

Biological Resources Report for the Tierra del Sol Solar Farm Project

4.0 RIPARIAN HABITAT OR SENSITIVE NATURAL COMMUNITY

4.1 Guidelines for the Determination of Significance

The County of San Diego's (County's) *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County's guidelines (County of San Diego 2010a).

Guideline 4.2 The project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by CDFG or USFWS.

A. Project-related grading, clearing, construction, or other activities would temporarily or permanently remove sensitive native or naturalized habitat (as listed in Table 5, County of San Diego 2010a, excluding those without a mitigation ratio) on or off the project site. This Guideline would not apply to small remnant pockets of habitat that have a demonstrated limited biological value. No de minimus standard is specified under which an impact would not be significant; however, minor impacts to native or naturalized habitat that is providing essentially no biological habitat or wildlife value can be evaluated on a case-by-case basis to determine whether the projected impact may be less than significant. For example, an impact to native or naturalized upland habitat under 0.1 acre in an existing urban setting may be considered less than significant (depending on a number of factors). An evaluation of this type should consider factors including, but not limited to, type of habitat, relative presence or potential for sensitive species, relative connectivity with other native habitat, wildlife species and activity in the project vicinity, and current degree of urbanization and edge effects in project vicinity, etc. Just because a particular habitat area is isolated, for example, does not necessarily mean that impacts to the area would not be significant (e.g., vernal pools). An area that is disturbed or partially developed may provide a habitat "island" that would serve as a functional refuge area "stepping stone" or "archipelago" for migratory species.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- B. Any of the following will occur to or within jurisdictional wetlands and/or riparian habitats as defined by U.S. Army Corps of Engineers (ACOE), California Department of Fish and Game (CDFG), and the County of San Diego: removal of vegetation; grading; obstruction or diversion of water flow; adverse change in velocity, siltation, volume of flow, or runoff rate; placement of fill; placement of structures; construction of a road crossing; placement of culverts or other underground piping; any disturbance of the substratum; and/or any activity that may cause an adverse change in native species composition, diversity, and abundance.
- C. The project would draw down the groundwater table to the detriment of groundwater-dependent habitat, typically a drop of 3 feet or more from historically low groundwater levels.
- D. The project would cause indirect impacts, particularly at the edge of proposed development adjacent to proposed or existing undeveloped lands or other natural habitat areas, to levels that would likely harm sensitive habitats over the long term. The following issues should be addressed in determining the significance of indirect impacts: increasing human access; increasing predation or competition from domestic animals, pests, or exotic species; altering natural drainage; and increasing noise and/or nighttime lighting to a level above ambient that has been shown by the best available science to adversely affect the functioning of sensitive habitats.
- E. The project does not include a wetland buffer adequate to protect the functions and values of existing wetlands. If the project is subject to the Resource Protection Ordinance (RPO), buffers of a minimum of 50 feet and a maximum of 200 feet to protect wetlands are required based on the best available science available to the County at the time of adoption of the ordinance. The following examples provide guidance on determining appropriate buffer widths:
- A 50-foot wetland buffer would be appropriate for lower quality RPO-wetlands where the wetland has been assessed to have low physical and chemical functions, vegetation is not dominated by hydrophytes, soils are not highly erosive, and slopes do not exceed 25%.
 - A wetland buffer of 50 to 100 feet is appropriate for moderate- to high-quality RPO-wetlands that support a predominance of

Biological Resources Report for the Tierra del Sol Solar Farm Project

hydrophytic vegetation or wetlands within steep slope areas (greater than 25%) with highly erosive soils. Within the 50- to 100-foot range, wider buffers are appropriate where wetlands connect upstream and downstream, where the wetlands serve as a local wildlife corridor, or where the adjacent land use(s) would result in substantial edge effects that could not be mitigated.

- Wetland buffers of 100 to 200 feet are appropriate for RPO-wetlands within regional wildlife corridors or wetlands that support significant populations of wetland-associated sensitive species, or where stream meander, erosion, or other physical factors indicate a wider buffer is necessary to preserve wildlife habitat.
- Buffering of greater than 200 feet may be necessary when an RPO-wetland is within a regional corridor or supports significant populations of wetland-associated sensitive species and lies adjacent to land use(s) that could result in a high degree of edge effects within the buffer. Although the RPO stipulates a maximum of 200 feet for RPO-wetland buffers, actions may be subject to other laws and regulations (such as the Endangered Species Act) that require greater wetland buffer widths.

4.2 Analysis of Project Effects

The Proposed Project will result in significant impacts and are mitigated under the guidelines presented in Section 4.1 for the following reasons.

4.2.1 Project Effects Relevant to Guideline 4.2.A

Short-term, construction-related, or temporary direct impacts to special-status upland vegetation communities would primarily result from construction activities. Clearing, trampling, or grading of special-status vegetation communities outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to special-status vegetation communities on site would be significant, (**Impact V-1**). However, these short-term, direct impacts will be mitigated to a level below significance through implementation of Mitigation Measures MM-2 (biological monitoring), MM-3 (preparation and implementation of a SWPP), and MM-4 (preparation of a biological monitoring report).

Permanent direct impacts to disturbed land are not considered significant. Permanent direct impacts to 408.3 acres of special-status upland vegetation communities would occur as a result of the Proposed Project. Permanent direct impacts to special-status upland vegetation

Biological Resources Report for the Tierra del Sol Solar Farm Project

communities would be considered a significant impact (**Impact V-2**). This impact will be mitigated through Mitigation Measure MM-1 (habitat preservation and management), which will conserve approximately 429.8 acres of equivalent function and value.

Table 2-1 in Section 2.2 summarizes permanent direct impacts to vegetation communities and land covers found in the project area. Figures 8A through D illustrate the distribution of biological resources on site and the locations where proposed impacts would occur. Table 4-1, Summary of Impacts, Mitigation, and Open Space for Vegetation Communities and Jurisdictional Areas, summarizes the impacts and required mitigation for special-status vegetation communities in the project area.

Table 4-1
Summary of Impacts, Mitigation, and Open Space for
Vegetation Communities and Jurisdictional Areas

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Ac.) ¹	Mitigation Ratio	Mitigation Required (Ac.)
<i>Non-Jurisdictional Vegetation Communities</i>				
<i>Upland Scrub and Chaparral</i>				
Big Sagebrush Scrub*	17.2	16.2	2:1	32.4
Montane Buckwheat Scrub*	59.1	41.7	1:1	41.7
Disturbed Montane Buckwheat Scrub *	2.3	2.3	1:1	2.3
Montane Buckwheat Scrub /Red Shank Chaparral*	2.0	2.0	1:1	2.0
Granitic Chamise Chaparral*	177.0	176.9	0.5:1	88.5
Granitic Chamise Chaparral/Montane Buckwheat Scrub *	2.2	2.2	1:1	2.2
Granitic Northern Mixed Chaparral*	181.3	75.2	0.5:1	37.6
Granitic Northern Mixed Chaparral/Montane Buckwheat Scrub *	13.3	13.3	1:1	13.3
Red Shank Chaparral*	107.1	69.8	1:1	69.8
Scrub Oak Chaparral*	9.7	6.6	1:1	6.6
<i>Subtotal</i>	<i>571.2</i>	<i>406.2</i>	—	<i>296.4</i>
<i>Woodland</i>				
Coast Live Oak Woodland*	7.5	1.2	3:1	Included in the oak root zone mitigation
Disturbed Coast Live Oak Woodland	3.8	0.3	3:1	Included in the oak root zone mitigation
<i>Subtotal</i>	<i>11.3</i>	<i>1.5</i>	—	Included in the oak root zone mitigation
<i>Non-Natural Land Covers</i>				
Open Water	0.1	0.1	N/A	—
Disturbed Land	33.2	21.5	N/A	—
Urban/Developed	4.8	0.2	N/A	—

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 4-1
Summary of Impacts, Mitigation, and Open Space for
Vegetation Communities and Jurisdictional Areas**

Habitat Types/Vegetation Communities	Existing Acreage	Total Impacts (Ac.) ¹	Mitigation Ratio	Mitigation Required (Ac.)
Non-Native Grassland	7.7	0.3	0.5:1	0.2
<i>Subtotal</i>	45.8	22.0	—	0.2
<i>Jurisdictional Vegetation Communities and Waters</i>				
Southern Willow Scrub*	0.5	0.0	—	—
Wet Montane Meadow*	0.07	0.0	—	—
Non-wetland Ephemeral Waters ²	0.58	0.03	—	—
<i>Subtotal</i>	1.15	0.03	—	—
<i>Other</i>				
RPO Wetland Buffer ²	2.4	0.0	—	—
Oak Root Zone ²	22.7	2.5	3:1 ³	7.5
<i>Subtotal²</i>	25.1	2.5	—	7.5
Total	628.9	429.8	—	304.1

¹ Totals may not add due to rounding.

² These features are overlays to the vegetation community layer and are not counted toward the total acreage.

³ Because the oak root zone impacts require a higher mitigation ratio, acres of vegetation communities included in the oak root zone category that have less than a 3:1 mitigation ratio are not counted in the vegetation communities and land cover types.

* Considered special-status by the County (2010a).

Mitigation ratios provided in Table 4-1 conform to County guidelines (2010b) with the exception of ratio for open water. As discussed in Section 1.4.7, open water on site is artificially created, has negligible function and value as a wetland and is not considered jurisdictional under local, state, or federal regulations. The open water area is largely unvegetated and therefore functions similarly to disturbed habitat and is not considered significant.

4.2.2 Project Effects Relevant to Guideline 4.2.B

No wetlands or “waters of the United States” under the jurisdiction of ACOE, RWQCB, CDFW or County were identified within the solar farm site and will not be further addressed.

Within the gen-tie alignment site, wetlands and “waters of the United States” under the jurisdiction of ACOE, RWQCB, CDFW, and the County were identified. There will be no impacts to jurisdictional wetlands for the gen-tie alignment. There will be impacts to 317.7 linear feet and 0.03 acres of non-wetland ephemeral waters under the jurisdiction of ACOE/RWQCB/CDFW. Although permits from the agencies may be required, this impact is not significant because no wetland or riparian habitat, as described in Guideline 4.2.B would be adversely affected in these areas.

Biological Resources Report for the Tierra del Sol Solar Farm Project

4.2.3 Project Effects Relevant to Guideline 4.2.C

The solar site supports two areas of potentially groundwater-dependent vegetation: two small, isolated areas of open water and coast live oak woodland. The gen-tie site supports three wetlands, one of which supports coast live oak woodland, and several unvegetated stream channels. The open water area occurs in the central-eastern portion of the site and is a stock pond formed by a manufactured bank along the east side of the area. The lowest portion of the depression feature is characterized by cracked soils, mostly lacking any vegetation. A surrounding ring of herbaceous vegetation is dominated by rabbit's foot grass (*Polypogon monspeliensis*) and black mustard (*Brassica nigra*). The open water area does not meet California Department of Fish and Wildlife (CDFW) jurisdictional criteria because it is not associated with a lake or streambed. No wetlands or waters of the United States under the jurisdiction of the U.S. Army Corps of Engineers (ACOE), Regional Water Quality Control Board (RWQCB), CDFW, or County were identified on site.

The project proposes to use a well, Well B, which is approximately 500 feet west of an off-site blue-line stream (Rattlesnake Creek). Rattlesnake Creek supports an RPO wetland community that includes coast live oaks extending both northeast and southeast of the project site. Assuming most of the herbaceous RPO wetlands are sustained by rainfall and runoff, potential impacts would be experienced by trees that may experience a loss of tap root accessibility to groundwater. Coast live oak is a native drought resistant evergreen tree with a root system that consists of a deep taproot with several main roots that, when mature, extend approximately 36 feet below the soil surface (Canadell 1996). The majority of coast live oak and mixed oak woodland is mapped northeast of Well B, mentioned above.

Based on past experience in San Diego County with fractured rock granitic aquifers conducting long-term pump tests from deep fractures (i.e., >1,000 feet), there is a possibility of hydraulic connection with the shallow fracture system that could influence groundwater dependent habitat that extends to a maximum depth of 36 feet below ground surface. Furthermore, as no drawdown was observed in on-site shallow wells (Wells 1, 4, and 5) or the nearest off-site shallow wells (Wells RM-2 and RM-3), there appears to be limited hydraulic connection between primary producing fractures of the pumping well (Well B) at greater than 1,000 feet bgs and the shallow aquifer system. However, given hydrogeologic conditions and the limited duration of the 72 hour constant rate test it is uncertain whether there is hydraulic isolation of the shallow alluvial aquifer associated with Rattlesnake Creek from the deep fractured bedrock aquifer (Appendix 3.1.9-5). The Cooper-Jacob approximation of the Theis non-equilibrium flow equation analysis projects drawdown of 18.3 feet in the fractured rock aquifer at the nearest groundwater dependent habitat as a result of pumping after the approximate 1 year construction period. This drawdown may exceed the County's significance threshold for groundwater dependent habitat (typically a drop of 3 feet or more from historical low

Biological Resources Report for the Tierra del Sol Solar Farm Project

groundwater levels; County of San Diego 2010a); and therefore, impacts to groundwater dependent vegetation would be potentially significant (**Impact V-3**). As outlined in MM-14 (Groundwater Monitoring and Mitigation Plan), water level monitoring will be conducted within the oak woodland for the duration of the construction period to continually assess oak health. In addition to biological monitoring, a water level threshold of 10 feet of drawdown below baseline at RM-1 and RM-3 will be established to protect the oaks' ability to continually access groundwater from the alluvial aquifer.

4.2.4 Project Effects Relevant to Guideline 4.2.D

Short-term, indirect impacts to special-status upland vegetation communities as a result of the Proposed Project are described in Section 2.2.2.1 and include short-term; construction-related; or temporary, indirect impacts, and include generation of fugitive dust, changes in hydrology resulting from construction, and the introduction of chemical pollutants (including herbicides). Short-term, indirect impacts to special-status upland vegetation communities would be considered a significant impact (**Impact V-4**). Short-term, indirect impacts to special-status upland vegetation communities will be mitigated to a level below significance through implementation of Mitigation Measures MM-2 (biological monitoring), MM-3 (preparation and implementation of an SWPPP), MM-4 (preparation of a biological monitoring report), and MM-5 (implementation of a Fugitive Dust Control Plan).

Potential long-term or permanent indirect impacts to special-status upland vegetation communities as a result of the Proposed Project are described in Section 2.2.2.2 and include generation of fugitive dust, habitat fragmentation, chemical pollutants (herbicides), non-native invasive species, increased human activity, and alteration of the natural fire regime.

Potential long-term, indirect impacts to special-status upland vegetation communities would be considered a significant impact (**Impact V-5**). Long-term indirect impacts to special-status upland vegetation communities will be mitigated to a level below significance through implementation of Mitigation Measures MM-1 (habitat preservation and management), MM-5 (implementation of a Fugitive Dust Control Plan), MM-6 (biological review of landscape plans), MM-7 (restrictions on operation and maintenance personnel activity), MM-8 (implementation of a Fire Protection Plan), and MM-9 (regulated herbicide application).

4.2.5 Project Effects Relevant to Guideline 4.2.E

No wetlands or "waters of the United States" under the jurisdiction of ACOE, RWQCB, CDFW or County were identified within the solar farm site and will not be further addressed.

Within the gen-tie alignment site, one wetland under the jurisdiction of ACOE, RWQCB, CDFW, and the County was identified. Three riparian habitats under jurisdiction of CDFW and

Biological Resources Report for the Tierra del Sol Solar Farm Project

the County were also mapped. All four areas support a predominance of hydrophytic vegetation and connect upstream and downstream via narrow, mostly ephemeral channels. These drainages do not serve as local wildlife corridors and do not have steep slopes. The gen-tie project represents a low level of edge effect given the limited human presence compared with most types of development. Given these factors, a buffer of 50 feet is considered adequate for protection of these RPO-wetlands. There are no proposed impacts to these wetlands or the wetland buffers; therefore, the Proposed Project adheres to this guideline.

4.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the Proposed Project's environmental impact report.

4.4 Mitigation Measures and Design Considerations

The Proposed Project would impact the entire site through development and fuel modification.

Mitigation for short-term, direct impacts to special-status vegetation communities include Mitigation Measures MM-2 (biological monitoring), MM-3 (preparation and implementation of an SWPPP), and MM-4 (preparation of a biological monitoring report), which are described in Section 3.4.

In accordance with County guidelines (County of San Diego 2010b), impacts to big sagebrush, montane buckwheat scrub, granitic chamise chaparral, granitic northern mixed chaparral, and red shank chaparral will require mitigation. There are permanent direct impacts to approximately 408.3 acres of special-status upland vegetation communities, and 429.8 acres of habitat with equivalent function and value are required to be conserved to offset this significant impact. Mitigation Measure MM-1, described in Section 3.4, will mitigate for these impacts to special-status vegetation communities through off-site compensatory mitigation.

Impacts to groundwater-dependent vegetation will be mitigated through implementation of groundwater monitoring as described in MM-14.

MM-14 The groundwater monitoring program will establish the current status and health of the existing oak woodland and document oak conditions up to a 5 year post-construction timeframe. The goal is to determine if the project's use of groundwater is impacting area oak trees/woodlands. If water levels in Wells RM-1, RM-3 and RSD-1 do not drop more than 3 feet below baseline during the 1st year construction period, monitoring will cease at that time because impacts would be expected to be less than significant.

Biological Resources Report for the Tierra del Sol Solar Farm Project

The baseline data would be collected over the course of approximately 1 year prior to Project-related groundwater extraction. Potentially affected native trees within the study area will be evaluated for overall physical condition and attributes. The trees shall be inventoried by an ISA Certified Arborist or Registered Professional Forester with specific experience evaluating native oak species, in particular coast live oaks. The baseline monitoring evaluations will include the following:

- Establishment of 28 pseudo-randomized 0.2 acre plots around oak groupings and scattered individual trees. Sample plots would include the range of existing habitat conditions, including elevation, slope and aspect, proximity to roads and other land uses. If an oak woodland monitoring site is less than 0.1 acre, the entire site will be evaluated.
- Tagging of trees and recording species, tag number, trunk diameter at breast height (dbh) (in.), height (ft.) and dominance (i.e., whether the tree is under the canopy of another tree or forms the uppermost canopy). Slope, aspect, and elevation of each tree location, existing understory species (including proportion of natives to exotics), presence of debris and litter, and soil type, depth, and parent material will be noted for each tree or plot.
- Placement of tensiometers (or similar) to measure soil moisture levels
 - Soil moisture levels will be recorded quarterly at depths up to 48-inches
- Assessment of tree status, including documentation of:
 - Trunk diameter at breast height (dbh), measured at 4.5 feet above ground (according to standard practices)
 - Number of stems
 - Overall tree height (based on ocular estimates)
 - Tree crown spread (measurement in each cardinal direction, based on ocular estimate)
 - Overall tree health condition (Good, Fair, Poor, Dead)
 - Overall tree structural condition (Good, Fair, Poor, Dead)
 - Pest presence (Type, Extent – minimal, moderate, high)
 - Disease presence (Type, Extent – minimal, moderate, high)
 - Other specific comments
- Assessment of acorn production, seedling establishment and sapling tree densities and conditions

Biological Resources Report for the Tierra del Sol Solar Farm Project

- The data collection procedure will include full data collection at each plot so that consistency is maintained among sampling plots.
- Creation of oak tree database using GIS or similar application

Ongoing monitoring will be carried out quarterly during the 1 year Project construction period. If the Certified Arborist or Registered Professional Forester observes an impact to the oak woodland after this period, monitoring will continue in years 2 through 5 following initiation of Project-related groundwater extraction. Monitoring will include the following components:

- Monitoring inspections will include re-evaluation of the baseline data as well as collection of soil moisture data from pre-placed tensiometers.
- Monitoring will include re-evaluating the trees to determine if changes are occurring that may indicate ground water drawdown is having a deleterious effect on oak woodlands or individual trees. The following information will be recorded during each monitoring visit and the data will be compared to previous monitoring results:
 - Trunk diameter at breast height (dbh), measured at 4.5 feet above ground (according to standard practices)
 - Number of stems
 - Overall tree height (based on ocular estimates)
 - Tree crown spread (measurement in each cardinal direction, based on ocular estimate)
 - Overall tree health condition (Good, Fair, Poor, Dead)
 - Overall tree structural condition (Good, Fair, Poor, Dead)
 - Pest presence (Type, Extent – minimal, moderate, high)
 - Disease presence (Type, Extent – minimal, moderate, high)
 - Other specific comments

In particular, monitoring evaluations will focus on examining crowns for discoloration, loss of vigor, foliage curling, and/or pest presence; and trunks and root crowns for beetle/borer symptoms, bleeding cankers, or seeping areas (indicative of fungal infections). These and similar signs may indicate that a tree or a grouping of trees is experiencing stress, which can be corroborated by tensiometer readings. Trees under stress are more susceptible to disease and insect attacks.

Biological Resources Report for the Tierra del Sol Solar Farm Project

The following mitigation criteria will be established to protect groundwater resources and groundwater-dependent habitat in the Project area:

- If the groundwater levels at off-site wells located within 0.5 miles of Well B (RM-1, RM-3 or RSD-1) drops 10 feet below the baseline water levels, groundwater pumping at Well B will cease until the water level at the well that experienced the threshold exceedance has increased above the threshold and remained there for at least 30 continuous days. Additionally, written permission from the County Planning & Development Services (PDS) must be obtained before production may be resumed.
- If the groundwater levels in the vicinity of the groundwater dependent habitat (RM-1 or RM-3) drops below 10 feet of the pre-pumping static water level and there is evidence of deteriorating oak tree health by the Arborist or Forester, there may be a temporary or permanent cessation of pumping at Well B. If evidence of deterioration persists after the 5 year period, mitigation will consist of offsite wetland/ oak woodland credits at a 3:1 ratio.
- If an impact to the oak woodland habitat is observed by the monitoring Certified Arborist or Registered Professional Forester over the duration of the Project construction period, routine monitoring of the oak woodland will continue for a maximum up to 5 years following initiation of Project-related groundwater extraction. The monitoring Certified Arborist or Registered Professional Forester will base mitigation recommendations on the type and extent of tree issues observed. If groundwater drawdown is determined to be the cause of tree stress, resulting in the presence of secondary pests (insects and/or disease), halting groundwater extraction may be recommended.
- If less than 3 feet of drawdown is observed at monitoring wells RM-1 and RM-3 at the end of Project construction and no deleterious health effects are observed in the oak woodland habitat, monitoring can cease at the end of the first year of project operation as long as the wells operate only as intended under the Project's conditions of approval.
- For the 1 year construction period 18 acre-feet of water is proposed to be pumped from on-site supply Well B. For subsequent years 6 afy will be pumped from Well B for O&M of the Project. The groundwater storage within 0.5-mile radius study area surrounding Well B is estimated at 387 acre-feet. The average annual recharge for the study area within 0.5-mile radius of Well B is estimated at 27 afy. Thus, average annual recharge within the 0.5-mile radius study area is sufficient to meet Project construction and operational water demands.

Biological Resources Report for the Tierra del Sol Solar Farm Project

A groundwater monitoring report will be completed by a Certified Hydrogeologist registered in the State of California and submitted to the County PDS each month, no later than 28 days following the end of the monitoring month. The report will include the following information:

- Water level hydrographs and tabulated water level data for each monitoring well.
- Tabulated groundwater production volumes from each production well.
- Documentation of groundwater drawdown at off-site monitoring wells RM-1 and RM-3.
- Documentation of any threshold-included curtailment of groundwater production.
- Appendix documenting groundwater dependent habitat monitoring as described above.

