June 6 and August 13, 2019. The proposed project will impact a total of nine (9) manzanita, which will require mitigation in the form of replanting.

Appendix D includes a figure that illustrates "Special-Status Species Distribution" on the subject parcel. In addition, Appendix F includes a copy of the CNDDB form that was submitted to the CDWF for the presence of Morro manzanita on the subject parcel.

Kellogg's Horkelia (*Horkelia cuneata var. sericea*)

Due to the presence of Kellogg's horkelia, an assessment of the subject parcel was conducted on June 6 and August 13, 2019, to assess the density and distribution of horkelia. The assessment identified seventeen (17) distinct clumps and/or individual Kellogg's horkelia. Kellogg's horkelia can grow in dense clumps which can make counting individual plants difficult. During the assessment, Kellogg's horkelia were observed to be restricted to the southeast corner of the subject parcel. No horkelia were observed in any area of the subject parcel where development is proposed and thus no impacts will occur to this species.

Appendix D includes a figure that illustrates "Special-Status Species Distribution" on the subject parcel. In addition, Appendix F includes a copy of the CNDDB form that was submitted to the CDWF for the presence of Kellogg's horkelia on the subject parcel.

Special-Status Plant Communities

In addition, the CNDDB search also identified six special-status plant communities within the review area. These communities are:

- Central Dune Scrub
- Central Maritime Chaparral
- Coastal and Valley Freshwater Marsh
- Coastal Brackish Marsh
- Northern Coastal Salt Marsh

- Valley Needlegrass Grassland

Small areas of fragmented Central Maritime Chaparral were observed on the subject parcel during the focused surveys. None of the other five sensitive plant communities were observed on the subject parcel. Refer to Appendix B for additional information on the CNDDB listed species and habitats identified in this report.

Although oak woodlands are not listed as a sensitive community by the CNDDB, under SB 1334 (Kuehl bill), County governments are responsible for conserving oak woodlands within their jurisdiction. During the CEQA review process, SB 1334 requires County governments to determine if a proposed project would result in the conversion of oak woodland. If conversion would occur, the County is mandated to require implementation of specified mitigation as outlined in an oak woodland management plan. In San Luis Obispo County, oak woodlands are defined as areas containing greater than ten percent (10%) oak canopy cover. The County of San Luis Obispo oak management plan defines conversion as cutting or removing ten percent (10%) or more of the oak woodland canopy or removing more than ten oak trees.

Coast live oak trees are present on the subject parcel (refer to Table 2 and Appendix D). The combined areas total approximately 15,746 square feet of oak woodland habitat. No oak trees will be removed for the proposed project, but five (5) oak trees will be impacted from grading activities and limb removal. Impacts to oak woodlands and coast live oak trees are discussed in detail in the Discussion section below.

In addition, in 2006 EAM biologist Dwayne Oberhoff conducted focused botanical surveys on this parcel while employed with Morro Group, Inc. During those focused survey efforts impacts to Morro manzanita and coast live oak were identified at that time and mitigation was recommended that included replanting impacted manzanita and oak trees onsite.

DISCUSSION

Based on the results of this botanical resources survey and inventory, and the presence of Morro manzanita and coast live oak trees within the proposed project area of the subject parcel, future development will impact both species. Kellogg's horkelia observed on the subject parcel will not be impacted from the proposed project and no measures are proposed. The proposed residence, garage, driveway, hardscaped area, and associated utilities (e.g. septic system) will remove nine (9) Morro manzanita and impact five (5) coast live oak trees. The remaining Morro manzanita and coast live oak trees located on the subject parcel will be preserved on site. No oak trees will be removed during project construction and all impacts will be restricted to work within or adjacent to the tree's canopy/dripline and/or the trimming of limbs prior to construction to ensure damage to oak trees does not occur. Based on SB 1334 and

county requirements, the proposed impacts to coast live oak trees will not require an oak woodland management plan to be prepared.

Mitigation for unavoidable impacts to Morro manzanita in Los Osos has previously required replanting at ratios as high as 5:1 replacement. A total of nine (9) Morro manzanita were identified as likely being impacted from the proposed project on the subject parcel, and at a 5:1 replacement ratio, would require a total of forty-five (45) replacement plants.

Mitigation for unavoidable impacts to mature coast live oak trees has previously required planting at ratios of 4:1 for removed oaks and 2:1 to impacted (but retained) oaks. Impacts from the proposed project on the subject parcel will not remove any coast live oak trees but will impact five (5) oak trees during grading activities and trimming of limbs. At a 2:1 replacement ratio for impacted oak trees these impacts will require ten (10) replacement oak trees.

Replacement plantings will be feasible on site with ample areas of available planting sites on the subject parcel. If it is determined that impacts to Morro manzanita and/or oak trees will be reduced during the construction phase, a revised impact assessment should be conducted by a qualified botanist to determine the final impact numbers. The revised impact assessment shall provide a revised and final number of impacted plants and provide a required number of replacement plants based on the appropriate replacement ratio.

The following measures are intended to reduce and mitigate project related impacts to the special-status species observed on the subject parcel.

1. Prior to the start of grubbing and/or grading activities, all work areas shall be delineated and all areas of the subject parcel where special-status species and oak trees will be retained onsite shall be protected with orange fencing to ensure impacts do not occur within these areas.

2. A restoration plan shall be prepared by a qualified biologist to address and mitigate for impacts to Morro manzanita and coast live oak trees. The restoration plan shall establish a methodology to mitigate impacts to Morro manzanita and coast live oak trees while preserving and protecting the other Morro manzanita and coast live oak trees on the subject parcel. This plan should detail the implementation strategy, restoration efforts and methodology, success criteria, monitoring program and reporting requirements.

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Appendix A: Habitat Requirements and Potential for Occurrence of Special-Status Plants Occurring in the Vicinity of the Project Site

Appendix A. CNDDB List of Special-Status Plant Species Within a Five Mile Radius of the Subject Parcel

Species	Status* Fed/CA/CNPS	Habitat Requirements	Blooming Period	Project Site Suitability/Observations
Red sand verbena *Abronia maritima*	--/--/4.2	Perennial herb that occurs in coastal foredunes dunes at elevations from 0-100 meters.	February-November	**Suitable habitat present on site**. Species not observed during focused surveys.
Hoover's bent grass *Agrostis hooveri*	--/--/1B.2	Stoloniferous perennial herb on sandy soils in chaparral, cismontane woodland, and valley and foothill grassland. Elevation 60 to 600 meters.	April - July	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Arroyo de la Cruz manzanita *Arctostaphylos cruzensis*	--/--/1B.2	Perennial shrub; blooms from December to March; occurs between 60 and 310 meters in sandy soils; found in broadleaved upland forest, coastal bluff scrub, closed-cone coniferous forest, chaparral, coastal scrub and valley and foothill grassland.	December-March	**Suitable habitat present on site**. Species not present and would have been easily observed and identified if present.
Santa Lucia manzanita *Arctostaphylos luciana*	--/--/1B.2	Perennial shrub; occurs on shale outcrops in chaparral and cismontane woodland habitats; ranges from 350 to 850 meters in elevation.	February - March	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Morro manzanita *Arctostaphylos morroensis*	FT/--/1B.1	Evergreen shrub; blooms December through March; ranges in elevation from 5 to 205 meters; typically found on sandy-loam or Baywood sands in chaparral, woodlands, coastal dunes and coastal scrub.	December-March	**Species present onsite.** Species observed during the focused botanical surveys on the subject parcel.
Bishop manzanita *Arctostaphylos obispoensis*	--/--/4.3	Rocky, generally serpentine soils, chaparral, open closed-cone forest near coast. Elevation 60 to 950 meters in elevation.	February - March	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Oso manzanita *Arctostaphylos osoensis*	--/--/1B.2	Perennial shrub known to occur in chaparral and cismontane woodland on the porphyry buttes east of Morro Bay.	February-March	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Pecho manzanita *Arctostaphylos pechoensis*	--/--/ 1B.2	Perennial shrub. Occurs on shale outcrops in chaparral, and coniferous forest at elevations <500 meters.	November – March	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Santa Margarita manzanita *Arctostaphylos pilosula*	--/--/1B.2	Shrub. Occurs in closed coniferous forest, chaparral, and cismontane woodland; usually on shale soils. Elevation 170 – 1100 meters.	December – March	**No suitable habitat present on site.** Species not observed during focused botanical surveys.

Appendix A. CNDDB List of Special-Status Plant Species Within a Five Mile Radius of the Subject Parcel

Species	Status* Fed/CA/CNPS	Habitat Requirements	Blooming Period	Project Site Suitability/Observations
Dacite manzanita *Arctostaphylos tomentosa ssp. daciticola*	--/--/1B.1	Perennial shrub occurs in chaparral and cismontane woodland. Only one known occurrence of this species in SLO County on the porphyry buttes (Hollister Peak) east of Morro Bay	January-May	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Marsh sandwort *Arenaria paludicola*	FE/SE/1B.1	Stoloniferous, perennial herb; blooms May to August; occurs in freshwater marshes and swamps, bogs and fens, and some coastal scrub, ranging from 3 to 170 meters in elevation; common associates include Typha, Juncus, and Scirpus.	May - August	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Carlotta Hall's lace fern *Aspidotis carlotta-halliae*	--/--/4.2	Generally serpentine slopes, crevices, and outcrops. Elevation 100 - 1,400 meters.	-	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Miles' milk-vetch *Astragalus didymocarpus var. milesianus*	--/--/1B.2	Annual herb; blooms March to June; found in coastal scrub habitats, typically occurring on clay soils; ranges in elevation 20 to 90 meters.	March - May	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Nuttall's milkvetch *Astragalus nuttallii var. nuttallii*	--/--/4.2	Found in rock, sandy areas, bluffs at elevations <250 meters.	January-November	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Coulter's saltbush *Atriplex coulteri*	--/--/1B.2	Perennial herb/subshrub that grows in alkaline or clay soils, open sites, scrub, and coastal bluff scrub at elevations <500 meters.	March-October	**Suitable habitat present on site**. Species not observed during focused surveys.
False gray horsehair lichen *Bryoria pseudocapillaris*	--/--/3.2	Usually on conifers; north coast coniferous forest and sand dunes in San Luis Obispo.	N/A	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Twisted horsehair lichen *Bryoria spiralifera*	--/--/ 1B.1	Usually on conifers along the immediate coast. Elevation: < 30 meters.	N/A	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Club-haired mariposa lily *Calochortus clavatus var. clavatus*	--/--/4.3	Generally rocky serpentine and clay soils at elevations <1300 meters.	April - June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.

Appendix A. CNDDB List of Special-Status Plant Species Within a Five Mile Radius of the Subject Parcel

Species	Status* Fed/CA/CNPS	Habitat Requirements	Blooming Period	Project Site Suitability/Observations
La Panza mariposa-lily *Calochortus obispoensis*	--/--/1B.2	Chaparral, coastal scrub, valley and foothill grassland. Often in serpentine grassland at elevations from 75-665 meters.	May - July	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Cambria (San Luis Obispo County) morning-glory *Calystegia subacaulis ssp. episcopalis*	--/--/4.2	Rhizomatous, perennial herb; blooms from April to May; occurs in chaparral, cismontane woodland, and grassland areas in clay-rich soils; ranges from 60-500 meters; restricted to outer South Coast ranges in SLO and Santa Barbara Counties.	April – May	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Hardham's evening-primrose *Camissoniopsis hardhamiae*	--/--/1B.2	Annual herb known to occur on sandy soils in chaparral and foothill woodland habitats; typically blooms from March to May. Two recorded occurrences in the Los Osos area.	March – May	**Suitable habitat present on site**. Species not observed during focused surveys.
San Luis Obispo sedge *Carex obispoensis*	--/--/1B.2	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	March – June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
San Luis Obispo owl's clover *Castilleja densiflora ssp. obispoensis*	--/--/1B.2	Annual herb; blooms in April; ranges from 10 to 400 meters in elevation and occurs in meadows, seeps, and valley and foothill grassland.	March - May	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Lompoc ceanothus *Ceanothus cuneatus var. fasciculari*s	--/--/4.2	Sandy substrates in coastal chaparral. Elevation < 275 meters.	February - May	**Suitable habitat present on site**. Species not present and would have been easily observed and identified if present.
San luis obispo ceanothus *Ceanothus thyrsiflorus var. obispoensis*	--/--/1B.2	Shrub found in coastal hills and bluffs at elevations <60 meters.	January-April	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Coastal goosefoot *Chenopodium littoreum*	--/--/1B.2	Annual herb that grows on sandy flats in coastal dunes along wetland and salt marsh habitat. Typically found between 30 and 100 meters, and is known from the Los Osos area.	April-August	**Suitable habitat present on site**. Species not observed during focused surveys. Reference site in Los Osos with this species was visited.

Appendix A. CNDDB List of Special-Status Plant Species Within a Five Mile Radius of the Subject Parcel

Species	Status* Fed/CA/CNPS	Habitat Requirements	Blooming Period	Project Site Suitability/Observations
Dwarf soaproot *Chlorogalum pomeridianum var. minus*	--/--/1B.2	Chaparral habitats with serpentine soils. 305-1000 meters.	May-August	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Saltmarsh bird's-beak *Chloropyron maritimum ssp. maritimum*	FE/SE/1B.2	Annual herb known to occur along margins of salt marsh habitat and coastal dunes. Limited to the higher zones of the Morro Bay estuary.	May-Oct	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Brewer's spineflower *Chorizanthe breweri*	--/--/1B.3	Occurs in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub habitats on serpentine derived soils and rock outcrops, in rocky and gravelly areas; ranges in elevation from 45 to 800 meters; annual herb; blooms May through August.	April-August	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Peninsular spineflower *Chorizanthe leptotheca*	--/--/4.2	Found on gravel or sandy soils at elevations from 600 to 1600 meters.	May-August	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Palmer's spineflower *Chorizanthe palmeri*	--/--/4.2	Found on serpentine soils at elevations from 60 – 700 meters.	May – August	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Chorro Creek bog thistle (San Luis Obispo fountain thistle) *Cirsium fontinale var. obispoense*	FE/SE/1B.2	Perennial herb; blooms February to July; ranges from 35 to 365 meters in elevation; occurs in chaparral and cismontane woodland habitats, often in serpentine seeps and s.	April - October	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Surf thistle *Cirsium rhothophilum*	--/FT/1B.2	Perennial herb; blooms April through June; ranges in elevation from 3 to 60 meters; occurs in coastal dune and coastal bluff scrub communities in close proximity to the ocean.	April - August	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Pismo clarkia *Clarkia speciosa ssp. immaculata*	FE/SR/1B.1	Annual herb. Sandy soils, openings in chaparral, cismontane woodland, valley and foothill grassland. On ancient sand dunes not far from the coast. 25-185 meters.	May - June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Popcorn lichen *Cladonia firma*	--/--/2B.1	On soil, detritus, or moss in coastal dunes and coastal scrub. Elevation: 30 – 75 meters.	N/A	**Suitable habitat present on site**. Species not observed during focused surveys. Coastal scrub species limited onsite.

Appendix A. CNDDB List of Special-Status Plant Species Within a Five Mile Radius of the Subject Parcel

Species	Status* Fed/CA/CNPS	Habitat Requirements	Blooming Period	Project Site Suitability/Observations
Paniculate tarplant *Deinandra paniculata*	--/--/4.2	Annual herb that occurs in coastal scrub and valley and foothill grassland. Elevation 35 – 430 meters.	May - October	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Dune larkspur *Delphinium parryi ssp. blochmaniae*	--/--/1B.2	Perennial herb found growing in coastal chaparral and sandy soils at elevations <200 meters.	April - May	**Suitable habitat present on site**. Species not observed during focused surveys.
Eastwood's larkspur *Delphinium parryi ssp. eastwoodiae*	--/--/1B.2	Perennial herb known to occur on serpentine based soils (clays) and outcrops in the general San Luis Obispo area, at elevations ranging from 75 to 500 meters	March - May	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Beach spectaclepod *Dithyrea maritima*	--/ST/1B.1	Rhizomatous, perennial herb; blooms March through May; found in sandy soils, usually near shore, in coastal dunes and coastal scrub habitats; ranges from 3 to 50 meters in elevation.	March – Aug	**Suitable habitat present on site**. Species not observed during focused surveys.
Betty's dudleya *Dudleya abramsii ssp. bettinae*	--/--/1B.2	Perennial succulent and is endemic to coastal San Luis Obispo County west of Cerro Romualdo; found in chaparral, coastal scrub, and valley and foothill grasslands, usually on serpentine outcrops or shallow rocky soils; ranges in elevation from 20 to 180 meters.	May - June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Mouse-gray dudleya *Dudleya abramsii ssp. murina*	--/--/1B.3	Perennial succulent herb; occurs in chaparral and cismontane woodland, usually on serpentine rock outcrops, at elevations ranging from 90 to 300 meters.	May-June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Blochman's dudleya *Dudleya blochmaniae ssp. blochmaniae*	--/--/1B.1	Perennial herb; blooms April through June; found on rocky, often clay or serpentine soils in coastal bluff scrub, chaparral, coastal scrub, and valley and foothill grassland; ranges from 5 to 450 meters in elevation.	April - June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Blochman's leafy daisy *Erigeron blochmaniae*	--/--/1B.2	Perennial herb found growing in sand dunes and hills at elevations<70 meters.	July - October	**Suitable habitat present on site**. Species not observed during focused surveys.
Saint's daisy *Erigeron sanctarum*	--/--/4.2	Perennial herb found growing in sand sites, coastal scrub or woodland at elevations <500 meters.	March – June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.

Appendix A. CNDDB List of Special-Status Plant Species Within a Five Mile Radius of the Subject Parcel

Species	Status* Fed/CA/CNPS	Habitat Requirements	Blooming Period	Project Site Suitability/Observations
Indian Knob mountainbalm *Eriodictyon altissimum*	FE/SE/1B.1	Evergreen shrub; blooms March through June; ranges in elevation from 80 to 270 meters and occurs in maritime chaparral, cismontane woodland, and coastal scrub, usually on sandstone; often found in open disturbed areas.	March – June	**Marginally suitable habitat present on site**. Species not present and would have been easily observed and identified if present.
Hoover's button-celery *Eryngium aristulatum var. hooveri*	--/--/1B.1	Vernal pools in alkaline depressions near the coast. 5-45 meters.	July	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
San Luis Obispo wallflower *Erysimum capitatum var. lompocense*	--/--/4.2	Subshrub, sometimes perennial herb, found growing in stabilized coastal sand dunes and coastal scrub at elevations <150 m.	February-May	**Suitable habitat present on site**. Species not present and would have been easily observed and identified if present.
Suffrutescent wallflower *Erysimum suffrutescens*	--/--/4.2	Subshrub, sometimes perennial herb, found growing in stabilized coastal sand dunes and coastal scrub at elevations <150 meters.	January-June	**Suitable habitat present on site**. Species not present and would have been easily observed and identified if present.
San Joaquin spearscale *Extriplex joaquinana*	--/--/1B.2	Found on alkaline soils at elevations<350 meters.	April-September	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Monterey cypress *Hesperocyparis macrocarpa*	--/--/1B.2	Tree found in closed-cone pine and cypress forests at elevations <50 meters.	-	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Mesa horkelia *Horkelia cuneata var. puberula*	--/--/1B.1	Perennial herb that occurs in chaparral, cismontane woodlands, coastal scrub; in sandy or gravelly sites. 70-810 meters.	February-July	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Kellogg's horkelia *Horkelia cuneata var. sericea*	--/--/1B.1	Perennial herb. Occurs in closed-one coniferous forest, chaparral (maritime), and coastal scrub in sandy or gravelly openings. Elevation 10 – 200 meters.	April–September	**Species present onsite.** Species observed during the focused botanical surveys on the subject parcel.
Southwestern spiny rush *Juncus acutus ssp. leopoldii*	--/--/4.2	Perennial herb that grows in salt marshes and alkaline seeps at elevations<300 meters.	June – August	**No suitable habitat present on site.** Species not observed during focused botanical surveys.

Appendix A. CNDDB List of Special-Status Plant Species Within a Five Mile Radius of the Subject Parcel

Species	Status* Fed/CA/CNPS	Habitat Requirements	Blooming Period	Project Site Suitability/Observations
Perennial goldfields *Lasthenia californica ssp. macrantha*	--/--/1B.2	Perennial herb (annual) found in grasslands and dunes along immediate coast.	January-November	**Suitable habitat present on site**. Species not observed during focused surveys.
Coulter's goldfields *Lasthenia glabrata ssp. coulteri*	--/--/1B.1	Annual herb that grows in coastal salt marshes, playas, valley and foothill grassland, and vernal pools usually on alkaline soils from 1- 1,400 meters.	February-June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Jones' layia *Layia jonesii*	--/--/1B.2	Annual herb; blooms March through May; occurs on clay soils and serpentine outcrops in chaparral and valley and foothill grassland; ranges in elevation from 5 to 400 meters.	March-April	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Small-leaved lomatium *Lomatium parvifolium*	--/--/4.2	Perennial herb found growing in pine woodland and serpentine outcrops at elevations from 70 to 150 meters.	February-May	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Palmer's monardella *Monardella palmeri*	--/--/1B.2	Rhizomatous, perennial herb; blooms June through August; occurs on serpentine soils in chaparral and cismontane woodland habitats at elevations ranging from 200 to 800 meters.	June-July	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Southern curly-leaved monardella *Monardella sinuata ssp. sinuata*	--/--/1B.2	Found in sandy soils, coastal strand, dune and sagebrush scrub, coastal chaparral and oak woodland at elevations <300 meters.	April-September	**Suitable habitat present on site**. Species not observed during focused surveys.
San Luis Obispo monardella *Monardella undulata ssp. undulata*	--/--/1B.2	Subshrub found in stabilized dunes, coastal scrub, and stabilized sandy soils at elevations <200 meters.	May-September	**Suitable habitat present on site**. Species not observed during focused surveys.
Coast woolly threads *Nemacaulis denudata var. denudata*	--/--/1B.2	Annual herb that grows on beaches and coastal sand dunes in open spaces of the coastal strand; known to occur in the Montana de Oro area in sandy soils.	April-September	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Diablo Canyon blue grass *Poa diaboli*	--/--/1B.2	Rhizomatous herb occurs in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub with shale substrates. 120 - 400 meters	March - April	**No suitable habitat present on site.** Species not observed during focused botanical surveys.