If the baseline water levels at the off-site monitoring wells RM-1, RM-3 and RSD-1 are exceeded by 5 feet, the County PDS will be notified via letter and electronic mail within five working days of the exceedance. Additionally, if water level thresholds at the off-site wells are exceeded by 10 feet, pumping of Well B shall cease and the County PDS notified via letter and electronic mail within five working days.

In addition to the monthly groundwater monitoring reports, annual reports will also be submitted to the county PDS summarizing groundwater-dependent habitat monitoring efforts and any mitigation recommendations implemented in the field during the monitoring year. The monitoring year will coincide with the calendar year. The annual reports will document tree health and mortality, tensiometer readings, water level readings, well production and success of mitigation efforts (if any were necessary). Annual reports will be completed prior to the end of January in the next calendar year.

Mitigation for short-term and long-term indirect impacts to special-status vegetation communities include Mitigation Measures MM-1 (habitat preservation and management), MM-2 (biological monitoring), MM-3 (preparation and implementation of an SWPPP), MM-4 (preparation of a biological monitoring report), MM-5 (implementation of a Fugitive Dust Control Plan), MM-6 (biological review of landscape plans), MM-7 (restrictions on operation and maintenance personnel activity), MM-8 (implementation of a Fire Protection Plan), and MM-9 (regulated herbicide application), which are described in Section 3.4.

Biological Resources Report for the Tierra del Sol Solar Farm Project

4.5 Conclusions

Impact V-1 The significant short-term, direct impacts to special-status upland vegetation communities will be reduced to less than significant through implementation of Mitigation Measures MM-2, MM-3, and MM-4, which require biological monitoring, restrictions on construction vehicle speeds, and preparation of a biological monitoring report.

Impact V-2 The significant permanent, direct impact to 408.3 acres of special-status upland vegetation communities will be reduced to less than significant through implementation of Mitigation Measure MM-1, which provides for 429.8 acres of habitat conservation and management of equivalent function and value.

Implementation of MM-1 would reduce the impact to vegetation because in-kind habitat/vegetation preservation and management of sensitive vegetation communities, based on the appropriate ratio specific to each type of vegetation community, in conformance with the mitigation ratios required by the County of San Diego Guidelines for Determining Significance for Biological Resources (2010) has been proposed. The required mitigation ratios were determined through consideration of the rarity and sensitivity of each individual vegetation community throughout the county and are appropriate to maintain, preserve, and protect each specific habitat community. Typically, the required mitigation ratios are higher (i.e., 3:1) for vegetation communities that are most sensitive and rare to provide a higher level of preservation and protection. The RMP (within MM-1) provides for the long-term funding, management, and monitoring efforts including performance standards to measure the success of mitigation and will ensure that impacts to the habitat communities are truly mitigated. All mitigation land will be located within an open space easement (or owned by a governmental agency for the purpose of conservation) and is part of the ECMSCP Focus Conservation Area which is an area that significantly contributes to important resources in the region and protects resources that are to be impacted by the Proposed Project. For these reasons, implementation of these mitigation measures will reduce significant impacts to vegetation communities to less than significant.

Impact V-3 The proposed project has the potential to cause water levels in Wells RM-1, RM-3 and RSD-1 to drop more than 3 feet below baseline which would be a significant impact. The significant permanent, direct impact of groundwater depletion to the detriment of groundwater-dependent habitat would be reduced to less than significant through MM-14, groundwater monitoring and management plan. If water levels in Wells RM-1, RM-3 and RSD-1 do not drop more than 3 feet below baseline during the 1st year

Biological Resources Report for the Tierra del Sol Solar Farm Project

construction period, monitoring will cease at that time because impacts would be expected to be less than significant.

Impact V-4

The significant short-term, indirect impacts to special-status upland vegetation communities and jurisdictional wetlands and waters will be reduced to less than significant through implementation of Mitigation Measures MM-2, MM-3, MM-4, and MM-5, which require biological monitoring, restrictions on construction vehicle speeds, preparation of a biological monitoring report, and implementation of a Fugitive Dust Control Plan.

Impact V-5

The significant long-term, indirect impacts to special-status upland vegetation communities will be reduced to less than significant through implementation of Mitigation Measures MM-1, MM-5, MM-6, MM-7, MM-8, and MM-9, which provide for 429.8 acres of habitat conservation and management of equivalent function and value; require implementation of a Fugitive Dust Control Plan, biological review of landscape plans, restrictions on operation and maintenance personnel activity, and implementation of a Fire Protection Plan; and regulate herbicide application.

Biological Resources Report for the Tierra del Sol Solar Farm Project

5.0 JURISDICTIONAL WETLANDS AND WATERWAYS

5.1 Guidelines for the Determination of Significance

The County of San Diego's (County's) Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources (County of San Diego 2010a) are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guideline for the determination of significance comes directly from the County's guidelines (County of San Diego 2010a) and refers only to federally protected wetlands.

Guideline 4.3 The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The significance of impacts shall be determined under Guideline 4.2B, C, and E, if federally protected wetlands will be affected.

5.2 Analysis of Project Effects

5.2.1 Project Effects Relevant to Guideline 4.3

No wetlands under the jurisdiction of ACOE were identified within the solar farm site and therefore this Guideline will not be further addressed.

Within the gen-tie alignment site, riparian habitat and wetlands under the jurisdiction of ACOE, were identified. There are no proposed impacts to wetlands as a result of the Proposed Project.

Refer to Section 4.2.3 regarding impacts to groundwater and well drawdown (Impact B-JW1).

5.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the Proposed Project's environmental impact report.

5.4 Mitigation Measures and Design Considerations

See MM B-JW1.

Biological Resources Report for the Tierra del Sol Solar Farm Project

5.5 Conclusions

See Section 4.5.

Biological Resources Report for the Tierra del Sol Solar Farm Project

6.0 WILDLIFE MOVEMENT AND NURSERY SITES

6.1 Guidelines for the Determination of Significance

The County of San Diego's (County's) Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources (County of San Diego 2010a) are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County's guidelines (County of San Diego 2010a).

Guideline 4.4

The project would interfere substantially with the movement of a native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

- A. The project would impede wildlife access to foraging habitat, breeding habitat, water sources, or other areas necessary for their reproduction.
- B. The project would substantially interfere with connectivity between blocks of habitat, or would potentially block or substantially interfere with a local or regional wildlife corridor or linkage. For example, if the project proposes roads that cross corridors, fencing that channels wildlife to underpasses located away from interchanges will be required to provide connectivity. Wildlife underpasses shall have dimensions (length, width, height) suitable for passage by the affected species based on a site-specific analysis of wildlife movement. Another example is increased traffic on an existing road that would result in significant road-kill or interference with an existing wildlife corridor/linkage.
- C. The project would create artificial wildlife corridors that do not follow natural movement patterns; for example, constraining a corridor for mule deer or mountain lion to an area that is not well-vegetated or that runs along the face of a steep slope instead of through the valley or along the ridgeline.
- D. The project would increase noise and/or nighttime lighting in a wildlife corridor or linkage to levels likely to affect the behavior of the animals identified in a site-specific analysis of wildlife movement.

Biological Resources Report for the Tierra del Sol Solar Farm Project

- E. The project does not maintain an adequate width for an existing wildlife corridor or linkage and/or would further constrain an already narrow corridor through activities such as (but not limited to) reduction of corridor width, removal of available vegetative cover, placement of incompatible uses adjacent to it, and placement of barriers in the movement path. The adequacy of the width shall be based on the biological information for the target species, the quality of the habitat within and adjacent to the corridor, topography, and adjacent land uses. Where there is limited topographic relief, the corridor should be well-vegetated and adequately buffered from adjacent development. Corridors for bobcats, deer, and other large animals should reach rim-to-rim along drainages.
- F. The project does not maintain adequate visual continuity (i.e., long lines of site) within wildlife corridors or linkage. For example, development (such as homes or structures) sited along the rim of a corridor could present a visual barrier to wildlife movement. For stepping-stone/archipelago corridors, a project does not maintain visual continuity between habitat patches.

6.2 Analysis of Project Effects

6.2.1 Project Effects Relevant to Guideline 4.4.A

Short-term, construction-related, or temporary direct impacts to potential foraging and breeding habitat for species that use the project area (e.g., special-status birds) would primarily result from construction activities. Clearing, trampling, or grading of foraging and breeding habitat outside designated construction zones could occur in the absence of avoidance and mitigation measures. Potential temporary direct impacts to foraging and breeding habitat on site would be significant, **(Impact WM-1)**. However, these short-term, direct impacts will be mitigated to a level below significance through implementation of Mitigation Measures MM-2 (biological monitoring), MM-3 (restrictions on construction vehicle speed limits), and MM-4 (preparation of a biological monitoring report).

Permanent direct impacts to approximately 420 acres of potential foraging and breeding habitat for species that use the project area (e.g., special-status birds) would occur as a result of the Tierra Del Sol Project. Permanent direct impacts to foraging and breeding habitat would be considered a significant impact **(Impact WM-2)**. This impact will be mitigated through Mitigation Measure MM-1 (habitat preservation and management), which will conserve

Biological Resources Report for the Tierra del Sol Solar Farm Project

approximately 429.8 acres of equivalent function and value. Table 4-1 summarizes the impacts and required mitigation for vegetation communities in the project area.

Short-term and long-term indirect impacts to wildlife access to foraging, breeding, or watering habitat are significant for small and mid-sized animals as discussed in detail in Section 2.6 (**Impact WM-3**). This impact will be mitigated through Mitigation Measure MM-1 (habitat preservation and management), which will conserve approximately 429.8 acres of equivalent function and value.

6.2.2 Project Effects Relevant to Guideline 4.4.B

The proposed project vicinity includes is surrounded by rural residences to the north, east, and west, and an impermeable fence at the border of Mexico to the south. In addition, the project area itself is fenced and the residence to the immediate east of the project is surrounded by a large chain-link fence. All of these factors limit the ability of wildlife to access and traverse the site. The existing conditions are that the project site is not likely to be part of a regional corridor for large mammals at this time due to the lack of topography and resources on the site, and the fencing, especially along the International Border fencing south of the project area and where residential properties have used tall chain linked fencing west of the project area. Due to the constrained nature of the site, specifically the fencing surrounding the project and to the south and east, the project is unlikely to serve as a local or regional wildlife corridor. Therefore, development of the site and installation of the new 6-foot fencing with barbed wire around the perimeter of the property will not substantially interfere with connectivity between blocks of habitat, or potentially block or substantially interfere with a local or regional wildlife corridor or linkage, and impacts would not be a significant impact for large mammals.

Smaller wildlife species (e.g., lizards and small mammals) will still be able to access the site through openings in the fence; however, vegetation within the solar farm site would be maintained at a maximum height of 6-inches above ground, thereby removing suitable on-site habitat. Smaller wildlife species would not be able to navigate through the site to access habitat on the far side since the size of the site would be insurmountable for small wildlife. Therefore, impacts to movement of small and mid-sized wildlife would be potentially significant (**Impact WM-4**).

6.2.3 Project Effects Relevant to Guideline 4.4.C

As described above, the Proposed Project is surrounded by existing fencing and is not considered to be a significant local or regional wildlife corridor and therefore, the Proposed Project would not create any artificial wildlife corridors and would not have a less than significant impact.

Biological Resources Report for the Tierra del Sol Solar Farm Project

6.2.4 Project Effects Relevant to Guideline 4.4.D

Permanent lighting associated with the Proposed Project includes the building and parking areas. These areas would include security lighting designed to minimize light pollution and preserve dark skies, while enhancing safety, security, and functionality. There would be short-term, construction-related noise as described in Section 2.6. Long-term noise associated with routine maintenance would not be expected to impact wildlife movement because these activities will typically occur on an as-needed basis and be within the project footprint. The potential noise and lighting impacts as a result of the Proposed Project would not be considered less than significant.

6.2.5 Project Effects Relevant to Guideline 4.4.E

The majority of the project area will be impacted by the Proposed Project. Although the project area is not considered a local or regional wildlife corridor, wildlife does utilize the area. Small wildlife species (e.g., lizards and small mammals) will be able to access the project area through openings in the fence; however, loss of habitat and soil compaction, combined with soil binders will reduce the amount of small wildlife utilizing the project area and the value of habitat onsite to wildlife. Larger wildlife is not expected to utilize the area frequently due to existing fencing surrounding the project area and fencing to the east and south of the project area. The site is adjacent to the International Border Fence which is permeable to small wildlife and birds, but not to large wildlife. The site would not provide good habitat for small species (**Impact WM-4**), but it would not preclude movement. The site's location would not preclude large wildlife from crossing the International Fence elsewhere at mountainous locations where there are gaps in the fence. There is a potential for birds to collide with the gen-tie during migration, but that risk was assessed to be low due to the position of the gen-tie. As discussed in Section 2.4.2.2, glare and pseudo-lake effect were deemed to be a low risk due to a number of factors, including array design, solar unit design, and site location. Although the Proposed Project will remove habitat suitable for wildlife it is not expected to impact an existing wildlife corridor or linkage (of either regional or local scale) and would not be considered significant. As described in Section 2.4.2.2, the utility poles associated with the gen-tie alignment would provide perches from which avian species may forage, thereby increasing the potential risk of fatality associated with collisions and electrocutions and resulting in a potentially significant impact (**Impact WM-5**). This impact would be mitigation through mitigation measure (implement recommendations by the Avian Power Line Interaction Committee).

6.2.6 Project Effects Relevant to Guideline 4.4.F

The fencing between the border of Mexico and the U.S. already creates a visual and structural barrier to wildlife movement to the south. The proposed project will be situated

Biological Resources Report for the Tierra del Sol Solar Farm Project

adjacent to the border fencing, and although visual continuity within the project area could be exacerbated by the addition of solar panels and fencing, the topography is not steep in and around the project area and wildlife can likely use a variety of local wildlife corridors outside of the project area to move east, west and north of the project.

While focused wildlife corridor studies have not been completed within the vicinity, based on knowledge of the area, probable key wildlife species, and typical wildlife movement patterns the following discussion applies. Likely species of focus related to the Tierra Del Sol project site include mule deer, coyotes, and bobcat. It is unlikely that mountain lion frequent the area due to existing fencing along the border and proximity of occupied properties. Avian species use the area during migrations, but those movements typically are oriented in a north-south direction, are broad-fronted, and are not focused on this site. Potential regional wildlife corridors probably connect between the Laguna Mountains to the west and north, and to the east, the Anza-Borrego Desert and the eastern slope of the Peninsular Range, but those connections likely occur north of the site; probably on the north side of Interstate 8. Much of this area would be considered to be large, core blocks of habitat for which wildlife would be free to move through with minimal constraint. Local wildlife movement probably occurs where open space occurs between rural residences. Rural residences to the north, east and west are immediately outside the project area and provide pockets of open space that would allow wildlife life to traverse the area. In addition, large areas of undeveloped lands to the east of the project area, specifically the mitigation site, likely provide for local wildlife movement. The site does not exist between lakes/ponds, loafing spots, foraging areas, or nesting sites which might entice local movement of birds or larger wildlife, so it is not perceived to be an important local wildlife corridor for avian species.

6.3 Cumulative Impact Analysis

Cumulative impacts are not assessed in this document; they will be discussed thoroughly in the Proposed Project's environmental impact report.

6.4 Mitigation Measures and Design Considerations

Mitigation for short-term, direct impacts to potential foraging and breeding habitat includes Mitigation Measures MM-2 (biological monitoring), MM-3 (preparation and implementation of a storm water pollution prevention plan), and MM-4 (preparation of a biological monitoring report), which are described in Section 3.4.

Mitigation for long-term direct impacts to potential foraging and breeding habitat for wildlife species includes Mitigation Measure MM-1 (habitat preservation and management), described in Section 3.4.

Biological Resources Report for the Tierra del Sol Solar Farm Project

6.5 Conclusions

Impact WM-1 The significant short-term direct impacts to potential foraging and breeding habitat will be reduced to less than significant through implementation of Mitigation Measures MM-2, MM-3, and MM-4, which require biological monitoring, restrictions on construction vehicle speeds, and preparation of a biological monitoring report.

Impact WM-2/WM-3 The significant permanent, direct impact to the loss of potential foraging and breeding habitat will be reduced to less than significant through implementation of Mitigation Measure MM-1, which provides commensurate for off-site habitat and habitat management and conservation that has been demonstrated to contain suitable foraging and breeding habitat for these species. Avoidance of direct impacts on-site for the individuals would be done during construction. These impacts have been reduced to less than significant because the off-site habitat and its management will provide and management equivalent or better function and value for these species and be managed and monitored in perpetuity.

Impact WM-4 Short-term or long-term impacts to wildlife corridors and habitat linkages for larger wildlife species would be less than significant as a result of the Proposed Project and no mitigation is proposed. The significant impact to movement of small wildlife species from loss of wildlife corridors would be reduced to a level that is less than significant through implementation of mitigation measure MM-1 because this measure requires off-site habitat preservation and management of equivalent or greater function and value.

Impact WM-5 Significant impacts to resulting from collision and electrocution impacts would be mitigated through implementation of MM-13 (implement recommendations by the Avian Power Line Interaction Committee). This mitigation measure requires the implementation of measures that will protect raptors and other birds from electrocution.

Biological Resources Report for the Tierra del Sol Solar Farm Project

7.0 LOCAL POLICIES, ORDINANCES, AND ADOPTED PLANS

7.1 Guidelines for the Determination of Significance

The County of San Diego's (County's) *Guidelines for Determining Significance and Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a) are based on the criteria in Appendix G of the California Environmental Quality Act Guidelines (14 CCR 15000 et seq.) and were used to analyze potential direct and indirect impacts to biological resources. The following guidelines for the determination of significance come directly from the County's guidelines (County of San Diego 2010a).

Guideline 4.5

The project would conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state HCP.

- A. For lands outside of the Multiple Species Conservation Plan (MSCP), the project would impact coastal sage scrub (CSS) vegetation in excess of the County's 5% habitat loss threshold as defined by the Southern California Coastal Sage Scrub Natural Communities Conservation Planning Process (NCCP) Guidelines.
- B. The project would preclude or prevent the preparation of the subregional Natural Communities Conservation Planning Process (NCCP). For example, the project proposes development within areas that have been identified by the County or resource agencies as critical to future habitat preserves.
- C. The project will impact any amount of wetlands or sensitive habitat lands as outlined in the Resource Protection Ordinance (RPO).
- D. The project would not minimize and/or mitigate coastal sage scrub habitat loss in accordance with Section 4.3 of the Natural Communities Conservation Planning Process (NCCP) Guidelines.
- E. The project does not conform to the goals and requirements as outlined in any applicable Habitat Conservation Plan (HCP), Habitat Management Plan (HMP), Special Area Management Plan (SAMP), Watershed Plan, or similar regional planning effort.
- F. For lands within the Multiple Species Conservation Program (MSCP), the project would not minimize impacts to Biological

Biological Resources Report for the Tierra del Sol Solar Farm Project

Resource Core Areas (BRCAs), as defined in the Biological Mitigation Ordinance (BMO).

- G. The project would preclude connectivity between areas of high habitat values, as defined by the Southern California Coastal Sage Scrub Natural Communities Conservation Planning Process (NCCP) Guidelines.
- H. The project does not maintain existing movement corridors and/or habitat linkages as defined by the Biological Mitigation Ordinance (BMO).
- I. The project does not avoid impacts to MSCP narrow endemic species and would impact core populations of narrow endemics.
- J. The project would reduce the likelihood of survival and recovery of listed species in the wild.
- K. The project would result in the killing of migratory birds or destruction of active migratory bird nests and/or eggs (Migratory Bird Treaty Act).
- L. The project would result in the take of eagles, eagle eggs, or any part of an eagle (Bald and Golden Eagle Protection Act).

7.2 Analysis of Project Effects

7.2.1 Project Effects Relevant to Guideline 4.5.A

The project area does not support nor would it impact coastal sage scrub vegetation.

7.2.2 Project Effects Relevant to Guideline 4.5.B

The Tierra Del Sol solar farm would not preclude or prevent the preparation of the subregional NCCP because the project has been planned in accordance with the with the planning principles of the MSCP and in consideration of preparation of the East County Multiple Species Conservation Plan (ECMSCP) Subarea Plan. The project design has been evaluated according to the Preliminary Conservation Objectives outlined in the Planning Agreement for ECMSCP (County 2008). These objectives are and project applicability/compliance is listed in Table 7-1.

**Table 7-1
ECMSCP Planning Agreement Conservation Objectives**

Conservation objective	Applicability/compliance
Provide for the protection of species, natural communities, and ecosystems on a landscape level;	Project, with mitigation, will provide for protection and conservation of special-status species and natural communities.

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 7-1
ECMSCP Planning Agreement Conservation Objectives**

Conservation objective	Applicability/compliance
Preserve the diversity of plant and animal communities throughout the Planning Area;	Not applicable
Protect threatened, endangered, or other special status plant and animal species, and minimizes and mitigate the take or loss of proposed Covered Species;	Project, with mitigation, will provide for protection and conservation of special-status species and natural communities.
Identify and designate biologically sensitive habitat areas;	Biological studies have been conducted for the site to determine sensitive habitat areas.
Preserve habitat and contribute to the recovery of Covered Species;	Project, with mitigation, will provide for protection and conservation of special-status species and natural communities.
Reduce the need to list additional species;	Not applicable
Set forth species-specific goals and objectives; and	Not applicable
Set forth specific habitat-based goals and objectives expressed in terms of amount, quality, and connectivity of habitat	Not applicable

7.2.3 Project Effects Relevant to Guideline 4.5.C

No wetlands or “waters of the United States” under the jurisdiction of ACOE, RWQCB, CDFW or County were identified within the solar farm site; therefore, this portion of the project will not directly impact any wetlands or wetland buffers as outlined in the RPO (County of San Diego 2007).

Wetlands and “waters of the United States” under the jurisdiction of ACOE, RWQCB, CDFW and County were identified within the gen-tie alignment site. No wetlands will be impacted as a result of the Proposed Project. Additional protection measures for these areas are not necessary because the project will avoid all wetlands on site. Biological monitoring during construction will ensure that crews do not enter these areas. Wetlands are located along the gen-tie alignment in areas where only overhead wires are proposed. Poles will be placed on either side of the wetland with the closest work activity taking place at least 170-250 feet from wetlands. The project off site wells may affect the adjacent creek and could have significant impacts to RPO wetlands, unless mitigated (**Impact P-2**). Refer to Section 4.2.3 regarding groundwater and well draw down (MM-14).

Sensitive habitat lands (unique vegetation communities, land that supports endangered species, lands essential to a natural ecosystem and wildlife corridors) were not identified on the solar farm site or within the gen-tie alignment and therefore, sensitive habitat lands will not be directly impacted as a result of the Proposed Project.

Biological Resources Report for the Tierra del Sol Solar Farm Project

7.2.4 Project Effects Relevant to Guideline 4.5.D

The Tierra Del Sol solar farm does not support nor would it impact coastal sage scrub vegetation.

7.2.5 Project Effects Relevant to Guideline 4.5.E

The Tierra Del Sol solar farm conforms to the goals and requirements as outlined in all applicable regional planning efforts.