Appendix A. CNDDB List of Special-Status Plant Species Within a Five Mile Radius of the Subject Parcel

Species	Status* Fed/CA/CNPS	Habitat Requirements	Blooming Period	Project Site Suitability/Observations
Sand almond *Prunus fasciculata var. punctata*	--/--/4.3	Perennial shrub found in sandy soils in scrubland and oak woodlands at elevations <200 meters.	March-April	**Species present onsite.** Species observed during the focused botanical surveys on the subject parcel.
Hoffmann's sanicle *Sanicula hoffmannii*	--/--/4.3	Perennial herb found in shrubby coastal hills and pine woodlands at elevations <500 meters.	March-May	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Adobe sanicle *Sanicula maritima*	--/SR/1B.1	Moist seeps within coastal prairie, chaparral, meadows, and valley and foothill grassland habitats in clay or serpentine soils. 30-240 meters	February-May	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Rayless (chaparral) ragwort *Senecio aphanactis*	--/--/2.2	Chaparral, cismontane woodlands; coastal scrub/alkaline. 15-800 meters	January-April	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Blochman's ragwort *Senecio blochmaniae*	--/--/1B.2	Perennial subshrub found in coastal sand dunes and sandy floodplains at elevations <150 m.	May-November	**Suitable habitat present on site**. Species not present and would have been easily observed and identified if present.
Most beautiful jewel-flower *Streptanthus albidus ssp. peramoenus*	--/--/1B.2	Annual herb; blooms April through June; occurs on serpentine soils in chaparral, valley and foothill grassland, and cismontane woodland, ranging from 120 to 1000 meters in elevation.	April-June	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
California seablite *Suaeda californica*	FE/--/1B.1	Perennial succulent shrub that grows along the margins of coastal salt marshes in a narrow elevational range from 0 to 5 meters; known to occur in the Morro Bay area	July-October	**No suitable habitat present on site.** Species not observed during focused botanical surveys.
Splitting yarn lichen *Sulcaria isidiifera*	--/--/1B.1	On branches of oaks and shrubs, coastal scrub. Elevation: 20 – 30 meters.	N/A	**Suitable habitat present on site**. Species not observed during focused surveys.
Plant/Natural Communities				
Central Dune Scrub			Not present	
Central Maritime Chaparral			Present	
Coastal and Valley Freshwater Marsh			Not present	
Coastal Brackish Marsh			Not present	
Northern Coastal Salt Marsh			Not Present	
Valley Needlegrass Grassland			Not present	

**FE = Federally Endangered; FT = Federally Threatened; SE = State Endangered; ST = State Threatened; SR = State Rare; CE = Candidate for Endangered Status; '—' = no status; List 1B – Rare, threatened, or endangered in California and*

elsewhere; List 2 – Rare, threatened or endangered in California, but more common elsewhere; List 3 – Plants needing more information; List 4 – Limited distribution (Watch List). Source: California Natural Diversity Database (California Department of Fish and Wildlife March 2019); California Native Plant Society Online Inventory of Rare Plants, accessed March 2019 (online at www.cnps.org); Special Vascular Plants, Bryophytes, and Lichens List (California Department of Fish and Wildlife March 2019).

Appendix B: List of Plant Species Observed on the Project Site

Appendix C – List of Plant Species Observed within the Project Area

Scientific Name	Common Name
Acmispon glaber (Lotus scoparius)	Deerweed
Adenostoma fasciculatum	Chamise
Arctostaphylos morroensis	Morro manzanita
Cardionema ramosissimum	Sand mat
Ceanothus cuneatus	Buckbrush
Chorizanthe angustifolia	Narrow-leaf spineflower
*Conicosia pugioniformis**	Narrow-leaved ice plant
Crocanthemum suffrutescens	Rush rose
Croton californicus	California croton
*Ehrharta calycina**	Veldt grass
Ericameria ericoides	Mock heather
Eriogonum parvifolium	Dune buckwheat
Eschscholzia californica	California poppy
*Festuca myuros**	Rattail sixweeks grass
Horkelia cuneata var. sericea	Kellogg's horkelia
Marah fabacea	California man-root
Mimulus aurantiacus	Bush monkey flower
Quercus agrifolia	Coast live oak
Salvia mellifera	Black sage
Solanum xanti	Nightshade

*Nonnative species

Appendix C: Photo Documentation

- **3 Photos**

Photo 1: Photo viewing north and through the proposed building site.

May 23, 2019

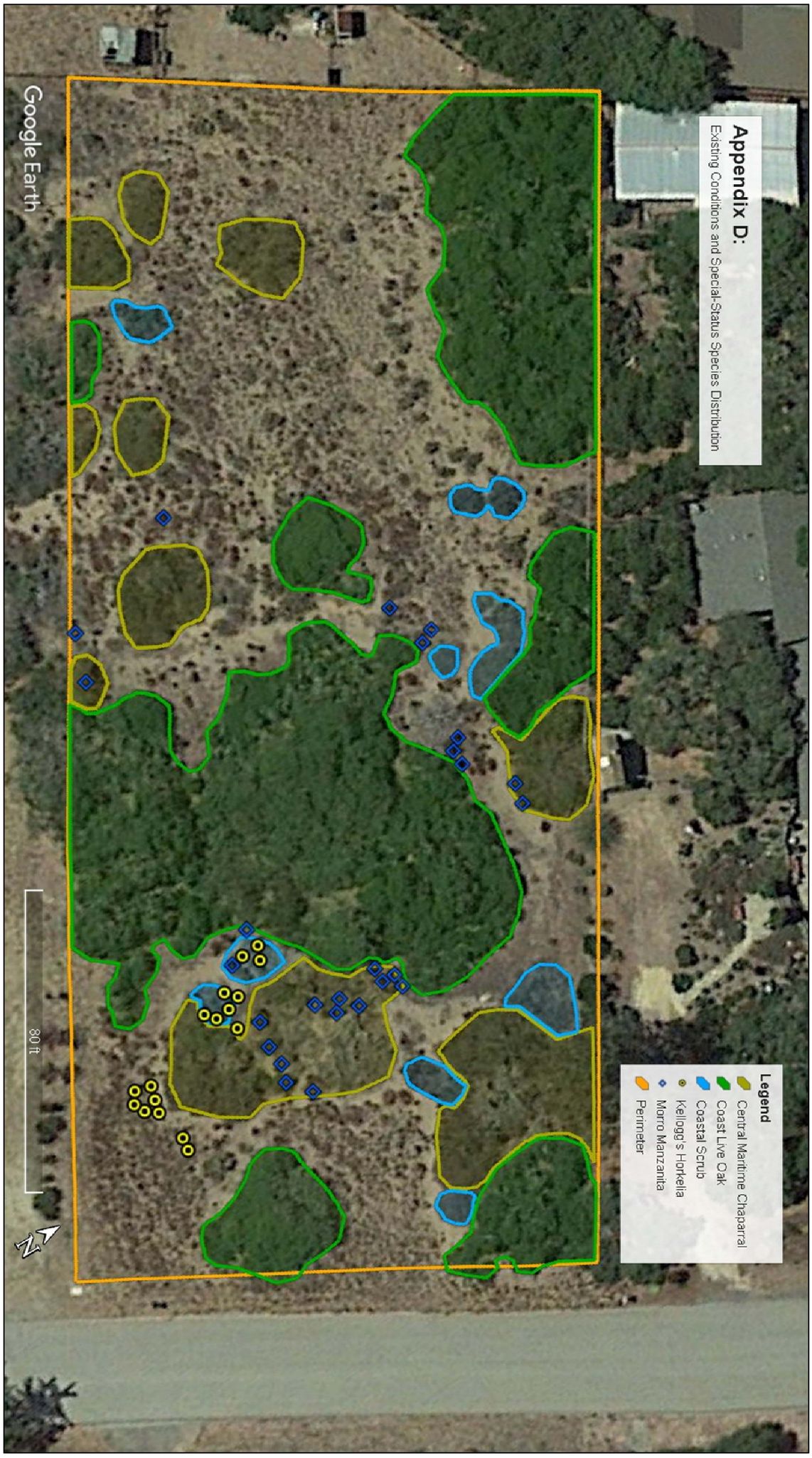
Photo 2: Photo viewing west along proposed driveway to residence.

May 23, 2019

Photo 3: Photo viewing southeast along proposed driveway to Andre Street.

May 23, 2019

Appendix D: Existing Conditions and Special-Status Species Distribution



*All locations are approximate.

Appendix E: Proposed Project Site Plans


1 Site
1/16" = 1'-0"
SFR
REAR SETBACK
10' - 0"
PATIO
PATIO
5' - 0"
SIDE SETBACK
5' - 0"
SIDE SETBACK
1200 G. SEPTIC TANK
RESERVE SEPTIC LOCATION
CONC. APRON
20' LEACHLINES
SFR
2 G PARKING
SFR
DG DRIVEWAY
PROPOSED WELL LOCATION
FRONT SETBACK
25' - 0"
2049 Andre St
0
8'
16'
32'
REF. NORTH

Appendix F: CNDDB Forms for Special-Status Species Observations

CNDDB Online Field Survey Form Report

California Natural Diversity Database
Department of Fish and Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/

This data has been reported to the CNDDB, but may not have been evaluated by the CNDDB staff

Source code OBE19F0003
Quad code 3512037
Occ. no. _____
EO index no. _____
Map index no. _____

Scientific name: *Horkelia cuneata var. sericea*

Common name: Kellogg's horkelia

Date of field work (mm-dd-yyyy): 08-13-2019

Comment about field work date(s): Species observed during focused botanical surveys.

OBSERVER INFORMATION

Observer: Dwayne Oberhoff

Affiliation: Ecological Assets Management,

Address: Ecological Assets Management, LLC

Email: dwayne@ecologicalmgmt.com

Phone: (805) 440-6137

Other observers:

DETERMINATION

Keyed in:

Compared w/ specimen at:

Compared w/ image in:

By another person: Dr. David Keil

Other:

Identification explanation:

Identification confidence: Very confident

Species found: Yes **If not found, why not?**

Level of survey effort: Conducted three focused surveys and two subsequent assessments on distribution and density.

Total number of individuals: 17

Collection? No **Collection number:**

Museum/Herbarium:

PLANT INFORMATION

Phenology:

vegetative	flowering	fruiting
100 %	100 %	90 %

SITE INFORMATION

Habitat description: Observed in an area with a mosaic of nonnative annual grassland (veldt grass), coastal scrub and central maritime chaparral

Slope: 2-3%

Land owner/manager: Private

Aspect: Northeast

Site condition + population viability: Fair

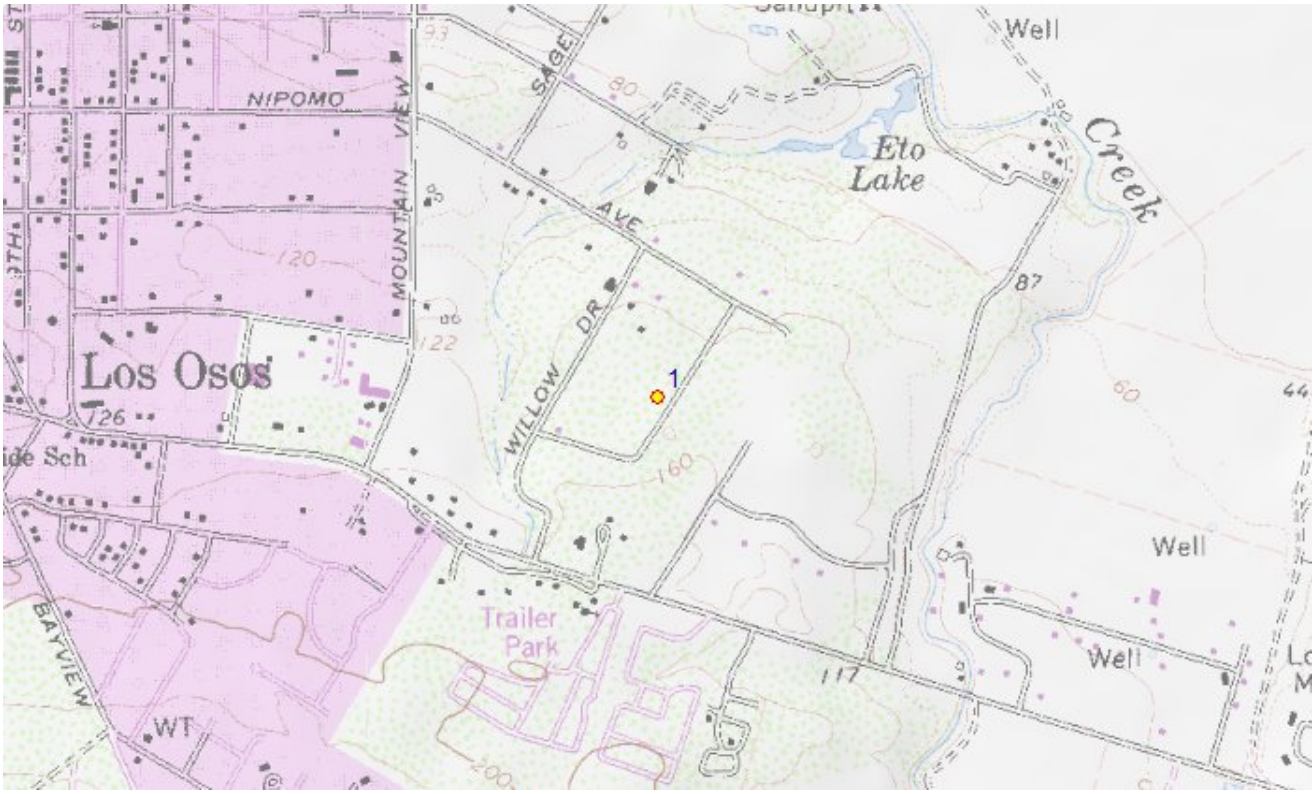
Immediate & surrounding land use: Existing residences on 1.0 acre parcels

Visible disturbances: Annual mowing for fire hazard abatement

Threats: Future development and annual fire abatement activities

General comments:

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
	San Luis Obispo	Morro Bay South	147	35.31159	-120.81883	698294	3909781	10
1	**Public Land Survey**	**Feature Comment**						
	M T30S R11E 17							

The mapped feature is accurate within: 20 m

Source of mapped feature: Google Earth

Mapping notes: none

Location/directions comments: none

Attachment(s):

CNDDB Online Field Survey Form Report

California Natural Diversity Database
Department of Fish and Wildlife
1416 9th Street, Suite 1266
Sacramento, CA 95814
Fax: 916.324.0475
cnddb@wildlife.ca.gov
www.dfg.ca.gov/biogeodata/cnddb/

This data has been reported to the CNDDB, but may not have been evaluated by the CNDDB staff

Source code OBE19F0004
Quad code 3512037
Occ. no. _____
EO index no. _____
Map index no. _____

Scientific name: *Arctostaphylos morroensis*

Common name: Morro manzanita

Date of field work (mm-dd-yyyy): 08-13-2019

Comment about field work date(s): Assessment conducted to determine distribution and density on the parcel

OBSERVER INFORMATION

Observer: Dwayne Oberhoff

Affiliation:

Address: Ecological Assets Management, LLC

Email: dwayne@ecologicalmgmt.com

Phone: (805) 440-6137

Other observers:

DETERMINATION

Keyed in: Jepson Manual

Compared w/ specimen at:

Compared w/ image in:

By another person:

Other:

Identification explanation:

Identification confidence: Very confident

Species found: Yes **If not found, why not?**

Level of survey effort: Conducted three focused botanical surveys

Total number of individuals: 26

Collection? No **Collection number:**

Museum/Herbarium:

PLANT INFORMATION

Phenology:

100 %	0 %	100 %
vegetative	flowering	fruiting

SITE INFORMATION

Habitat description: Four plant communities were observed on the subject parcel during the site visits. Native habitats observed on the subject parcel were Coast Live Oak Woodland, Central Maritime Chaparral and Coastal Scrub. The areas of Central Maritime Chaparral on the subject parcel were dominated by buckbrush (Ceanothus cuneatus), but scattered Morro manzanita (Arctostaphylos morroensis) were also present. The few small isolated areas with coastal scrub were dominated by mock heather (Ericameria ericoides), black sage (Salvia mellifera) and dune buckwheat (Eriogonum parvifolium). Non-native annual grasslands is also present which is dominated by sparse clumps of veldt grass (Ehrharta calycina) and included scattered individual mock heather and bush monkey flower (Mimulus aurantiacus) shrubs.

Slope: 2-3% Land owner/manager: Private

Aspect: Northeast

Site condition + population viability: Fair

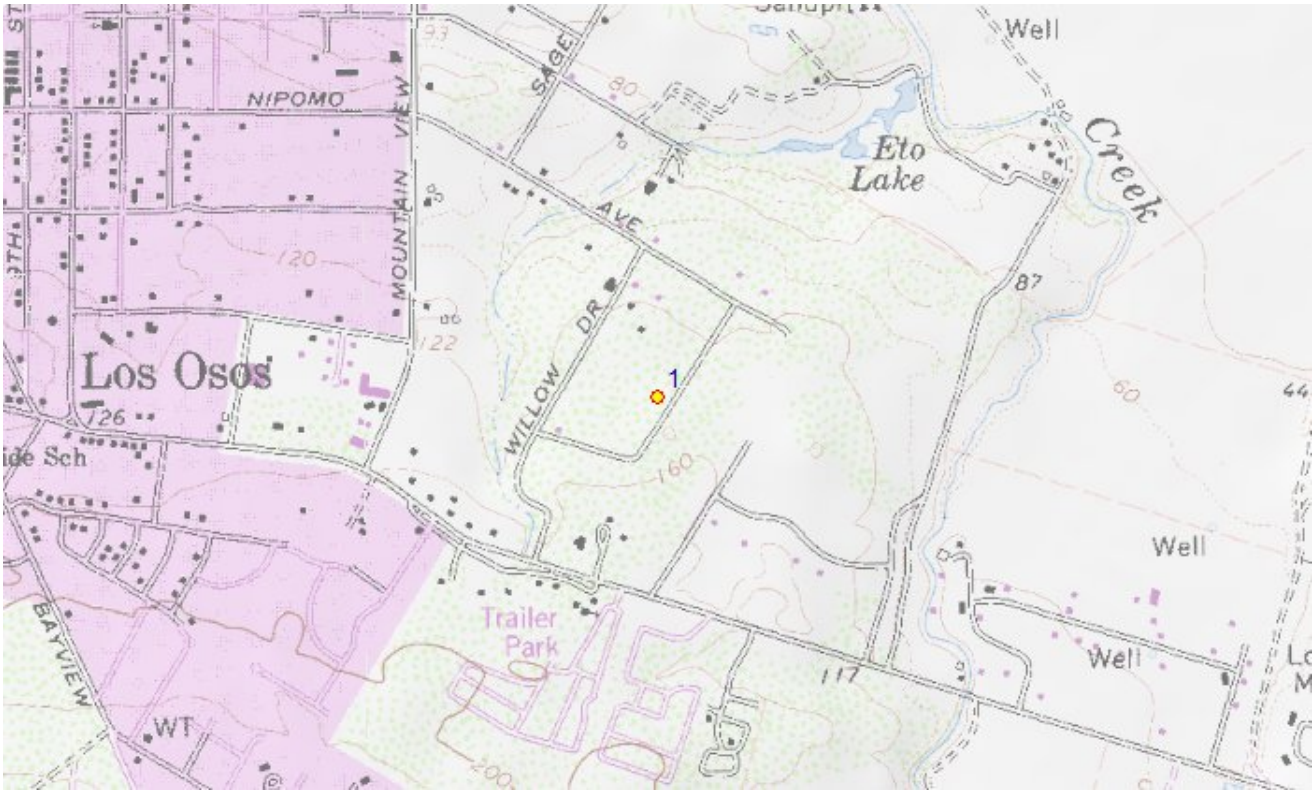
Immediate & surrounding land use: Large 1.0 acre residential parcels with existing residences.

Visible disturbances: Disturbances from fire hazard abatement

Threats: Current proposed development will remove nine of the 17 observed manzanita.

General comments: none

MAP INFORMATION



ID	County	24K Quadrangle	Elev. (ft)	Latitude NAD83	Longitude NAD83	UTM E NAD83	UTM N NAD83	UTM Zone
	San Luis Obispo	Morro Bay South	147	35.31159	-120.81883	698294	3909781	10
1	**Public Land Survey**	**Feature Comment**						
	M T30S R11E 17							

The mapped feature is accurate within: 20 m

Source of mapped feature: Google Earth

Mapping notes: none

Location/directions comments: none

Attachment(s): 2019-05-23 16.55.56.jpg, Photo of Morro manzanita on the parcel.

Morro Manzanita and Coast Live Oak Restoration Plan 2049 Andre Street (APN 074-413-017), Los Osos, San Luis Obispo County, California

DRC2019-00125

Prepared for:

Ms. Pat Desimone
2733 Palos Verdes Drive North
Palos Verdes Peninsula, CA 90274

Prepared by:

EAM
Ecological Assets Management, LLC

October 9, 2019

PO Box 6840, Los Osos, CA 93412 | 805.440.6137
http://www.ecologicalmgmt.com | dwayne@ecologicalmgmt.com

Report prepared by:

Dwayne Oberhoff
Senior Biologist/LLC Manager
Ecological Assets Management, LLC
PO Box 6840
Los Osos, CA 93412
805.440.6137

Signature

October 9, 2019
Date

INTRODUCTION

This "Morro Manzanita and Coast Live Oak Restoration Plan" (plan) has been prepared for Ms. Pat Desimone to address the measures necessary to mitigate impacts to Morro manzanita and coast live oak from a proposed single-family residential project on the 1.0-acre parcel (subject parcel) located at 2049 Andre Street (APN 074-413-017) in Los Osos, San Luis Obispo County, California. The primary purpose of this plan is to establish a methodology to mitigate project-related impacts to nine (9) Morro manzanita and five (5) coast live oak while preserving and protecting the remaining manzanita and oaks on the subject parcel. This plan also details monitoring the restoration efforts and the success of all new plantings on the subject parcel for a period of five years to confirm successful establishment. During this five-year period annual monitoring reports will be prepared detailing the progress of the restoration efforts and submitted to San Luis Obispo County Department of Planning and Building.

SITE LOCATION AND PROPOSED PROJECT

The subject parcel is located in western San Luis Obispo County, California, within the community of Los Osos (refer to Figure 1) at 2049 Andre Street (APN 074-413-017). The next closest main cross street is Nipomo Avenue located 0.15-mile to the north of the subject parcel.

The proposed project is the construction of a single-family residence with an attached garage. In addition, the project includes an improved decomposed granite driveway from Andre Street to the residence, two leach fields, potable water well, and associated hardscaped areas immediately adjacent to the residence (refer to Appendix B). The proposed project is within the Residential Suburban land use category and is in the Estero Planning Area.

BOTANICAL SURVEY RESULTS

Based on the results of the botanical resources survey conducted by EAM in the spring 2019, the presence of Morro manzanita and coast live oak on the subject parcel, and the proposed project, future development on the subject parcel will impact or negatively affect these species.

Nine (9) Morro manzanita and five (5) coast live oak trees will be impacted and will be mitigated according to this plan. Mitigation for unavoidable impacts to mature Morro manzanita in Los Osos has previously required replanting at ratios as high as 5:1 replacement and mitigation for impacts to coast live oaks has previously required replanting at a 4:1 ratio for removed oaks and a 2:1 ratio for impacted, but retained oaks. Based on these mitigation ratios the replacement plantings would require a total of forty-five (45) replacement Morro manzanita and twenty (20) oaks.

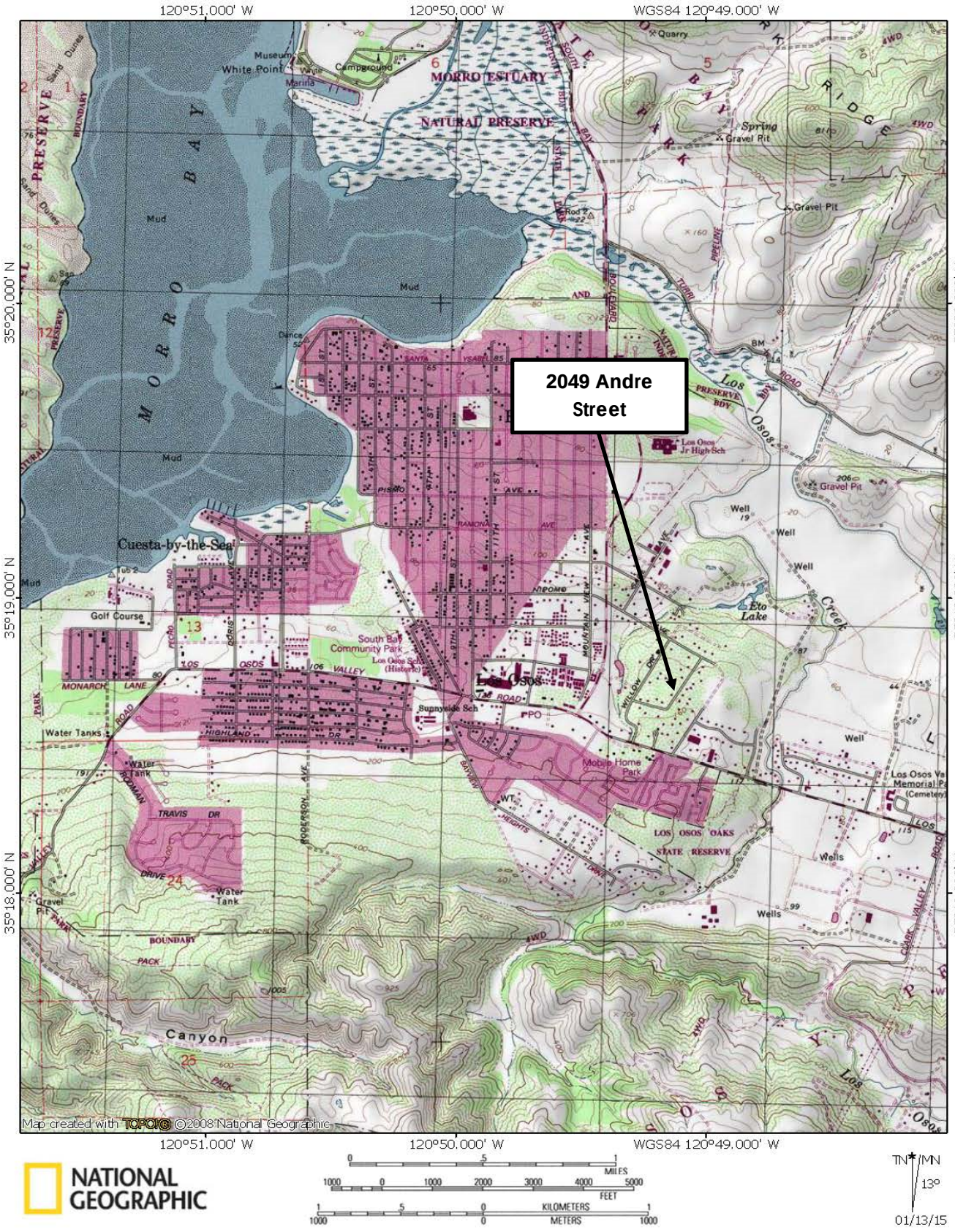


FIGURE 1. Location map of subject parcel in Los Osos, CA.

Mitigating impacts with forty-five (45) replacement Morro manzanita and twenty (20) replacement coast live oak is feasible on site with sufficient areas on the subject parcel (refer to Appendix A). These areas (e.g. "Restoration Areas" on Appendix A) totals approximately 6,100 square feet and is sufficiently sized to plant the replacement Morro manzanita and coast live oak trees on the subject parcel.

SPECIES DESCRIPTION

Morro Manzanita (*Arctostaphylos morroensis*)

Federal Status - Threatened

State Status – None

Other- California Rare Plant Rank (CRPR) List 1B.1

Morro manzanita is a woody evergreen shrub in the Ericaceae family (heather family) that occurs in maritime chaparral, cismontane woodland, coastal dune, and coastal scrub communities in the areas of San Luis Obispo County around Morro Bay. Morro manzanita prefers sandy loam or Baywood fine sand soil types and occurs between 15 to 115 meters in elevation. Morro manzanita typically flowers during the months of December through March.

Coast Live Oak (*Quercus agrifolia var. agrifolia*)

Federal Status - None

State Status – None

Other - County of San Luis Obispo General Plan Conservation and Open Space Element: Policy BR 1.4 No Net Loss and Policy BR 3.2 Protection of Native Trees in New Development

Coast live oak is a native evergreen tree in the Fagacea family (oak and beech family) that occurs along coastal California from Sonoma County to San Diego County. It occurs throughout the western half of San Luis Obispo County in valleys, slopes, mixed-evergreen forest, and woodlands at elevations less than 4,400 feet. They grow on a variety of soils and in the Los Osos area they grow on Baywood fine sands.

RESTORATION DESIGN

This restoration plan will mitigate project-related impacts to nine (9) Morro manzanita and five (5) coast live oak on the subject parcel with new plantings being planted on-site within an approximate 6,100 square foot "Restoration Areas" (refer to Appendix A). In addition, this restoration plan will also protect the remaining Morro manzanita and coast live oak within the adjacent portions of the subject parcel. Protection goals outlined in this plan will be achieved through a monitoring program which be performed annually for five years to determine the establishment and continued success of the Morro manzanita and coast live oak plantings.

Implementation Plan

Existing Population Avoidance and Protection

The proposed project will impact nine (9) Morro manzanita and five (5) coast live oak located on the subject parcel. The proposed building portion of the subject parcel will be separated with high-visibility orange construction fencing (installed with metal T-post) that will be installed by a qualified biologist prior to the start of grubbing and grading activities. This fencing will prevent direct construction related impacts to all retained manzanita and oaks on the subject parcel. Any damage to the fence shall be repaired as soon as possible.

Restoration Site Selection

Currently there are no other options to mitigate impacts to Morro manzanita in the Los Osos area other than on-site planting. This restoration plan will mitigate impacts to nine (9) Morro manzanita with forty-five (45) new plantings and five (5) coast live oak with twenty (20) new plantings. The required mitigation planting is feasible on site with approximately 6,100 square feet of total available open space located in various areas on the subject parcel (refer to Appendix A).

Mitigation Site Preparation

The restoration area shall be carefully weeded by hand to remove exotic and invasive species to reduce competition for Morro manzanita plantings prior to planting seeds or container stock. Because the subject parcel does contain some moderate slopes and highly erodible sandy soils, the potential for erosion following any vegetation removal is high and could result in additional impacts to sensitive vegetation and habitats adjacent to approved development areas, and to existing downslope residential uses. Because of this, erosion control measures (e.g. silt fences, straw wattles, erosion control matting/blanket, etc.) should be implemented prior to or immediately following planting of the manzanita and oaks.

Seed/Container Stock Source

Seed and/or container stock for the restoration efforts shall be collected from the subject parcel, if feasible. If not feasible, container stock from either seed or cuttings from the general vicinity (<1.0-mile) of the subject parcel will be utilized.

Planting Plan

Implementation of the planting plan will be done or overseen by a qualified biologist with experience in plant/tree restoration to ensure the design and goals of the restoration plan are successfully met. Forty-five (45) manzanitas and twenty (20) oaks plants will be planted within four (4) areas on the subject parcel and throughout any open areas of the subject parcel that do not conflict with the proposed project or existing areas of manzanita or oak trees (refer to Appendix A). The plants will be installed between three and six feet apart and randomly placed. Each planting

location will be hand dug to a depth of two to three inches deeper and wider than the root ball of the container stock and backfilled with the excavated soil. Remaining soil will be formed around the plant along the outer diameter of the excavated hole to form a dam that will collect and direct rainfall and irrigation to the root system.

Installation of container stock will occur in early winter once winter rains have commenced to maximize in-ground growing during highest moisture levels. Depending on winter conditions, it may be necessary to install a drip irrigation system to water the restoration plantings, which should be watered at least once a week during the first summer. To ensure higher survival rates the restoration plants shall also have exclusionary cages installed around each plant above ground and thin gauge wire baskets will be installed in each hole before planting to ensure burrowing animals do not damage the root systems. Exclusionary cages will need to be sized appropriately and monitored during the monitoring period to ensure the exclusionary cages do not impede or deform growth. If during the five-year period any of the plantings begin to outgrow the above ground cages, the cage should be removed.

Following implementation of the planting plan an "Implementation Report" shall be prepared by the qualified biologist documenting the details of the in-field efforts. The report shall be submitted to the San Luis Obispo County, Planning and Building Department.

Monitoring Plan

In order to accomplish this plan's goals and objectives of mitigating for the loss of nine (9) Morro manzanita and five (5) coast live oak, the monitoring program must provide quantitative and qualitative data to be used to determine the success of the restoration efforts, and to identify whether remedial actions are necessary. To be successful, this Restoration Plan must preserve existing self-sustaining populations and establish viable and self-sustaining plants as evidenced by survival and natural reproduction of Morro manzanita and coast live oak within the selected restoration area of the subject parcel. If monitoring data indicates that these goals are not being met, remedial efforts must be undertaken to identify and correct the inhibiting factors.

Performance Criteria

The forty-five (45) Morro manzanita and twenty (20) coast live oak that will be planted on the subject parcel per this restoration plan will be monitored for five years following the first-year implementation efforts with the central tenet of the monitoring program to measure whether or not the performance criteria have been met. The performance criteria used to assess the establishment of the new plantings will be based on comparisons of annual monitoring data. Data collected annually and used for comparison will consist of:

- Survival rate (live Morro manzanita and coast live oak present annually) – minimum of 80% survival rate of plantings after five years (36 of the 45 manzanita and 16 of the 20 oak plantings surviving for five years); and,
- Condition of plantings – after five years the plantings will be self-maintaining and in good health with ample green foliage, with no signs of stress from drought, damage from insects or herbivorous animals, and free from disease and fungus.

Field Monitoring

Field monitoring efforts will collect and evaluate data on the success of restoration efforts and identify issues that could result in failure. Field monitoring will consist of brief visits timed to coincide with scheduled maintenance activities, and will include preparation of brief monitoring reports, which discuss factors such as current survival of plantings, condition of plantings, weed encroachment, erosion concerns, maintenance techniques, and potential need for remedial restoration efforts. Methods to be used for field sampling data collection are as follows:

- *Photo Documentation* - Permanent photo documentation points will be established for the overall restoration site and each quadrat location. This photographic record will assist in the qualitative assessment of the restoration effort.
- *Data Standardization* - All data of survival of plantings and condition of plantings obtained during sampling procedures shall be recorded in the field on data sheets by the implementing/monitoring biologist.

Monitoring Schedule and Reporting

The plantings will be monitored once a year to document growth, survival rates and site protection during their respective growth and reproductive stages (refer to Table 1). Scheduled monitoring should take place in conjunction with weeding and maintenance work (if feasible). Additional monitoring visits may be necessary after heavy precipitation occurring during the implementation period, or during any grading or construction in the vicinity of the restoration site.

An annual monitoring report will be prepared following the implementation of the restoration plan and annually during the five-year monitoring period. The annual reports will be submitted to the County by December 31 of each year. The annual monitoring reports will summarize site conditions and maintenance practices, and include a discussion of success or failure, based on all collected data. Photo documentation will be included in annual reports.

A final project completion report, including an overall evaluation of the restoration effort will be prepared at the end of the five-year restoration period. The responsible party will ensure that the annual monitoring reports and the final completion report are submitted to County of San Luis Obispo, Planning and Building Department.

Table 1. Morro Manzanita and Coast Live Oak Restoration and Monitoring Schedule

	Tasks	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Implementation Period	Site Prep, Weed Removal										X	X	
	Install Container Stock/Plant Seeds											X	X
	Install Fencing											X	X
	Erosion Monitoring	X	X	X	X								X
Monitoring Period	**First Year Tasks**												
	Weeding/Maintenance				X	X	X						
	Success Monitoring*					X	X	X	X	X			
	Annual Report												X
	Second Year Tasks												
	Weeding/Maintenance				X	X	X						
	Success Monitoring*					X	X	X	X	X			
	Annual Report												X
	Third Year Tasks												
	Weeding/Maintenance				X	X	X						
	Success Monitoring*					X	X	X	X	X			
	Annual Report												X
	Fourth Year Tasks												
	Weeding/Maintenance				X	X	X						
	Success Monitoring*					X	X	X	X	X			
	Annual Report												X
	Fifth Year Tasks												
	Weeding/Maintenance				X	X	X						
	Success Monitoring*					X	X	X	X	X			
	Final Annual Report												X

*One annual site visit to monitor success of restoration efforts. If feasible, conducted during weeding/maintenance activities.

Adaptive Management

If annual monitoring data analysis indicates the plantings are not surviving and healthy within the five-year time frame, the responsible party will begin an immediate assessment of why the restoration has failed. If the site trends indicate that the success criteria will eventually be met, but in a longer time frame than anticipated, maintenance and monitoring will continue until 80% of the plantings have become established. If a total site failure is evident, the responsible party will, in consultation with the appropriate agencies, determine what corrective action(s) should be taken.

Long-term Maintenance and Protection Measures

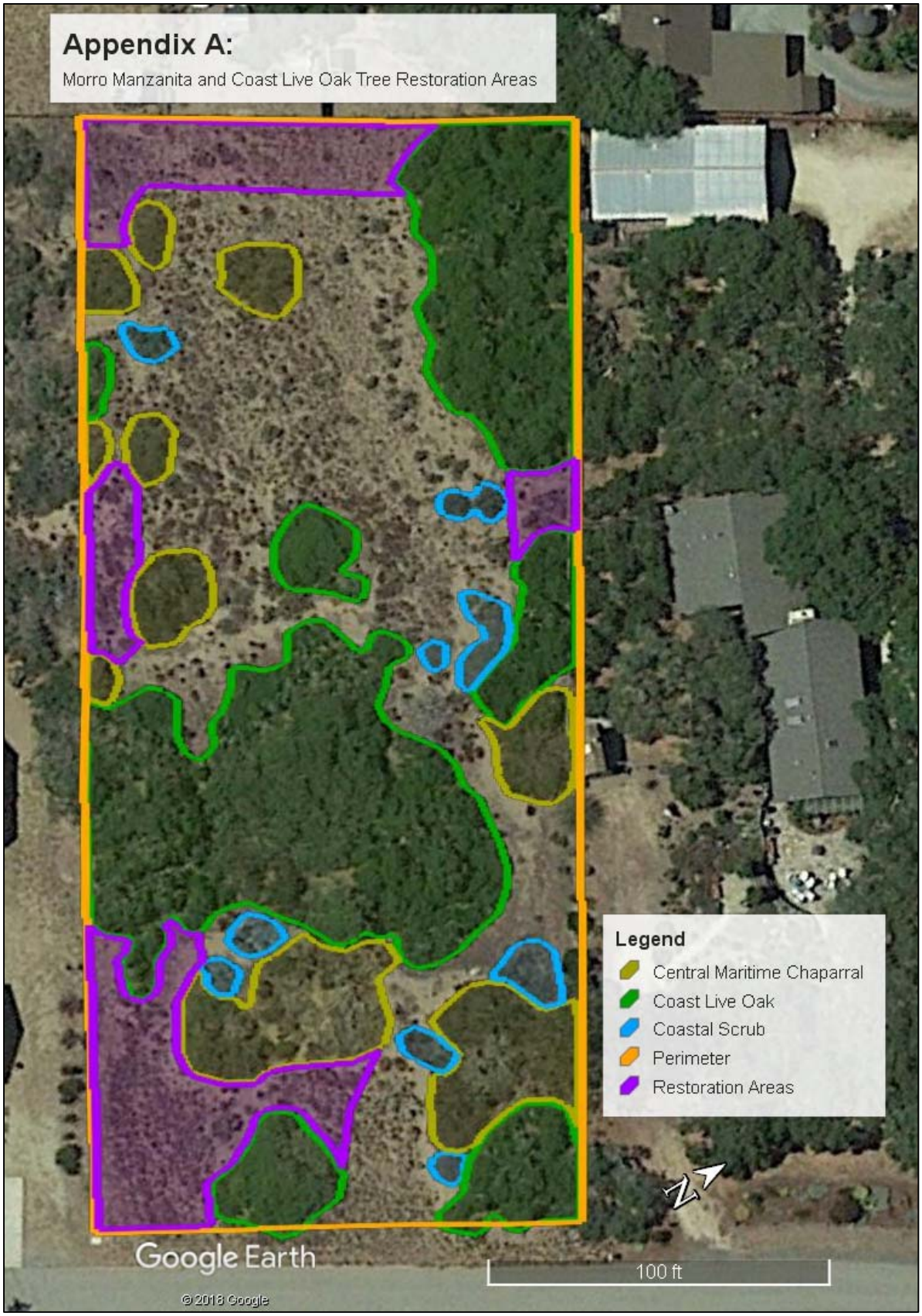
The responsible party will conduct long-term maintenance and protection of the restoration site. Protection measures will include installation of fencing to prevent

herbivory, removal of invasive weed species, and erosion control. In addition, to reduce the potential for wildland fires to impact the adjacent residence, the established Morro manzanita should be trimmed and thinned. In addition, dense grass understory should be cut and all dying branches on the plants or dead branches on the ground shall be removed from the restoration site.

Completion of Mitigation

Following the five-year monitoring of the restoration efforts, the responsible party will request a final site inspection by the County of San Luis Obispo. If the performance criteria detailed in this plan have been met no additional monitoring or restoration efforts will be required.

Appendix A: Morro Manzanita and Coast Live Oak Tree Restoration Areas


Appendix A:
Morro Manzanita and Coast Live Oak Tree Restoration Areas
Legend
Central Maritime Chaparral
Coast Live Oak
Coastal Scrub
Perimeter
Restoration Areas
N
Google Earth
© 2016 Google
100 ft

Appendix B: Proposed Project Site Plans


2049 Andre St
SIDE SETBACK
SIDE SETBACK
REAR SETBACK
FRONT SETBACK
PATIO
PATIO
SFR
SFR
SFR
SFR

Appendix C: Photo Documentation

- **3 Photos**

Photo 1: Photo viewing north and through the proposed building site.

May 23, 2019

Photo 2: Photo viewing west along proposed driveway to residence.

May 23, 2019

Photo 3: Photo viewing southeast along proposed driveway to Andre Street.

May 23, 2019

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
08EVEN00-2018-CPA-0205

October 11, 2018

Richard W. Phillips
P.O. Box 4654
Paso Robles, California 93447

Subject: Incidental Take Permit TE41503C-0 for the Phillips Single-Family Residence, Los Osos, San Luis Obispo County, California (ANNOTATED)

Dear Mr. Phillips:

We have reviewed your incidental take permit application and final draft habitat conservation plan (HCP) submitted for the construction of a single-family residence and associated uses on an approximate one-acre parcel legally described as County of San Luis Obispo Assessor Parcel Number 074-413-017. The parcel is physically located at 2049 Andre Street in the unincorporated community of Los Osos. You requested a permit term of 10 years to authorize take of the Morro shoulderband snail likely to result from the activities identified and described in the HCP.

The HCP includes minimization measures that you commit to fund and implement as well as compensation for the unavoidable take of Morro shoulderband snail in the form of payment of an in-lieu fee of $8,552 to an Impact-Directed Environmental Account administered by the National Fish and Wildlife Foundation. This fee will fund recovery actions for the Morro shoulderband snail identified in the recovery plan for this species.

Based on our evaluation of your application and HCP, we determine that all permit issuance criteria established pursuant to Fish and Wildlife Regulation 50 CFR 17.22 are met. Under the authority of section 10(a)(l)(B) of the Endangered Species Act of 1973, as amended, take of Morro shoulderband snails is authorized within the permit area in the form specified and in conjunction with those activities identified in the HCP. Enclosed please find permit TE41503C-0; we encourage you to review its terms and conditions.

We thank you for your cooperation and patience during this process. Should you have any questions regarding your permit or the contents of this letter, please contact Julie M. Vanderwier of my staff at (805) 677-3400 or julie_vanderwier@fws.gov.