7.2.6 Project Effects Relevant to Guideline 4.5.F

The Tierra Del Sol solar farm is located approximately 13 miles east of the approved South County MSCP.

Since there is no approved ECMSCP and no associated BMO, this guideline does not apply to the Tierra Del Sol project.

7.2.7 Project Effects Relevant to Guideline 4.5.G

The Tierra Del Sol solar farm is not expected to preclude habitat connectivity as discussed in Section 6.2.2.

7.2.8 Project Effects Relevant to Guideline 4.5.H

Since there is no approved ECMSCP and no associated BMO, this guideline does not apply to the Tierra Del Sol project.

7.2.9 Project Effects Relevant to Guideline 4.5.I

Narrow endemic species are evaluated under the County Guidelines for Determining Significance for Biological Resources. There are none on the project site.

7.2.10 Project Effects Relevant to Guideline 4.5.J

No federally or state-listed plant or wildlife species have been observed in the project area.

7.2.11 Project Effects Relevant to Guideline 4.5.K

Short-term, temporary, or construction-related impacts to migratory birds and active migratory bird nests and/or eggs protected under the Migratory Bird Treaty Act (MBTA) are considered a significant impact (Impact P-2). This impact will be mitigated through Mitigation Measure MM-10 (preconstruction surveys for nesting birds and setbacks).

Biological Resources Report for the Tierra del Sol Solar Farm Project

7.2.12 Project Effects Relevant to Guideline 4.5.L

Impacts to eagles would be significant to 68 acres of marginal foraging habitat (included with raptor foraging impacts, **Impact W-7**). The project, including the gen-tie does not have site specific impacts on golden eagle nesting.

7.3 Cumulative Impact Analysis

The ordinances and policies that protect biological resources are applied to each discretionary project in accordance with their associated legally established compliance requirements. Therefore cumulative impacts would not occur.

7.4 Mitigation Measures and Design Considerations

Project construction will be phased, where appropriate, to avoid work during the bird breeding season (i.e., January through August). If construction activity is to commence during the breeding season, a biological survey for nesting bird species must be conducted within the proposed impact area 72 hours prior to construction, as described in Mitigation Measure MM-10 in Section 3.4. For consistency with RPO, wetland mitigation requirements of MM-14 (groundwater monitoring and management plan) will minimize potential offsite groundwater drawdown impacts to wetlands along Rattlesnake Creek.

No other mitigation is proposed for impacts to local policies, ordinances, and plans because the Proposed Project remains consistent with all approved planning documents/plans.

7.5 Conclusions

Application of the currently established local policies, ordinances, and plans to the proposed project and implementation of appropriate mitigation has not resulted in any conflicts or inconsistencies. Therefore impacts are reduced to less than significant.

Impact P-1 The significant short-term direct impacts to active nests or the young protected by the federal MBTA will be reduced to less than significant through implementation of Mitigation Measure MM-10, which requires preconstruction surveys for nesting birds and setbacks for avoiding impacts to active nests.

Impact P-2 RPO requirements to avoid wetland impacts to the maximum extent has resulted in wetland mitigation requirements of MM- 14 (groundwater monitoring and management plan) which will monitor and avoid offsite groundwater drawdown impacts to wetlands along Rattlesnake Creek.

Biological Resources Report for the Tierra del Sol Solar Farm Project

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Biological Resources Report for the Tierra del Sol Solar Farm Project

8.0 SUMMARY OF PROJECT IMPACTS AND MITIGATION

Habitat Types/Vegetation Communities

Implementation of the proposed development would result in direct impacts to approximately 429.8 acres of vegetation communities and land covers (Table 2-1). Of these direct impacts, approximately 408.3 acres of vegetation impacts would require mitigation based on the County of San Diego's mitigation requirements (Table 5, County of San Diego 2010b). Required mitigation ratios range from 0.5:1 to 3:1. Mitigation of approximately 304.1 acres of vegetation is required, which averages out to an approximately 0.7:1 mitigation ratio.

There would be direct impacts to potential foraging and breeding habitat for wildlife species, discussed in Section 6.0. No impacts to local policies, ordinances, and adopted plans are anticipated to result from implementation of the Proposed Project. Impacts associated with the Migratory Bird Treaty Act are discussed in both Sections 3.0 and 7.0.

Direct impacts to groundwater-dependent vegetation from well drawdown may result from implementation of the Proposed Project. Mitigation would require groundwater monitoring and production would be capped if well drawdown exceeded pre-established thresholds.

Sensitive Plant Species

There would be significant impacts to special-status species that have been documented in the project area, including Tecate tarplant, desert beauty, Jacumba milk-vetch, and sticky geraea as discussed in Section 3.0.

Mitigation measures during construction needed to reduce these impacts to less than significant will include the implementation of best management practices (BMPs), biological monitoring and reporting and compensatory mitigation. For sensitive species, mitigation must consist of compensatory habitat that provides equal or greater benefit to the species. For the high-level sensitive plants (A- and B-listed species), the mitigation requirement shall be ratio based. Therefore, off-site preservation of native habitat will mitigate for the loss of special-status plant species at a minimum 2:1 mitigation to impact ratio for Jacumba milk-vetch and Tecate tarplant, individuals and 1:1 mitigation to impact ratio for sticky geraea and desert beauty. Survey results for the mitigation site have demonstrated that it meets this basic mitigation requirement.

Sensitive Wildlife Species

There would be potentially significant impacts to special-status species that have been observed or have potential to occur in the project area (see Table 8-1). Impacts would occur to suitable habitat and/or individual species, discussed in Section 3.0. Species-based mitigation shall be

Biological Resources Report for the Tierra del Sol Solar Farm Project

provided for Group I animal species. The mitigation site shall directly benefit the species (presence verified) and provide greater benefit to the species than that impacted. The mitigation shall propose measures above normal habitat mitigation and may propose occupation by an equal or greater number of Group I individuals. Adequate mitigation includes preservation and management of the mitigation site, construction limitations during breeding season, and measures to minimize edge effects (including biological monitoring and implementation of the FPP). Species-based mitigation land may also satisfy the habitat/vegetation community mitigation requirements of the same project. Therefore, off-site preservation of 429.8 acres of native habitats will provide mitigation for impacts to special-status species equal to the total acreage of impacts on the project site and greater than the project impacts to 408.3 acres of special-status upland vegetation communities.

Wildlife Movement and Nursery Sites

There would be direct impacts to potential foraging and breeding habitat for wildlife species, discussed in Section 6.0. Impacts associated with the MBTA are discussed in both Sections 3.0 and 7.0.

There would be potentially significant impacts to wildlife movement through core habitat, primarily for small and medium sized wildlife. Mitigation shall be provided to directly benefit the affected species (presence verified) and provide greater benefit to the species than that impacted. Adequate mitigation includes preservation and management of the mitigation site and measures to minimize edge effects (including biological monitoring and implementation of the FPP). The wildlife movement and nursery sites mitigation land also satisfy the habitat/vegetation community mitigation requirements of the same project. Therefore, off-site preservation of 429.8 acres of native habitats will provide compensatory mitigation for impacts to wildlife movement.

A summary of the aforementioned significance criteria, references to their locations within this document, and the significance determination is provided in Table 8-1.

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
<i>Guideline 4.1: The project would have a substantial adverse effect, either directly or through habitat modifications, on a candidate, sensitive, or special status species listed in local or regional plans, policies, or regulations, or by California Department of Fish and Game or U.S. Fish and Wildlife Service.</i>						
3.2.2.1	Impact SP-1	Special-Status Plants, County List A and B: Tecate tarplant Desert beauty Jacumba milk-vetch Sticky geraea	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) landscape monitoring and maintenance	Less than significant	4.1, B
3.2.2.1	Impact SP-2	Special-Status Plants, County List A and B: Tecate tarplant Desert beauty Jacumba milk-vetch Sticky geraea	Long-Term Direct	MM-1 (off-site habitat preservation and management)	Less than significant	4.1, B
3.2.2.2	Impact W-1	Special-Status Wildlife, County Group I	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) MM- 6 (biological review of landscape plans) MM-7 (restrictions on operation and maintenance personnel activity) MM-11 (monitoring excavated areas and soil piles) MM-12 (minimize night lighting) MM-13 (implement recommendations by the Avian Power Line Interaction Committee) Landscape monitoring and maintenance	Less than significant	4.1, B

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
3.2.2.2	Impact W-2	Special-Status Wildlife, County Group I or CDFG Species of Special Concern Impacts to active nests or young of nesting County Group I or CDFG Species of Special Concern	Short-term Direct	MM-10 (preconstruction surveys for nesting birds and setbacks)	Less than significant	4.1, B
3.2.2.2	Impact W-3	Special-Status Wildlife, County Group I or CDFG Species of Special Concern Removal of suitable habitat of County Group I wildlife species (see Table 3-2 for details) including: Bell's sage sparrow Cooper's hawk Prairie falcon Golden eagle Loggerhead shrike Turkey vulture	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, B
3.2.3.2	Impact W-4	Special-Status Wildlife, County Group II Species Western bluebird Coastal western whiptail Rosy boa Belding's orange-throated whiptail Blainville's horned lizard Northern red-diamond rattlesnake San Diego black-tailed jackrabbit San Diego desert woodrat	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) MM-11 (monitoring excavated areas and soil piles) Landscape monitoring and maintenance	Less than significant	4.1, C
3.2.3.2	Impact W-5	Special-Status Wildlife, County Group II Impacts to active nests or young of nesting County Group I or CDFG Species of Special Concern	Short-term Direct	MM-10 (preconstruction surveys for nesting birds and setbacks)	Less than significant	4.1, C

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
3.2.3.2	Impact W-6	Special-Status Wildlife, County Group II Loss of suitable habitat	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, C
3.2.6	Impact W-7	Special-Status Wildlife, Loss of foraging habitat for raptors	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, F
3.2.7	Impact W-8	Loss of Core Wildlife Area, Loss of habitat	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, G
3.2.8.1	Impact SP-3	Special-Status Plants, County List A and B: Tecate tarplant Desert beauty Jacumba milk-vetch Sticky geraea	Short-term Indirect	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) MM-5 (implementation of a Fugitive Dust Control Plan)	Less than significant	4.1, H
3.2.8.1	Impact SP-4	Special-Status Plants, County List A and B: Tecate tarplant Desert beauty Jacumba milk-vetch Sticky geraea	Long-term Indirect	MM-1 (off-site habitat preservation and management) MM-5 (implementation of a Fugitive Dust Control Plan) MM-6 (biological review of landscape plans) MM-7 (restrictions on operation and maintenance personnel activity) MM-8 (implementation of a Fire Protection Plan) MM-9 (regulated herbicide application)	Less than significant	4.1, H
3.2.8.2	Impact W-9	Special-Status Wildlife Detected or Potentially Occurring (Appendix E)	Short-term Indirect	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report)	Less than significant	4.1, H

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
				MM-5 (implementation of a Fugitive Dust Control Plan) MM-10 (preconstruction surveys for nesting birds and setbacks) MM-11 (monitoring excavated areas and soil piles) MM-12 (minimize night lighting)		
3.2.8.2	Impact W-10	Special-Status Wildlife Detected or Potentially Occurring (Appendix E)	Long-term Indirect	MM-1 (off site habitat preservation and management) MM-5 (implementation of a Fugitive Dust Control Plan) MM-6 (biological review of landscape plans) MM-7 (restrictions on operation and maintenance personnel activity) MM-8 (implementation of a Fire Protection Plan) MM-13 (implement recommendations by the Avian Power Line Interaction Committee)	Less than significant	4.1, H
3.2.12	Impacts W-11	Special-Status Wildlife, Nesting Success of Tree-Nesting Raptors, Construction-related (e.g., noise)	Short-term Indirect	MM-10 (preconstruction surveys for nesting birds and setbacks)	Less than significant	4.1, L
3.2.12	Impact W-12	Special-Status Wildlife, Nesting Success of Tree-Nesting Raptors, Loss of Suitable Nesting Habitat	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.1, L

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
<i>Guideline 4.2: The project would have a substantial adverse effect on riparian habitat or another sensitive natural community identified in local or regional plans, policies, regulations, or by California Department of Fish and Game or U.S. Fish and Wildlife Service.</i>						
4.2.1	Impact V-1	Special-Status Upland Vegetation Communities	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report)	Less than significant	4.2, A
4.2.1	Impact V-2	Special-Status Upland Vegetation Communities	Long-term Direct	MM-1 (off-site habitat preservation and management)	Less than significant	4.2, A
4.2.2	Impact B-JW1	Special-Status Wetland Vegetation Communities	Long-term Direct	MM-14 (groundwater monitoring and mitigation plan)	Less than significant	4.2, C
4.2.4	Impact V-3	Special-Status Upland Vegetation Communities	Short-term Indirect	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report) MM-5 (implementation of a Fugitive Dust Control Plan)	Less than significant	4.2, D
4.2.4	Impact V-4	Special-Status Upland Vegetation Communities	Long-term Indirect	MM-1 (off site habitat preservation and management) MM-5 (implementation of a Fugitive Dust Control Plan) MM-6 (biological review of landscape plans) MM-7 (restrictions on operation and maintenance personnel activity) MM-8 (implementation of a Fire Protection Plan) MM-9 (regulated herbicide application)	Less than significant	4.2, D

Biological Resources Report for the Tierra del Sol Solar Farm Project

**Table 8-1
Summary of Significant Impacts**

Section of Report Analysis Is Described	Impact Number	Impacted Resource	Impact Type	Proposed Mitigation	Level of Significance After Mitigation	Guideline Number and Letter
<i>Guideline 4.3: The project would have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption or other means.</i>						
5.2.1	See Section 4.2.2	Jurisdictional Wetlands and Waterways	See Section 4.2.2	See Section 4.2.2	See Section 4.2.2	4.3
4.2.3	Impact B-JW1	Well Drawdown	Long-term Direct	MM-14 (groundwater monitoring and management plan)	Less than significant	4.2, C and 4.3
<i>Guideline 4.4: The project would interfere substantially with the movement of a native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.</i>						
6.2.1	Impact WM-1	Foraging and Breeding Habitat	Short-term Direct	MM-2 (biological monitoring) MM-3 (preparation and implementation of a SWPPP) MM-4 (preparation of a biological monitoring report)	Less than significant	4.4, A
6.2.1	Impact WM-2	Foraging and Breeding Habitat	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.4, A
6.2.1	Impact WM-3	Foraging and Breeding Habitat	Short-term and long-term Indirect	MM-1 (off site habitat preservation and management)	Less than significant	4.4, A
6.2.1	Impact WM-4	Wildlife Movement, small and mid-sized animals	Long-term Direct	MM-1 (off site habitat preservation and management)	Less than significant	4.4, B
6.2.1	Impact WM-5	Collision and Electrocution	Long-term Direct	MM-13 (implement recommendations by the Avian Power Line Interaction Committee)	Less than significant	4.4, E
<i>Guideline 4.5: The project would conflict with one or more local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance, and/or would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional or state HCP.</i>						
7.2.3	Impact P-1	Impacts to off-site RPO wetlands	Long-term Direct	MM-14 (groundwater monitoring and management plan)	Less than significant	4.5, C
7.2.11	Impact P-2	Migratory Bird Treaty Act	Short-term Direct	MM-10 (preconstruction surveys for nesting birds and setbacks)	Less than significant	4.5, K

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Biological Resources Report for the Tierra del Sol Solar Farm Project

10.0 LIST OF PREPARERS AND PERSONS AND ORGANIZATIONS CONTACTED

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Biological Resources Report for the Tierra del Sol Solar Farm Project

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APPENDIX A

List of Plant Species Observed

APPENDIX A

List of Plant Species Observed

VASCULAR SPECIES

DICOTS

ADOXACEAE—MUSKROOT FAMILY

Sambucus nigra—black elderberry

AGAVACEAE—AGAVE FAMILY

Yucca schidigera—Mojave yucca

Yucca whipplei—chaparral yucca

ANACARDIACEAE—SUMAC OR CASHEW FAMILY

Rhus ovata—sugar sumac

Rhus trilobata var. *simplicifolia*—single-leaved skunkbrush

APIACEAE—CARROT FAMILY

Apiastrum angustifolium—mock parsley

Bowlesia incana—hoary bowlesia

Lomatium dasycarpum—woollyfruit desertparsley

Sanicula tuberosa—turkey pea

APOCYNACEAE—DOGBANE FAMILY

Asclepias fascicularis—Mexican whorled milkweed

ASTERACEAE—SUNFLOWER FAMILY

Achillea millefolium—common yarrow

Acourtia microcephala—sacapellote

Ambrosia acanthicarpa—flatspine bur ragweed

Ambrosia confertiflora—wealeaf bur ragweed

Artemisia californica—coastal sagebrush

Artemisia tridentata—big sagebrush

* *Cirsium vulgare*—bull thistle

Chaenactis glabriuscula—yellow pincushion

* *Conyza bonariensis*—asthmaweed

Corethrogyne filaginifolia var. *incana*—San Diego sand aster

Deinandra floribunda—Tecate tarplant

Ericameria brachylepis—chaparral goldenbush

Ericameria cuneata var. *spathulata*—cliff goldenbush

Ericameria linearifolia—narrowleaf goldenbush

Eriophyllum confertiflorum—golden-yarrow

Eriophyllum wallacei—woolly easterbonnets

APPENDIX A (Continued)

- Geraea viscida*—sticky geraea
Gutierrezia sarothrae—broom snakeweed
Heterotheca grandiflora—telegraphweed
* *Hedypnois cretica*—cretanweed
Laennecia coulteri—Coulter's horseweed
Lasthenia californica ssp. *californica*—California goldfields
Lasthenia gracilis—needle goldfields
Layia glandulosa—whitedaisy tidytips
Malacothrix californica—California desertdandelion
Pseudognaphalium canescens—Wright's cudweed
Senecio californicus—California ragwort
Stephanomeria pauciflora—brownplume wirelettuce
Stephanomeria virgata—rod wirelettuce
Stylocline gnaphaloides—mountain neststraw
Tetradymia comosa—hairy horsebrush

BORAGINACEAE—BORAGE FAMILY

- Amsinckia menziesii*—Menzies' fiddleneck
Cryptantha micrantha—redroot cryptantha
Cryptantha microstachys—Tejon cryptantha
Emmenanthe penduliflora var. *penduliflora*—whisperingbells
Emmenanthe penduliflora—whisperingbells
Eriodictyon trichocalyx—hairy yerba santa
Eucrypta chrysanthemifolia—spotted hideseed
Heliotropium curassavicum—salt heliotrope
Nemophila menziesii—baby blue eyes
Pectocarya peninsularis—peninsular pectocarya
Phacelia brachyloba—shortlobe phacelia
Phacelia distans—distant phacelia
Plagiobothrys arizonicus—Arizona popcornflower

BRASSICACEAE—MUSTARD FAMILY

- Athysanus pusillus*—common sandweed
Boechera californica—California rockcress
Caulanthus heterophyllus—San Diego wild cabbage
Descuriana pinnata—western tansymustard
Erysimum captitatum—sanddune wallflower
* *Hirschfeldia incana*—shortpod mustard
Thysanocarpus curvipes—sand fringe pod

APPENDIX A (Continued)

CACTACEAE—CACTUS FAMILY

- Cylindropuntia californica* var. *parkeri*—brownspined pricklypear
- Mammillaria dioica*—strawberry cactus
- Opuntia basilaris*—beavertail pricklypear
- Opuntia phaeacantha*—tulip pricklypear

CAPRIFOLIACEAE—HONEYSUCKLE FAMILY

- Lonicera subspicata*—southern honeysuckle

CHENOPODIACEAE—GOOSEFOOT FAMILY

- Chenopodium californicum*—California goosefoot
- * *Salsola tragus*—prickly Russian thistle

CONVOLVULACEAE—MORNING-GLORY FAMILY

- Cuscuta californica*—chaparral dodder

CRASSULACEAE—STONECROP FAMILY

- Crassula connata*—sand pygmyweed
- Dudleya pulverulenta*—chalk dudleya

CUCURBITACEAE—GOURD FAMILY

- Marah macrocarpus*—Cucamonga manroot

ERICACEAE—HEATH FAMILY

- Arctostaphylos glandulosa*—Eastwood's manzanita
- Arctostaphylos pungens*—pointleaf manzanita

EUPHORBIACEAE—SPURGE FAMILY

- * *Chamaesyce maculata*—spotted sandmat
- Croton californicus*—California croton
- Croton setigerus*—dove weed

FABACEAE—LEGUME FAMILY

- Acmispon americanus* var. *americanus*—American bird's-foot trefoil
- Acmispon glaber* var. *glaber*—common deerweed
- Acmispon glaber*—common deerweed
- Astragalus douglasii* var. *perstrictus*—Jacumba milk-vetch
- Lathyrus splendens*—pride-of-California
- Lupinus argenteus*—silvery lupine
- Lupinus bicolor*—miniature lupine
- Lupinus concinnus*—bajada lupine

APPENDIX A (Continued)

Lupinus succulentus—hollowleaf annual lupine

Pickeringia montana—chaparral pea

FAGACEAE—OAK FAMILY

Quercus agrifolia—California live oak

Quercus berberidifolia—scrub oak

Quercus cornelius-mulleri—Muller oak

Quercus wislizeni—interior live oak

GARRYACEAE—SILK TASSEL FAMILY

Garrya veatchii—canyon silktassel

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—redstem stork's bill

GROSSULARIACEAE—GOOSEBERRY FAMILY

Ribes indecorum—whiteflower currant

LAMIACEAE—MINT FAMILY

* *Lamium amplexicaule*—henbit deadnettle

* *Marrubium vulgare*—horehound

Salvia columbariae—chia

Stachys ajugoides—bugle hednettle

Trichostema lanceolatum—vinegarweed

Trichostema parishii—Parish's bluecurls

LOSACEAE—LOASA FAMILY

Mentzelia veatchiana—Veatch's blzaingstar

MONTIACEAE—MONTIA FAMILY

Calyptridium monandrum—common pussypaws

Claytonia parviflora—streambank springbeauty

ONAGRACEAE—EVENING PRIMROSE FAMILY

Camissonia californica—California suncup

Camissonia strigulosa—sandysoil suncup

OROBANCHACEAE—BROOM-RAPE FAMILY

Castilleja affinis—coast Indian paintbrush

APPENDIX A (Continued)

PAEONIACEAE—PEONY FAMILY

Paeonia californica—California peony

PAPAVERACEAE—POPPY FAMILY

Ehrendorferia chrysantha—golden eardrops

Eschscholzia californica—California poppy

PHRYMACEAE—LOPSEED FAMILY

Mimulus bigelovii var. *bigelovii*—Bigelow's monkeyflower

Mimulus breviflorus—shortflower monkeyflower

Mimulus pilosus—false monkeyflower

PLANTAGINACEAE—PLANTAIN FAMILY

Collinsia concolor—Chinese houses

Keckiella ternata—scarlet keckiella

Penstemon centranthifolius—scarlet bugler

Penstemon spectabilis—showy penstemon

POLEMONIACEAE—PHLOX FAMILY

Eriastrum densifoium—giant woollystar

Eriastrum sapphrinum—sapphire woollystar

Gilia capitata—bluehead gilia

Linanthus bellus—desert beauty

POLYGONACEAE—BUCKWHEAT FAMILY

Chorizanthe fimbriata var. *fimbriata*—fringed spineflower

Eriogonum davidsonii—Davidson's buckwheat

Eriogonum fasciculatum var. *polifolium*—Eastern Mojave buckwheat

Eriogonum gracile var. *gracile*—slender woolly buckwheat

Eriogonum thurberi—Thurber's buckwheat

Pterostegia drymarioides—woodland pterostegia

Rumex californicus—toothed willow dock

RANUNCULACEAE—BUTTERCUP FAMILY

Clematis pauciflora—ropevine clematis

Delphinium cardinale—scarlet larkspur

RHAMNACEAE—BUCKTHORN FAMILY

Ceanothus crassifolius—hoaryleaf ceanothus

Ceanothus cuneatus var. *cuneatus*—buckbrush

Ceanothus greggii var. *perplexans*—desert ceanothus

Rhamnus ilicifolia—hollyleaf redberry

APPENDIX A (Continued)