Sincerely,

Stephen P. Henry
Field Office Supervisor

Enclosure: Federal Fish and Wildlife Permit TE41503C-0

NATIVE ENDANGERED SP. HABITAT CONSERVATION PLAN
ENDANGERED WILDLIFE

Permit Number: TE41503C-0

Effective: 10-11-2018 Expires: 10-10-2028

Issuing Office:

Department of the Interior
U.S. FISH & WILDLIFE SERVICE
Endangered Species Permit Office
2800 Cottage Way, Suite W-2606
Sacramento, CA 95825-1846
permitsR8ES@fws.gov

Stephen P. Henry, Field Office Supervisor, Ventura Fish and Wildlife Office

Permittee:

RICHARD W. PHILLIPS
P.O. BOX 4654
PASO ROBLES, CA 93447
U.S.A.

Authority: Statutes and Regulations: 16 USC 1539(a); 50 CFR 17.22, 50 CFR 13.

Location where authorized activity may be conducted:

Activities are restricted to the approximate one-acre parcel legally described as County of San Luis Obispo Assessor Parcel Number 074-413-017 and physically located at 2049 Andre Avenue in Los Osos, an unincorporated community western San Luis Obispo County, California.

Reporting requirements:

See permit conditions for reporting requirements

Authorizations and Conditions:

A. General conditions set out in Subpart B of 50 CFR 13, and specific conditions contained in federal regulations cited above, are hereby made a part of this permit. All activities authorized herein must be carried out in accordance with and for the purposes described in the application submitted. Continued validity, or renewal of this permit is subject to complete and timely compliance with all applicable conditions, including the filing of all required information and reports.

B. The validity of this permit is also conditioned upon strict observance of all applicable foreign, state, local tribal, or other federal law.

C. Valid for use by the Permittee named above.

D. The authorization granted by this permit is subject to, and in compliance with the *Habitat Conservation Plan, Single-Family Residential Development Project, 2049 Andre Avenue (APN 074-413-017), Los Osos, California* (HCP; Phillips 2017). This permit and its supporting HCP are binding upon the Permittee and/or any authorized officer, employee, contractor, or agent conducting permitted activities.

E. The Permittee is authorized under the federal Endangered Species Act of 1973, as amended (Act), to incidentally take (in the form of capture, injury, or mortality) the federally endangered Morro shoulderband snail (*Helminthoglypta walkeriana*) within the following area: the parcel legally described as County of San Luis Obispo Assessor Parcel Number 074-413-017 and physically located at 2049 Andre Avenue in Los Osos, San Luis Obispo County, California to the extent that the take would otherwise be prohibited under section 9 of the Act and its implementing regulations or pursuant to a rule promulgated under section 4(d) of the Act.

Take of individual Morro shoulderband snails is authorized in the form of capture of up to 25 adults or juveniles and injury or mortality of up to 5 adults or juveniles in association with activities covered under the HCP for the duration of the 10-year permit term. All take must be incidental to otherwise lawful activities associated with the development of a single-family residence and associated uses as described in the HCP and conditioned herein.

F. Prior to the implementation of any activities (inclusive of hazard abatement or vegetation clearing in association with site preparation), the Permittee will provide to the Service's Ventura Fish and Wildlife Office and the County of San Luis Obispo Planning and Building Department a receipt for payment of the mitigation fee in the amount of $8,552 to the Morro shoulderband snail Impact Directed Environmental Account held by the National Fish and Wildlife Foundation.

G. Only Service-approved biologists can conduct pre-activity and construction surveys for Morro shoulderband snail and monitor for, capture, and move individual snails out of harm's way into a Service-approved receptor site. The Permittee and/or their authorized office, employee, contractor, or agent must request and receive approval of those biologists he wishes to have conduct said activities and the receptor site prior to the commencement of any activities that could result in take of Morro shoulderband snail. Requests must be received at least 10 working days prior to the commencement of specified activities. The approved biologist will notify the Ventura Fish and Wildlife Office of their intent to conduct surveys or monitoring either by phone or writing (electronic mail permissible) 48 hour prior to the anticipated start of said activities. It should be noted that possession of a section 10(a)(1) (A) recovery permit for Morro shoulderband snail cannot substitute for this approval process and that written Service approval is valid only for the area described in the HCP and authorized in this permit.

H. Minimization and mitigation measures and monitoring/reporting obligations must be consistent with those identified in HCP Chapter 5.

I. All remains of dead, intact Morro shoulderband snails subject to take in accordance with this permit will be repositied at a professionally maintained facility widely accessible for scientific study. Those considered acceptable for purposes of this permit include the following: California Academy of Sciences, Golden Gate Park, San Francisco, California 94118 (415) 750-7037 or the Santa Barbara Museum of Nature History, Invertebrates Department, 2559 Puesta del Sol Road, Santa Barbara, California 93105 (805) 682-4711. Arrangements regarding the remains as museum specimens with the receiving institution need to be completed prior to the commencement of any survey/monitoring activity.

J. A copy of this permit must be in the possession of the Permittee and/or his authorized office, employee, contractor, or agent while conduction activities that could result in take of Morro shoulderband snail. Please direct any questions regarding use and reliance on this permit to the Field Supervisor, Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, Ventura, California 93003, (805) 644-1766 and include the permit number in all correspondence concerning the permit.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
08EVEN00-2018-CPA-0205

October 11, 2018

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F. Prior to the implementation of any activities (inclusive of hazard abatement or vegetation clearing in association with site preparation), the Permittee will provide to the Service's Ventura Fish and Wildlife Office and the County of San Luis Obispo Planning and Building Department a receipt for payment of the mitigation fee in the amount of $8,552 to the Morro shoulderband snail Impact Directed Environmental Account held by the National Fish and Wildlife Foundation.

G. Only Service-approved biologists can conduct pre-activity and construction surveys for Morro shoulderband snail and monitor for, capture, and move individual snails out of harm's way into a Service-approved receptor site. The Permittee and/or their authorized office, employee, contractor, or agent must request and receive approval of those biologists he wishes to have conduct said activities and the receptor site prior to the commencement of any activities that could result in take of Morro shoulderband snail. Requests must be received at least 10 working days prior to the commencement of specified activities. The approved biologist will notify the Ventura Fish and Wildlife Office of their intent to conduct surveys or monitoring either by phone or writing (electronic mail permissible) 48 hour prior to the anticipated start of said activities. It should be noted that possession of a section 10(a)(1) (A) recovery permit for Morro shoulderband snail cannot substitute for this approval process and that written Service approval is valid only for the area described in the HCP and authorized in this permit.

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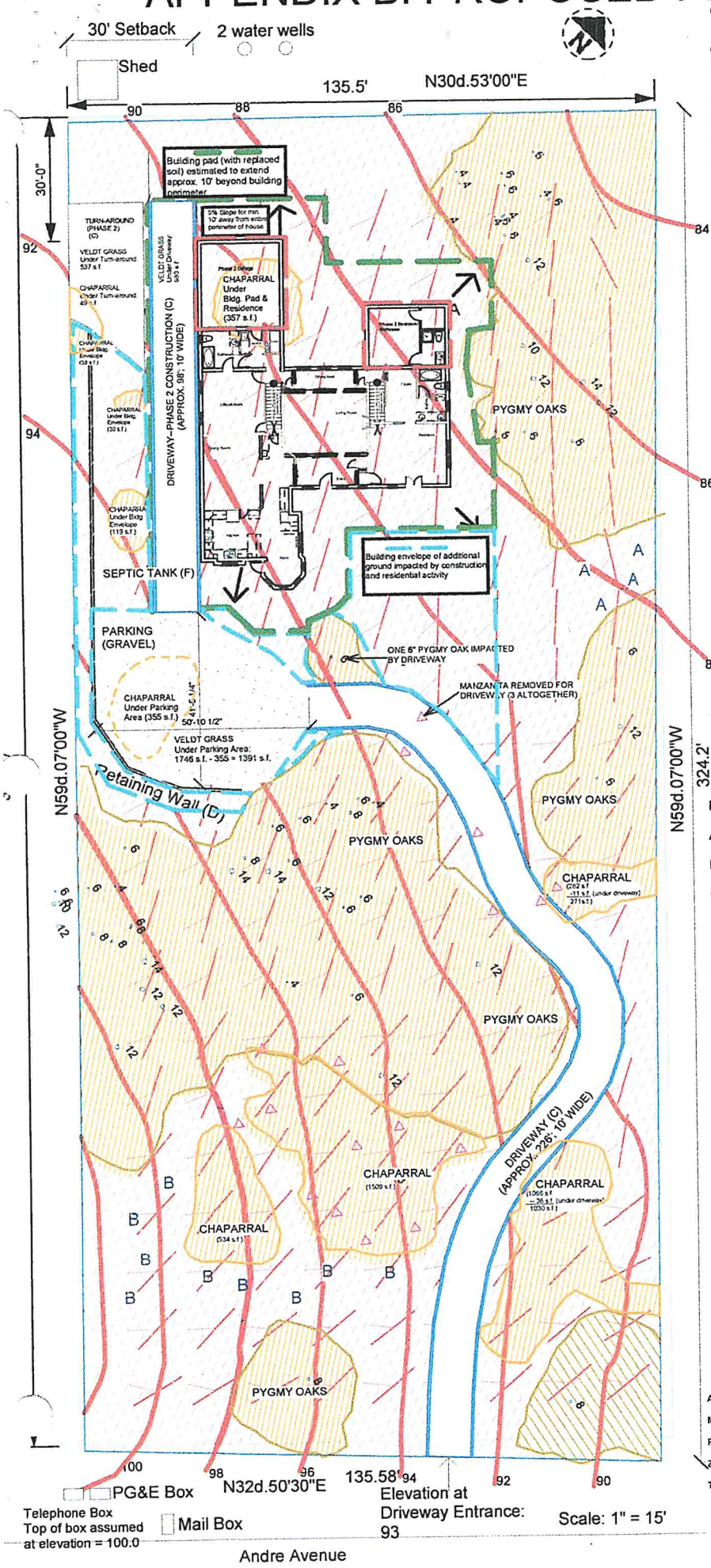
APPENDIX B: PROPOSED PROJECT SITE PLAN



CONSTRUCTION AND RESIDENTIAL FOOTPRINT:

	(Square Feet)		Habitat Impact: Chaparral		Veldt Grass
General Bldg. Envelope:	3382	=	(38+30+119)	+	3195
Building Pad: (Other than under Phase 2 driveway)	5594	=	357	+	5237
Driveway, Phase 1	2260	=	(11+36)	+	2213
Driveway, Phase 2	980	=			980
Turn-Around	586	=	49	+	537
Parking	1746	=	355	+	1391
Subtotals	14,548	=	995 (.023 acre)	+	13,553 (.311 acre)
Total:	14,548	=	14,548 (.334 acre)		

Chaparral

Coast Live Oak (Pygmy Oak)

Veldt Grass

approximate property line location

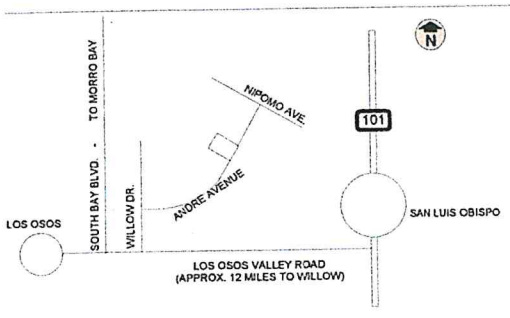
manzanita plant

oak tree trunk location & size in inches

Flow Arrow

Notes:

A. Replacement Pygmy Oak (exact numbers to be determined)
B. Replacement Manzanita (exact numbers to be determined)
C. Decomposed Granite surface on a compacted, 3-4" base.
D. Retaining Wall: approximately 2'6" high at highest point, tapering to approximately 1' at both ends; approximately 135' in length.
E. Building pad elevation will be approximately 88'6"; this elevation is based on a July 1999 topographical survey which used the top of the telephone box on the southeasterly corner as its bench mark = 100'.
F. Neighbor to southwest has district-supplied water (no well); wells of neighbors to northwest and northeast are greater than 100' away. Septic disposal field will run along southwest (left) side of house, at least 5' from neighbor's property.



VICINITY MAP N.T.S.

PROJECT DATA

A.P.N.	074-413-017
MINOR USE PERMIT NO.	DRC 2005-00142
PARCEL SIZE:	APPROX. 43,628 S.F.
ZONING DESIGNATION:	RESIDENTIAL SUBURBAN
TO BE BUILT:	SINGLE FAMILY DWELLING PHASE 1: 2260 S.F. PHASE 2: 290 S.F. (ADDL. BEDROOM) 421 S.F. (GARAGE) TOTAL: 2971 S.F.

Habitat Conservation Plan (ANNOTATED)
Single-Family Residential Development Project
2049 Andre Avenue (APN 074-413-017), Los Osos, San Luis Obispo County, CA

Prepared by:

Richard Phillips
P.O. Box 4654
Paso Robles, California 93447
(925) 437-3110

For Submittal To:

United States Fish and Wildlife Service
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

September 2017

Executive Summary

This Habitat Conservation Plan provides a framework within which the proposed residential construction project at 2049 Andre Avenue, Los Osos, may be carried out with full consideration and attention given to the presence of, and take of, the Morro shoulderband snail (*Helminthoglypta walkeriana*; MSS), a terrestrial invertebrate federally listed as endangered. Los Osos is an unincorporated community in the western portion of San Luis Obispo County. The requested term of the incidental take permit is 10 (ten) years. The single-family residence to be constructed will be approximately 2,260 square feet [ft^2] (Phase 1; all Phase 2 components would increase the footprint to 2,971 ft^2) and will be sited on an existing legal parcel of approximately one acre (43,628 ft^2).

Take of MSS and its habitat will arise from the construction of the three main components of the development project:

1. Site preparation and construction of the main house, along with possible later additions.
2. Construction of a 226-foot long driveway and parking area of approximately 1,730 ft^2.
3. Installation and maintenance of a septic system.

Although every effort has been made to minimize take of MSS and its habitat through an aware and sensitive design, take of MSS likely cannot be avoided. Minimization measures will be implemented and mitigation provided. These efforts are described in the "Conservation Strategy" and consist of the capture and relocation of any MSS found in areas of construction, protection of MSS habitat, and payment of an in-lieu fee to fund recovery tasks elsewhere. This Plan also describes how on-going project activity and conservation efforts will be monitored by an outside professional, and provides for data collection and full reporting to United States Fish and Wildlife Service (Service).

Section 1 Introduction and Background

Overview and Background

The project being proposed is the construction of a single-family residence at 2049 Andre Avenue, Los Osos, California. The house will sit on the western, veldt grass-dominated portion of the parcel (refer to Figure 3). The project would be constructed in conformance with County zoning and building codes. The property is located outside the current Los Osos building moratorium area, and the project is currently in the planning and permitting stage.

Due to cost considerations, the applicant would like to implement this project in 2 phases (see under "Project Description"). Plans for Phase 1 only will be submitted first to the San Luis Obispo County Planning and Building Department; plans for Phase 2 would be submitted at a later date. It is requested that the Incidental Take permit include approval for this phased construction, so that when and if plans for Phase 2 are submitted, the Planning and Building Department may review them with full confidence that all measures necessary to protect MSS and its habitat have been reviewed and approved by the U.S. Fish and Wildlife Service (USFWS). When, and if, Phase 2 construction goes forward, the applicant will agree to notify the Service and engage either the same or a new Service-approved biologist to oversee the construction and implementation of the already existing HCP and ITP.

A brief history of the project under its current ownership begins with the approval of a Minor Use Permit/Coastal Development Permit (#DRC2005-00142) effective May 1, 2009. Essential to this approval was the issuance of a Mitigated Negative Declaration (MND) on March 5, 2009. In the review leading up to the MND, it was determined that an Environmental Impact Report was not necessary for

this project. Approval of the Minor Use Permit was also dependent on the applicant meeting the conditions of approval specified by the Planning Commission, including all those measures designed to address biological resources, cultural resources, public resources/utilities, transportation/circulation, and water. For most of these environmental issues, there has been no change since May of 2009 and the conditions of approval remain the same. However, as described below, the situation has changed regarding biological resources—specifically, MSS has been found on the property--and greatly expanded efforts are now required to obtain continued approval to develop the property. These efforts are spelled out in this Habitat Conservation Plan (Plan).

Efforts to ascertain the presence of MSS on the property had been undertaken previously. Beginning in 2000, SWCA Environmental Consultants (SWCA [previously known as Morro Group, Inc.]) conducted three MSS investigations on the parcel. The first investigation consisted of a habitat assessment conducted on July 3, 2000. The habitat assessment confirmed the presence of suitable MSS habitat and one Class B MSS shell on the parcel. The second investigation consisted of a five-survey protocol series conducted in 2003. The 2003 surveys found no evidence of MSS presence, and a concurrence determination was prepared by the USFWS for the proposed project in 2004. The applicant did not construct the proposed project before the expiration of the 2004 concurrence determination; therefore, he retained Morro Group to conduct a second series of protocol surveys in 2007. MSS was not identified on the parcel in 2007 and USFWS issued a non-Federal no-take concurrence for the project in December 2007. The project was delayed until 2013, when the applicant requested a permit extension from the County of San Luis Obispo (County) Planning and Building Department. In order to process the permit extension, the County, in coordination with the Service, requested a third round of MSS surveys to confirm the presence/absence of MSS on the parcel. This survey identified low numbers of live MSS on the parcel, and confirmed the presence of suitable MSS habitat.

Permit Holder/Permit Duration

The Incidental Take permit (ITP) holder will be Richard W. Phillips, owner of the property at 2049 Andre Avenue. It is requested that the ITP be granted for a period of ten years, which is estimated to be enough time to ensure completion of Phases 1 and 2 of the residential construction project (see under "Project Description" for explanation of 2-phase approach).

Permit Boundary/Covered Lands

The proposed covered area at 2049 Andre Avenue is a one acre parcel legally described as APN 074-413-017. This parcel is zoned for residential use. Figure 1 shows the general location of the parcel within the California Central Coast area. Figure 2 shows the lot within the subdivision of which it is a part. Figure 3 shows the boundaries of the various vegetation groupings/MSS habitat, the area of the proposed development, and the location of each of the three sightings of live MSS during the 2013 survey. Figure 3 shows that there is adequate cover (maritime chaparral) on the eastern portion of the parcel to serve as a potential relocation site for live MSS found in the construction areas. Photos 3 and 4 clearly show that the main building site for the house is on a sparsely covered, veldt grass-dominated area that provides only limited shelter for MSS.

Covered Species

The only species addressed in this HCP is the federally endangered MSS, a terrestrial invertebrate species endemic to Los Osos and its immediately surrounding area.

Regulatory Framework

Federal Endangered Species Act

The USFWS's responsibilities include administering the Endangered Species Act of 1973, as amended (Act). Section 9 of the Act prohibits the take of any federally-listed endangered or threatened species. Take is defined in Section 3(18) of the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Service regulations in 50 CFR 17.3 further define harm to include significant habitat modification or degradation that actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Harassment is defined as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying a species to such an extent that its normal behavioral patterns (e.g., breeding, feeding, or sheltering) are significantly disrupted. The Act provides for civil and criminal penalties for the unlawful taking of listed species. Exemptions to the prohibitions against take may be obtained through coordination with the Service in two ways. First, if a project is to be funded, authorized, or carried out by a Federal agency and may affect a listed species, the Federal agency must consult with the Service pursuant to section 7(a)(2) of the Act. Secondly, in order to comply with Federal law, private individuals and State and local or other entities who propose an action that is likely to result in the take of federally listed species and for which there is no Federal nexus, may achieve compliance with the Act by applying for an Incidental Take permit pursuant to section 10(a)(1)(B) of the Act. Such permits are issued by the Service when take is not the intention of and is incidental to otherwise legal activities. An application for an ITP must be accompanied by a Habitat Conservation Plan (HCP). The regulatory standard under section 10(a)(1)(B) of the Act requires that the effects of authorized incidental take be minimized and mitigated to the maximum extent practicable. Under section 10(a)(1)(B) of the Act, a proposed action also must not appreciably reduce the likelihood of survival and recovery of the species in the wild. Adequate funding of identified actions to minimize and mitigate impacts must also be ensured.

Section 7(a)(2) of the Act requires that Federal agencies ensure that their actions, including permit issuance, do not jeopardize the continued existence of listed species or destroy or adversely modify listed species' critical habitat. Pursuant to 50 CFR 402.2, "Jeopardize the continued existence of..." means to engage in an action that would reasonably be expected, directly or indirectly, to appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. Issuance of an Incidental Take permit by the Service, pursuant to section 10(a)(1)(B) of the Act, constitutes a Federal action that is subject to the requirements of section 7. As such, as a Federal agency issuing a discretionary permit, the Service must prepare an internal consultation to address its action.

Section 10(a)(1)(B) ITP Process

The process for obtaining an ITP has three primary phases: (1) development of the HCP; (2) processing of the permit; and (3) post-issuance compliance. During development of the HCP, the project applicant prepares a plan that integrates the proposed project or activity with protection of listed species. Every HCP submitted in support of an ITP application must include the following information: (1) those impacts likely to result from the proposed taking of the species for which permit coverage is requested; (2) measures that will be implemented to monitor, minimize, and mitigate impacts; funding that will be made available to undertake such measures; and procedures to deal with unforeseen circumstances; (3) alternatives to the proposed action that would not result in take; and (4) any additional measures Service may require as necessary or appropriate for purposes of the Plan.

During the post-issuance phase, the permittee and other responsible entities implement the HCP, and the Service monitors the permittee's compliance with the HCP as well as the long-term progress and success of the HCP. The public is notified of permit issuance by means of the Federal Register. The HCP development phase concludes and the permit processing phase begins when a complete application package is submitted to the appropriate permit-issuing office. A complete application package consists of 1) an HCP, 2) an Implementing Agreement (IA) if applicable, 3) a permit application, and 4) a $100 fee from the applicant. The Service must also publish a Notice of Availability of the HCP package in the Federal Register to allow for public comment. The Service also prepares an Intra-Service Section 7 Biological Opinion, and prepares a Set of Findings, which evaluates the Section 10(a)(1)(B) permit application within the context of permit issuance criteria (see below). An Environmental Action Statement, Environmental Assessment, or Environmental Impact Statement, one of which has gone out for a 30-day, 60-day, or 90-day public comment period, serves as the Service's record of compliance with the National Environmental Policy Act (NEPA). An Implementing Agreement is required for HCPs unless the HCP qualifies as a low-effect HCP. A Section 10(a)(1)(B) Incidental Take permit is granted upon a determination by the Service that all requirements for permit issuance have been met. Statutory criteria for issuance of the permit specify that: (1) the taking will be incidental; (2) the impacts of incidental take will be minimized and mitigated to the maximum extent practicable; (3) the taking will not appreciably reduce the likelihood of survival and recovery of the species in the wild; (4) the applicant will provide additional measures that the Service requires as being necessary or appropriate; and (5) the Service has received assurances, as may be required, that the HCP will be implemented.

During the post-issuance phase, the permittee and any other responsible entities will implement the HCP. The Service will monitor permittee compliance with the HCP as well as its long-term progress and success. The public is notified of permit issuance through publication in the Federal Register.

National Environmental Policy Act

The purpose of the National Environmental Policy Act (NEPA) is two-fold: to ensure that Federal agencies examine environmental impacts of their actions (in this case deciding whether to issue an Incidental Take permit), and to utilize public participation. NEPA serves as an analytical tool on direct, indirect, and cumulative impacts of the proposed project alternatives to help the Service decide whether to issue an Incidental Take permit (ITP or section 10(a)(1)(B) permit). Compliance with NEPA is required of the Service for each HCP as part of the Incidental Take permit application process.

National Historic Preservation Act

All Federal agencies are required to examine the cultural impacts of their actions (e.g., permit issuance). This requires consultation with the State Historic Preservation Office and appropriate American Indian tribes. All Incidental Take permit applicants are requested to submit a Request for Cultural Resources Compliance form to the Service. To complete compliance, the applicant may be required to contract for cultural resource surveys and possibly provide mitigation.

Other Relevant Laws and Regulations

- **California Endangered Species Act:** The California Endangered Species Act (CESA) generally parallels the main provisions of the Act and provides for the designation of native species or subspecies of plants, fish, and wildlife as endangered or threatened. Section 2080 prohibits the take of state-listed endangered or threatened species but allows for the incidental take of such species as a result of otherwise lawful development projects under section 2081(b)

and (c). The Morro shoulderband snail is not listed under CESA; therefore, a state incidental take permit is not required for the project at 2049 Andre Avenue.

- **California Environmental Quality Act:** The California Environmental Quality Act (CEQA) is a state statute that is generally analogous to NEPA on the Federal level in requiring the completion of an environmental review for projects that may impact environmental resources. It requires public agencies to review the environmental impacts of proposed projects, prepare and review environmental impact reports, negative declarations, or mitigated negative declarations, and to consider feasible alternatives and mitigation measures that would substantially reduce significant adverse environmental effects. It applies to a broad range of environmental resources including any state and federally listed wildlife and plant species, as well as sensitive natural communities. Impacts to such species and natural communities must be evaluated under CEQA. The County of San Luis Obispo (County) is the local (i.e., lead) agency responsible for conducting CEQA review and ensuring compliance for projects in the unincorporated community of Los Osos. As such, they will evaluate the 2049 Andre Avenue development application and ensure compliance with CEQA. Impacts to the Morro shoulderband snail represent one aspect of a CEQA review; however, the potential for impacts to other environmental resources is also reviewed as part of the CEQA compliance process.

- **California Coastal Act of 1976:** A California voter initiative, Proposition 20 (i.e., the Coastal Zone Conservation Act), passed in 1972, creating the California Coastal Commission (Commission). It was later made permanent through the passage of the California Coastal Act of 1976. The Commission is a state environmental agency charged with ensuring that all development within California's coastal zone (CZ) is consistent with the provisions of the Coastal Act of 1976. Commission jurisdiction within the CZ is broad and applies to both private and public entities and addresses almost all types of development activities inclusive of division of land, changes in the intensity of use of state waters, and of public access to the waters. The regulatory role of the Commission is facilitated through its review of development projects and the issuance of Coastal Development Permits (CDP) that typically include conditions of approval that, if met, will bring the development into compliance with the Coastal Act. In circumstances where a Local Coastal Program (LCP) has been prepared by a local agency and certified by the Commission, it is, in effect, the environmental review. In such cases, the issuance of a CDP is the responsibility of the local agency. The Commission retains ultimate oversight and responsibility for compliance through an appeal process. The CZ encompasses waters three miles seaward from the coastline and generally extends inland 1,000 yards from the mean high tide line except in developed urban areas where the boundary is often less than 1,000 yards. In significant estuarine habitat and recreational areas the CZ extends inland to the first major ridge line, or five miles from the mean high tide line. By virtue of its proximity to the Morro Bay Estuary, the entire community of Los Osos, including the 2049 Andre Avenue site, lies within the CZ. One of the primary provisions of the Coastal Act is to preserve, protect, and enhance environmentally sensitive habitat areas (ESHA). Section 30107.5 of the Coastal Act defines an ESHA as "Any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

- **San Luis Obispo County Local Coastal Program:** A LCP prepared by the County of San Luis Obispo and certified by the Commission, is in effect for areas of San Luis Obispo County located within the CZ. The County is the lead agency with regard to Coastal Act compliance and is responsible for reviewing the 2049 Andre Avenue project for compliance with their LCP and for issuing a Minor Use Permit/CDP for the project.

Section 2 Project Description and Covered Activities

Project Description

The applicant proposes to construct the project in two phases (Appendices A and B). The first phase would include construction of the driveway, parking area, septic system, and main residence. The proposed building envelope includes sufficient space for both phases of the project and includes 0.38 acre (16,556 square feet [ft^2]) of the one acre parcel. As planned, the first phase of construction would be designed around an existing dirt path that meanders around several coast live oak trees (*Quercus agrifolia*) and maritime chaparral, terminating at the gravel parking area. The residence would be constructed just west of the parking area and the septic system would be sited between the residence and parking area. A 2.5-foot high by 135-foot long retaining wall would be constructed along the southern boundary of the parking area, septic system, and residence. A significant amount of earth must be removed and replaced with seismically stable soil to provide a suitable building pad for the house (including the possible Phase 2 addition), driveway and parking area. The driveway has been sited to minimize impacts to the native vegetation.

The second phase of the project would be constructed if funding becomes available. While the precise timing is difficult to predict, it would be within the ten-year permit term. If constructed, the second phase may include one or both of an attached third bedroom and an attached two-car garage; both spaces would be located to the west-northwest of the main residence, opposite one another.

Covered Activities

Especially relevant for this property will be the habitat-disturbing activities, the most significant of which will be the complete removal and subsequent replacement of a large portion of earth (under the future location of the house, parking area, and driveway) in order to achieve a suitable building pad as the present soil is seismically unsuitable and not firm enough for concrete footings. Other ground-disturbing activity includes grading; excavating for concrete pours, pipe-laying, etc.; mowing of nonnative grass (usually by "weed wacking"); and brush and/or debris clearing and removal associated with required hazard abatement/defensible space requirements. It is not envisioned that much new landscaping will be installed on the parcel, because the natural vegetation that will surround the house is lush and scenic. However, as specified by the County's Minor Use Permit, new plantings of coast live oak and Morro manzanita (*Arctostaphylos morroensis*) will be required to mitigate for either their complete removal or their close proximity to disturbed ground. These plantings, and the follow-up care required to ensure their survival, could disturb MSS habitat and possibly result in take of MSS present in the area. Once the foundation is established and above-ground work begins, the normal movement of personnel, equipment and vehicles could result in take of MSS.

Effects of Phase 2 construction would be similar to that of Phase 1 except that a seismically-stable building pad, grading, and installation of a septic system would have been already completed. Basically, the only ground-disturbing activity required will be trenching into the replacement ground for the foundation and installation of plumbing.

Section 3 Environmental Setting and Covered Species

Environmental Setting

Climate

The community of Los Osos experiences a coastal Mediterranean climate characterized by long, dry summers and short, wet, mild winters. Fog is common during the late spring and summer months and moderates summer temperatures. Temperatures range from 48° Fahrenheit (F) to 69° F during the summer, with an average of 58° F and from 42° F to 66° F during the winter months, with an average temperature of 53° F. On average the warmest month is October and the coolest month is January. Rainfall is highly variable within and between winter seasons with an average of 49 days with measurable precipitation annually. The average annual precipitation in Los Osos is approximately17 inches with most of the precipitation occurring from November to April and highest rainfall occurring in February.

Topography/Geology

The parcel is found within an area of rolling, stabilized, pre-Flandrian aged dunes located at the southern end of the Morro Bay Estuary. Underlying soils consist of well-drained sandy loam in the Baywood fine sand (2 to 9 percent slopes) series (NRCS 1984). The site is gently sloping. Elevation for Los Osos in general is approximately 131 feet above mean sea level.

Hydrology/Streams, Rivers, Drainages

No streams, rivers, or drainages occur on the subject parcel. The parcel occurs within the southwestern region of the Morro Bay watershed and is located approximately 0.6 miles from the southern shore of the Morro Bay Estuary. The site lies within a watershed area that drains directly into the Morro Bay Estuary. Surface runoff is conveyed across the parcel towards the north.

Existing and Surrounding Land Uses

The parcel is undeveloped. The property slopes gently to the north, and supports coast live oak trees, maritime chaparral, non-native grassland, and small patches of dune scrub-associated species (refer to Figure 3, Photos). The vegetative cover on the parcel includes an overstory dominated by coast live oak trees, maritime chaparral, and veldt grass (*Ehrharta calycina*). The habitats on the parcel have been subject to on-going but infrequent disturbance by adjacent residential uses, off-road vehicle use, and weed abatement activities. Native plant species observed on the parcel include Morro manzanita, several very old Arroyo de la Cruz manzanita (*Arctostaphylos cruzensis*), coast live oak, coyote brush (*Baccharis pilularis*), buckbrush (*Ceanothus cuneatus*), black sage (*Salvia mellifera*), telegraph weed (*Heterotheca grandiflora*), rushrose (*Helianthemum scoparium*), horkelia, mock heather (*Ericameria ericoides*), and California croton (*Croton californicus*). Non-native or exotic species observed include veldt grass, narrow-leaved ice plant (*Conicosia pugioniformis*), ripgut brome (*Bromus diandrus*), and other common exotics.

The property is bordered to the north, south, and west by single-family residences, and by Andre Avenue to the east. The adjacent single family residences and associated development are consistent with the semi-rural setting in the area. These residences include landscape areas and patches of native vegetation along the borders. The residence to the west of the subject parcel supports unmaintained veldt grass with remnant dune scrub vegetation and debris piles. Most of the homes in the area have chosen to maintain the natural vegetation as their primary landscaping, with fencing kept to a minimum; this is also the

applicant's intention. Except along the back (west) side of the parcel, where there is a wire fence, there is very little fencing or non-native vegetation separating adjacent parcels, so that there is a continuous run of native, undisturbed vegetation covering 2049 Andre Avenue and its adjacent parcels, as well as along the entire length of Andre Avenue.

Covered Species

The subject of this HCP is the Morro shoulderband snail, also known as the banded dune snail. This section summarizes the limited body of biological and ecological information currently available for the species, including its status, ecology, and range, and, as pertains to the project that is the subject of this HCP, its distribution on the parcel.

Status and Distribution of the Morro Shoulderband Snail

The Morro shoulderband snail is a native gastropod endemic to the Los Osos area of western San Luis Obispo County. It was listed by the Service as endangered on December 15, 1994 (59 FR 64613; Service 1994). The original listing recognized two subspecies or interspecific variations of the Morro shoulderband snail, *Helminthoglypta walkeriana* and *H. walkeriana* var. *morroensis*. At the time of listing *H. walkeriana* and *H. w. morroensis* (= *H. w.* var. *morroensis*) were classified as a single species under the taxonomic classification prescribed in Roth (1985). A recent re-examination of the taxonomic status of the two variants by Roth and Tupen (2004) resulted in their classification as separate species, *H. walkeriana* (Hemphill 1911), the Morro shoulderband snail; and *H. morroensis* (Hemphill 1911), the Chorro shoulderband snail. At the time of the listing, the range of *H. walkeriana* was described as being restricted to sandy soils of coastal dune and coastal sage scrub communities near Morro Bay and included areas south of Morro Bay, west of Los Osos Creek, and north of Hazard Canyon. The current known range is slightly expanded and encompasses approximately 7,700 acres, extending from Morro Strand State Beach in northern Morro Bay southward to Montaña de Oro State Park and inland to at least Los Osos Creek in eastern Los Osos (Roth and Tupen 2004; Service 2006). In June 2004, based on the preliminary findings of Roth and Tupen, the Service issued a position statement announcing that the unintended protection of *H. morroensis* under the Act would be discontinued. Protection under the Act is still provided for *H. walkeriana*, the species that is restricted to sandy soil substrates in and around the community of Los Osos.

A recovery plan for the species, *Recovery Plan for the Morro Shoulderband Snail and Four Plants from Western San Luis Obispo County, California,* was completed on September 26, 1998 (Service 1998). In the plan, four Conservation Planning Areas are identified in which conservation and habitat protection efforts will be focused to facilitate the recovery of the Morro shoulderband snail and the four plant species also addressed in the plan. Critical habitat for Morro shoulderband snail was designated on February 7, 2001 (66 FR 9233) (Service 2001). The designation includes three separate units consisting of a total of 2,566 acres of coastal dune, coastal dune scrub, and maritime chaparral habitats in and around the community of Los Osos and the Morro Bay Estuary (Service 2001). Most recently, a five-year status review for the Morro shoulderband snail was prepared and issued on September 11, 2006 (Service 2006).

Species Taxonomy and Description

The Morro shoulderband snail belongs to the phylum Mollusca, class Gastropoda, subclass Pulmonata, order Stylommatophora, family Helminthoglyptidae, genus *Helminthoglypta*, subgenus *Charodotes*, species *walkeriana*. It was first described in Hemphill (1911) as *Helix walkeriana* from specimens collected from habitat in "San Luis Obispo, Cal." but reassigned to the genus *Helminthoglypta* by subsequent malacologists (Field 1930; Pilsbry 1939; Roth 1985). The genus *Helminthoglypta* currently

contains three subgenera comprising 100 or more species and subspecies with individual ranges located between southwestern Oregon and Baja California, and from the Sierra Nevada and Mojave Desert westward to the Pacific coast, including islands off Baja California and California. In San Luis Obispo County, the genus is represented by six species in two subgenera, *Helminthoglypta* and *Charodotes*. The subgenus *Helminthoglypta* includes two species, *Helminthoglypta cuyama* (Cuyama shoulderband snail) and *Helminthoglypta umbilicata* (Big Sur shoulderband snail), and the subgenus *Charadotes* includes four species: *Helminthoglypta walkeriana* (Morro shoulderband snail), *H. carpenteri*, (San Joaquin shoulderband snail), *H. fieldi* (surf shoulderband snail), and the recently named *H. morroensis* (Chorro shoulderband snail). The shell of the Morro shoulderband snail is described as umbilicated, globose, reddish brown to chestnut in color but thin and slightly translucent (Hemphill 1911; Roth 1985). The shell has five to six whorls and a single, narrow (2 to 2.5 mm [0.08 to 0.1 in.]), dark spiral band on the "shoulder" with thin light yellowish margins above and below. Sculptural features of the shell include incised spiral grooves, spiral and transverse striae that give the surface a checkerboard appearance, and papillae at the intersections of some of the striae (Service 1994). Adult shell dimensions range from 18 to 29 mm (0.7 to 1.1 in.) in diameter and from 14 to 25 mm (0.6 to 1.0 in.) in height (Roth 1985).

Shoulderband snails can be distinguished from the sympatric non-native European garden snail (*Helix aspersa*) and cellar glass snail (*Oxychilus cellarius*) by the presence of an umbilicus and the single narrow, dark brown spiral band on the "shoulder" of the shell. *Helix aspersa* lacks an umbilicus and has a multi-band, marbled pattern on the shell. An umbilicus is present in *O. cellarius*, however, the shell lacks any dark banding. Among Helminthoglyptid snails (subgenera *Helminthoglypta* and *Charodotes*) that occur in San Luis Obispo County, species can generally be distinguished by shell morphology, however, the shell morphology, ecological associations, geographic isolation, and analysis of soft tissue are used for more definitive classification.

Two other *Helminthoglyptid* species occur within the known range of the Morro shoulderband snail; the Big Sur shoulderband snail (*H. [H.] umbilicata*) and the Chorro shoulderband snail (*H.[C.] morroensis*). The Big Sur shoulderband snail occurs from the Monterey Peninsula in Monterey County south into northern Santa Barbara County and is common in San Luis Obispo County from Atascadero and San Luis Obispo west to the coast, including the range of the Morro shoulderband snail. *Helminthoglypta umbilicata* and *H. walkeriana* occur sympatrically at many locations and specimens of each have been found in similar habitat and in relatively close proximity to each other (Dugan, personal observation 2005). *Helminthoglypta walkeriana* can be distinguished from *H. umbilicata* by its more globose shape, the presence of incised striae, papillations over all or most of the body whorl, and half or more of the umbilicus covered by the apertural lip (Roth 1985). *H. umbilicata* tends to have a more depressed shell shape with a shinier, malleated surface and little or no occlusion of the umbilicus. *Helminthoglypta walkeriana* and *H. morroensis* were elevated to separate full species status based on differences in soft tissue, shell morphology, and differing habitat associations. The shell of *H. morroensis* can be distinguished from *H. walkeriana* by its more depressed shape (ratio of shell height to shell width), larger, less occluded umbilicus, more profusely granulated surface, and weak to absent incised spiral grooves on the body whorl (Tupen and Roth, 2005). Until recently the two species were not known to occur sympatrically, with *H. walkeriana* occurring only on Baywood fine sand soils and *H. morroensis* being associated with clay or serpentine soils; however, in 2005 the shells of both species were collected at a location with Briones-Tierra complex soils near the northeastern extent of the suspected range of *H. walkeriana*, indicating some level of sympatry (Dugan, personal observation 2005). During 2007 the shells of both species were also collected at two locations with Baywood fine sand soils within the City of Morro Bay (Dugan personal observation).

Natural History

Despite increased attention due to its status as a federally endangered species, relatively little is known about the demographics and ecology of the Morro shoulderband snail. In its native habitat on Baywood fine sandy soils, the Morro shoulderband snail is typically found in the accumulated leaf litter and the undersides of lower branches of shrub species of coastal dune scrub. The species is associated with Baywood series sandy soils that support coastal dune, coastal dune scrub, and open maritime chaparral plant communities in the Los Osos and Morro Bay region of Central California. Morro shoulderband snails typically inhabit dense, shrubby, or prostrate vegetation that has considerable contact with the ground. The early successional stages of these native plant communities are thought to offer more favorable habitat than mature stands, which may have branches that are too high off the ground to offer good cover (Roth 1985). Within such habitat, Morro shoulderband snails typically occupy shaded areas with accumulated plant litter or the undersides of low shrub branches. These areas provide a microclimate that moderates temperature and moisture loss, and provides refuge from the desiccating effects of wind. It has been suggested that vegetation on north-facing slopes is slightly more dense and shrubby than on south-facing slopes and therefore may support a substantially greater abundance of the species (Roth 1985). Known plant associates include both native and non-native species. Typical native plant associates include dune ragwort (*Senecio blochmaniae*), California sandaster (*Lessingia filaginifolia*), mock heather, buckwheat (*Eriogonum parvifolium*), eriastrum (*Eriastrum densifolium*), silver lupine (*Lupinus chamissonis*), seaside woolly sunflower (*Eriophyllum staechadidfolium*), dune almond (*Prunus fasciculata punctata*), dudleya (*Dudleya* spp.), California croton, black sage, California sagebrush (*Artemisia californica*), coyote brush, poison-oak (*Toxicodendron diversilobum*), California poppy (*Eschscholtzia californica*), and deerweed (*Lotus scoparius*) (Roth 1985; Service 2003; Roth and Tupen 2004; Dugan, personal observation 2005). The most commonly reported non-native plant associates are veldt grass and ice plant (*Carpobrotus* spp.); however, Morro shoulderband snails have been found occupying other non-native invasive plants including conicosia, pampas grass (*Cortaderia jubata*), German ivy (*Senecio mikanioides*), fennel (*Foeniculum vulgare*), and myoporum (*Myoporum laetum*) (Dugan, personal observation 2005). Live Morro shoulderband snails and vacant shells have also been found in a variety of ornamental plants including rock-rose (*Cistus* sp.), aloe (*Aloe* sp.), jade plant (*Crassula ovata*), and lilies of the Nile (*Agapanthus africanus*) (Dugan, personal observation 2005).

Morro shoulderband snails are most active during wet conditions and most feeding, reproduction, and individual growth is thought to occur during the rainy season (Roth 1985). During prolonged dry periods Morro shoulderband snails are inactive and are presumed to enter a state of aestivation (summer dormancy). The species becomes active during rain, as well as periods of heavy fog and dew. Individuals may be particularly active during the evening, night, and early morning hours when they emerge to feed and disperse to new habitats. The feeding habits of the Morro shoulderband snail are not well studied, however the mouth parts of the species are consistent with other snail species that feed on decaying matter and mycorrhizae. Hill (1974) indicated that, although feeding on decaying plant matter occurs, the primary food source for Morro shoulderband snail was probably fungal mycelia that grow on decaying plant matter. Moisture is reported as important in facilitating the feeding of Morro shoulderband snail (Service 2003). Walgren (2003) reported that the Morro shoulderband snail will eat live vegetable matter when presented in the lab, however, the species is not considered to be a garden pest (Service 2006).

At the time of listing, it was postulated that the species was restricted to sandy soils of coastal dune and coastal scrub plant communities (Roth 1973); Roth (1985) speculated perhaps as few as several hundred individuals of Morro shoulderband snail remained throughout the geographic range of the species. A very limited survey for the species conducted in 1992 did not identify any live snails (Service 1994); however, subsequent surveys associated largely with proposed development projects conducted since this time reveal the current population is more robust than previous survey results indicated. We also now know

the species occupies a diversity of both native and non-native habitats (Service files, SWCA 2013) throughout its geographic range.

Occurrence in the Project Area

Survey results are provided for the recent 2013 survey effort, the previous protocol survey efforts conducted in 2007 and 2003, and the July 2000 habitat assessment. Three live MSS were observed during the 2013 survey; no live MSS or empty MSS shells were found during the protocol survey efforts conducted in 2003 and 2007. The 2000 habitat assessment identified one moderately weathered MSS shell near the southwest corner of the site.