ROSACEAE—ROSE FAMILY

- Adenostoma fasciculatum*—chamise
- Adenostoma sparsifolium*—redshank
- Cercocarpus betuloides*—birchleaf mountain mahogany
- Heteromeles arbutifolia*—toyon
- Prunus ilicifolia*—hollyleaf cherry

RUBIACEAE—MADDER FAMILY

- Galium andrewsii*—phloxleaf bedstraw

SALICACEAE—WILLOW FAMILY

- Salix laevigata*—red willow
- Salix lasiolepis*—arroyo willow

SAURURACEAE—LIZARD’S-TAIL FAMILY

- Anemopsis californica*—yerba mansa

SCROPHULARIACEAE—FIGWORT FAMILY

- Castilleja affinis*—coast Indian paintbrush
- Castilleja minor* ssp. *spiralis*—lesser Indian paintbrush
- Cordylanthus rigidus*—stiffbranch bird’s beak

SIMAROUBACEAE—QUASSIA OR SIMAROUBA FAMILY

- * *Ailanthus altissima*—tree of heaven

SOLANACEAE—NIGHTSHADE FAMILY

- Datura wrightii*—sacred thorn-apple
- Nicotiana quadrivalvis*—Indian tobacco
- Solanum parishii*—Parish’s nightshade

VISCACEAE—MISTLETOE FAMILY

- Phoradendron serotinum*—oak mistletoe
- * *Viscum album*—European mistletoe

MONOCOTS

AGAVACEAE—AGAVE FAMILY

- Hesperoyucca whipplei*—chaparral yucca
- Yucca schidigera*—Mojave yucca

APPENDIX A (Continued)

LILIACEAE—LILY FAMILY

Calochortus concolor—goldenbowl mariposa lily

Calochortus splendens—splendid mariposa lily

POACEAE—GRASS FAMILY

Achnatherum speciosum—desert needlegrass

* *Avena barbata*—slender oat

* *Bromus diandrus*—ripgut brome

* *Bromus hordeaceus*—soft brome

* *Bromus madritensis*—compact brome

* *Bromus tectorum*—cheatgrass

* *Festuca myuros*—rat-tail fescue

* *Hordeum murinum*—mouse barley

Muhlenbergia rigens—deerglass

* *Polypogon monspeliensis*—annual rabbitsfoot grass

* *Schismus barbatus*—common Mediterranean grass

* *Vulpia myuros*—rat-tail fescue

THEMIDACEAE—BROIDEA FAMILY

Dichelostemma capitatum—bluedicks

FERNS AND FERN ALLIES

PTERIDACEAE—BRAKE FAMILY

Pellaea mucronata—birdfoot cliffbrake

GYMNOSPERMS AND GNETOPHYTES

CUPRESSACEAE—CYPRESS FAMILY

Hesperocyparis forbesii—Tecate cypress

EPHEDRACEAE—EPHEDRA FAMILY

Ephedra californica—California jointfir

PINACEAE—PINE FAMILY

Pinus sp.—pine

* signifies introduced (non-native) species

APPENDIX A (Continued)

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APPENDIX B

List of Wildlife Species Observed

APPENDIX B
List of Wildlife Species Observed

WILDLIFE SPECIES – VERTEBRATES

AMPHIBIANS

HYLIDAE – TREEFROGS

Pseudacris hypochondriaca hypochondriaca – Baja California Treefrog

Pseudacris regilla – Northern Pacific treefrog

REPTILES

COLUBRIDAE – COLUBRID SNAKES

Pituophis melanoleucus – gopher snake

IGUANIDAE – IGUANID LIZARDS

Elgaria multicarinata – Southern alligator lizard

Phrynosoma blainvillii – Blainville’s (coast) horned lizard

Sceloporus occidentalis – western fence lizard

Sceloporus orcutti – granite spiny lizard

Uta stansburiana – side-blotched lizard

VIPERIDAE – VIPERS

Crotalus atrox – western diamondback rattlesnake

BIRDS

ACCIPITRIDAE – HAWKS

Accipiter cooperii – Cooper’s hawk

Buteo jamaicensis – red-tailed hawk

AEGITHALIDAE – BUSHTITS

Psaltriparus minimus – bushtit

CATHARTIDAE – NEW WORLD VULTURES

Cathartes aura – turkey vulture

COLUMBIDAE – PIGEONS AND DOVES

Zenaida macroura – mourning dove

CORVIDAE – JAYS AND CROWS

Apelocoma californica – western scrub-jay

Corvus brachyrhynchos – American crow

Corvus corax – common raven

APPENDIX B (Continued)

CUCULIDAE – CUCKOOS AND ROADRUNNERS

Geococcyx californianus – greater roadrunner

EMBERIZIDAE – BUNTINGS AND SPARROWS

Amphispiza belli – sage sparrow

Amphispiza belli belli – Bell's sage sparrow

Amphispiza bilineata – black-throated sparrow

Junco hyemalis – dark-eyed junco

Pipilo crissalis – California towhee

Pipilo maculatus – spotted towhee

Zonotrichia leucophrys – white-crowned sparrow

FALCONIDAE – FALCONS

Falco sparverius – American kestrel

FRINGILLIDAE – FINCHES

Carpodacus mexicanus – house finch

Carduelis psaltria – lesser goldfinch

ICTERIDAE – BLACKBIRDS AND ORIOLES

Icterus parisorum – Scott's oriole

Sturnella neglecta – western meadowlark

MIMIDAE – THRASHERS

Mimus polyglottos – northern mockingbird

Toxostoma redivivum – California thrasher

PARIDAE – TITMICE

Baeolophus inornatus – oak titmouse

PARULIDAE – WOOD WARBLERS

Dendroica coronata – yellow-rumped warbler

Wilsonia pusilla – Wilson's warbler

PHASIANIDAE – PHEASANTS AND QUAILS

Callipepla californica – California quail

PICIDAE – WOODPECKERS

Colaptes auratus – northern flicker

Melanerpes formicivorus – acorn woodpecker

APPENDIX B (Continued)

PTILOGONATIDAE – SILKY-FLYCATCHERS

Phainopepla nitens – phainopepla

STURNIDAE – STARLINGS

* *Sturnus vulgaris* – European starling

SYLVIIDAE – GNATCATCHERS

Polioptila caerulea – blue-gray gnatcatcher

TIMALIIDAE – LAUGHINGTHRUSH AND WRENTIT

Chamaea fasciata – wrentit

TROCHILIDAE – HUMMINGBIRDS

Archilochus alexandri – black-chinned hummingbird

Calypte anna – Anna’s hummingbird

Calypte costae – Costa’s hummingbird

TROGLODYTIDAE – WRENS

Thryomanes bewickii – Bewick’s wren

TURDIDAE – THRUSHES AND BABBLERS

Sialia mexicana – western bluebird

TYRANNIDAE – TYRANT FLYCATCHERS

Myiarchus cinerascens – ash-throated flycatcher

Sayornis saya – Say’s phoebe

Tyrannus vociferans – Cassin’s kingbird

MAMMALS

CANIDAE – WOLVES AND FOXES

Canis latrans – coyote

CERVIDAE – DEERS

Odocoileus hemionus – mule deer

GEOMYIDAE – POCKET GOPHERS

Thomomys bottae – Botta’s pocket gopher

LEPORIDAE – HARES AND RABBITS

Lepus californicus – black-tailed jackrabbit

Sylvilagus bachmani – brush rabbit

Sylvilagus audubonii – desert cottontail

APPENDIX B (Continued)

MURIDAE – RATS AND MICE

Neotoma sp. – woodrat sp.

SCIURIDAE – SQUIRRELS

Ammospermophilus leucurus – white-tailed antelope squirrel

Spermophilus beecheyi – California ground squirrel

TALPIDAE – MOLES

Scapanus latimanus – Broad-footed mole (sign)

WILDLIFE SPECIES – INVERTEBRATES

BUTTERFLIES AND MOTHS

HESPERIIDAE – SKIPPERS

Erynnis funeralis – funereal duskywing

Hylephila phyleus – fiery skipper

LYCAENIDAE – BLUES, HAIRSTREAKS, AND COPPERS

Callophrys dumetorum – bramble hairstreak

Callophrys dumetorum perplexa – perplexing (green) hairstreak

Glaucopsyche lygdamus – silvery blue

Glaucopsyche lygdamus australis – southern blue

Icaria acmon acmon – acmon blue

Incisalia augustinus – brown elfin

NYMPHALIDAE – BRUSH-FOOTED BUTTERFLIES

Junonia coenia – Common buckeye

Vanessa annabella – west coast lady

Vanessa cardui – painted lady

PAPILIONIDAE – SWALLOWTAILS

Papilio eurymedon – pale swallowtail

Papilio rutulus – western tiger swallowtail

Papilio zelicaon lucas – anise swallowtail

PIERIDAE – WHITES AND SULFURS

Anthocharis sara – Sara orangetip

Colias eurydice – California dogface

Colias harfordi – Harford's Sulfur

Euchloe lotta – Desert marble

APPENDIX B (Continued)

Pieris rapae – European cabbage white

Pontia protodice – Common white

RIODINIDAE – METALMARKS

Apodemia mormo virgulti – Behr's metalmark

* signifies introduced (non-native) species

APPENDIX B (Continued)

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APPENDIX C

*Special-Status Plant Species Detected or
Potentially Occurring on the Project Site*

APPENDIX C

Special-Status Plant Species Detected or Potentially Occurring on the Project Site

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Astragalus douglasii</i> var. <i>perstrictus</i> Jacumba milk-vetch	None/None/List A, MSCP/1B.2	Chaparral, cismontane woodland, valley and foothill grassland; rocky/perennial herb/April– June/900–1,370 meters	Yes	Observed on site.	Yes	Observed on site.
<i>Deinandra</i> [= <i>Hemizonia</i>] <i>floribunda</i> Tecate tarplant	None/None/List A, MSCP/1B.2	Chaparral, coastal scrub/annual herb/August–October/70–1,220 meters	Yes	Observed on site.	Yes	Observed on site.
<i>Geraea viscida</i> Sticky geraea	None/None/List B, MSCP/2.3	Chaparral (often disturbed)/perennial herb/ May–June/450–1,700 meters	Yes	Observed on site.	Yes	Observed on site.
<i>Hesperocyparis forbesii</i> Tecate cypress	None/None/List A, MSCP/1B.1	Closed-cone conifer forest, chaparral/evergreen tree/NA/255–1,500 meters	Yes	Observed on site in two separate areas.	No	Absent. Species is not known from the vicinity. This evergreen tree would have been observed during on-site surveys.
<i>Lathyrus splendens</i> Pride-of-California	None/None/List D, MSCP/4.3	Chaparral/perennial herb/March–June/ 200–1,525 meters	No	Observed on site.	Yes	Absent. Suitable habitat is present, but focused surveys for this species were negative.
<i>Linanthus bellus</i> Desert beauty	None/None/List B, MSCP/2.3	Chaparral/sandy/annual herb/April–May/1,000–1,400 meters	No	Observed on site.	Yes	Observed on site.

¹ FE: Federally listed as endangered
 FT: Federally listed as threatened
 MSCP: Proposed Covered Species under the Draft East County MSCP
 SE: State-listed as endangered
 ST: State-listed as threatened
 SR: State-listed as rare

APPENDIX C (Continued)

CRPR: California Rare Plant Rank

1A (formerly List 1A): Plants Presumed Extinct in California

1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere

2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3 (formerly List 3): Plants About Which We Need More Information – A Review List

4 (formerly List 4): Plants of Limited Distribution – A Watch List

0.1–Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)

0.2–Fairly threatened in California (20–80% occurrences threatened/moderate degree and immediacy of threat)

0.3–Not very threatened in California (<20% of occurrences threatened /low degree and immediacy of threat or no current threats known)

² "Vicinity" is based on a search of the CNDDDB and CNPS databases for the Tierra Del Sol quad and the four surrounding quads conducted in October 2011 and Live Oak Springs quad and surrounding 5 quads conducted in March 2013.

³ "Bioregion": Regions defined by the geographic subdivisions of California in the Jepson Flora Project (2012). The project site is located in the Peninsular Ranges within the California Floristic Province

APPENDIX D

*Special-Status Plant Species Not Expected to
Occur or Rarely Occur in the Project Area*

APPENDIX D
Special-Status Plant Species Not Expected to Occur or Rarely Occur in the Project Area