2013 Survey Results: One survey was conducted in June 2013 during heavy fog conditions. The survey effort identified the presence of two live MSS, one potentially live MSS, and several empty common garden snail shells. One of the live MSS was found attached to the bottom of a plastic trash bag that was filled with dried veldt grass trimmings from past weed removal activities (refer to Photos 2 and 5). A second live MSS was found aestivating in duff under a horkelia (refer to Photo 6). These MSS were centrally located in the eastern (front) 1/3 of the parcel and among maritime chaparral that is adjacent to several coast live oak trees (refer to Figure 3). The third MSS was observed aestivating in the culms of veldt grass at the western (back) property boundary. The foot of this individual appeared to be recessed into the bottom of the shell making the shell a light tan color in the upper portions. In addition, the individual felt relatively light in weight. These characteristics may indicate that the individual was in the process of desiccating and possibly deceased. Since the shell aperture was tightly sealed and the foot could be seen through the shell, this individual was determined to be living. However, it may have been a Class A shell.

2007 Survey Results: The 2007 protocol surveys were conducted between March 20 and April 20, 2007. No live MSS or empty MSS shells were found on the property during performance of the five protocol-level surveys in 2007 (Table 1). Two live individuals and several empty shells and shell fragments of the common garden snail (*Helix aspersa*) and two live adult Big Sur shoulderband snails (*Helminthoglypta umbilicata*) were observed on the property during the surveys. Several of the Helix shells appeared to have been chewed or gnawed by rats or other small mammals. One highly weathered moon snail shell (a saltwater species) was observed in the oak woodland area during the March 27, 2007, survey effort. These surveys identified small areas of suitable native habitat for MSS along the southern and western boundaries of the property and along fringes of oak woodland areas in the eastern portion of the site.

2003 Survey Results: The 2003 protocol surveys were conducted between November 9 and December 30, 2003. No live MSS or empty MSS shells were found on the property during performance of the five protocol-level surveys in 2003 (see Table 2). Several live individuals and empty shells of the common garden snail and one live adult Big Sur shoulderband snail were observed on the property during the surveys.

2000 Habitat Assessment Results: A habitat assessment of the 2049 Andre Avenue property was conducted on July 3, 2000, by Bob Sloan of Morro Group. The assessment found suitable habitat over portions of the site, and found one empty MSS shell in the southwestern corner of the property, near scattered mock heather and ceanothus shrubs. This shell appeared moderately weathered, and was categorized as Class B, 6 months to 2 years old.

Section 4 Biological Impacts and Take Assessment

Direct and Indirect Impacts

During and following project implementation, take of MSS could result from the expected impacts of covered activities (noted in Section 2 above), since development will occur in and directly adjacent to suitable MSS habitat. Adverse effects may be considered either direct (occurring at the same time as the negative action, affecting individual members of the species) or indirect (situations or conditions, sometimes created by direct-impact activities, which may not have immediate impact on individuals but which have a negative impact on the species over time due to habitat, or general environmental, degradation). Due to the potential for take of Morro shoulderband snail, Richard Phillips, as owner and developer of 2049 Andre Avenue, prepared this HCP in support of his application for an ITP from the USFWS, in order to provide a step-by-step guide to minimize take and to mitigate what take does occur by positive actions taken elsewhere (see below).

Direct impacts would include being struck by equipment (including mowing or other landscaping tools) or vehicles, being stepped on by construction crew members or other project-related personnel, or being uncovered and left to desiccate in the sun.

Indirect impacts include a reduced and degraded habitat that will result from constructing a house, driveway, and parking area on the property. These changes may affect essential behavioral patterns, including general movement, breeding, feeding, and sheltering. The general environment will no longer be one of a serenely natural setting, but rather one of human activity, with the noise and ground disturbance that implies.

It is expected that the direct and indirect impacts described above will be confined primarily to the building envelope area, due to the erection of construction fencing. Of special note are those areas that will undergo earth replacement: the driveway, parking area, and building pad (especially deep replacement required) under the residence. Also impacted will be other areas within the general building envelope (ground impacted by construction). Altogether, this process will include disruption of 0.355 acre (15,462 ft^2) of low quality habitat and 0.025 acre (1,094 ft^2) of moderate quality habitat. The non-native veldt grass habitat on the parcel is considered low quality habitat because it is sparse, includes high amounts of bare ground, and provides limited shelter for MSS. Approximately 0.53 acre (22,857.4 ft^2) of non-native veldt grass MSS habitat occurs on the parcel. The maritime chaparral habitat on the parcel provides moderate quality MSS habitat because it includes a shade canopy with a thin layer of duff for MSS shelter and aestivation substrate. However, this habitat type is patchy on the parcel and does not provide a continuous expanse of MSS shelter. In total, there is 0.10 acre (4,339 ft^2) of maritime chaparral habitat available to MSS on the entire parcel. The coast live oak woodland on the parcel are not considered to be suitable MSS habitat.

Attempts to minimize adverse effects may also have negative impacts. Specifically, finding and moving individual MSS out of harm's way may unintentionally cause injury. For this reason, proper instruction by a qualified professional in seeking and spotting MSS will be required for the relevant construction and other personnel, and only the Service-approved biologist will move/relocate MSS out of harm's way to a location approved by the Service prior to the commencement of any surveys..

Anticipated Take of MSS

As described above, past surveys have shown that the number of MSS on the project site is small and its preferred habitat limited and generally outside the construction area, so it is expected that covered

activities would have a low potential to result in take. The proposed minimization measures (pre-construction surveys, awareness training, MSS relocation, and construction oversight) to be employed would reduce the potential for take in the form of mortality but would result in take by the form of harassment associated with capture/relocation efforts. Capture and relocation efforts will only be done by the Service-approved biologist. Probable impact to suitable MSS habitat (both low and medium quality) will cover about 16,556 ft^2 out of 26,678 ft^2 on the parcel (approximately 62%).

Effects on Critical Habitat/Recovery

The 2049 Andre Avenue site is not located within MSS critical habitat as designated on February 7, 2001 (66 FR 9233) or within a conservation planning area (i.e., *de facto* recovery unit) for the species.. For this reason, project implementation will not result in any adverse effects to critical habitat or preclude recovery of the species.

Cumulative Impacts

In contrast with the analysis of cumulative impacts under section 7, section 10 of the Act and HCPs analyze cumulative impacts as incremental impacts of the action on the environment when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. The geographic area for analysis should be defined by the manifestation of direct or indirect impacts as a result of covered activities. Cumulative impacts under section 10 of the Act can result from individually minor but collectively significant actions taking place over a period of time.

Lands surrounding the project site currently contain residential housing with open space areas. Most of the nearby residential uses predate the listing of MSS. Historically, these developments likely removed and caused the fragmentation of MSS habitat, and likely resulted in direct mortality of MSS. As noted above, the proposed project would result in the loss of both low quality and moderate quality habitat (approximately 0.38 acre altogether), but would minimize take in the form of injury or mortality of MSS. The additional loss of habitat in a residential setting would result in a relatively minor cumulative impact when considered in relation to the adjacent land uses and previous loss of MSS habitat. Much of the surrounding vegetation includes oak trees, willows, landscaping, and ruderal areas. These habitat types provide low quality habitat for MSS. This is evident by the low number of MSS observed on the parcel during eleven protocol surveys. Considering the existing fragmentation in the area and the low number of MSS on the subject parcel, the adverse cumulative impacts of additional habitat loss can be mitigated through monetary contribution of funds to effect recovery action identified in the recovery plan (Service 1998).

Anticipated Effects of the Taking

The take of Morro shoulderband snail that is anticipated to result from those actions necessary to implement the proposed project is considered to be insignificant in terms of the species' overall survival. The actual number of animals subject to incidental take is expected to be low (and predominantly in the form of capture), little native habitat for the species will be impacted, and the project site is located in an area that is not considered important to the recovery of species. For these reasons, the level of take of the Morro shoulderband snail that would result from the covered activities at 2049 Andre Avenue is considered negligible and would not affect the ability of the species to recover in the wild.

Section 5 Conservation Program

Biological Goals and Objectives

Section 10(a)(2)(A) of the Act requires that an HCP specify the measures that the permittee will take to minimize and mitigate to the maximum extent practicable the impacts of the taking of any federally listed animal species as a result of activities addressed by the plan.

As part of the "Five Point" Policy adopted by the Services in 2000, HCPs must establish biological goals and objectives (65 *Federal Register* 35242, June 1, 2000). The purpose of the biological goals is to ensure that the operating conservation program in the HCP is consistent with the conservation and recovery goals established for the species. The goals are also intended to provide to the applicant an understanding of why these actions are necessary. These goals are developed based upon the species' biology, threats to the species, the potential effects of the Covered Activities, and the scope of the HCP. The goals of this HCP are as follows:

- Minimize take of MSS in the form of injury and mortality
- Mitigate unavoidable take of MSS

Avoidance, Minimization, and Mitigation Measures

Avoidance Measures

Avoidance of take is not considered feasible for the proposed Phillips single-family residence project because conservation of onsite areas on a parcel of this size and in this location would not contribute to the recovery of the Morro shoulderband snail. As such, take avoidance through maintenance of onsite habitat for the species is not considered to be biologically meaningful and has not been further considered.

Minimization Measures

Impacts to Morro shoulderband snail and its habitat must be minimized to the maximum extent practicable: The proposed project has been designed to minimize impacts to native vegetation on the parcel, so that the greatest impact (approximately 15,462 ft^2) will be on non-native, low quality habitat (sparse veldt grass), with a fairly small impact (1094 ft^2) on somewhat dispersed, moderate quality native habitat (maritime chaparral). In addition, the proposed project is subject to discretionary approval by the San Luis Obispo County Planning and Building Department. Issuance of building permits would require the project to be conducted in accordance with all pertinent regulations including the Federal ESA. Permit requirements and this HCP, as described below, include measures designed to minimize impacts to MSS and its habitat.

- **Pre-activity Surveys:** As permittee Richard Phillips (or legal successor in ownership) is required to retain a Service-approved biologist (i.e., a person in possession of a valid recovery permit for Morro shoulderband snail) to conduct pre-construction surveys prior to the initiation of each construction phase as a measure to minimize take of Morro shoulderband snail. The objective of pre-construction surveys is to locate as many Morro shoulderband snails as possible and move them out of harm's way. These surveys will consist of systematic searches of vegetation and objects onsite that could provide suitable shelter for Morro shoulderband snail, and the results will be presented as part of HCP reporting requirements. Such surveys will be performed after

consultation with Mr. Phillips as to exactly where on the property the relevant activity will take place.

- **Capture and Relocation of Morro Shoulderband Snails:** All live Morro shoulderband snails found during the pre-construction surveys or construction monitoring will be captured and moved out of harm's way. Any such relocation effort will be carried out by a Service-approved biologist whose recovery permit includes, as a permit condition, authorization to relocate the species. The MSS receiver site will selected by the biologist in coordination with USFWS, prior to conducting any surveys for MSS.

- **Pre-construction Environmental Awareness Training:** A Service-approved biologist knowledgeable about the Morro shoulderband snail and its habitat will conduct pre-construction training meetings for all personnel who will work onsite during construction. These meeting(s) are intended to inform construction crews, field supervisors, equipment operators, etc. about the status and presence of the species, grading and construction-activity restrictions, and the protection and minimization measures specified in the HCP.

- **Construction and General Project Oversight:** Upon completion of awareness training, pre-construction surveys, and capture and relocation, the Service-approved biologist/monitor will then be present daily in the early phases of construction to ensure that all project activities are executed so as to minimize impact to MSS and its habitat. Foremost among initial activities will be the installation of construction exclusion fencing which will help minimize adverse effects on MSS habitat and maintain intact MSS habitat on the parcel for breeding and foraging. Initial grading and excavation activities (e.g., clearing of vegetation, stripping of the surface soil layer, and any trenching that must be done for foundations) will also require the daily, continuous presence of the biologist. At whatever point it occurs in the development process, the biologist will coordinate with the applicant to ensure that the Morro Manzanita and oak plantings required under CEQA are installed in such a manner as to enhance existing maritime chaparral on the parcel and avoid the displacement of dune scrub species or other MSS habitat. Any live Morro shoulderband snails found during these activities will be captured and moved out of harm's way by the authorized biologist (as indicated above). This individual will have the authority to order any reasonable measure necessary to avoid the take of Morro shoulderband snail and to immediately stop any work or activity that is not in compliance with the conditions set forth in the Incidental Take permit. The Service office in Ventura will be notified of any "stop work" order and the order will remain in effect until the issue has been resolved. Upon completion of site preparation activities, the monitor will periodically visit the project site throughout the construction period (the timing to be determined by the Service-approved monitor as conditions warrant) to ensure that impacts to the project site are consistent with the project description contained in this HCP and the Incidental Take permit. During periods of rain or heavy fog/dew the monitor will conduct daily pre-activity surveys to ensure no Morro shoulderband snails have migrated into the work area. No construction work will be initiated until the monitor determines that the work area is clear of Morro shoulderband snails.

Mitigation

Unavoidable take of the Morro shoulderband snail will be mitigated by payment of an in-lieu fee of $8,552.00 to fund Morro shoulderband snail recovery task actions on conserved lands within the known range of the species (Table 1). The primary objective of this mitigation strategy is to facilitate the collection of data that will address recovery task needs for downlisting (and future de-listing) of the Morro shoulderband snail. Data collected will also be useful in the development of habitat management

strategies necessary to consider delisting of the species. The mitigation funding provided in this HCP is expected to facilitate (1) implementation of population surveys on conserved lands within the range of the Morro shoulderband snail; (2) the compilation and analysis of the data collected; and (3) the preparation of a final report presenting study results and Morro shoulderband snail population estimates.

A priority task entails determining the status of populations of the species present on these conserved lands. Currently there are minimal data available for estimating Morro shoulderband snail population levels on these lands. The Recovery Plan for the Morro Shoulderband Snail and Four Plants from Western San Luis Obispo County (Service 1998) specifies that downlisting of the Morro shoulderband snail can be considered when sufficient populations and suitable occupied habitats from all four Conservation Planning Areas are secured and protected. The five-year status review for the Morro shoulderband snail (Service 2006) concludes that sufficient habitat blocks have been secured and protected in order to satisfy this criterion for downlisting. This is primarily based upon existing Morro shoulderband snail population information from presence/absence surveys prompted by applications for changes in land use (e.g., residential development) or anecdotal information; neither of which provide the type of data suitable for population estimates. Activities on conserved lands do not generally trigger Morro shoulderband snail surveys; no systematic surveys have been conducted in recent years. As such, species presence, abundance, and distribution are currently unknown. On those conserved parcels where Morro shoulderband snail presence has been confirmed, little or no information exists regarding population size or long-term viability. To consider downlisting, the Recovery Plan also specifies that Morro shoulderband snail populations must be large enough to minimize the short-term (i.e., next 50 years) risk of extirpation in any of the four Conservation Planning Areas. Data suitable for population estimation would greatly improve the Service's ability to assess whether or not sufficiently large populations exist to meet this recovery criterion.

Table 1. Conserved Parcels in the Los Osos Area

Assessor Parcel Number (APN)	Name	Ownership	Size (acres)	Conservation Planning Area	Critical Habitat Unit
APN 038-711-016	BLM	BLM[1]	4.7	Northeast Los Osos	3
APN 038-711-016	Powell I	CDPR[2]	15.6	Northeast Los Osos	3
APN 067-012-011	Powell II	CDPR	50.6	Corridor Area[5]	3[5]
APN 038-721-024	Pismo	CDPR	10.9	--	--
APN 074-022-003	Butte	CDPR	18.9	West Pecho	--
APN 074-022-061	Hotel	CDPR	42.4	West Pecho	1
APN 074-021-0045	Morro Dunes Ecological Reserve(MDER)	CDFW	47.8	West Pecho	1
APN 074-229-022 & -023	MDER, Bayview	CDFW	236.9	South Los Osos	2
APN 038-711-015	Attman	CDPR	11.2	Northeast Los Osos	3
APN 038-711-004	Garris	CDPR	~4	Northeast Los Osos	3
APN 074-224-019	Los Osos Oaks	CDPR	~90	A[4]	--

[1] Bureau of Land Management
[2] California Department of Parks and Recreation, San Luis Obispo Coast
[3] California Department of Fish and Wildlife
[4] Designated as "Other Habitat Area" in Recovery Plan
[5] A portion within Critical Habitat

At 2049 Andre Avenue, approximately 0.355 acre (15,462 ft^2) of low quality habitat (sparse veldt grass) would be impacted. This impact would be mitigated by an in-lieu fee payment of $7,731 (15,462 ft^2 X $0.50/ ft^2). Approximately 0.025 acre (1,094 ft^2) of moderate quality habitat (maritime chaparral) would be impacted. This impact would be mitigated by an in-lieu fee of $821 (1,094 ft^2 X $0.75/$ft^2$). Thus, to off-set take of MSS and impacts to its habitat that would result from both the first and second phases of the project, the total in-lieu fee payment would be $8,552. It should be noted that one of the requirements for qualifying for the in-lieu fee program is that the project would not result in take of any other state- or federally-listed species. Two plant species, Morro Manzanita and coast live oak, have been identified on the parcel, and conditions have been stipulated in the Minor Use Permit for their onsite conservation. However, neither plant species is listed by the State of California and while one of them, Morro Manzanita, is a federally listed species, there is no take prohibition for federally listed plants. Therefore, the proposed project would not result in the take of any other state- or federally-listed species.

Monitoring

Monitoring tracks compliance with the terms and conditions of the HCP and permit. There are three types of monitoring: (1) compliance monitoring to track the permit holder's compliance with the requirements specified in the HCP and permit; (2) effects monitoring to track the impacts of the covered activities on the covered species; and (3) effectiveness monitoring to track the progress of the conservation strategy in meeting the HCP's biological goals and objectives, including species surveys, reproductive success, etc. Monitoring provides information for making adaptive management decisions. A Service-approved biologist knowledgeable about the Morro shoulderband snail and its habitat will be retained to conduct monitoring activities.

There are three types of monitoring which apply to this project:

1) Compliance Monitoring: The applicant will retain a Service-approved MSS biologist to conduct compliance monitoring during the 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. Compliance monitoring will be conducted daily during initial disturbance activities including vegetation removal and rough grading. Following completion of the initial disturbance activities, the Service-approved biologist will conduct periodic compliance monitoring visits throughout the duration of covered activities. Monitoring may increase, as deemed necessary by the Service-approved biologist, depending on weather conditions and project activities.

Following completion of construction, the Service-approved biologist will conduct annual monitoring visits to document compliance with the ITP. Compliance monitoring results will be documented on Daily Monitoring Reports and reported to the Service in the annual reports for the project.

2) Effects Monitoring: The Service-approved biologist will document the number of MSS captured and relocated, the amount of mortality observed, and the loss of MSS habitat based on as-built disturbances. The Service will be notified of observed mortality via e-mail within 48 hours of the observation. All other effects will be documented in the project's annual and final reports.

3) Effectiveness Monitoring tracks the progress of the conservation strategy in meeting the HCP's biological goals and objectives; it seeks to answer the question, could we be doing better to achieve our goals? The Service-approved biologist will monitor the project site throughout the permit term to evaluate the success or failure of the stated goals and objectives. Effectiveness Monitoring during construction will evaluate whether or not the minimization strategies successfully reduced the anticipated impacts to the extent feasible. Post construction Effectiveness Monitoring will evaluate whether or not

the permit conditions and minimization efforts were successful at meeting the stated goals and objectives in the long term. Effectiveness Monitoring results will be included in all annual reports.

Access to Project Site

The permittee(s) will allow a representative from the Service access to the project site to monitor compliance with the conditions of the ITP.

Adaptive Management Strategy

For some HCPs, the adaptive management strategy will be an integral part of an operating conservation program that addresses the uncertainty in the conservation of a species covered by an HCP. Adaptive management should identify and address the uncertainty, incorporating a range of previously agreed-upon alternatives for addressing those uncertainties, integrating a monitoring program that detects the necessary information, and incorporating a feedback loop that links implementation and monitoring to a decision-making process that results in appropriate changes in management. Adaptive management should help the permittee achieve the biological goals and objectives of the HCP.

Every effort will be made to ascertain whether or not the efforts to minimize MSS take are working. The basis for this judgment will be the assessments recorded through the mechanisms of Effectiveness Monitoring described above. The permittee and the Service-approved biologist will determine whether damage to MSS habitat is consistent with what would be expected, given the nature of the work involved. As the tool used to both implement and record Effectiveness Monitoring, the daily log is designed to quickly alert the permittee and biologist to problems or potential problems. If so alerted, the permittee, in consultation with the biologist, will decide on the steps necessary to get proper implementation of the HCP back on track.
A number of corrective strategies may be considered, including:

- improved or additional training given to construction and other personnel;
- increasing pre-activity surveys;
- more frequent visits by the biologist; or
- avoiding certain work, or all work, during especially wet periods.

Reporting

Annual Reports will be submitted to the Service by December 31 each year and include: (1) a brief summary or list of project activities accomplished during the reporting year (e.g., this includes development/construction activities, and other covered activities); (2) project impacts (e.g. number of acres graded, number of buildings constructed, etc.); (3) a description of any take that occurred for each covered species (includes cause of take, form of take, take amount, location of take and time of day, and deposition of dead or injured individuals); (4) a brief description of conservation strategy implemented; (5) results of monitoring results (compliance, effects and effectiveness monitoring) and survey information (if applicable); (6) a description of circumstances that made adaptive management necessary and how it was implemented; (7) a description of any changed or unforeseen circumstances that occurred and how they were addressed; (8) all funding expenditures, balance, and accrual; and (9) a description of any minor or major amendments.

In order to prepare the annual report described above, and to provide an ongoing and up-to-date data base of information should the need for intermediate reporting to USFWS arise, or reinvigorated minimization

efforts be required, a daily log will be maintained. It is to be filled out, one sheet or more per day as required by the progress of covered activities, and it will track all of the information that will be required in the annual report.

The USFWS-approved biologist will have the responsibility of implementing the minimization measures, including MSS capture and relocation; installation of exclusion fencing; and reporting, including filling out the daily log. Richard Phillips, as permittee and individual primarily responsible for construction, will also provide input to the daily log should he make a relevant observation, especially after the initial construction phase when the biologist is no longer present on a daily basis. A copy of the log will always be at the construction site, though once filled out it may be taken by the biologist and cumulated in monthly or other convenient intervals, all aimed at providing a solid basis for the annual report. The information gathered will also provide a current and complete record of observations should a special notification of USFWS be necessary, as for example in the case of a changed circumstance, or a "stop work" order issued by the biologist.

Section 6 Plan Implementation

Changed Circumstances

Section 10 regulations [(69 *Federal Register* 71723, December 10, 2004 as codified in 50 Code of Federal Regulations (C.F.R.), Sections 17.22(b)(2) and 17.32(b)(2))] require that an HCP specify the procedures to be used for dealing with changed and unforeseen circumstances that may arise during the implementation of the HCP. In addition, the HCP No Surprises Rule [50 CFR 17.22 (b)(5) and 17.32 (b)(5)] describes the obligations of the permittee and the Service. The purpose of the No Surprises Rule is to provide assurance to the non-Federal landowners participating in habitat conservation planning under the Act that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

Changed circumstances are defined in 50 CFR 17.3 as changes in circumstances affecting a species or geographic area covered by an HCP that can reasonably be anticipated by plan developers and the Service and for which contingency plans can be prepared (e.g., the new listing of species, a fire, or other natural catastrophic event in areas prone to such event). If additional conservation and mitigation measures are deemed necessary to respond to changed circumstances and these additional measures were already provided for in the plan's operating conservation program (e.g., the conservation management activities or mitigation measures expressly agreed to in the HCP or IA), then the permittee will implement those measures as specified in the plan. However, if additional conservation management and mitigation measures are deemed necessary to respond to changed circumstances and such measures were not provided for in the plan's operating conservation program, the Service will not require these additional measures absent the consent of the permittee, provided that the HCP is being "properly implemented" (which means the commitments and the provisions of the HCP and the IA (if applicable) have been or are fully implemented).

Changed circumstances that might occur, and their implications to a project already covered by a HCP, include the following:

Fire

Wildfires are common occurrences in central California, and are part of the natural ecology of native scrub habitats. Wildfires within the permit boundaries would be expected to remove vegetation

necessary to the life cycle of MSS as well as to directly injure or kill individual MSS. Scrub habitat is adapted to this type of disturbance, and early successional plants quickly grow in burned areas. Burns can also open habitat for invasive, non-native weedy species, which can invade and overtake the burned area. If a wildfire occurs in the project area during the course of the permit, the permittee will contact the Service to determine appropriate measures, which may include revegetation efforts to reestablish native vegetative cover if such a procedure is deemed beneficial.

Drought

A drought situation, if it were adversely affecting MSS habitat, would be responded to with irrigation to the affected habitat.

New listing of a species already present on the property or a newly discovered previously listed Species on the property

Immediately upon the identification of a newly listed species on the property, the permittee will contact the Service to determine if an amendment to the ITP is necessary and what additional actions may be required. In the event that one or more other already listed species is discovered at the project site during the term of the permit, the permittee will cease project activities that are likely to result in take and work with the Service to develop a permit amendment to address said species. For this particular project, it is extremely unlikely that any other listed species will be discovered at the project site due to the small size and location of the parcel and limited habitat area.

Unforeseen Circumstances

Unforeseen circumstances are defined in 50 CFR 17.3 as changes in circumstances that affect a species or geographic area covered by the HCP that could not reasonably be anticipated by plan developers and the Service at the time of the HCP's negotiation and development and that result in a substantial and adverse change in status of the covered species. The purpose of the No Surprises Rule is to provide assurances to non-Federal landowners participating in habitat conservation planning under the Act that no additional land restrictions or financial compensation will be required for species adequately covered by a properly implemented HCP, in light of unforeseen circumstances, without the consent of the permittee.

In case of an unforeseen event, the permittee will immediately notify the Service staff that have functioned as the principal contacts for the proposed action. In determining whether such an event constitutes an unforeseen circumstance, the Service will consider, but not be limited to, the following factors: size of the current range of the affected species; percentage of range adversely affected by the HCP; percentage of range conserved by the HCP; ecological significance of that portion of the range affected by the HCP; level of knowledge about the affected species and the degree of specificity of the species' conservation program under the HCP; and whether failure to adopt additional conservation measures would appreciably reduce the likelihood of survival and recovery of the affected species in the wild.

If the Service determines that additional conservation and mitigation measures are necessary to respond to the unforeseen circumstances where the HCP is being properly implemented, the additional measures required of the permittee must be as close as possible to the terms of the original HCP and must be limited to modifications within any conserved habitat area or to adjustments within lands or waters that are already set aside in the HCP's operating conservation program. Additional conservation and mitigation measures will involve the commitment of additional land or financial compensation or

restrictions on the use of land or other natural resources otherwise available for development or use under original terms of the HCP only with the consent of the permittee.

Amendments

Minor Amendments: Minor amendments are changes that do not affect the scope of the HCP's impact and conservation strategy, change amount of take, add new species, and change significantly the boundaries of the HCP. Examples of minor amendments include correction of spelling errors or minor corrections in boundary descriptions. The minor amendment process is accomplished through an exchange of letters between the permit holder and the Service's Field Office.

Major Amendments: Major amendments to the HCP and permit are changes that do affect the scope of the HCP and conservation strategy, increase the amount of take, add new species, and change significantly the boundaries of the HCP. Major amendments often require amendments to the Service's decision documents, including the NEPA document, the biological opinion, and findings and recommendations document. Major amendments will often require additional public review and comment.

Permit Suspension or Revocation

The Service may suspend or revoke their respective permits if Richard Phillips fails to implement the HCP in accordance with the terms and conditions of the permits or if suspension or revocation is otherwise required by law. Suspension or revocation of the Section 10(a)(1)(B) permit, in whole or in part, by the Service will be in accordance with 50 CFR 13.27-29, 17.32 (b)(8).

Permit Renewal

In the case of the project at 2049 Andre Avenue, there are two possible reasons why the Incidental Take permit might need to be renewed at the end of the proposed permit period. First, the Phase 1 construction might not be finished. Second, and more likely, the Phase 1 construction might be complete, but not Phase 2.

Because of the uncertainty regarding the beginning of Phase 2, it is possible that one renewal of the ITP could be necessary and, as such, the applicant requests that any issued permit be considered renewable.

The ITP permit may be renewed provided that the permit is renewable and that biological circumstances and other pertinent factors affecting covered species are not significantly different than those described in the original HCP. To renew the permit, Richard Phillips shall submit to the Service, in writing: (1) a request to renew the permit; reference to the original permit number; (2) certification that all statements and information provided in the original HCP and permit application, together with any approved HCP amendments, are still true and correct, and inclusion of a list of changes; (3) a description of any take that has occurred under the existing permit; and (4) a description of any portions of the project still to be completed, if applicable, or what activities under the original permit the renewal is intended to cover. These materials must be received ***at least*** 30 days prior to the expiration date of the original permit in order for the permit to remain valid while the renewal is being processed.. If the renewal application is not received at least 30 days prior to permit expiration, the permit will become invalid upon expiration and a new permit application will be necessary.

Permit Transfer

It is not inconceivable that the owner of 2049 Andre Avenue, Richard W. Phillips, would find it necessary to sell the property, even after having obtained an ITP. In such a situation, the ITP would need to be transferred to the new owner. The rules governing such a transfer are described below.

In the event of a sale or transfer of ownership of the property during the life of the permit, the following will be submitted to the Service by the new owner(s): a new permit application, permit fee, and written documentation providing assurances pursuant to 50 CFR 13.25 (b)(2) that the new owner will provide sufficient funding for the HCP and will implement the relevant terms and conditions of the permit, including any outstanding minimization and mitigation. The new owner(s) will commit to all requirements regarding the take authorization and mitigation obligations of this HCP unless otherwise specified in writing and agreed to in advance by the Service.

Section 7 Funding

Item/Activity *(Implemented by)*	Unit Cost	One-Time Cost	Re-occurring Costs	Total
MSS Surveys and Construction Monitoring (Assumed 12 months)				
300 linear feet of Temporary fencing	$4.50/lf	$1,350	n/a	$1,350
Pre-construction survey and MSS Capture and Relocation	$105/hour	$630	up to 2 events	$1,260
Worker Awareness Training	$105/hour	$105	up to 4 events	$420
Initial Disturbance Construction monitoring	$105/hour	$1,050	up to 2 visits	$2,100
Construction Compliance Monitoring and Reporting (Assumed 12 Months)	$105/hour	$210	up to 26 visits	$5,460
Subtotal				*$10,590*
Mitigation				
In-lieu Fee	$8,552	$8,552	n/a	$8,552
Subtotal				***$8,552***
Post-construction Monitoring and Reporting				
Annual Site Visits	$105/hour	$315	Up to 10 visits	$3,150
Annual Reports	$105/hour	$420	Up to 9 reports	$3,780
Final Monitoring Report (Year 10)	$105/hour	$840	n/a	$840
Subtotal				***$7,770***
Changed Circumstances *(Permittees)*				
Contingency for Remedial Actions	$1,000		n/a	$1,000
Subtotal				***$1,000***
ESTIMATED TOTAL COST OVER THE PERMIT TERM				**$27,912**

Funding Source

Mr. Phillips, as the permittee, will be responsible for the full cost of implementing all aspects of this HCP, including the Conservation Strategy, all monitoring and reporting requirements, and any costs associated with accommodating the changed circumstances described above or those changes brought about by an "adaptive management" review. He understands that failure to provide adequate funding and/or failure to implement the terms of this HCP in full could result in temporary permit suspension or permit revocation. A copy of the receipt for payment of the in-lieu fee will be provided to the Ventura Fish and Wildlife Office and the County as a condition of the issuance of any/all necessary permits associated with project implementation.

Section 8 Alternatives

Section 10(a)(2)(A)(iii) of the Endangered Species Act of 1973, as amended, [and 50 CFR 17.22(b)(1)(iii) and 17.32(b)(1)(iii)] requires that alternatives to the taking of species be considered and reasons why such alternatives are not implemented be discussed.

In designing the project at 2049 Andre Avenue, every effort has been made to minimize its impact on the existing plant life and, by extension, MSS habitat. It would seem that the only alternative would be not to build at all. Given that the parcel and the MSS population thereon is relatively small and, as noted elsewhere, not a significant factor in the overall health and survival of the species, and that the project will be contributing money to species recovery where it really counts (critical areas with significant numbers of MSS), one might conclude that this project will be a net plus for MSS recovery.

No Action Alternative

Under this alternative, an ITP for the Phillips single-family residence would not be issued. The single-family residence would not be built and a contribution of $8.552 in-lieu fees would not be made to effect recovery actions for Morro shoulderband snail. Since the property is privately owned, there are ongoing economic considerations associated with continued ownership of a property without its intended use (e.g., payment of property taxes). The sale of the properties for purposes other than the identified activity is not economically feasible. Because of economic considerations and because the proposed action results in a net benefit for the covered species, Morro shoulderband snail, the No Action Alternative has been rejected.

Project Redesign

This alternative would involve design of a project that would reduce or avoid altogether take of Morro shoulderband snail. A reduction or redesign of the project footprint would not meet the applicants' needs and would not significantly reduce take of Morro shoulderband snail such that there would be a greater benefit to the species. For these reasons, the project redesign alternative is also rejected.

9.0 LITERATURE CITED

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Table 1. 2007 Survey Dates, Time, and Findings

Survey Number	Survey Date and Time	Rainfall Activity	Temp.	Findings	Biologist
1	3/20/07 4-5 PM	Rain during survey, 0.33 inches during the day.	54°F	No live MSS or empty shells found. 2 live Big Sur shoulderband snails found in oak woodland area. Several partially eaten Helix shells found along northern property boundary. Soil and duff very wet.	Sloan, Belt
2	3/27/07 8:30-10:30 AM.	Sunny, windy, 0.15 inches previous eve.	59°F	No live MSS or empty shells found. Helix shell fragments, and a moon snail shell found in oak woodland area. Soil and duff wet	Sloan
3	4/11/07 12:30-1:30 PM	Cloudy, 0.05 inches earlier in day	61°F	No live MSS or empty shells found on the site. 1 live Helix found at western end of site. Soil and duff dry during survey.	Sloan
4	4/15/07 11-12 AM	Trace of rain overnight	60°F	No live MSS or empty shells, or other snails observed on the site. Soil and duff dry during survey.	Sloan
5	4/20/07 9-10:15 AM	Cloudy, 0.25 inches in previous 8 hours	58°F	No live MSS or empty shells found on the site. 1 live Helix found in middle of site. Soil and duff very wet.	Sloan

Helix = Common brown garden snail

Table 2. 2003 Survey Dates, Time, and Findings

Survey Number	Survey Date and Time	Rainfall Activity	Temp.	Findings	Biologist
1	11/9/03 6:45-7:45 AM	Showers during survey, 0.35 inches in previous 24 hours	59°F	No live MSS or empty shells found. Slugs, live Helix and several partially eaten Helix shells present.	Sloan
2	12/7/03 9:30-10:30 AM	Light rain during survey, 0.15 inches in previous 24 hours.	61°F	No live MSS or empty shells found. Live Helix and shells observed in Manzanita.	Sloan
3	12/14/03 9-10 AM	Light rain during survey, 0.35 inches in previous 24 hours.	58°F	No live MSS or empty shells found. 1 live Big Sur shoulderband snail found under oak trees. Several slender salamanders observed in oak duff.	Sloan
4	12/21/03 8:30-9:30 AM	Cloudy, 0.3 inches in previous 24 hours.	60°F	No live MSS or empty shells found. Slugs, live Helix and shells observed.	Sloan
5	12/30/03 11 AM-12 PM	Cloudy, 0.7 inches in previous 24 hours.	61°F	No live MSS or empty shells found. Live Helix and shells present.	Sloan

Helix = Common brown garden snail

Figure 1. Project Vicinity Map

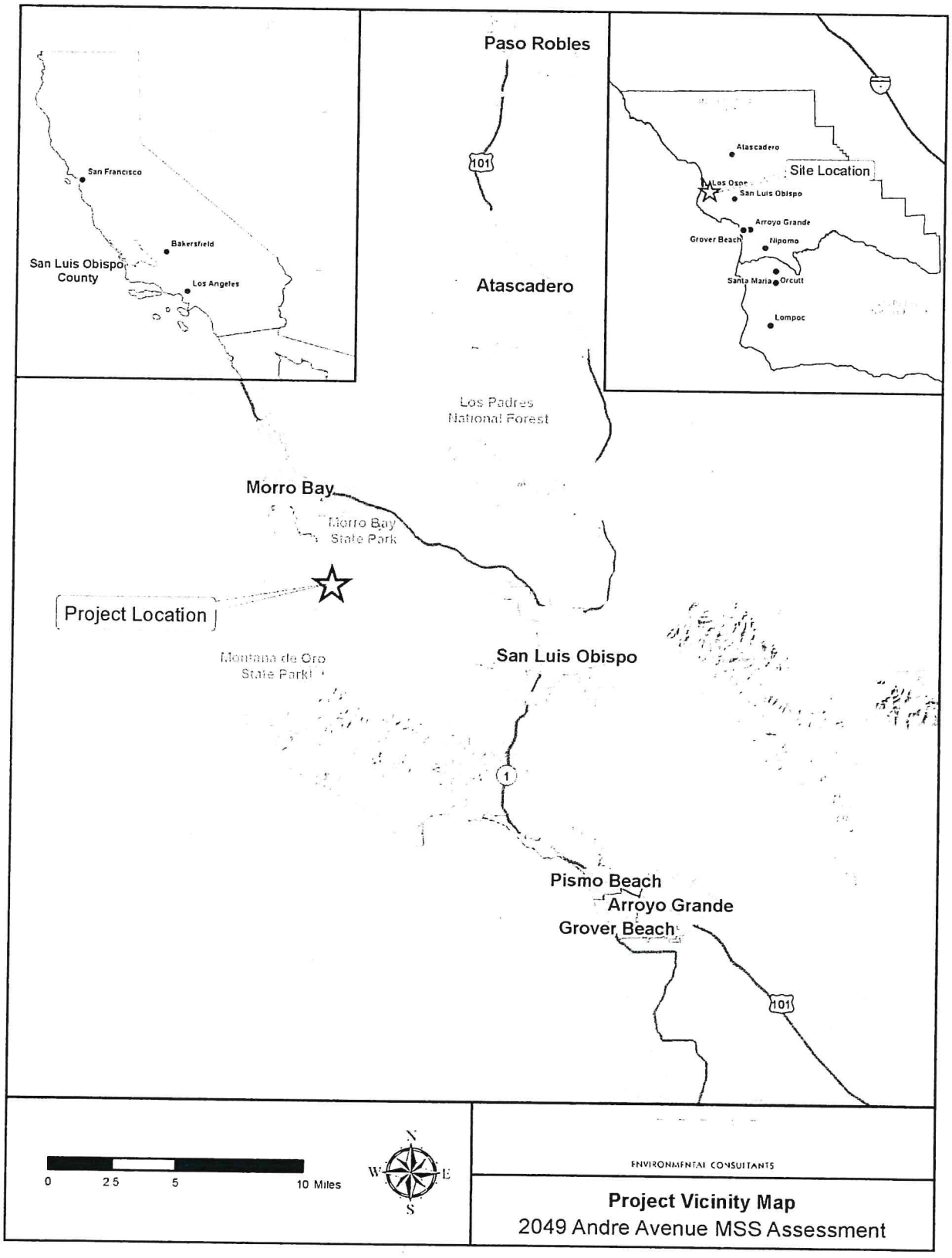


Figure 2. Project Location Map

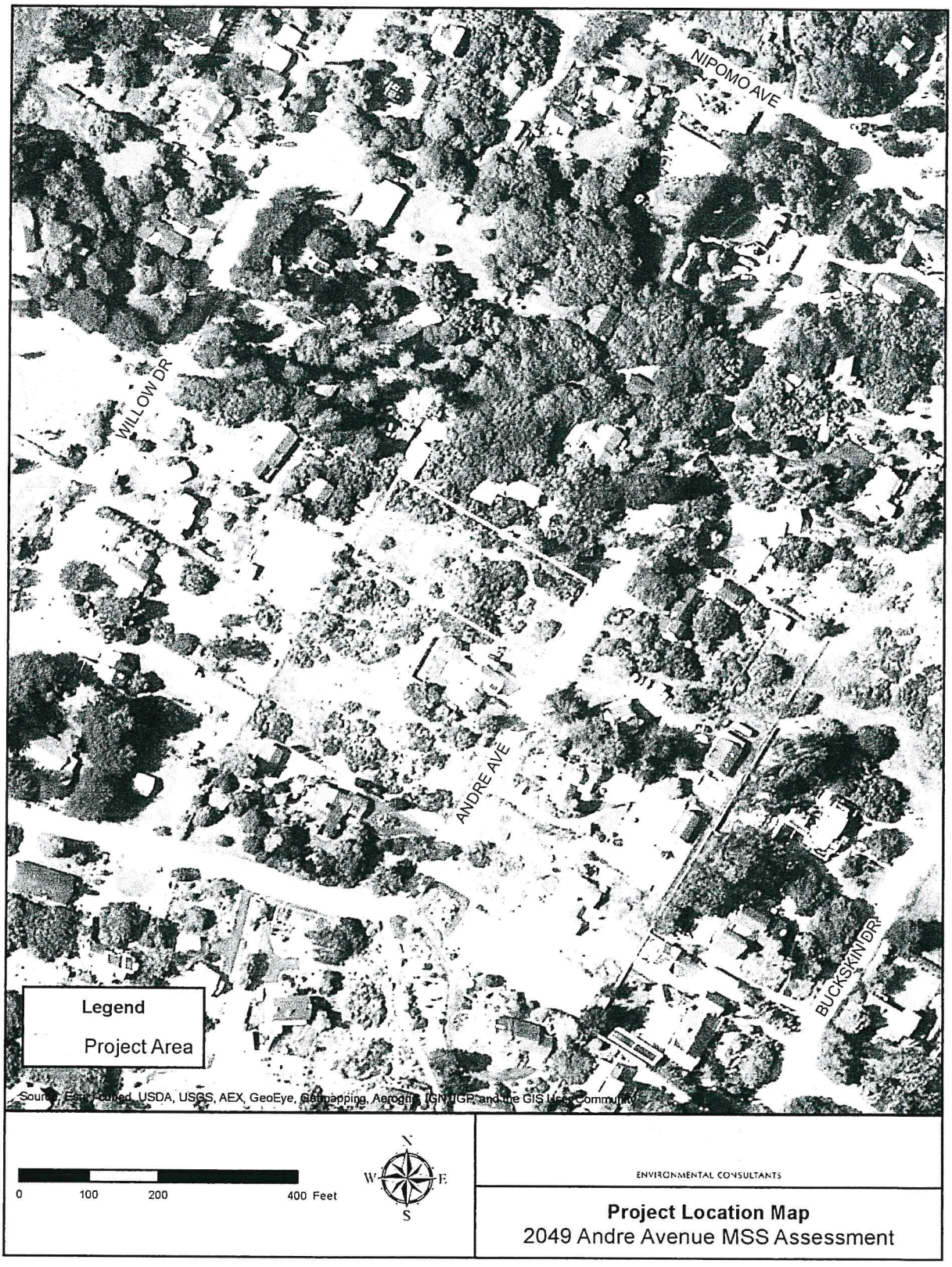
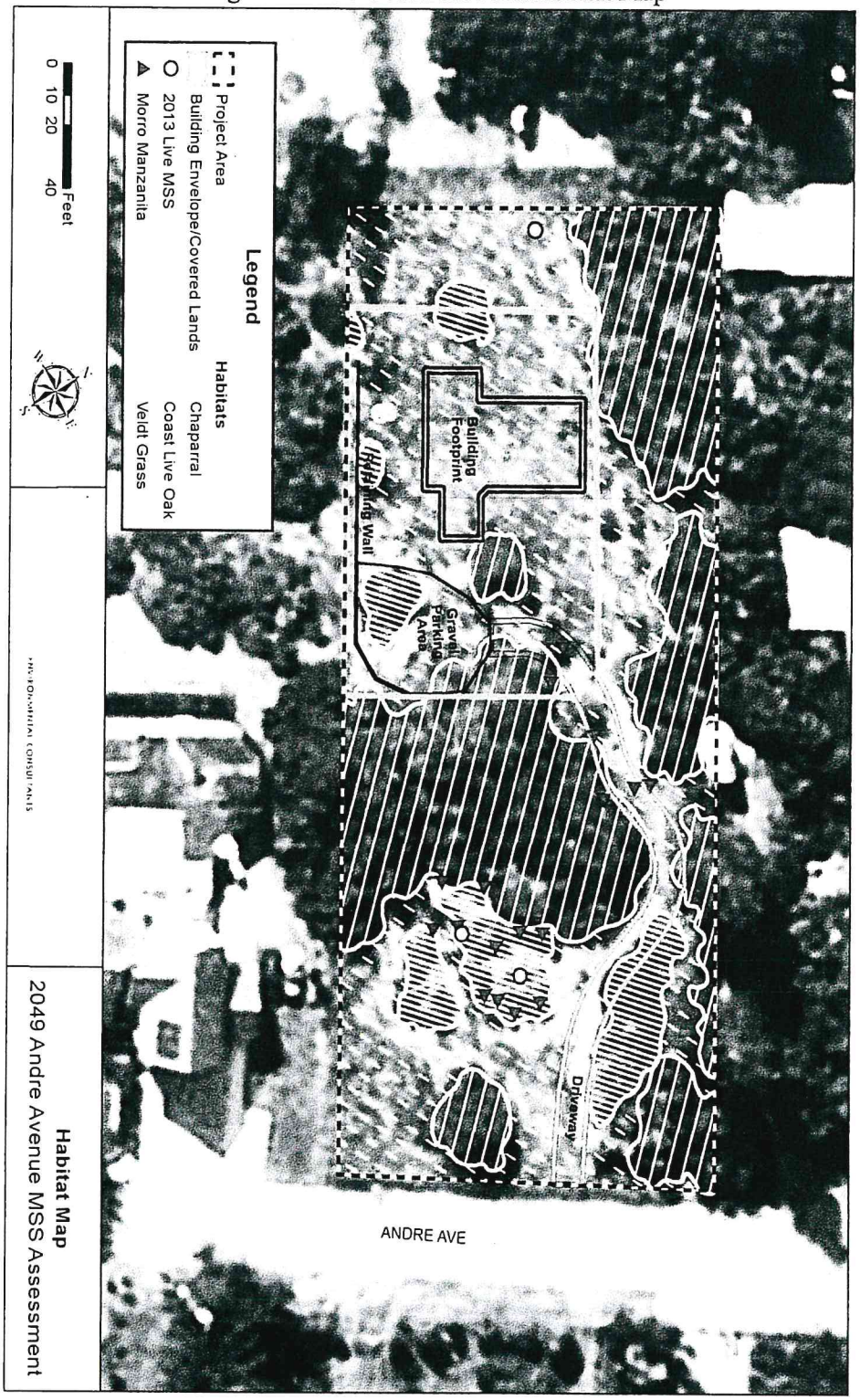