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Acanthomintha ilicifolia</i> San Diego thorn-mint	FT/SE/List A/1B.1	Chaparral, coastal scrub, valley and foothill grassland, vernal pools; clay/annual herb/April–June/10–960 meters	No	Absent. Site elevation is above the species' known elevation range. Species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Species would have been observed during on-site surveys.
<i>Acmispon</i> [= <i>Lotus</i>] <i>haydonii</i> Pygmy lotus	None/None/List A, MSCP/1B.3	Pinyon and juniper woodland, Sonoran desert scrub/rocky/perennial herb/January–June/520–1,200 meters	No	Absent. No suitable vegetation present. Species would have been observed during on-site surveys.	No	Absent. No suitable vegetation present. Species would have been observed during on-site surveys.
<i>Arabis hirshbergiae</i> (= <i>Boechea h.</i>) Hirshberg's rock-cress	None/None/List A, MSCP/2.3	Great Basin scrub, pinyon and juniper woodland/gravelly or rocky/perennial herb/April–June/3,050–3,050 meters	No	Absent. Site elevation is above the species' known elevation range. Species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Species would have been observed during on-site surveys.
<i>Arctostaphylos otayensis</i> Otay manzanita	None/None/List A, MSCP/1B.2	Chaparral, cismontane woodland; metavolcanic/shrub/January–March/275–1,700 meters	No	Absent. Suitable habitat is present. The nearest CNDDDB record is approximately 20 miles from the site, but still occurs in the same bioregion ³ . Would have been observed during on-site surveys.	No	Absent. Although suitable chaparral vegetation is present, soils on site are derived/weathered from granite or granodiorite. Also, the nearest CNDDDB record is approximately 20 miles from the site. Would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Astragalus crotalariae</i> Salton milk-vetch	None/None/List D, MSCP/4.3	Sonoran desert scrub/ sandy or gravelly/perennial herb/January–April/60–250 meters	No	Absent. No suitable vegetation present. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. No suitable vegetation present. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.
<i>Astragalus deanei</i> Dean's milk-vetch	None/None/List A, MSCP/1B.1	Chaparral, coastal scrub, riparian forest/perennial herb/February–May/75–670 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.
<i>Astragalus insularis</i> var. <i>harwoodi</i> Harwood's milk-vetch	None/None/List B, MSCP/2.2	Desert dunes, Mojavean desert scrub/sandy or gravelly/annual herb/January–May/0–710 meters	No	Absent. No suitable vegetation present. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. No suitable vegetation present. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.
<i>Astragalus lentiginosus</i> var. <i>borreganus</i> Borrego milk-vetch	None/None/List D, MSCP/4.3	Mojavean desert scrub, Sonoran desert scrub/sandy/annual herb/February–May/30–270 meters	No	Absent. No suitable vegetation present. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. No suitable vegetation present. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Astragalus oocarpus</i> San Diego milk- vetch	None/None/List A, MSCP/1B.2	Chaparral (openings), cismontane woodland/perennial herb/May–August/ 305–1500 meters	No	Absent. Suitable habitat is present. The nearest CNDDDB record is approximately 18 miles from the site, but still occurs in the same bioregion ³ . Also, species would have been detected during on-site surveys.	No	Absent. Suitable habitat is present. The nearest CNDDDB record is approximately 18 miles from the site, but still occurs in the same bioregion ³ . Also, species would have been detected during on-site surveys.
<i>Ayenia compacta</i> California ayenia	None/None/List B/2.3	Mojavean desert scrub, Sonoran desert scrub/rocky/perennial herb/March–April/ 150–1095 meters	No	Absent. No suitable desert scrub vegetation present and species would have been observed during on-site surveys.	No	Absent. No suitable desert scrub vegetation present and species would have been observed during on-site surveys.
<i>Berberis fremontii</i> [= <i>B. higginsiae</i>] Fremont barberry	None/None/List C, MSCP/3	Chaparral , Joshua tree “woodland,” pinyon and juniper woodland/rocky/evergreen shrub/April–June/840–1850 meters	No	Absent. Suitable habitat is present and the species is recorded within 5 miles of the site. However, this evergreen shrub would have been observed during on-site surveys.	N/A	Absent. Suitable habitat is present and historical record for this species exists within alignment. However, this evergreen shrub would have been observed during on-site surveys.
<i>Brodiaea orcuttii</i> Orcutt’s brodiaea	None/None/List A, MSCP/1B.1	Closed-cone conifer forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools; mesic, clay, sometimes serpentine/bulbiferous herb/May–July/30–1,692 meters	No	Absent. No appropriate clay soils occur on site and this species has not been recorded in the vicinity. Also, species would have been observed during on-site surveys.	No	Absent. No appropriate clay soils occur on site and this species has not been recorded in the vicinity. Also, species would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Bursera microphylla</i> Little-leaf elephant tree	None/None/List B, MSCP/2.3	Sonoran desert scrub/rocky/deciduous tree/June–July/200–700 meters	No	Absent. Site elevation is above the species' known elevation range. Also, tree would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Also, tree would have been observed during on- site surveys.
<i>Calliandra eriophylla</i> Pink fairy-Duster	None/None/List B, MSCP/2.3	Sonoran desert scrub/sandy or rocky/ deciduous shrub/January–March/120– 1,500 meters	No	Absent. No suitable desert scrub vegetation present. Also, shrub would have been observed during on-site surveys.	No	Absent. No suitable desert scrub vegetation present. Also, shrub would have been observed during on-site surveys.
<i>Calochortus dunnii</i> Dunn's mariposa-lily	None/SR/List A, MSCP/1B.2	Closed-cone conifer forest, chaparral; gabbroic or metavolcanic/bulbiferous herb/April–June/380–1,830 meters	No	Absent. Outside of species' geographic range. All CNDDB records are over 10 miles west of the site and species would have been observed during on-site surveys.	No	Absent. Outside of species' geographic range. All CNDDB records are over 10 miles west of the site and species would have been observed during on-site surveys. Also, soils on site are either derived/weathered from granodiorite or granite.
<i>Carex obispoensis</i> San Luis Obispo sedge	None/None/MSCP/ 1B.2	Closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland/often serpentinite seeps, sometimes gabbro; often on clay soils/perennial rhizomatous herb/April–June/10–790 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on- site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Carlwrightia arizonica</i> Arizona carlowrightia	None/None/List B, MSCP/2.2	Sonoran desert scrub/sandy, granitic alluvium/deciduous shrub/March–May/ 285–430 meters	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on- site surveys.
<i>Caulanthus simulans</i> Payson's jewel- flower	None/None/List D, MSCP/4.2	Chaparral, coastal scrub; sandy and granitic/ annual herb/March–May/90– 2,200 meters	No	Absent. Suitable vegetation and soils present; however, species would have been observed during on-site surveys. Nearest CNDDDB record is 10 miles away, but in the same bioregion ³ .	No	Absent. Suitable vegetation and soils present; however, species would have been observed during on-site surveys. There are CNDDDB records within 7 miles of the site.
<i>Ceanothus cyaneus</i> Lakeside ceanothus	None/None/List A, MSCP/1B.2	Closed-cone conifer forest, chaparral/shrub/April– June/235–755 meters	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on- site surveys.
<i>Ceanothus verrucosus</i> Wart-stemmed ceanothus	None/None/List B/2.2	Chaparral/shrub/December– April/1–380 meters	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on- site surveys.
<i>Chaenactis parishii</i> Parish's chaenactis	None/None/List A, MSCP/1B.3	Chaparral; rocky/perennial herb /May–July/ 1,300–2,500 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Chamaesyce abramsiana</i> Abrams' spurge	None/None/None/2 .2	Mojavean desert scrub, Sonoran desert scrub/sandy/ annual herb/ (Aug),Sep-Nov/ - 5-915 meters	No	Absent. Site elevation is below the species' known elevation range.	N/A	Not expected to occur. Site elevation is below the species' known elevation range.
<i>Chamaebatia australis</i> Southern mountain misery	None/None/List D, MSCP/4.2.	Chaparral; gabbroic or metavolcanic/evergreen shrub/November-May/300- 700 meters	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on- site surveys.
<i>Chorizanthe polygonoides</i> var. <i>longispina</i> Long-spined spineflower	None/None/List A, MSCP/1B.2	Chaparral, coastal scrub, meadows and seeps, valley and foothill grassland; often clay/annual herb/April- July/30-1,530 meters	No	Absent. Suitable vegetation. There are no clay soils on site; however, the Jepson Flora Interchange (2011) includes sand as suitable substrate for this species. The nearest CNDDDB record is 18 miles away, but occurs in the same bioregion ³ as the project site. Species would have been observed during on-site surveys.	No	Absent. Suitable vegetation. There are no clay soils on site; however, the Jepson Flora Interchange (2011) includes sand as suitable substrate for this species. The nearest CNDDDB record is approximately 18 miles away, but occurs in the same bioregion ³ as the project site. Species would have been observed during on- site surveys.
<i>Clarkia delicata</i> Delicate clarkia	None/None/List A, MSCP/1B.2	Chaparral, cismontane woodland/annual herb/April- June/235-1,000 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is slightly above the species' known elevation range and species would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Cryptantha costata</i> Ribbed cryptantha	None/None/List D, MSCP/4.3	Desert dunes, Mojavean desert scrub, Sonoran desert scrub/sandy/annual herb/ February–May/60–500 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on- site surveys.
<i>Cryptantha ganderi</i> Gander's cryptantha	None/None/List A, MSCP/1B.1	Desert dunes, Sonoran desert scrub/sandy/annual herb/February–May/160–400 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on- site surveys.
<i>Cylindropuntia</i> (=Opuntia) <i>wolfii</i> Wolf's cholla	None/None/List D, MSCP/4.3	Sonoran desert scrub/stem succulent/ March–May/100–1,200 meters	No	Absent. No suitable desert scrub habitat on site. Also, conspicuous stem succulent would have been observed during on-site surveys.	No	Absent. No suitable desert scrub habitat on site. Also, conspicuous stem succulent would have been observed during on-site surveys.
<i>Cylindropuntia</i> <i>xfosbergii</i> Pink cholla	None/None/MSCP/3	Sonoran desert scrub/perennial stem succulent/March–May/85–850 meters	No	Absent. Site elevation is above the species' known elevation range. Also, conspicuous stem succulent would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Also, conspicuous stem succulent would have been observed during on- site surveys.
<i>Deinandra</i> [=Hemizonia] <i>mohavensis</i> Mojave tarplant	None/SE/List A, MSCP/1B.3	Chaparral, coastal scrub, riparian scrub/ mesic/annual herb/July– October/640–1,600 meters	No	Absent. The site is south of the species' known geographic range. Records for the species are over 50 miles north of the site. Species would have been observed during on-site surveys.	No	Not expected to occur. The site is south of the species' known geographic range.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Delphinium hesperium</i> ssp. <i>cuyamaca</i> Cuyamaca larkspur	None/SR/List A, MSCP/1B.2	Lower montane conifer forest, meadows and seeps, mesic areas/perennial herb/ June–July/1,220–1,631 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation slightly below the species' known elevation range and the southernmost CNDDDB record is over 16 miles north of the site. Species would have been detected during on-site surveys.
<i>Dieteria asteroides</i> var. <i>lagunensis</i> Mount Laguna Aster	None/SR/List B, MSCP/2.1	Cismontane woodland, lower montane coniferous forest/perennial herb/July– August/800–2,400 meters	No	Absent. Limited suitable habitat on site and focused surveys for this species were negative.	No	Low potential to occur. Marginally suitable habitat on site and the majority of species records are from
<i>Downingia concolor</i> var. <i>brevior</i> Cuyamaca Lake downingia	None/SE/List A, MSCP/1B.1	Meadows and seeps (vernally mesic), vernal pools/annual herb/May–July/1,400–1,500 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.
<i>Ericameria cuneata</i> var. <i>macrocephala</i> Laguna Mountains goldenbush	None/None/List A, MSCP/1B.3	Chaparral/granitic/shrub/Septe mber–December/1,195–1,850 meters	No	Absent. Site elevation is below the species' known elevation range. Also, shrub would have been observed during on-site surveys.	No	Not expected to occur. Site elevation is slightly below the species' known elevation range and this variety is only known from the Laguna Mountains.
<i>Ericameria palmeri</i> ssp. <i>palmeri</i> Palmer's goldenbush	None/None/List B, MSCP/2.2	Chaparral, coastal scrub/shrub/September– November/30–600 meters	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on-site surveys.	No	Not expected to occur. Site elevation is above the species' known elevation range.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Eriogonum evanidum</i> [= <i>E. foliosum</i>] Vanishing wild buckwheat	None/None/List A, MSCP/1B.1	Chaparral, cismontane woodland, lower montane coniferous forest, pinyon and juniper woodland/sandy/annual herb/July–October/1,100– 2,225 meters	No	Absent. Although there is suitable vegetation and appropriate sandy soils, the species is possibly extirpated (Jepson Flora Project 2013) and the nearest CNDDDB record is approximately 20 miles from the site. Species would have been observed during on-site surveys.	No	Not expected to occur. Although there is suitable vegetation and appropriate sandy soils, the species is possibly extirpated (Jepson Flora Project 2013) and the nearest CNDDDB record is approximately 19 miles from the site.
<i>Euclide rupestris</i> Annual rock-nettle	None/None/List B/2.2	Sonoran desert scrub/ annual herb/ Dec-Apr/ 500–600 meters	No	Absent. There is no suitable Sonoran desert scrub on site and species would have been observed during on-site surveys.	No	Not expected to occur. No suitable Sonoran desert scrub vegetation.
<i>Galium angustifolium</i> ssp. <i>borregoense</i> Borrego bedstraw	None/SR/List A, MSCP/1B.3	Sonoran desert scrub/ rocky/perennial herb/March/350–1,250 meters	No	Absent. There is no suitable Sonoran desert scrub on site and species would have been observed during on-site surveys.	No	Absent. There is no suitable Sonoran desert scrub on site and species would have been observed during on-site surveys.
<i>Galium angustifolium</i> ssp. <i>jacinticum</i> San Jacinto Mountains bedstraw	None/None/List A/1B.3	Lower montane coniferous forest/perennial herb/June– August/1,350–2,100 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.
<i>Galium californicum</i> ssp. <i>flaccidum</i> California flaccidus	None/None/MSCP/ None	Open or dense non-coastal woodland/perennial herb/March–July/30–1,500 meters	No	Absent. Limited suitable habitat on site and species would have been observed during on-site surveys.	No	Absent. Suitable woodland habitat present and species would have been observed during on- site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Gentiana fremontii</i> Fremont's gentian	None/None/None/2 .3	Meadows and seeps (mesic), upper montane coniferous forest/annual herb/ June–August/2,400–2,700 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.
<i>Grindelia hallii</i> San Diego gumplant	None/ None/ List A/ 1B.2	Chaparral, Lower montane coniferous forest, Meadows and seeps, Valley and foothill grassland/ perennial herb/ Jul- Oct/ 185–1,745 meters	No	Absent. The nearest CNDDDB record is over 17 miles northwest of the site and species would have been detected during on-site surveys.	No	Not expected to occur. The nearest CNDDDB record is over 15 miles northwest of the site.
<i>Harpagonella palmeri</i> Palmer's grapplinghook	None/None/List D, MSCP/4.2	Chaparral, coastal scrub, valley and foothill grassland/clay/annual herb/March–May/ 20–955 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on- site surveys.
<i>Herissantia crispa</i> Curly herissantia	None/None/List B, MSCP/2.3	Sonoran desert scrub/annual- perennial herb/August– September/700–725 meters	No	Absent. Site elevation is above the species' known elevation range, no suitable Sonoran desert scrub present, and species would have been observed during on-site surveys.	No	Not expected to occur. Site elevation is above the species' known elevation range and there is no suitable Sonoran desert scrub present.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Hesperocyparis stephensonii</i> Cuyamaca cypress	None/None/List A, MSCP/1B.1	Closed-cone conifer forest, chaparral, riparian forest/gabbroic/evergreen tree/ NA/1,035–1,705 meters	No	Absent. Known from only three extant occurrences that are over 20 miles northwest of site. Evergreen tree would have been observed during focused surveys if present.	No	Absent. Known from only three extant occurrences that are over 20 miles northwest of site. Also, soils may not be appropriate. Evergreen tree would have been observed during focused surveys if present.
<i>Heuchera brevistaminea</i> Laguna Mountains alumroot	None/None/List A, MSCP/1B.3	Broadleafed upland forest, chaparral, cismontane woodland, riparian forest/ rocky/rhizomatous herb/April– July/ 1,370–2,000 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been observed during on-site surveys.
<i>Holocarpha virgata</i> ssp. <i>elongata</i> Curving tarplant	None/None/List D, MSCP/4.2	Coastal scrub, cismontane woodland, chaparral, valley and foothill grassland/ annual herb/August– November/ 60–1,100 meters	No	Absent. Although there is suitable habitat present, this species would have been observed during fall focused surveys if present.	No	Low potential to occur. . Although there is suitable habitat present, the site is just above the species' known elevation range.
<i>Horkelia truncata</i> Ramona horkelia	None/None/List A, MSCP/1B.3	Chaparral/cismontane woodland/clay/ perennial herb/May– June/400–1,300 meters	No	Absent. No suitable clay soils on site; the nearest CNDDDB record is 23 miles northeast of the site. Also, species would have been detected during on- site surveys.	No	Absent. No suitable clay soils on site; the nearest CNDDDB record is 20 miles northeast of the site. Also, species would have been detected during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Hulsea californica</i> San Diego hulsea	None/None/List A, MSCP/1B.3	Chaparral, lower montane coniferous forest, upper montane coniferous forest/openings and burned areas, perennial herb/April– June/915–2,915 meters	No	Absent. Suitable vegetation occurs on site. There is a CNDDB record within 7 miles of the site; however, species would have been observed during on-site surveys.	No	Absent. Suitable burned chaparral vegetation on site. However, species would have been observed during on-site surveys.
<i>Hulsea mexicana</i> Mexican hulsea	None/None/List B, MSCP/2.3	Chaparral (volcanic, often on burns or disturbed areas)/annual-perennial herb/ April–June/1,200–1,200 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been observed during on-site surveys.
<i>Hulsea vestita</i> ssp. <i>callicarpa</i> Beautiful hulsea	None/None/List D, MSCP/4.2	Chaparral, lower montane coniferous forest/rocky or gravelly, granitic/perennial herb/May–October/915–3,050 meters	No	Absent. The site is outside of the geographic range of the species, which occurs in the northern Peninsular Ranges (Jepson 2011). Jepson (2011) also lists 1300 meters as the minimum elevation, which is higher than the project site. Species would have been observed during on-site surveys.	No	Absent. The site is outside of the geographic range of the species, which occurs in the northern Peninsular Ranges (Jepson 2011). Jepson (2011) also lists 1300 meters as the minimum elevation, which is higher than the project site. Species would have been observed during on- site surveys.
<i>Ipomopsis tenuifolia</i> Slender-leaved ipomopsis	None/None/List B/2.3	Chaparral, pinyon and juniper woodland, Sonoran desert scrub/gravelly or rocky/ perennial herb/March– May/100–1,200 meters	No	Absent. Although there is suitable habitat present, this species would have been observed during spring focused surveys if present.	No	Absent. Suitable chaparral vegetation on site, although soils may not be appropriate. This species would have been observed during spring focused surveys if present.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Lepidium flavum</i> var. <i>felipense</i> Borrego Valley pepper-grass	None/None/List A, MSCP/1B.2	Pinyon and juniper woodland, Sonoran desert scrub/sandy/annual herb/March–May/455–840 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on- site surveys.
<i>Lepidium virginicum</i> var. <i>robinsonii</i> Robinson's pepper- grass	None/None/List A/1B.2	Chaparral, coastal scrub/annual herb/ January–July/< 885 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on- site surveys.
<i>Lessingia</i> <i>glandulifera</i> var. <i>tomentosa</i> Warner Springs lessingia	None/None/List A, MSCP/1B.3	Chaparral/sandy/annual herb/August–October/870– 1,220 meters	No	Absent. Outside of geographic range of species; nearest CNDDDB record is over 40 miles from the site. Also, species would have been observed during on-site surveys.	No	Not expected to occur. Outside of geographic range of species.
<i>Lewisia brachycalyx</i> Short-sepaed lewisia	None/None/List B, MSCP/2.2	Lower montane coniferous forest, meadows and seeps/mesic/perennial herb/February–June/1,370– 2,300 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been observed during on-site surveys.
<i>Lilium humboldtii</i> ssp. <i>ocellatum</i> Ocellated humboldt lily	None/None/List D, MSCP/4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland/openings/bulbiferou s herb/March–July/30–1,800 meters	No	Absent. Suitable habitat occurs on site, but species would have been observed during on-site surveys.	No	Absent. Suitable habitat occurs on site, but species would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Lilium parryi</i> Lemon Lily	None/None/List A, MSCP/1B.2	Lower montane coniferous forest, meadows and seeps, riparian forest, upper montane coniferous forest/mesic/bulbiferous herb/July–August/1,220–2,745 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Low potential to occur. Although there is may be suitable meadows/seeps or riparian forest habitat present, the site elevation is below the species' known elevation range.
<i>Limnanthes gracilis</i> ssp. <i>parishii</i> Parish's meadowfoam	None/SE/List A, MSCP/1B.2	Lower montane coniferous forest, meadows and seeps, vernal pools/vernally mesic/ annual herb/April–June/600– 2,000 meters	No	Absent. There is no suitable vernally mesic habitat and species would have been observed during on-site surveys.	No	Absent. There is no suitable vernal mesic habitat and species would have been observed during on-site surveys.
<i>Lupinus excubitus</i> var. <i>medius</i> Mountain Springs bush lupine	None/None/List A, MSCP/1B.3	Pinyon and juniper woodland, Sonoran desert scrub/shrub/March–May/425– 1,370 meters	No	Absent. No suitable vegetation present. Also, shrub would have been observed during on-site surveys.	No	Absent. No suitable vegetation present. Also, shrubs would have been observed during on-site surveys.
<i>Lycium parishii</i> Parish's desert- thorn	None/None/List B, MSCP/2.3	Coastal scrub, Sonoran desert scrub/ shrub/March–April/305–1,000 meters	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on-site surveys.	No	Absent. No suitable vegetation present. Also, the site elevation is slightly above the species' known elevation range. Also, shrub would have been observed during on-site surveys.
<i>Malacothamnus</i> <i>aboriginum</i> Indian Valley-bush mallow	None/None/List A, MSCP/1B.2	Chaparral, cismontane woodland/rocky, often in burned areas/deciduous shrub/ April–October/150–1,700 meters	No	Absent. Outside of the species' known geographic range. Also, shrub would have been observed during on-site surveys.	No	Absent. Outside of the species' known geographic range. Also, shrubs would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Malperia tenuis</i> brown turbans	None/ None/ List B/ 2.3	Sonoran desert scrub(sandy, gravelly)/ annual herb/ (Feb),Mar-Apr/ 15–335 meters	No	Absent. No suitable Sonoran desert scrub present and species would have been observed during on-site surveys.	No	Absent. No suitable Sonoran desert scrub present and species would have been observed during on-site surveys.
<i>Mentzelia hirsutissima</i> Hairy stickleaf	None/None/List B/2.3	Sonoran desert scrub/rocky/annual herb/ March–May/0–700 meters	No	Absent. No suitable desert scrub on site and species would have been observed during on-site surveys.	No	Absent. No suitable desert scrub on site and species would have been observed during on-site surveys.
<i>Mimulus aurantiacus</i> var. <i>aridus</i> Low bush monkeyflower	None/None/List D, MSCP/4.3	Chaparral/rocky/evergreen shrub/April–July/ 750–1,100 meters	No	Absent. Suitable rocky chaparral habitat present. However, this evergreen shrub was not detected during focused surveys.	N/A	Absent. Suitable rocky chaparral habitat present. However, this evergreen shrub was not detected during focused surveys. This variety was recorded within 800 feet of the gen-tie alignment in the San Diego plant atlas database.
<i>Mimulus clevelandii</i> Cleveland's bush monkeyflower	None/None/List D, MSCP/4.2	Chaparral, lower montane coniferous forest/often in disturbed areas, openings, rocky/ rhizomatous herb/April– July/ 815–2,000 meters	No	Absent. Suitable habitat is present; however, species would have been observed during on-site surveys.	No	Absent. Suitable disturbed/rocky chaparral habitat present; however, species would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Mimulus diffusus</i> Palomar monkeyflower	None/None/List D, MSCP/4.3	Chaparral, lower montane coniferous forest/sandy or gravelly/annual herb/ April–June/1,220–1,830 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Suitable chaparral habitat present, but site elevation is just below the species' known elevation range. Species would have been observed during on-site surveys.
<i>Monardella hypoleuca</i> ssp. <i>lanata</i> Felt-leaved monardella	None/None/List A, MSCP/1B.2	Chaparral, cismontane woodland/perennial herb/May–July/300–1,095 meters	No	Absent. Outside of species' known geographic range, which occurs in the southwestern Peninsular Ranges (Jepson 2011) and species would have been detected during on-site surveys.	No	Absent. Outside of species' known geographic range, which occurs in the southwestern Peninsular Ranges (Jepson 2011) and species would have been detected during on- site surveys.
<i>Monardella nana</i> ssp. <i>leptosiphon</i> San Felipe monardella	None/None/List A, MSCP/1B.2	Chaparral, lower montane coniferous forest/rhizomatous herb/June–July/ 1,200–1,855 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation is slightly below the species' known elevation range and this subspecies is known mostly from Hot Springs Mountain. Species would have been detected during on-site surveys
<i>Navarretia peninsularis</i> Baja navarretia	None/None/List A, MSCP/1B.2	Chaparral (openings). lower montane coniferous forest/mesic/annual herb/ June–August/1,500–23,00 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Nolina cismontana</i> Chaparral nolina	None/None/List A, MSCP/1B.2	Chaparral, coastal scrub/sandstone or gabbro/evergreen shrub/May- July/140- 1,275 meters	No	Absent. Outside of the species' known geographic range; CNDDDB records are narrowly distributed almost 30 miles northwest of the site. Also, shrub would have been observed during on-site surveys.	No	Absent. Outside of the species' known geographic range. Also, shrubs would have been observed during on-site surveys.
<i>Packera ganderi</i> Gander's ragwort	None/SR/List A, MSCP/1B.2	Chaparral (burned areas and gabbroic outcrops)/perennial herb/April-May/400-1,200 meters	No	Absent. Outside of the species' known geographic range; CNDDDB records are over 16 miles north of the site. Species would have been observed during on-site surveys.	No	Absent. Outside of the species' known geographic range. Species would have been observed during on- site surveys.
<i>Pentachaeta aurea</i> ssp. <i>aurea</i> Golden-rayed pentachaeta	None/None/List D/4.2	Chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, riparian woodland, valley and foothill grassland/ annual herb/March-July/80- 1,850 meters	No	Absent. Recorded within the vicinity and suitable vegetation occurs on site; however, species would have been observed during on-site surveys.	No	Absent. Suitable vegetation occurs on site; however, species would have been observed during on-site surveys.
<i>Pentagramma</i> <i>triangularis</i> ssp. <i>nova</i>	None/None/MSCP/ None	Undescribed taxon from south central San Diego County currently being studied by A. Winner	No	Absent. The site may be too far east since the species is known from south central San Diego County. Also, no <i>Pentagramma</i> species were observed during on-site surveys.	No	Absent. The site may be too far east since the species is known from south central San Diego County. Also, no <i>Pentagramma</i> species were observed during on- site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Phacelia nashiana</i> Charlotte's phacelia	None/None/MSCP/ 1B.1	Joshua tree "woodland," Mojavean desert scrub, Pinyon and juniper woodland/usually granitic, sandy/annual herb/March– June/ 600–2,200 meters	No	Absent. No suitable vegetation present and species would have been observed during on-site surveys.	No	Absent. No suitable vegetation present and species would have been observed during on-site surveys.
<i>Pholistoma auritum</i> var. <i>arizonicum</i> Arizona pholistoma	None/None/MSCP/ 2.3	Mojavean desert scrub/annual herb/March/ 275–835 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on- site surveys.
<i>Piperia cooperi</i> Chaparral rein orchid	None/None/List D, MSCP/4.2	Chaparral, cismontane woodland, valley and foothill grassland/ perennial herb/ March–June/15–1,585 meters	No	Absent. Suitable habitat present; however, species would have been observed during on-site surveys.	No	Absent. Suitable habitat present; however, species would have been observed during on-site surveys.
<i>Piperia leptopetala</i> Narrow-petaled rein orchid	None/None/List D, MSCP/4.3	Cismontane woodland, lower montane coniferous forest, upper montane coniferous forest/perennial herb/May– July/380–2,225 meters	No	Moderate. Suitable habitat present. Occurs in the Peninsular Ranges.	No	Moderate. Suitable habitat present. Occurs in the Peninsular Ranges.
<i>Poa atropurpurea</i> San Bernardino bluegrass	FE/None/List A, MSCP/1B.2	Meadows and seeps/ mesic/ rhizomatous herb/ May– July/1,360–2,455 meters	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation is below the species' known elevation range and species would have been detected during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Pilostyles thurberi</i> Thurber's pilostyles	None/ None/ List D/ 4.3	Sonoran desert scrub/ perennial herb parasitic/ Jan/ 0–365 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been detected during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been detected during on- site surveys.
<i>Quercus engelmannii</i> Engelmann oak	None/None/List D, MSCP/4.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland/ deciduous tree/March– June/120–1,300 meters	No	Absent. Suitable habitat present. Occurs in the Peninsular Ranges. However, this conspicuous deciduous tree was not observed during focused surveys.	No	Absent. Suitable habitat present. Occurs in the Peninsular Ranges. However, this conspicuous deciduous tree was not observed during focused surveys.
<i>Ribes canthariforme</i> Moreno currant	None/None/List A, MSCP/1B.3	Chaparral/deciduous shrub/February–April/ 340–1,200 meters	No	Absent. Outside of the species' known geographic range, which occurs farther west. Also, shrub would have been observed during on-site surveys.	No	Absent. Outside of the species' known geographic range, which occurs farther west. Also, shrubs would have been observed during on-site surveys.
<i>Ribes viburnifolium</i> Santa Catalina Island currant	None/None/List A/1B.2	Chaparral, cismontane woodland/evergreen shrub/February–April/30–305 meters	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Also, shrub would have been observed during on- site surveys.
<i>Rubus glaucifolius</i> var. <i>ganderi</i> Cuyamaca raspberry	None/None/List A, MSCP/1B.3	Lower montane coniferous forest/gabbroic/ evergreen shrub/May– June/1,200–1,675 meters	No	Absent. No suitable coniferous forest vegetation. Also, shrub would have been observed during on-site surveys.	No	Absent. No suitable coniferous forest vegetation. Also, shrub would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Rupertia rigida</i> Parish's rupertia	None/None/List D, MSCP/4.3	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland/perennial herb/June–August/700–2,500 meters	No	Moderate. Suitable habitat present. Occurs in the Peninsular Ranges.	No	Moderate. Suitable habitat present. Occurs in the Peninsular Ranges.
<i>Saltugilia</i> [= <i>Gilia</i>] <i>caruifolia</i> Caraway-leaved woodland-gilia	None/None/None/4 .3	Chaparral, lower montane coniferous forest/annual herb/May–August/840–2,300 meters	No	Moderate. Suitable habitat is present. Occurs in the Peninsular Ranges. However, Jepson (2011) lists minimum elevation as 1,400 meters.	No	Moderate. Suitable habitat is present. Occurs in the Peninsular Ranges. However, Jepson (2011) lists minimum elevation as 1,400 meters.
<i>Scutellaria bolanderi</i> ssp. <i>austromontana</i> Southern mountains skullcap	None/None/List A/1B.2	Chaparral, cismontane woodland, lower montane coniferous forest/mesic/ rhizomatous herb/June– August/600–2,000 meters	No	Absent. No suitable mesic vegetation and species would have been detected during on- site surveys.	No	Absent. No suitable mesic vegetation and all occurrences are recorded west of the project site; species would have been detected during on-site surveys.
<i>Selaginella</i> <i>eremophila</i> Desert spike-moss	None/None/List B/2.2	Sonoran desert scrub/gravelly or rocky/ rhizomatous herb/June/200– 900 meters	No	Absent. No suitable desert scrub habitat and species would have been detected during on-site surveys.	No	Absent. No suitable desert scrub habitat and species would have been detected during on-site surveys.
<i>Senecio aphanactis</i> Chaparral ragwort	None/None/List B/2.2	Chaparral, cismontane woodland, coastal scrub/sometimes alkaline/annual herb/ January–April/15–800 meters	No	Absent. Site elevation is above the species' known elevation range. Suitable vegetation is present; however, species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range. Suitable vegetation is present; however, species would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Sibaropsis hammittii</i> Hamitt's clay-cress	None/None/List A, MSCP/1B.2	Chaparral (openings), valley and foothill grassland; clay/annual herb/March–April/ 720–1,065 meters	No	Absent. No suitable clay soils on site. Species not recorded in the vicinity and species would have been observed during on-site surveys.	No	Absent. No suitable clay soils on site and species not recorded in the vicinity; species would have been observed during on-site surveys.
<i>Streptanthus berardinus</i> Laguna Mountains jewel-flower	None/ None/ List D/ 4.3	Chaparral, Lower montane coniferous forest/ perennial herb/ May-Aug/ 670–2,500 meters	No	Absent. Species would have been observed during on-site surveys.	No	Absent. Suitable chaparral habitat is present, but the nearest CNDDB record is over 16 miles from the site. Species would have been observed during on-site surveys.
<i>Streptanthus campestris</i> Southern jewel- flower	None/None/List A/1B.3	Chaparral, lower montane coniferous forest, pinyon and juniper woodland/rocky/ perennial herb/May–July/900– 2,300 meters	No	Absent. Suitable vegetation is present; however, species would have been observed during on-site surveys.	No	Absent. Recorded in the vicinity. Suitable vegetation present; however, species would have been observed during on-site surveys.
<i>Symphotrichum defoliatum</i> San Bernardino aster	None/None/None/1 B.2	Cismontane woodland, coastal scrub, lower montane coniferous forest, meadows and seeps, marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–November/2–2,040 meters	No	Absent. Suitable habitat is present, but focused surveys for this species were negative.		Absent. Suitable habitat is present, but focused surveys for this species were negative.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/ County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Tetracoccus dioicus</i> Parry's tetracoccus	None/None/List A/1B.2	Chaparral, coastal sage scrub/shrub/April–May/165– 1,000 meters	No	Absent. Recorded in the vicinity, although site is just above the species' known elevation range. Suitable habitat is present. However, shrub would have been observed during on-site surveys.	No	Absent. The site is just above the species' known elevation range, but the species is recorded within 5 miles of the site and there is suitable chaparral present. However, shrub would have been observed during on-site surveys.
<i>Thermopsis californica</i> var. <i>semota</i> Velvety false lupine	None/None/List A, MSCP/1B.2	Cismontane woodland, lower montane coniferous forest, meadows and seeps, valley and foothill grassland/rhizomatous herb/March–June/1,000–1,870 meters	No	Absent. The nearest CNDDDB record is approximately 17 miles from the site, but occurs within the same bioregion ³ . Species would have been observed during on-site surveys.	No	Absent. The nearest CNDDDB record is approximately 15 miles from the site, but occurs within the same bioregion ³ . Species would have been observed during on-site surveys.
<i>Thysanocarpus rigidus</i> rigid fringedpod	None/ None/ None/ 1B.2	Pinyon and juniper woodland/Dry rocky slopes/ annual herb/ Feb-May/ 600– 2,200 meters	No	Absent. No suitable pinyon and juniper woodland present and the species would have been observed during on-site surveys.	No	Not expected to occur. No suitable pinyon and juniper woodland present and the species would have been observed during on-site surveys.
<i>Xanthisma</i> (= <i>Machaeranthera</i>) <i>junceum</i> Rush-like bristleweed	None/None/List D, MSCP/4.3	Chaparral, coastal scrub/perennial herb/June– January/240–1,000 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is slightly above the species' known elevation range, but there is suitable chaparral vegetation present. However, species would have been observed during on-site surveys.