Figure 3: MSS Occurrence and Habitat Map



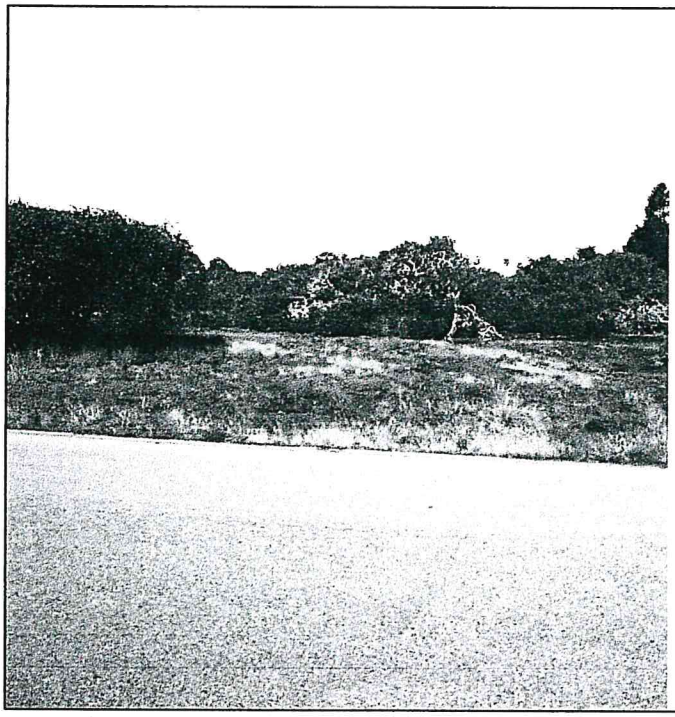


PHOTO 1:

View looking west towards the front of the parcel on Andre Avenue.

PHOTO 2:

View of the oak and chaparral ecotone centrally located on the parcel. Live MSS were observed in this location

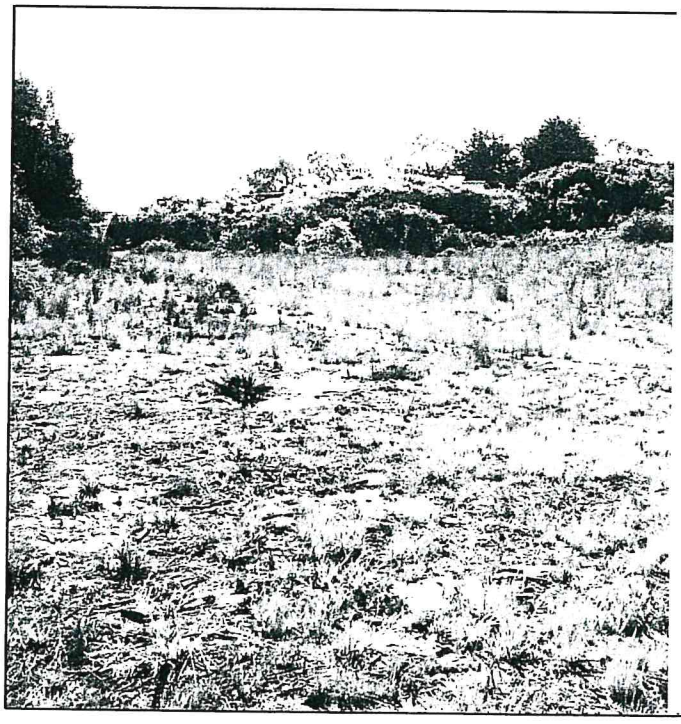


PHOTO 3:

View looking east over the proposed home site.

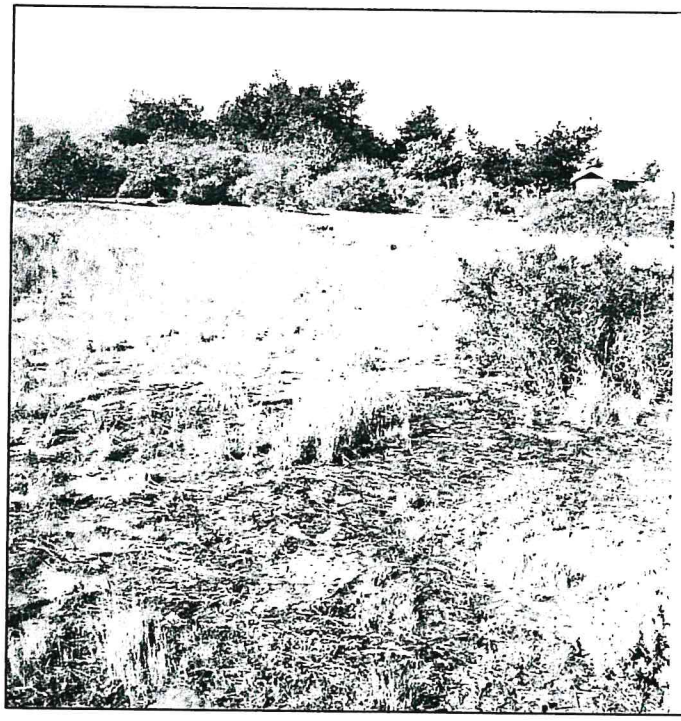


PHOTO 4:

View looking west over the proposed home site.

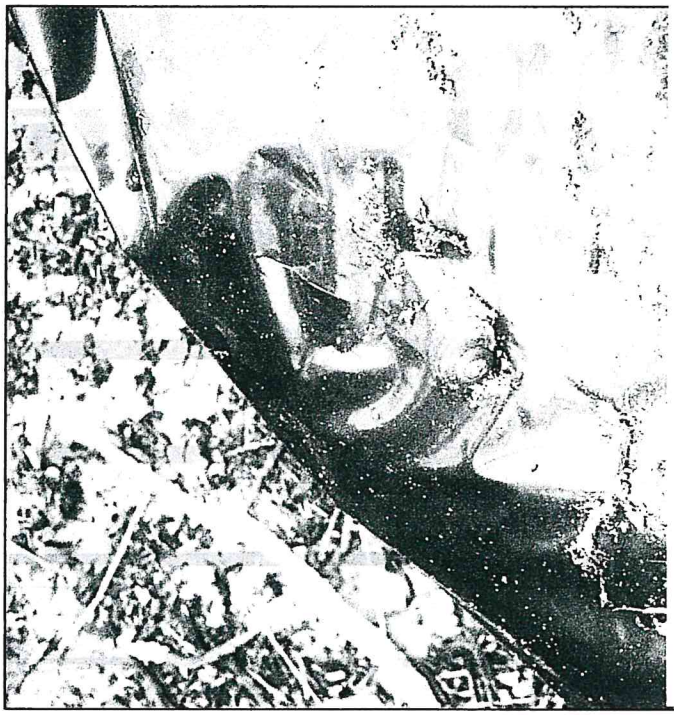


PHOTO 5:

View of a live MSS that was observed aestivating on a plastic bag located in the chaparral in the central portion of the parcel (see Photo 2)

PHOTO 6:

View of a live MSS observed aestivating in duff under a horkelia.

PERCOLATION TESTING REPORT

October 14, 2019
SL11339-1

Client:
Pat Desimone
C/o Simon Hakker
Crizer Design, Inc.
P.O. Box 6952
Los Osos, California
93412

Project name:
2049 Andre Street
APN: 074-413-017
Los Osos area, San Luis Obispo County, California

Dear Ms. Desimone:

INTRODUCTION

GeoSolutions, Inc. performed percolation testing on October 1, 2019 for the proposed single-family residence to be located at 2049 Andre Street, APN" 074-413-017 in the Los Osos area of San Luis Obispo County, California. See Figure 1: Site Location Map for the general location of the project area and for the percolation test area. The property tested for percolation will hereafter be referred to as the "Site." Figure 2: Site Plan was obtained from the computer application *GIS Surfer* (Elfelt, 2016).

Figure 1: Site Location Map

2049 Andre Street is located at 35.3118 degrees north latitude and 120.8192 degrees west longitude at a general elevation of 140 feet above mean sea level. The property is 1.0 acre in size. The nearest intersection is where Andre Street intersects Willow Drive approximately 720 feet to the southwest of the property.

The Site is approximately level with a slight gradient which slopes downward toward northwest. Surface drainage follows the topography to the northwest and flows away from Andre Street. Annual grasses currently vegetate the Site.

220 High Street
San Luis Obispo CA 93401
805.543.8539

1021 Tama Lane, Suite 105
Santa Maria, CA 93455
805.614.6333

201 S. Milpas Street, Suite 103
Santa Barbara, CA 93103
805.966.2200

info@geosolutions.net

sbinfo@geosolutions.net

FIELD EXPLORATION

Utilizing our track-mounted CME 55 drill rig, four 8-inch-diameter percolation test borings were drilled to an average depth of 5 feet below ground surface (bgs), and one exploratory boring was drilled to an approximate depth of 15 feet bgs. See Figure 2: Site Plan for the approximately locations of the percolation test borings and the exploratory boring. Three-inch diameter perforated PVC pipe was placed in the percolation test borings, and the annular space was filled with native material. Groundwater was not encountered in the deep exploratory boring.

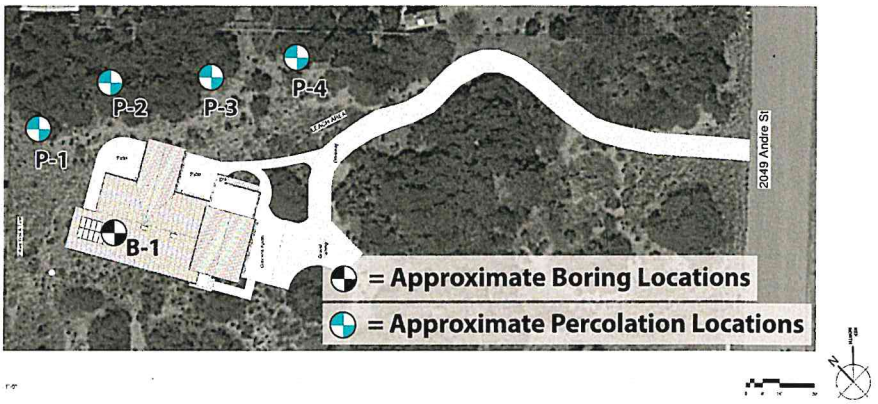


Figure 2: Site Plan

The soils encountered during the field investigation were classified in the field in accordance with the Unified Soils Classification System (USCS). The surface material at the Site generally consisted of yellowish-brown silty SAND (SM) encountered in a dry and loose to medium dense condition to approximately 6.0 feet bgs. The sub-surface materials consisted of yellowish-brown poorly-graded SAND (SP-SM) encountered in a slightly moist, medium dense condition to termination of the boring. Please refer to the attached percolation boring logs for detailed soil profiles.

PERCOLATION TESTING

Each percolation test boring was presoaked prior to percolation testing. Percolation testing consisted of placing approximately 48 inches of water in each boring and measuring the depth to the water every 30 minutes for a total of 1.0 hour of testing. The test holes emptied within the first hour of testing. As a result, readings are changed to 10 minute intervals for an additional hour.

The stabilized percolation rates (in minutes per inch) were calculated by dividing the time period of the last reading obtained by the recorded water elevation drop. Stabilized percolation test results are presented below in Table 1.

Table 1: Percolation Test Results

Date	Test Location	Depth (ft)	Percolation Rate (minutes/inch)
October 1, 2019	P-1	5	1.67
	P-2	5	1.04
	P-3	5	1.19
	P-4	5	1.19

CONCLUSIONS

The average stabilized percolation rate for the tested area was 1.27 minutes per inch. Groundwater was not encountered in the 15 feet below ground surface exploratory boring.

ADDITIONAL ENVIRONMENTAL SERVICES

The recommendations contained in this report are based on a limited number of percolation test borings and on the continuity of the sub-surface conditions encountered. GeoSolutions, Inc. assumes that it will be retained to provide additional services during future phases of the proposed project. These services would be provided by GeoSolutions, Inc. as required by County of San Luis Obispo, the 2016 CBC, and/or industry standard practices. These services would be in addition to those included in this report and would include, but are not limited to, the following services:

1. Consultation during and/or development of the septic system design.

2. Plan review of grading and septic system documents prior to construction and a report certifying that the reviewed plans are in conformance with the septic system design.

3. Construction inspections and testing, as required, during all grading, excavating operations, and compaction of Site soils for the proposed private wastewater disposal system beginning with the stripping of vegetation at the Site, at which time a site meeting or pre-job meeting would be appropriate.

4. Special inspection services during installation of the septic tank and construction of the disposal field.

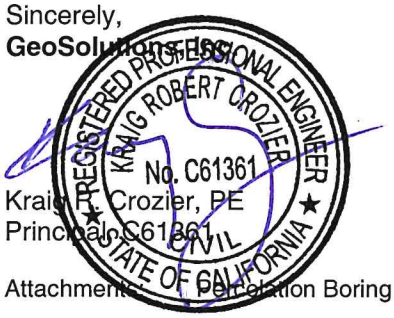
5. Preparation of special inspection reports as required during construction.

LIMITATIONS

Changes in disposal field location will render our findings invalid unless our staff reviews such changes. Subsurface exploration of any site is not necessarily confined to selected location and conditions may, and often do, vary between and around these locations. If varied conditions are encountered during septic system installation, additional exploration and/or testing may be required. If the installer should discover field conditions that are different from those described in this report, then GeoSolutions, Inc. should be notified immediately for further evaluation. This percolation testing report is not intended to be used as a septic design.

Thank you for the opportunity to have been of service for percolation testing and reporting. If you have any questions or require additional assistance, please feel free to contact the undersigned at (805) 543-8539.

Sincerely,
GeoSolutions, Inc.



Kraig R. Crozier, PE
Principal, C61361

Attachments: Percolation Boring Logs, Exploratory Boring Log.

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GEO SOLUTIONS
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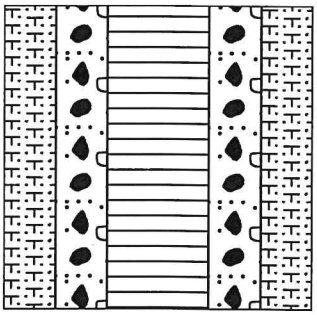
Phone: 805-966-2200

PERCOLATION LOG

BORING NO. P-1 - P-4
JOB NO. SL11339-1

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**2049 Andre Street**	DRILL RIG:	**CME 55**
DRILLING LOCATION:	**See Figure 2, Site Plan**	HOLE DIAMETER:	**8 Inches**
DATE DRILLED:	**10/1/19**	SAMPLING METHOD:	**N/A**
LOGGED BY:	**TF**	APPROX. ELEVATION:	**Not Recorded**

Depth of Groundwater: **Not Encountered** Boring Terminated At: **5 Feet**

DEPTH	LITHOLOGY	USCS	SOIL DESCRIPTION	ANNULAR MATERIAL DESCRIPTION	WELL CASING MATERIAL DESCRIPTION	WELL CROSS-SECTION
0–5		SM	SILTY SAND: yellowish brown, dry	PEA GRAVEL	PVC SCREEN	
5–20						

GEO SOLUTIONS
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Phone: 805-614-6333
201 S. Milpas St, Ste 103, Santa Barbara, CA 93103
Phone: 805-966-2200

BORING LOG

BORING NO. B-1
JOB NO. SL11339-1

PROJECT INFORMATION		DRILLING INFORMATION	
PROJECT:	**2049 Andre Street**	DRILL RIG:	**CME 55**
DRILLING LOCATION:	**See Figure 2, Site Plan**	HOLE DIAMETER:	**8 Inches**
DATE DRILLED:	**9/5/19**	SAMPLING METHOD:	**SPT**
LOGGED BY:	**GTV**	APPROX. ELEVATION:	**Not Recorded**

Depth of Groundwater: **Not Encountered** Boring Terminated At: **15 Feet**

DEPTH	LITHOLOGY	USCS	SOIL DESCRIPTION	SAMPLE ID	SAMPLERS TYPE	BLOWS/ 12 IN	N 1/60	MOISTURE CONTENT (%)	FINES CONTENT (%)	PLASTICITY INDEX (PI)	EXPANSION INDEX (EI)	OPTIMUM WATER CONTENT (%)	MAXIMUM DRY DENSITY (pcf)	COHESION, C (psf)	FRICTION ANGLE, (degrees)
0–6		SM	SILTY SAND: yellowish brown, dry loose	A					6.3	NP	0	8.7	111.0		
4			medium dense		SPT	14	25	2.4							
6–15		SP-SM	POORLY-GRADED SAND: yellowish brown, slightly moist												
9			medium dense		SPT	17	25	4.3							
13			medium dense												
14					SPT	21	28	4.3							

Golden State
Water Company
A Subsidiary of American States Water Company

October 29, 2019

Crizer Construction
1911 4th St
Los Osos, CA 93402

RE: PRELIMINARY CAN AND WILL SERVE LETTER
New Single Family Residence – APN 074-413-017
2049 Andre Ave, Los Osos, CA 93402

This letter is to inform you that Golden State Water Company ("GSWC") can and will provide domestic and fire protection water service to the proposed Single Family Residence located at 2049 Andre Ave in GSWC's Los Osos System ("Project"), subject to the requirements listed below. As a general matter, GSWC's ability to extend water service to new customers is done pursuant California Public Utilities Commission's approved rules and regulations applicable to GSWC.

A. Water Supplies

The Los Osos community, specifically the Los Osos Water Basin, has been impacted by water resource issues for many years. The legal judgement of Los Osos Community Service District v. Golden State Water Company, S&T Mutual Water Company and County of San Luis Obispo referred to as "Stipulated Judgement" approved the Los Osos Basin Plan. As a party to the Stipulated Judgement, GSWC is required to abide by the terms of the judgement. Therefore, this project may be subject to various improvements identified in the Los Osos Basin Plan to ensure the integrity of the local groundwater supply.

B. Special Facilities

Special facilities may be required to provide water service and fire protection to the Project. Special facilities are specific system upgrades that are required to provide water service based on the Project's impact to the GSWC's existing system. Special facilities might include new booster station, storage, well, or other tangible infrastructure necessary to ensure adequate water service and fire flow protection. An analysis of the Project impact on the existing system and the need and identification of special facilities will be determined when an application and preliminary development drawings are submitted to:

Robert Hanford, P.E., Planning Manager
New Business Department
Golden State Water Company

1920 Corporate Way, Anaheim CA 92801
or to: RHanford@gswater.com

C. Financial Arrangements

All costs associated with improvements to or new main extensions, water supply, water storage, and any additional water appurtenances will be paid by the applicant and contributed to GSWC without refund unless otherwise noted in written agreements.

To ensure the ongoing integrity of the GSWC local groundwater supply, as a condition of service, GSWC will require the dedication to GSWC of any local groundwater rights associated with the Project property. GSWC will provide the necessary documentation to effect this dedication concurrent with the execution of an agreement regarding the construction of special facilities associated with the Project.

Upon proper arrangements for completion of special facilities and suitable water supplies, GSWC will provide water service to the Project, under the same terms and conditions as its existing customers. At that time, GSWC will issue a formal CWSL for the Project.

This Can and Will Serve commitment expires one year from the date of this letter. If construction of the Project has not started within one year, a time extension may be requested. Such time extension will be subject to any requirements in place at the time of the request.

Sincerely,

Adrian Combes, P.E.
Operations Engineer
Coastal District

cc: Mark Zimmer, GSWC
Tony Lindstrom, GSWC
Rob Hanford, GSWC
Heather Cole, GSWC