APPENDIX D (Continued)

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/County/CRPR) ¹	Habitat Requirements/ Life Form/Blooming Period/ Elevational Range	Verified on TDS (direct/indirect evidence)	Potential to Occur On TDS and Factual Basis for Determination ²	Verified on Gen-tie (direct/indirect evidence)	Potential to Occur On Gen-Tie and Factual Basis for Determination
<i>Xylorhiza orcuttii</i> Orcutt's woody aster	None/None/List A, MSCP/1B.2	Sonoran desert scrub/perennial herb/March–April/20–365 meters	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.	No	Absent. Site elevation is above the species' known elevation range and species would have been observed during on-site surveys.

¹ **Legend**

FE: Federally listed as endangered

FT: Federally listed as threatened

MSCP: Proposed Covered Species under the Draft East County MSCP

SE: State-listed as endangered

ST: State-listed as threatened

SR: State-listed as rare

CRPR: California Rare Plant Rank

1A (formerly List 1A): Plants Presumed Extinct in California

1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere

2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere

3 (formerly List 3): Plants About Which We Need More Information – A Review List

4 (formerly List 4): Plants of Limited Distribution – A Watch List

- 0.1–Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- 0.2–Fairly threatened in California (20–80% occurrences threatened/moderate degree and immediacy of threat)
- 0.3–Not very threatened in California (<20% of occurrences threatened /low degree and immediacy of threat or no current threats known)

² "Vicinity" is based on a search of the CNDDDB and CNPS databases for the Tierra Del Sol quad and the four surrounding quads conducted in October 2011 and Live Oak Springs quad and surrounding 5 quads conducted in March 2013.

³ "Bioregion": Regions defined by the geographic subdivisions of California in the Jepson Flora Project (2012). The project site is located in the Peninsular Ranges within the California Floristic Province.

APPENDIX D (Continued)

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APPENDIX E

*Special-Status Wildlife Species Detected or
Potentially Occurring in the Project Area*

APPENDIX E

Special-Status Wildlife Species Detected or Potentially Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Reptiles</i>					
<i>Anniella pulchra pulchra</i> Silvery legless lizard	None/SSC/ Group 2	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats (1).	No	Moderate	Suitable habitat is present within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Aspidoscelis hyperythrus beldingi</i> Belding's orange-throated whiptail	None/SSC/ Group 2, MSCP	Coastal sage scrub, chamise-redshank chaparral, mixed chaparral, valley-foothill hardwood especially in area with summer fog. Found from Santa Ana River and near Colton in San Bernardino County, west of Peninsular Ranges, south throughout Baja California, 0 to 2,001 feet (1, 2).	No	Moderate	Suitable habitat is present within the project area. Project site is above the species' recorded elevation range. Species is recorded in the CNDDDB 8-quad search ²
<i>Aspidoscelis tigris stejnegeri</i> Coastal whiptail	None/None/ Group 2	Hot and dry open area with sparse foliage, chaparral, woodland, riparian area. Found in coastal Southern California, west of Peninsular Ranges and south of Transverse Ranges, north to Ventura County, 0 to 6,988 feet (1, 2).	No	High	Suitable scrub habitat with rock outcroppings present on site. Species is documented in the Live Oak Springs quadrangle (CDFG 2012a).
<i>Charina trivirgata</i> Rosy boa	None/None/ Group 2	Rocky chaparral hillsides and canyons, scrub flats with good cover, common in riparian area but does not require permanent water. Found in extreme Southern California within Tijuana River and Otay watersheds (1, 2).	No	High	Suitable scrub habitat with rock outcroppings present on site. Species is documented in the Live Oak Springs quadrangle (CDFG 2012a).
<i>Coleonyx variegatus abboti</i> San Diego banded gecko	None/ None/ Group 1	Cismontane chaparral, coastal sage scrub, desert scrub; granite outcrops	No	Moderate	Suitable habitat is present the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Crotalus ruber</i> Northern red-diamond rattlesnake	None/SSC/ Group 2, MSCP	Chaparral, oak and pine woodland, arid desert, rocky grassland habitats in rocky area and dense vegetation; rocky desert flats on desert slopes of mountains; Morongo Valley (1).	No	High	Suitable habitat is present within the rocky outcrops observed within the semi-desert chaparral habitat. Also, any area with dense vegetation provides suitable habitat, including chaparral, scrub, and woodland habitats. Species is recorded in the CNDDDB 8-quad search ²

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Gambelia copeii</i> Cope's leopard lizard	None/None/ MSCP	Coastal sage scrub, chaparral, oak woodland. Prefers flat areas with open space and avoids densely vegetated areas.	No	Moderate	Suitable habitat is present the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Phrynosoma blainvillii</i> Blaineville's (coast) horned lizard	None /SSC/ Group 2, MSCP	Area of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Annual grassland, chaparral, woodland, coniferous forest, sandy area, frequently near ant hills. Foothills and coastal plains from Los Angeles to northern Baja California (1, 3).	Observed	N/A	One species observed in the southern portion of the project area during 214 person-hours of wildlife surveys, as well as vegetation mapping, rare plant surveys, and jurisdictional delineation. Species is recorded in the CNDDDB 8-quad search ²
<i>Salvadora hexalepis virgulata</i> Coast patch-nosed snake	None/SSC/ Group 2, MSCP	Semi-arid, brushy area and chaparral in canyons, rocky hillsides, plains from northern Carrizo Plains south through coastal zone, south and west of the deserts into coastal northern Baja California, at elevations below sea level to 6,988 feet (1).	No	Moderate	Suitable habitat is present within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Birds</i>					
<i>Accipiter cooperii</i> Cooper's hawk (nesting)	None/WL/ Group 1, MSCP	Dense stands of live oak, riparian deciduous, forest habitats near water. Breeds in southern Sierra Nevada foothills, New York Mountains., Owens Valley, and other local area in Southern California, 0 to 8,858 feet (2).	Observed	N/A	One observed within the project area within chaparral habitat (Dudek 2012) during 214 person-hours of wildlife surveys, as well as vegetation mapping, rare plant surveys, and jurisdictional delineation. Species is documented in the Live Oak Springs quadrangle (CDFG 2012a).
<i>Aimophila ruficeps canescens</i> Southern California rufous-crowned sparrow	None/WL/ Group 1, MSCP	Sparse mixed chaparral and coastal scrub habitats (especially coastal sage) in Southern California on slopes of Transverse and Coastal Ranges, north to Los Angeles County, and northwestern Baja California. Found on steep, rocky hillsides with grass and forb patches, and grassy slopes without shrubs, if rock outcrops are present (2, 4).	No	Moderate	Suitable chaparral and boulder habitat is present within the project area. Not recorded in the CNDDDB 8-quad search ²

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Amphispiza belli belli</i> Bell's sage sparrow	BCC / WL/ Group 1, MSCP	Low, dense stands of shrubs; chaparral dominated by chamise; coastal scrub dominated by sage. Coast Ranges from northern California to northwestern Baja California, western slope of Sierra Nevada (2, 4).	Observed	N/A	Observed within the project area on four occasions during 214 person-hours of wildlife surveys, as well as vegetation mapping, rare plant surveys, and jurisdictional delineation (Dudek 2012). The project area contains suitable chaparral. Not recorded in the CNDDDB 8-quad search ²
<i>Asio otus</i> Long-eared owl (Nesting)	None/SSC/ Group 1, MSCP	Riparian, live oak thickets; other dense stands of tree. Uncommon winter visitor in Southern California deserts and Central Valley; uncommon resident throughout the rest of the state (2).	No	Moderate	Suitable habitat is present within all of the project area. May use the project area for nesting, foraging and/or wintering. Not recorded in the CNDDDB 8-quad search ²
<i>Buteo lineatus</i> Red-shouldered hawk	None/None/ Group 1	Riparian and woodland habitats interspersed with swamps and wetlands found along coast, southern deserts, and in Central Valley, 0 to 4,921 feet (2).	No	Moderate	Suitable habitat is present within the project area. May use the project area for nesting and foraging. Not recorded in the CNDDDB 8-quad search ²
<i>Buteo regalis</i> Ferruginous hawk (Wintering)	BCC/WL/ Group 1, MSCP	Open, grasslands, sagebrush flats, desert scrub, low foothills surrounding valleys, fringes of pinyon-juniper habitats. Uncommon winter resident at low elevations and open grasslands of Modoc Plateau, Central Valley, Coast Ranges. Common winter resident in southwestern California (2).	No	Moderate	Suitable habitat is present within the project area. May use the project area to forage during the winter. Project area is outside the recorded breeding range for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Carduelis lawrencei</i> Lawrence's Goldfinch (nesting)	BCC/None/ None	Breeds in open oak or other arid woodland and chaparral, near water. Typical habitats include valley foothill hardwood, valley foothill hardwood-conifer, and in Southern California, as well as desert riparian, palm oasis, pinyon-juniper, and lower montane habitats.	No	Moderate	There is some suitable nesting habitat in oak woodland and chaparral; however, the project area lacks perennial water sources. Not recorded in the CNDDDB 8-quad search ²

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Cathartes aura</i> Turkey vulture	None/ None/ Group 1, MSCP	Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting, and resting throughout most of California during breeding season (2).	Observed	N/A	This species was observed, but its location was not mapped (Dudek 2012). Suitable open foraging habitat present on site. Suitable nesting habitat not available on site. Not recorded in the CNDDDB 8-quad search ²
<i>Falco columbarius</i> Merlin (Wintering)	None/ WL/ Group 2	Coastlines, open grasslands, savannahs, woodlands, lakes, wetlands, montane hardwood-conifer habitats, ponderosa pine. Found throughout western half of state below 4,921 feet (1).	No	Moderate potential to occur during the winter	Suitable foraging habitat is present within the project area. However, the project area is outside the breeding range for this species (i.e., does not nest in California). Not recorded in the CNDDDB 8-quad search ²
<i>Lanius ludovicianus</i> Loggerhead shrike (Nesting)	BCC/SSC/ Group 1, MSCP	Open habitats with scattered shrubs, trees, or other perches; highest density in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Found in foothills and lowlands throughout California (2).	Observed	N/A	One individual observed in the northeastern portion of the project site during 214 person-hours of wildlife surveys, as well as vegetation mapping, rare plant surveys, and jurisdictional delineation. Not recorded in the CNDDDB 8-quad search ²
<i>Melanerpes lewis</i> Lewis' woodpecker (Nesting)	BCC/None/ Group 1	Open oak savannahs, broken deciduous, and coniferous habitats. Eastern slopes of Coast Ranges south to San Luis Obispo County; winters in Central Valley, Modoc Plateau, and Transverse and other ranges in Southern California. Breeds eastern slopes of Coast Ranges, Sierra Nevada, and Cascade Range (2).	No	Moderate	Potentially suitable foraging and roosting habitats present. Breeding is not expected as this species is only found in San Diego County during migration and winter. Not recorded in the CNDDDB 8-quad search ²
<i>Siala mexicana</i> Western bluebird	None/None/ Group 2	Open forests of deciduous, coniferous, or mixed trees; savanna, edges of riparian woodland. Common throughout California excluding higher mountains and eastern deserts (2).	Observed	N/A	Multiple observations recorded within the project area (Dudek 2012). Mixed chaparral and woodlands found within the project area provides suitable nesting and foraging habitat. Species' is not tracked by CNDDDB.

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Tyto alba</i> Barn owl	None/None/ Group 2	Open habitats including grassland, chaparral, riparian, and other wetlands throughout the state, 0 to 5,512 feet (2).	No	Moderate	Suitable habitat is present within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Vireo vicinior</i> Gray vireo (Nesting)	BCC/SSC/ Group 1, MSCP	Summer resident in arid pinyon-juniper, juniper, and chamise-redshank chaparral habitats in mountains of Southern California, 1,969 to 6,562 feet (2).	No	Moderate	Suitable nesting habitat is present within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Mammals</i>					
<i>Chaetodipus fallax pallidus</i> Pallid San Diego pocket mouse	None/SSC/ Group 2	Coastal scrub, mixed chaparral, sagebrush, desert wash, desert scrub, desert succulent shrub, pinyon-juniper, and annual grassland. Along southern margins of Mojave Desert, along northern slopes of San Bernardino Mountains, western edge of Colorado Desert, and south to Baja California (5).	No	Moderate	Suitable chaparral habitat found with the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Dipodomys merriami trinidadensis</i> Merriam's kangaroo rat	None/ None/ MSCP	Occurs in the Jacumba and Mountain Springs area	No	Moderate	Suitable arid habitat and sandy soils found within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	None/SSC/ Group 2, MSCP	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed area, and rangelands in Southern California (2, 4).	Observed	N/A	Fourteen species locations were recorded within the project area during 214 person-hours of wildlife surveys, as well as vegetation mapping, rare plant surveys, and jurisdictional delineation (Dudek 2012). Suitable chaparral and scrub habitat found within the project area. Species is documented in the Live Oak Springs quadrangle (CDFG 2012a).
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	None/SSC/ Group 2	Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats. Found south of San Luis Obispo County to San Diego County and San Bernardino and Riverside Counties, 0 to 8,530 feet (2, 4).	Observed	N/A	Suitable middens detected sporadically through the site (Dudek 2012). Species is documented in the Live Oak Springs quadrangle (CDFG 2012a).

APPENDIX E (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Odocoileus hemionus</i> Mule deer	None/None/ Group 2	Coastal sage scrub, chaparral, riparian, woodlands, forest; often browses in open area adjacent to cover throughout California, except deserts and intensely farmed area (2).	Observed	N/A	Multiple observations recorded within the project area, but the locations were not mapped (Dudek 2012). Suitable chaparral and scrub habitat found within the project area. Species is not tracked by CNDDDB.
<i>Puma [=Felis] concolor</i> Mountain lion	None/ None/ Group 2	Coastal sage scrub, chaparral, riparian, woodlands, forest; rests in rocky area, and on cliffs and ledges that provide cover. Most abundant in riparian area and brushy stages of most habitats throughout California except deserts (2).	No	Moderate	Appropriate habitat present but site has relatively poor connectivity to other large openspace areas. The border wall, residences in vicinity, and regular patrols reduce suitability. Not recorded in the CNDDDB 8-quad search ²
<i>Invertebrates</i>					
<i>Apodemia mormo peninsularis</i> Peninsular metalmark	None/ None/ Group 1	Various arid lands. Host plant: Various wild buckwheats (Eriogonum)	No	Moderate	Not observed during butterfly surveys. Suitable buckwheat habitat within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Callophrys (=Mitoura) thornei</i> Thorne's hairstreak butterfly	None/ None/ Group 1	Tecate cypress (6)	No	Moderate	Not observed during butterfly surveys. Limited suitable habitat within the project area. Not recorded in the CNDDDB 8-quad search ²

¹ Status Designations:

Federal

BCC	U.S. Fish and Wildlife Service: Birds of Conservation Concern
FC	Candidate for federal listing as threatened or endangered
(FD)	Federally delisted; monitored for 5 years
FE	Federally listed Endangered
FT	Federally listed as Threatened
WBWG:	H Western Bat Working Group: High Priority
WBWG:	LM Western Bat Working Group: Low-Medium Priority
WBWG:	M Western Bat Working Group: Medium Priority

APPENDIX E (Continued)

WBWG: MH Western Bat Working Group: Medium-High Priority

State Designations:

SSC California Special Concern Species
FP California Department of Fish and Game Fully Protected Species
WL California Department of Fish and Game Watch List Species
SE State listed as Endangered
ST State listed as Threatened

County Designations:

MSCP Draft East County MSCP covered species
Group 1 County of San Diego Sensitive Animal List
Group 2 County of San Diego Sensitive Animal List

References

- 1 Nafis 2012
- 2 Zeiner et al. 1988, 1990a–b
- 3 SDNHM 2012c
- 4 NatureServe 2012
- 5 CDFG 2012d
- 6 CSU (California State University Stanislaus). 2006. Endangered Species Recovery Program. Accessed April 2012. <http://esrp.csustan.edu>.

Notes:

² The 8-quad search includes species recorded in CNDDDB or USFWS databases for the Tierra Del Sol and Live Oak Springs and six surrounding quads (Campo, Cameron Corners, Mount Laguna, Sombrero Peak, Sweeny Pass, and Jacumba).

Bold species indicate species that were identified in the County's Pre-Application Summary Letter (County 2012)

APPENDIX E (Continued)

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APPENDIX F

*Special-Status Wildlife Species Not Expected or
Rarely Occurring in the Project Area*

APPENDIX F

Special-Status Wildlife Species Not Expected or Rarely Occurring in the Project Area

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Amphibians</i>					
<i>Batrachoseps major aridus</i> Desert slender salamander	FE/ SE/ MSCP, Group 1	Known only from hidden palm canyon and Gaudalupe Cr., Riverside Co., in barren, palm oasis, desert wash, and desert scrub. Occurs under limestone sheets, rocks, and talus, usually at the base of damp, shaded, north and west-facing walls.	No	Low	The project area lacks suitable habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Anaxyrus californicus</i> Arroyo toad	FE/SSC/ Group 1, MSCP	Washes, arroyos, sandy riverbanks, and riparian area with willows, sycamores, oaks, cottonwoods. Requires exposed sandy streambanks with stable terraces to burrow with scattered vegetation and calm pools with sandy/gravel bottoms for breeding. Found west of desert in coastal area from upper Salinas River in San Luis Obispo County to northwestern Baja California, sea level to 2,653 feet (1).	No	Not expected	The project area lacks suitable stream habitat for this species. Arroyo toads are not known from this area and have not been documented in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Bufo punctatus</i> Red spotted toad	None/None/ MSCP	Rocky desert streams, oases, pools in rocky arroyos, cattle tanks, grassland, oak woodland, scrubland, river floodplains.	No	Low	The project area has limited stream habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Ensatina klauberi</i> Large-blotched salamander	None/SSC/ Group 1, MSCP	Moist, shaded evergreen and deciduous forests; oak woodlands, under rocks, logs, debris, especially peeled off bark. Found in peninsular ranges of Southern California and eastern San Bernardino Mountains, approx. 5,003 feet (1).	No	Low	Some suitable habitat is present within the project area in the chaparral habitat and rocky area; however, the site lacks large shaded areas. Not recorded in the CNDDDB 8-quad search ²
<i>Rana draytonii</i> California red-legged frog	FT/ SSC/ Group 1, MSCP	Lowland streams, wetlands, riparian woodlands, livestock ponds; dense, shrubby or emergent vegetation associated with deep, still or slow-moving water; uses adjacent uplands	No	Not expected	The project area lacks suitable wetland or stream habitat for this highly aquatic species. Not recorded in the CNDDDB 8-quad search ²
<i>Rana muscosa</i> Sierra Madre yellow-legged frog	FE / SC and SSC/ Group 1, MSCP	Meadow streams, isolated pools, lake borders, rocky stream courses within ponderosa pine, montane hardwood-conifer and montane riparian habitat types	No	Not expected	The project area lacks suitable wetland habitat for this species. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Spea hammondi</i> Western spadefoot	None/SSC/ Group 2, MSCP	Sandy/gravelly soils within mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, foothills, mountains, and other habitats. Breed in rainpools that do not have bullfrogs, fish, or crayfish. Found throughout Great Valley and foothills south of Redding, throughout South Coast Ranges in Southern California south of Transverse Mountains and west of Peninsular Mountains, 0 to 4,478 feet (1).	No	Low	The project area has limited breeding resources. Not recorded in the CNDDDB 8-quad search ²
<i>Taricha torosa</i> Coast Range newt (Monterey Co. south only)	None/SSC/ Group 2, MSCP	Valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub, mixed chaparral, annual grassland, mixed conifer; in Southern California inhabits drier chaparral, oak woodland, and grasslands. Found along Coast Ranges south of Monterey County to northern San Diego County, Peninsular Ranges south to Boulder Creek, Sierra Nevada foothills, Shasta Reservoir, Central Valley floor, 0 to 6,006 feet (1, 2).	No	Low	Although there is minimal suitable habitat is present within the project area, its known range is west of the project area (Nafis 2012). Not recorded in the CNDDDB 8-quad search ²
<i>Reptiles</i>					
<i>Coleonyx switaki</i> Barefoot gecko	None/ST/ Group 2, MSCP	Arid rocky area at the heads of canyons with large boulders and rock outcrops, sparse vegetation. Found on arid desert slopes of eastern side of Peninsular Ranges near Borrego Springs, south to Baja California. Isolated population found in Coyote Mountains of Imperial County. Elevations 0 to 2,297 feet (1, 2).	No	Low	The project area lacks suitable habitat and is above the recorded elevation range for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Diadophis punctatus similis</i> San Diego ringneck snake	None/None/ Group 2	Moist habitats, wet meadows; rocky hillsides; open habitats such as farmland, grassland, chaparral; and mixed coniferous forests and woodlands. San Diego County, along coast and Peninsular Range, southwestern San Bernardino County (1).	No	Low	The project area lacks suitable wetland habitat and limited moist situations for this species. Not recorded in the CNDDDB 8-quad search²
<i>Emys marmorata</i> Western pond turtle	None/ SSC/ Group 1, MSCP	Slow-moving permanent or intermittent streams, ponds, small lakes, reservoirs with emergent basking sites; adjacent uplands used during winter	No	Not expected	The project area lacks suitable wetland habitat for this species. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Plestiodon skiltonianus interparietalis</i> Coronado skink	None/SSC/ Group 2, MSCP	Grassland, woodlands, pine forests, chaparral, especially open sunny areas, such as clearings and edges of creeks, and rocky areas near streams with lots of vegetation; in litter, rotting logs, under flat stones. Found in coastal ranges and Sierra Nevada and foothills, 0 to 8,300 feet (1, 2).	No	Low	The project area lacks suitable moist habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Lampropeltis zonata (Pulchra)</i> (San Diego population) San Diego mountain kingsnake	FSS/SSC/ Group 2, MSCP	Valley-foothill hardwood, hardwood-conifer, mixed and montane chaparral, valley-foothill riparian, coniferous forests, wet meadows in central San Diego County Peninsular Ranges: Laguna, Palomar, Volcan, and Hot Springs Mountains, Santa Ana Mountains, and in Hollywood Hills and Santa Monica Mountains, 0 to 6,499 feet (1).	No	Not expected	The project area lacks suitable habitat for this species. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Phrynosoma mcallii</i> Flat-tailed horned lizard	BLMS/SSC/ Group 1, MSCP	Fine sand and sparse vegetation in desert washes and desert flats. It is probably most abundant in area of creosote bush and is found in desert scrub, wash, succulent shrub, and alkali scrub habitats. Common in area with high density of harvester ants and fine windblown sand; rarely occurs on dunes. Found in central Riverside, eastern San Diego and Imperial Counties, 0 to 590 feet (1, 2).	No	Not expected	This species is found in desert habitats and the project area is above the recorded elevation range for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Sauromalus obesus</i> Chuckwalla	None/ None/ Group 2, MSCP	Rock-dwelling, sheltering in rock crevices or under rocks. Inhabits rocky flats and hillsides in the Mojave and Colorado deserts; found in creosote bush habitats. Sea level to 1800 meters.	No	Not expected	The project area lacks suitable desert habitat. Not recorded in the CNDDDB 8-quad search ²
<i>Sceloporus graciosus vanderburgianus</i> Southern sagebrush lizard	None/ None/ Group 2	Montane chaparral, manzanita, ceanothus; open pine and Douglas fir forests in mountains; found in area with scattered low bushes, abundant sun. Transverse and Peninsular Ranges of Southern California, Sierra San Pedro Mártir of northern Baja California, 4,498 to 9,599 feet (1).	No	Not expected	Species typically found at higher elevations (4,500–9,600 ft.). Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Taricha torosa</i> Coast Range newt (Monterey Co. south only)	None/SSC/ Group 2, MSCP	Valley-foothill hardwood, valley-foothill hardwood-conifer, coastal scrub, mixed chaparral, annual grassland, mixed conifer; in Southern California inhabits drier chaparral, oak woodland, and grasslands. Found along Coast Ranges south of Monterey County to northern San Diego County, Peninsular Ranges south to Boulder Creek, Sierra Nevada foothills, Shasta Reservoir, Central Valley floor, 0 to 6,006 feet (1, 2).	No	Low	The project area lacks suitable habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Thamnophis hammondi</i> Two-striped garter snake	None/SSC/ Group 1, MSCP	Permanent or semipermanent bodies of water bordered by dense vegetation in rocky area, oak woodland, chaparral, brushland, coniferous forest. Found on Diablo Range, South Coast and Transverse Ranges, and Santa Catalina Island (1, 2).	No	Low	The project area lacks suitable wetland habitat for this species. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Thamnophis sirtalis</i> ssp. South Coast garter snake	None/SSC/ Group 2	Streams, creeks, pools, streams with rocky beds, ponds, lakes, vernal pools. Coastal plain from Ventura to San Diego Counties, 0 to 2,789 feet (2).	No	Not expected	The project area lacks suitable wetland habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Uma notata</i> Colorado Desert fringe-toed lizard	None/ SSC/ Group 1, MSCP	Fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub	No	Not expected	The project area lacks suitable desert habitat. Not recorded in the CNDDDB 8-quad search ²
<i>Birds</i>					
<i>Accipiter striatus</i> (nesting) Sharp-shinned hawk	None/WL/ Group 1	Nests in coniferous forests, ponderosa pine, black oak, riparian deciduous, mixed conifer, Jeffrey pine; winters in lowland woodlands and other habitats. Common migrant and winter resident throughout California. Probably breeds south in Coast Ranges and at scattered locations in Transverse and Peninsular Ranges (2).	No	Not expected to nest; High potential to occur during the winter	Potentially suitable foraging habitat present. Species does not breed in San Diego County; considered an uncommon winter visitor. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Aechmophorus occidentalis</i> Western grebe	None/ None/ Group 1	Along coast in marine subtidal and estuarine waters. Uncommon to fairly common on large lakes near coast and inland at low elevations. Breed on large, marshy lakes, normally deeper than required by eared grebe.	No	Not expected	The project area lacks perennial water sources. This species may inhabit the project area as stopover or during the winter. Not recorded in the CNDDDB 8-quad search ²
<i>Agelaius tricolor</i> Tricolored blackbird (Nesting colony)	None/ SSC/ Group 1, MSCP	Nests near fresh water, emergent wetland with cattails or tules; forages in grasslands, woodland, agriculture	No	Not expected to nest	The project area lacks suitable wetland habitat. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Ammodramus savannarum</i> Grasshopper sparrow (Nesting)	None/SSC/ Group 1, MSCP	Dry, dense grasslands, especially with a variety of grasses and tall forbs, scattered shrubs for singing perches. Summer resident and breeder in foothills and lowlands west of Cascade–Sierra Nevada Crest from Mendocino and Trinity Counties south to San Diego County. In Southern California, occurs on hillsides and mesas in coastal area, breeds up to 4,921 feet (2).	No	Low	The breeding and winter records for grasshopper sparrow are concentrated along the coastal ranges. Winter records are very rare in eastern San Diego County (Unitt 2004). Not recorded in the CNDDDB 8-quad search ²
<i>Anas strepera</i> Gadwall	None/None/ Group 2	Interior valleys, wetlands, ponds, and streams. Feeds and rests in freshwater lacustrine and emergent habitats, and to a lesser extent, estuarine and saline emergent habitats, and nests in nearby herbaceous and cropland habitats. Common in Central Valley and less common in Coast Range foothills of Central and Southern California. Locally common in Imperial Valley and along Colorado River, October to March. Breeds on northeastern plateau and east of Sierra Nevada (2).	No	Not expected	The project area lacks perennial water sources. This species may inhabit the project area as stopover or during the winter. Not recorded in the CNDDDB 8-quad search ²
<i>Anser albifrons</i> Greater white-fronted goose		Open habitats, agriculture fields, marshes, prairies and shallow waters	No	Not expected	The project area lacks perennial water sources. This species may inhabit the project area as stopover or during the winter. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Anser caerulescens</i> Snow goose	None/ None/ Group 2	Fresh emergent wetlands, adjacent lacustrine waters, and nearby wet croplands, pastures, meadows, and grasslands. Occasionally found in saline (brackish) emergent wetlands and adjacent estuarine waters.	No	Not expected	The project area lacks perennial water sources. This species may inhabit the project area as stopover or during the winter. Not recorded in the CNDDDB 8-quad search ²
<i>Aquila chrysaetos</i> Golden eagle (nesting and wintering)	BCC/FP, WL/ Group 1, MSCP	Rolling foothills, mountain area, sage-juniper flats, and desert throughout California (2).	No	High potential to forage on site; Not expected to nest on site.	Suitable foraging habitat is present within most of the project area; however, low potential for nesting due to lack of rocky cliffs and large stands of mature trees. Not recorded in the CNDDDB 8-quad search ²
<i>Ardea Herodias</i> Great blue heron (Nesting Colony)	None/ None/ Group 2	Variety of habitats, but primarily wetlands; lakes, rivers, marshes, mudflats, estuaries, saltmarsh, riparian habitats	No	Not expected	The project area lacks perennial water sources. This species may inhabit the project area as stopover or during the winter. Not recorded in the CNDDDB 8-quad search ²
<i>Asio flammeus</i> Short-eared owl (Nesting)	None/SSC/ Group 2	Open area with few trees, such as grasslands, prairies, dunes, meadows, irrigated lands, and saline and fresh emergent wetlands. Breeds in coastal area in Del Norte and Humboldt Counties, San Francisco Bay Delta, northeastern Modoc plateau, east side of Sierra from Lake Tahoe south to Inyo County, and San Joaquin Valley. Uncommon winter migrant in Southern California, and widespread during winter in Central Valley and coastline (2).	No	Low	Although there is some suitable habitat is present within the project area, the project area is outside of the typical winter range for this species, where it occurs near the coastline (Zeiner et al. 1990). Not recorded in the CNDDDB 8-quad search ²
<i>Athene cunicularia</i> Burrowing owl (Burrow Sites and some Wintering sites)	None/SSC/ Group 1, MSCP	Grassland, lowland scrub, agriculture, coastal dunes and other artificial open areas	No	Low	Minimal open suitable habitat. Burrows would be visible and were not detected during surveys. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Aythya Americana</i> Redhead (Nesting)	None/ SSC/ Group 2	Lacustrine waters, foothills and coastal lowlands, and along the coast and Colorado river. Nests in fresh emergent wetland bordering open water.	No	Not expected	The project area lacks open perennial water sources. Not recorded in the CNDDDB 8-quad search ²
<i>Branta Canadensis</i> Canada goose	None/None/ Group 2	Lakes, fresh emergent wetlands' moist grasslands, croplands, pastures, and meadows. Winter migrant throughout Central Valley, Salton Sea, northeastern California, also along Colorado River (2).	No	Low	The project area lacks perennial water sources. This species may inhabit the project area as stopover or during the winter. Not recorded in the CNDDDB 8-quad search ²
<i>Bucephala islandica</i> Barrow's goldeneye (None)	None/ SSC/ Group 2	Estuarine (lagoons and bays) and brackish lacustrine waters.	No	Not expected	The project area lacks perennial water sources. Not recorded in the CNDDDB 8-quad search ²
<i>Buteo swainsoni</i> Swainson's hawk (Nesting)	BCC/ST/ Group 1, MSCP	Forages in grasslands or suitable grain or alfalfa fields or livestock pastures; breeds in stands with few trees in juniper-sage flats, riparian area, and in oak savannah in Central Valley (2).	No	Not expected	Expected only as occasional, temporary visitor during migration. Species not known to nest or winter in San Diego County. Not recorded in the CNDDDB 8-quad search ²
<i>Butorides virescens</i> Green heron	None/None/ Group 2	Nests and roosts in valley foothill and desert riparian habitats; feeds in fresh emergent wetland, lacustrine, slow-moving riverine habitats. Resident in foothills and lowlands throughout California; common August to March in southern coastal ranges, in summer along Colorado River, and found all year at Salton Sea (2).	No	Not expected	Lack of suitable freshwater habitat. May use the marginal habitat within portions of the project area as stopover or during the winter. Not recorded in the CNDDDB 8-quad search ²
<i>Campylorhynchus brunneicapillus sandiegensis</i> Coastal cactus wren (San Diego & Orange Counties Only)	None / SSC/ Group 1, MSCP	Southern cactus scrub, maritime succulent scrub, cactus thickets in coastal sage scrub	No	Not expected	Lack of suitable cactus thickets on site. Not recorded in the CNDDDB 8-quad search ²
<i>Cerorhinca monocerata</i> Rhinoceros auklet (Nesting Colony)	None/ WL/ Group 2	Marine pelagic waters. Nests in a burrow on undisturbed, forested or unforested islands, and probably in cliff caves	No	Not expected	The project area lacks large bodies of water and suitable nesting habitat for this species. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Chaetura vauxi</i> Vaux's swift	None/ SSC	Old growth coniferous forests	No	Not expected	The project area lacks suitable nesting habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Charadrius alexandrinus nivosus</i> Western snowy plover (Nesting)	FT, / SSC/ Group 1	Nests primarily on coastal beaches, in flat open areas, with sandy or saline substrates; less commonly in salt pans, dredged spoil disposal sites, dry salt ponds and levees	No	Not expected	The project area lacks suitable nesting habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Charadrius montanus</i> Mountain plover (Wintering)	FPT/ SSC/ Group 2	Nests in open, shortgrass prairies or grasslands; winters in shortgrass plains, plowed fields, open sagebrush, and sandy deserts	No	Not expected	The project area lacks suitable grassland nesting habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Chlidonias niger</i> Black tern (Nesting Colony)	None/ SSC/ Group 2	Freshwater lakes, marshes, ponds, coastal lagoons	No	Not expected	The project area lacks suitable freshwater habitats for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Circus cyaneus</i> Northern harrier (Nesting)	None/ SSC/ Group 1, MSCP	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub. Resident of northeastern plateau and coastal area; less common resident in Central Valley. Breeds at marsh edge in shrubby vegetation in Central Valley and Sierra Nevada (0 to 5,577 feet), and northeastern California (up to 2,625 feet (2).	No	Not expected	The species is only expected as a winter visitor in the more open area of scrub and chaparral communities on site. The project area lacks suitable wetlands for breeding. Not recorded in the CNDDDB 8-quad search ²
<i>Coccyzus americanus occidentalis</i> Western yellow-billed cuckoo (Nesting)	FC/ SE/ Group 1	Dense, wide riparian woodlands and forest with well-developed understories	No	Not expected	The project area lacks suitable riparian habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Contopus cooperi</i> Olive-sided flycatcher (Nesting)	None/ SSC/ Group 2	Summer resident in a wide variety of forest and woodland habitats. Preferred nesting habitats include mixed conifer, montane hardwood-conifer, Douglas-fir, redwood, red fir, and lodgepole pine	No	Not expected	The project area lacks suitable woodland habitat for this species. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Cypseloides niger</i> Black swift (Nesting)	None/ SSC/ Group 2	Nests in moist crevices or caves on sea cliffs or near waterfalls in deep canyons; forages over many habitats	No	Not expected	The project area lacks suitable cliffs for nesting. Not recorded in the CNDDDB 8-quad search ²
<i>Dendrocygna bicolor</i> Fulvous whistling-duck (Nesting)	None/ SSC/ Group 2	Fresh emergent wetlands, shallow lacustrine and quiet riverine waters; feeds in wet croplands and pastures. Nests in dense wetlands of cattails.	No	Not expected	Not recorded in the CNDDDB 8-quad search ²
<i>Dendroica petechia brewsteri</i> Yellow warbler (Nesting)	None/ SSC/ Group 2, MSCP	Nests in lowland and foothill riparian woodlands dominated by cottonwoods, alders and willows; winters in a variety of habitats	No	Low	The project area lacks suitable riparian habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Egretta rufescens</i> Reddish egret	None/ None/ Group 2	Saltmarsh, mudflats, coastal lagoons	No	Not expected	The project area lacks suitable saltmarsh habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Elanus leucurus</i> White-tailed kite (Nesting)	None/FP/ Group 1, MSCP	Open grasslands, savanna-like habitats, agriculture, wetlands, oak woodlands, riparian, herbaceous and open stages of most habitats in cismontane California, near agricultural area. Found in coastal and valley lowlands of California (2).	No	Not expected	Project location is generally too high and nesting habitat marginal. Not recorded in the CNDDDB 8-quad search ²
<i>Empidonax traillii extimus</i> Southwestern willow flycatcher (Nesting)	FE/ SE/ Group 1, MSCP	Riparian woodlands along streams and rivers with mature, dense stands of willows or alders; may nest in thickets dominated by tamarisk	No	Not expected	The project area lacks suitable riparian habitat for this species Not recorded in the CNDDDB 8-quad search ²
<i>Synthliboramphus hypoleucus</i> Xantus' murrelet	FC/ ST/ Group 2, ABC	At sea in daylight hours. May light on offshore rocks and roost in cliff crevices at night.	No	Not expected	The project area lacks large bodies of water for this species Not recorded in the CNDDDB 8-quad search ²
<i>Eremophila alpestris actia</i> California horned lark	None/WL/ Group 2, MSCP	Open habitats, grassland, rangeland, shortgrass prairie, montane meadows, coastal plains, fallow grain fields south of Humboldt County in Coast Ranges, in San Joaquin Valley, except extreme southern end (2, 4).	No	Low	The project area lacks suitable grassland habitat for this species Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Falco mexicanus</i> Prairie falcon (Nesting)	BCC/ WL/ Group 1	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs. Southeastern deserts northwest through Central Valley and along inner Coast Ranges and Sierra Nevada (2).	No	Not expected to nest on site; High potential to forage on site	There is no suitable nesting habitat (i.e., cliffs or bluffs) in the project area; however, there is suitable foraging habitat. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Falco peregrinus anatum</i> American peregrine falcon (Nesting)	FD, BCC/SD, FP/Group 1	Nests in woodland, forest, coastal habitats along coast north of Santa Barbara and in Sierra Nevada, and other mountains of Northern California. Winters in Central Valley, and is found in other riparian area and coastal/inland wetlands (2).	No	Not expected to nest on site; Moderate potential to forage on site.	Suitable foraging habitat is present within all of the project area. However, there is no suitable nesting cliffs present in the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Fratercula cirrhata</i> Tufted puffin (Nesting colony)	None/ SSC/ Group 2	Rocky outcroppings on islands, not necessarily near the nest, and on the ocean. Common at nesting colonies, and on nearby marine pelagic and subtidal waters. Nests on islands and, less commonly, on coastal cliffs.	No	Not expected	No suitable coastal cliffs to support nesting, found within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Gavia immer</i> Common loon (Nesting)	None/ SSC/ Group 2	Estuarine and subtidal marine habitats along entire coast (Sept-May). Uncommon on large, deep lakes in valleys and foothills; common migrant along coast, including offshore, in November and May.	No	Not expected	The project area lacks suitable wetland habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Grus canadensis canadensis</i> Lesser sandhill crane	None/ SSC/ Group 2	Wet meadow, shallow lacustrine, and fresh emergent wetland habitats during summer; annual and perennial grassland habitats, moist croplands, and open, emergent wetlands during winter. Winters in San Joaquin, Imperial valleys; Carrizo Plain, Brawley, and Blythe.	No	Not expected	The project area lacks suitable wetland habitat for this species. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Grus canadensis tabida</i> Greater sandhill crane	None/ ST, P/ None	Wet meadow, shallow lacustrine, and fresh emergent wetland habitats during summer; annual and perennial grassland habitats, moist croplands, and open, emergent wetlands during winter. Breeds in Siskiyou, Modoc, Lassen Cos., and Sierra Valley. Winters in Sacramento and San Joaquin valleys. Was more common in southern California.	No	Not expected	The project area lacks suitable wetland habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Haliaeetus leucocephalus</i> Bald eagle (Nesting and Wintering)	FD, BCC/SE, FP/Group 1	Large bodies of water and flowing rivers with abundant fish, with adjacent snags or other perches; breeds in Northern California and is found during winter at few locations throughout Southern California (2).	No	Not expected	There are very few winter records for this species in the vicinity (Unitt 2004) and there are no lakes in the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Icteria virens</i> Yellow-breasted chat (Nesting)	None/ SSC/ Group 1	Dense, relatively wide riparian woodlands and thickets of willows, vine tangles and dense brush.	No	Not expected	The project area lacks suitable wetland habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Ixobrychus exilis</i> Least bittern (Nesting)	BCC/ SSC/ Group 2, MSCP	Dense emergent wetland vegetation, sometimes interspersed with woody vegetation and open water	No	Not expected	The project area lacks suitable wetland habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Junco hyemalis caniceps</i> Gray-headed junco (Nesting)	None/ WL/ Group 2	Summer resident of Clark Mountain (Eastern San Bernardino Co.) and Grape Vine Mtns. (Inyo Co.). Inhabits white fir association at 7300 ft (Clark Mtn.). Also, from dense pinyons above 6700 ft (Grapevine Mtns)	No	Not expected	The project area lacks suitable nesting habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Leucophaeus atricilla</i> Laughing gull (Nesting colony)	None/ WL/ Group 2	Once a regular nester at the south end of the Salton Sea.	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Larus californicus</i> California gull (Nesting Colony)	None/ WL/ Group 2	Along the coast: sandy beaches, mudflats, rocky intertidal and pelagic area of marine and estuarine habitats, fresh and saline emergent wetlands. Inland: lacustrine, riverine, and cropland habitats; landfill dumps; and open lawns in cities. Nests in alkali and freshwater lacustrine habitats; adults roost along shorelines, landfills, pastures, and on islands. Nest along northeastern plateau region and at Mono Lake (2).	No	Not expected	There are no bodies of water or landfills to host this species on-site. A migrant could pass over the site, but it is unlikely that it would stop. Not recorded in the CNDDDB 8-quad search ²
<i>Laterallus jamaicensis coturniculus</i> California black rail	BCC/ST, P/ Group 2	Saline, brackish, and fresh emergent wetlands	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDDB 8-quad search ²
<i>Mycteria americana</i> Wood stork	None/ SSC/ Group 2	Shallow, relatively warm waters with fish for prey. Nests colonially.	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDDB 8-quad search ²
<i>Numenius americanus</i> Long-billed curlew (Nesting)	BCC/WL/ Group 2	Nests in upland shortgrass prairies and wet meadows in northeast California; winters in coastal estuaries, open grasslands and croplands along California coast, and in Central and Imperial Valleys (2).	No	Not expected	Habitat typical for supporting this species is not present on-site. Not recorded in the CNDDDB 8-quad search ²
<i>Oceanodroma furcata</i> Fork-tailed storm petrel (Nesting colony)	None/ SSC/ Group 2	Occasionally in bays and harbors, particularly after storms; Tied to land only to nest; otherwise remains over open sea. Nests in burrows and rock cavities.	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Oceanodroma homochroa</i> Ashy storm petrel (Nesting Colony)	BCC/ SSC/ Group 2	Open sea. Nests in natural cavities and sea caves, mainly talus but also larger rock.	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDB 8-quad search ²
<i>Oceanodroma melania</i> Black storm-petrel (Nesting colony)	None/ SSC/ Group 2	Open sea. Nests in burrows and rock cavities.	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDB 8-quad search ²
<i>Oreotyx pictus eremophila</i> Mountain quail	None/None/ Group 2	Dense montane chaparral and brushy area within coniferous forest, pinyon-juniper-yucca associations; uses shrubs, brush stands, and trees on steep slopes for cover in most major montane habitats of the state (2).	No	Low	Habitat typically used by this species is not present. Not recorded in the CNDDB 8-quad search²
<i>Pandion haliaetus</i> Osprey (Nesting)	None/ WL/ Group 1	Large waters (lakes, reservoirs, rivers) supporting fish; usually near forest habitats, but widely observed along the coast	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDB 8-quad search ²
<i>Parabuteo unicinctus</i> Harris' hawk (Nesting)	None/ WL	River woods, mesquite, brush, and cactus deserts. Small disjunct breeding population at the south end of the Salton Sea extirpated in the 1960's. Now a rare yearlong resident of southern Salton Sea and Imperial valley.	No	Low	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Passerculus sandwichensis beldingi</i> Belding's savannah sparrow	None/ SE/ Group 1	Saltmarsh, pickleweed	No	Not expected	The project area lacks suitable saltmarsh habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Passerculus sandwichensis rostratus</i> Large-billed savannah sparrow (Wintering)	None/ SSC/ Group 2	Saltmarsh, pickleweed	No	Not expected	The project area lacks suitable saltmarsh habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Pelecanus erythrorhynchos</i> American white pelican (Nesting colony)	None/ SSC/ Group 2	Open water, coastal bays, large inland lakes	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDDB 8-quad search ²
<i>Pelecanus occidentalis californicus</i> California brown pelican (Nesting colony & communal roosts)	None (FD)/ P (SD)/ Group 2	Open sea, large water bodies, coastal bays and harbors	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDDB 8-quad search ²
<i>Phalacrocorax auritus</i> Double-crested cormorant (Nesting Colony)	None/ WL/ Group 2	Lakes, rivers, reservoirs, estuaries, ocean; nests in tall trees, rock ledges on cliffs, rugged slopes	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Piranga rubra</i> (nesting) Summer tanager	None/SSC/ Group 2	Nests in desert riparian woodland dominated by cottonwoods and willows; winter habitats include parks and residential area. Found along lower Colorado River and locally in Southern California deserts (2).	No	Not expected	Lack of suitable habitat within the project area and outside of the recorded breeding range for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Plegadis chihi</i> White-faced ibis (Nesting colony)	None/ WL/ Group 1	Nests in marsh; winter foraging in shallow lacustrine waters, muddy ground of wet meadows, marshes, ponds, lakes, rivers, flooded fields, and estuaries. Uncommon summer resident in areas of Southern California (esp. Salton Sea area); rare visitor to Central Valley (2).	No	Not expected	Habitat typical for supporting this species is not present on-site. Not recorded in the CNDDDB 8-quad search ²
<i>Poliopitila californica californica</i> Coastal California gnatcatcher	FT/ SSC/ Group 1, MSCP	Coastal sage scrub, coastal sage scrub-chaparral mix, coastal sage scrub-grassland ecotone, riparian in late summer	No	Not expected	Lack of suitable habitat within the project area and outside of the recorded breeding range for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Progne subis</i> (nesting) Purple martin	None/SSC/ Group 1, MSCP	Nests in tall sycamores, pines, oak woodlands, and coniferous forest; forages over riparian, forest, and woodland. Found throughout the state in wooded, low-elevation habitats. Rare and local breeder in the south in mountain ranges and along the coast (2).	No	Not expected	Habitat typical for supporting this species is not present on-site. Individuals could be detected during migration, but there is low potential for that. Not recorded in the CNDDDB 8-quad search ²
<i>Pyrocephalus rubinus</i> Vermillion flycatcher (Nesting)	None/SSC/ Group 1, MSCP	Nesters inhabit cottonwood, willow, mesquite, and other vegetation in desert riparian habitat adjacent to irrigated fields, irrigation ditches, pastures, and other open, mesic areas in isolated patches. Found along Colorado River, especially near Blythe, Riverside County (2).	No	Not expected	There is limited riparian habitat in the project area and no confirmed breeding in the area (Unitt 2004). Not recorded in the CNDDDB 8-quad search ²
<i>Rallus longirostris levipes</i> Light-footed clapper rail	FE / SE, P/ Group 1	Coastal saltmarsh	No	Not expected	The project area lacks suitable nesting habitat. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Riparia riparia</i> Bank swallow (Nesting)	None/ ST/ Group 1	Nests in lowland country with soft banks or bluffs; open country and water during migration	No	Not expected	The project area lacks suitable nesting habitat. Not recorded in the CNDDDB 8-quad search ²
<i>Rynchops niger</i> (nesting colony) Black skimmer	BCC / SSC/ Group 1	Roosting takes place on sandy beaches or gravel bars. Rarely alights on water. Visitor to coastal estuaries and river mouths	No	Not expected	The project area lacks suitable nesting habitat. Not recorded in the CNDDDB 8-quad search ²
<i>Selasphorus sasin</i> Allen's hummingbird	BCC/None/ None	Breeds most commonly in coastal scrub, valley foothill hardwood, and valley foothill riparian habitats, but also common in closed-cone pine-cypress, urban, and redwood habitats. Occurs in a variety of woodland and scrub habitats as a migrant.	No	Low	Potential to occur during migration. Not known to breed in project area. Not recorded in the CNDDDB 8-quad search ²
<i>Stemula antillarum browni</i> California least tern (nesting colony)	FE / SE, P/ Group 1	Nests along the coast from San Francisco Bay south to northern Baja California	No	Not expected	The project area lacks suitable nesting habitat. Not recorded in the CNDDDB 8-quad search ²
<i>Thalasseus elegans</i> Elegant tern (nesting colony)	None / WL/ Group 1	Coastal waters, estuaries, large bays and harbors, mudflats	No	Not expected	The project area lacks suitable nesting habitat. Not recorded in the CNDDDB 8-quad search ²
<i>Strix occidentalis occidentalis</i> California spotted owl	BCC / SSC/ Group 1, MSCP	Dense, old-growth, multi-layered mixed conifer, redwood and Douglas-fir habitats in northern California; oak and oak-conifer habitats in southern California; 0 to 7,546 feet (2).	No	Not expected	No suitable habitat and species is recorded nesting at higher elevations (Unitt 2004). Not recorded in the CNDDDB 8-quad search ²
<i>Toxostoma bendirei</i> Bendire's thrasher	BCC / SSC/ Group 2	Flat areas of desert succulent shrub and Joshua tree habitats.	No	Not expected	The project area lacks suitable desert scrub habitat for this species. Not recorded in the CNDDDB 8-quad search ²
<i>Toxostoma crissale</i> Crissal thrasher	None/ SSC/ Group 1, MSCP	Dense thickets of shrubs or low trees in desert riparian and desert wash habitats. Also, dense sagebrush and other shrubs in washes within juniper and pinyon-juniper habitats.	No	Not expected	The project area lacks suitable desert riparian habitat for this species. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Toxostoma lecontei</i> Le Conte's thrasher	BCC/SSC/ Group 2, MSCP	Open desert wash, creosote scrub, alkali desert scrub, desert succulent scrub.	No	Not expected	No suitable habitat. Occurs in desert habitats at lower elevations. Not recorded in the CNDDDB 8-quad search ²
<i>Oreohlypis luciae</i> (nesting) Lucy's warbler	BCC/ SSC/ MSCP	Mesquite thickets, riparian scrub, and even stands of tamarisk in lower Colorado River Valley and washes and arroyos that empty into it.	No	Low	The project area lacks suitable riparian habitat. Not recorded in the CNDDDB 8- quad search ²
<i>Vireo bellii pusillus</i> Least Bell's vireo (nesting)	FE, WLBC/SE/ Group 1, MSCP	Willows and low, dense valley foothill riparian habitat and lower portions of canyons; along western edge of deserts in desert riparian habitat, 0 to 1,969 feet. Found in San Benito and Monterey Counties, and coastal Southern California from Santa Barbara County south (2).	No	Not expected	The project area lacks suitable riparian habitat for this species. Least Bell's vireo have not been recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Xanthocephalus xanthocephalus</i> (nesting) Yellow-headed blackbird	None/ SSC/ MSCP	Nests in freshwater emergent wetlands with dense vegetation and deep water; often along the borders of lakes or ponds.	No	Not expected	The project area doesn't flood enough to support nesting habitat. Not recorded in the CNDDDB 8-quad search ²
<i>Mammals</i>					
<i>Antrozous pallidus</i> Pallid bat	None/SSC/ Group 2, WBWG:H	Grasslands, shrublands, woodlands, forests; most common in open dry habitats with rocky outcrops for roosting. Found throughout low elevations of California, except for high Sierra Nevada and northwestern corner of the state south to Mendocino County (2).	No	Low	No suitable rocky outcrops within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Bassariscus astulus</i> Ringtail	None/FP/ Group 2, MSCP	Mixed forests and shrublands near rocky area or riparian habitats. Forages near water and is seldom found more than .62 mile from a water source; it is widely distributed throughout California (2).	No	Not expected	No suitable forest and riparian habitat found on site. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Chaetodipus californicus femoralis</i> Dulzura (California) pocket mouse	None/SSC/ Group 2	Open habitat, coastal sage scrub, chaparral, oak woodland, chamise chaparral, mixed conifer habitats; disturbance specialist; 0 to 3,000 feet (6).	No	Low	Project area has dry climate and no suitable riparian habitat. Species' is recorded in the Live Oak Springs quadrangle (CDFG 2012a).
<i>Chaetodipus fallax fallax</i> Northwestern San Diego pocket mouse	None/SSC/ Group 2	Coastal sage scrub, grassland, sage scrub-grassland ecotones, sparse mixed and chamise chaparral; rocky and gravelly area with yucca overstory, 500 to 3,000 feet (3).	No	Not expected	No suitable grassland habitat. Not recorded in the CNDDB 8-quad search²
<i>Choeronycteris mexicana</i> Mexican long-tongued bat	None/SSC/ Group 2, WBWG: H	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings. Summer resident in San Diego County (2).	No	Not expected	No suitable roosting habitat found within the project area. Not recorded in the CNDDB 8-quad search ²
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	None/SSC/ Group 2, MSCP, WBWG:H	Mesic habitats; gleans from brush or trees, or feeds along habitat edges. Found in all habitats but subalpine and alpine throughout California (2).	No	Low	Project area is dry climate with limited suitable forage habitat. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Dipodomys merriami collinus</i> <i>Earthquake Merriam's kangaroo rat</i>	None/ None/ MSCP	Riversidean alluvial fan sage scrub, flood plains, sandy and sandy loam soils	No	Not expected	Suitable soils found within the project area. No suitable habitat present. Outside of range. Not recorded in the CNDDB 8-quad search ²
<i>Dipodomys stephensi</i> Stephens' kangaroo rat	FE/ ST/ Group 1, MSCP	Open habitat, grassland, sparse coastal sage scrub, sandy loam and loamy soils with low clay content; gentle slopes (<30%)	No	Not expected	No suitable grassland habitat found within the project area. Project area outside of range for species. Not recorded in the CNDDB 8-quad search ²
<i>Euderma maculatum</i> Spotted bat	None/SSC/ Group 2, WBWG:H	Foothills, mountains, desert regions of Southern California, including arid deserts, grasslands, and mixed conifer forests. Roosts in rock crevices and cliffs. Feeds over water and along washes (2).	No	Not expected	No suitable roosting habitat found within the project area. Not recorded in the CNDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Eumops perotis californicus</i> Greater western mastiff bat	None/SSC/ Group 2, MSCP, WBWG:H	Roosts in small colonies in cracks and small holes, seeming to prefer man-made structures. All subalpine and alpine habitats; 50 to 10,000 feet (3).	No	Low	Minimal roosting habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Lasiurus blossevillii</i> Western red bat	None/SSC/ Group 2, WBWG:H	Prefers edges with trees for roosting and open areas for foraging. Roosts in woodlands and forests. Forages over grasslands, shrublands, woodlands, forests, and croplands. Found south of Shasta County to Mexican border, and west of the Sierra Nevada/Cascade Crest. In winter, occupies coastal regions and lowlands south of San Francisco Bay (2).	No	Not expected	No suitable roosting habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Macrotus californicus</i> California leaf-nosed bat	None/SSC/ Group 2, WBWG:H	Desert riparian, desert wash, desert scrub, desert succulent shrub, alkali desert scrub, and palm oasis. Found from Riverside, Imperial, San Diego, and San Bernardino Counties, south to Mexican border; fairly common along parts of Colorado River, elevation approximately 1,969 feet (2).	No	Not expected	No suitable rugged terrain or caves for roosting on site. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Myotis ciliolabrum</i> Small-footed myotis	None/None/ Group 2, WBWG:M	Deserts, chaparral, riparian zones, western coniferous forest; most common above pinyon-juniper forest. Roost in caves, old mines, abandoned buildings (3).	No	Not expected	No suitable roosting habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Myotis evotis</i> Long-eared myotis	None/None/ Group 2, WBWG:M	Roosts in buildings, crevices, under bark, and snags. Caves are used as night roosts. Feeds along habitat edges, in open habitats, and over water. Occurs primarily along entire coast and in Sierra Nevada, Cascades, Great Basin, and 0 to 8,858 feet (2).	No	Low	Minimal suitable roosting habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Myotis thysanodes</i> Fringed myotis	None/None/ Group 2, WBWG:H	Pinyon-juniper, valley foothill hardwood, hardwood-conifer habitats. Roosts in caves, mines, buildings, or crevices. Forages over open habitats, early successional stages, streams, lakes, and ponds. Found throughout California except Central Valley and Colorado and Mojave Deserts (2).	No	Not expected	No suitable roosting or foraging habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Myotis volans</i> Long-legged myotis	None/None/ Group 2, WBWG:H	Occupies woodland and forest habitats over 3,937 feet. Feeds over open water and over open habitats such as chaparral and coastal scrub, using denser woodlands and forests for cover and reproduction. Roosts in rock crevices, buildings, under tree bark, in snags, mines, caves. Found in coastal ranges, Cascade/Sierra Nevada ranges, Great Basin, and ranges in Mojave Desert (2).	No	Not expected	No suitable foraging habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Myotis yumanensis</i> Yuma myotis	None/None/ Group 2, WBWG:LM	Closely tied to open water, which is used for foraging; open forests and woodlands are optimal habitat throughout California, 0 to 10,827 feet (2).	No	Not expected	No suitable foraging habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Neotoma albigula venusta</i> Colorado Valley woodrat	None/ SA/ None	Desert scrub with cacti or mesquite, with or without rocky outcrops. Feeds on cacti, mesquite, and yucca	No	Not expected	Limited suitable habitat. Project area contains cacti and yucca. Outside on range. Not recorded in the CNDDDB 8-quad search ²
<i>Nyctinomops femorosaccus</i> Pocketed free-tailed bat	None/SSC/ Group 2, WBWG:M	Rocky desert area with high cliffs or rock outcrops. Pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, palm oasis in Riverside, San Diego, and Imperial Counties (2).	No	Low	No suitable roosting habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Nyctinomops macrotis</i> Big free-tailed bat	None/SSC/ WBWG:MH, Group 2	Rugged, rocky canyons in Riverside, Los Angeles, and San Diego Counties, but scattered records across California to Oakland (2, 5).	No	Not expected	No suitable roosting habitat found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Onychomys torridus</i> Ramona Southern grasshopper mouse	None/SSC/ Group 2, MSCP	Alkali desert scrub and other desert scrub habitats, sparse coastal scrub, especially with friable soils for digging in Mojave Desert and southern Central Valley (2).	No	Low	No suitable grassland habitat found within the project area. Species is recorded in the Tierra del Sol and Live Oak Springs quadrangles (CDFG 2012a).
<i>Ovis canadensis nelsoni</i> DPS Peninsular bighorn sheep	FE/ST, FP/ Group 1, MSCP	Alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, subalpine conifer, perennial grassland, montane chaparral, and montane riparian from San Jacinto and Santa Rosa Ranges south to Mexico (2).	No	Not expected	No suitable rocky, steep terrain used by species for escape. Outside of known range. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Perognathus longimembris bangsi</i> Palm Springs pocket mouse	None/ SSC/ MSCP	Desert riparian, desert scrub, desert wash and sagebrush. Most common in creosote-dominated desert scrub; rarely on rocky sites.	No	Not expected	Limited suitable habitat. Outside of range. Not recorded in the CNDDDB 8-quad search ²
<i>Perognathus longimembris brevinasus</i> Los Angeles pocket mouse	None/ SSC/ Group 2, MSCP	Grassland, coastal sage scrub, disturbed habitats; fine, sandy soils	No	Not expected	No suitable grassland habitat within the project area. Outside of range. Not recorded in the CNDDDB 8-quad search ²
<i>Perognathus longimembris internationalis</i> Jacumba pocket mouse	None/SSC/ Group 2, MSCP	Desert riparian, desert scrub, desert wash, coastal scrub, and sagebrush in San Diego and Riverside Counties (2, 5).	No	Low	Limited suitable habitat within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Perognathus longimembris pacificus</i> Pacific pocket mouse	FE/ SSC/ Group 1	Grassland, coastal sage scrub with sandy soils; along immediate coast	No	Not expected	No suitable grassland onsite and project area is not along coast. Outside of range. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Spermophilus tereticaudus chlorus</i> Palm Springs round-tailed ground squirrel	None/ SSC/ MSCP	Desert succulent shrub, desert wash, desert scrub, alkali desert scrub, and levees in cropland habitat. Also found in urban habitat. Found from -60 to 900m (-180 to 2900 ft) elevation.	No	Not expected	No suitable desert scrub habitat found within the project area. Project area is higher than the species' recorded elevation range. Not recorded in the CNDDDB 8-quad search ²
<i>Taxidea taxus</i> American badger	None/SSC/ Group 2, MSCP	Dry, open, treeless area; grasslands and coastal sage scrub, especially with friable soils, throughout California (2).	No	Not expected	No burrows or digging sign was observed. Poor connectivity. Not recorded in the CNDDDB 8-quad search ²
<i>Invertebrates</i>					
<i>Ariolimax columbianus stramineus</i> Palomar banana slug	None/ None/ Group 2, MSCP	Coastal California south and west of Salinas Valley from Monterey Peninsula to at least Ventura County, Santa Cruz Island, and Santa Rosa Island	No	Not expected	Project area not near coast. Outside of range. Not recorded in the CNDDDB 8-quad search ²
<i>Branchinecta sandiegonensis</i> San Diego fairy shrimp	FE/None/ Group 1	Small, shallow vernal pools, occasionally ditches and road ruts.	No	Not expected	No vernal pools within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Brennania belkini</i> Belkin's dune tabanid fly	None/ None/ Group 2	Coastal sand dunes of Sothern California.	No	Not expected	No sand dunes within the project area. Outside of range. Not recorded in the CNDDDB 8-quad search ²
<i>Cicindela gabbii</i> western tidal-flat tiger beetle	None/ None/ Group 2	Estuaries and mudflats; generally on dark-colored mud; occasional on dry saline flats of estuaries.	No	Not expected	No suitable estuaries within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Cicindela hirticollis gravida</i> Sandy beach tiger beetle	None/ None/ Group 2	Sandy areas adjacent to non-brackish water along California coast; found in dry sand in upper zone	No	Not expected	Project area not near coast. Not recorded in the CNDDDB 8-quad search ²
<i>Cicindela latesignata latesignata</i> western beach tiger beetle	None/ None/ Group 2	Mudflats and beaches in coastal Southern California.	No	Not expected	Project area not near coast and no mudflats or beaches on site. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Cicindela latesignata</i> <i>obliviosa</i> Oblivious tiger beetle	None/ None/ Group 2	Inhabited the Southern California coastline, from La Jolla north to the Orange Co. line. Occupied mudflats in the lower zone.	No	Not expected	Project area not near coast and no mudflats or beaches on site. Not recorded in the CNDDDB 8-quad search ²
<i>Cicindela senilis frosti</i> Senile Tiger beetle	None/ None/ Group 2	Salt marshes	No	Not expected	No salt marshes within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Cicindela trifasciata</i> <i>sigmoidia</i> Mudflat tiger beetle	None/ None/ Group 2	Has been identified along the fringe of a mudflat and low marsh habitat (www.fws.gov/sandiegorefuges/new/ccp/final/Volume%20I/Volume%20I%20Chapter%203.pdf).	No	Not expected	No suitable mudflats or marshes within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Coelus globosus</i> Globose dune beetle	None/ None/ Group 1	Coastal dunes	No	Not expected	No coastal dunes on site. Not recorded in the CNDDDB 8-quad search ²
<i>Danaus plexippus</i> Monarch butterfly (wintering sites)	None/None/ Group 2	Overwinters in eucalyptus groves from San Francisco south to northern Baja California (4).	No	Low potential for wintering	Not observed during butterfly surveys. No eucalyptus groves within the project area. Not recorded in the CNDDDB 8-quad search²
<i>Euphydryas editha quino</i> Quino checkerspot butterfly	FE/None/ Group 1, MSCP	Sparsely vegetated hilltops, ridgelines, occasionally rocky outcrops; host plant <i>Plantago erecta</i> and nectar plants must be present, San Diego and Riverside Counties (4).	No	Low	Not observed during butterfly surveys. Host plants not found within the project area. Not recorded in the Tierra del Sol or Live Oak Springs quadrangles (CDFG 2012a).
<i>Euphyes vestris</i> <i>harbisoni</i> dun skipper	None/ None/ Group 1, MSCP	Restricted to wetland, riparian, oak woodlands, and chaparral habitats supporting host plant <i>Carex spissa</i>	No	Not expected	Not observed during butterfly surveys. No suitable wetlands found within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Helminthoglypta coelata</i> Mesa shoulderband	None/ None/ Group 2	Coastal San Diego County: found in rock slides, beneath bark, and among coastal vegetation.	No	Not expected	Project area not near coast. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Helminthoglypta traski</i> <i>coelata</i> Peninsular Range shoulderband snail	None/None/ MSCP	Wet habitats	No	Not expected	No suitable wetlands within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Linderiella occidentalis</i> California linderiella	None/ None/ Group 1	Seasonal pools in unplowed grasslands with old alluvial soils underlain by hardpan or in sandstone depressions. Water in the pools has very low alkalinity, conductivity and TDS.	No	Not expected	No suitable pools within the project site. Not recorded in the CNDDDB 8-quad search ²
<i>Lycaena hermes</i> Hermes copper butterfly	None/None/ Group 1, MSCP	Coastal sage scrub, southern mixed chaparral supporting at least 5% cover of host plant <i>Rhamnus crocea</i> . Adults visit <i>Eriogonum fasciculatum</i> and <i>Helianthus gracilentus</i> . On well-drained hillsides and canyon bottoms, coastal San Diego Co. south to Santo Tomas, Baja California (4).	No	Not expected	Not observed during butterfly surveys. Host plant not found on site. Not recorded in the CNDDDB 8-quad search ²
<i>Megathymus yuccae</i> <i>harbisoni</i> Coastal giant skipper	None/ None/ Group 2	Coastal dunes, open yucca flats, desert canyons, open woodland, grassland, and old fields.	No	Not expected	Not observed during butterfly surveys. Outside of range. No suitable habitat within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Panoquina errans</i> Wandering (= saltmarsh) skipper	None/None/ Group 1	Salt marsh from Los Angeles to Baja, Mexico	No	Not expected	Not observed during butterfly surveys. No suitable salt marsh habitat on site. Not recorded in the CNDDDB 8-quad search ²
<i>Papilio multicaldata</i> Two-tailed swallowtail	None/ None/ Group 1	Semi-arid canyon land, mid-level mountains, canyon bottoms; groves, parks, roadsides (4).	No	Not expected	Not observed during butterfly surveys. No suitable habitat within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Phobetus robinsoni</i> Robinson's rain beetle	None/ None/ Group 2	Riparian and desert washes	No	Not expected	No riparian or desert washes within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Plebejus saepiolis</i> <i>Hilda</i> Hilda blue	None/ None/ Group 1	Bogs, roadsides, stream edges, open fields, meadows, open forests	No	Not expected	No suitable habitat found on site. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County)1	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Pseudocopaedes eunus eunus</i> Alkali skipper	None/ None/ Group 1, MSCP	Alkali river bottoms of Kern River, near Bakersfeld, Kern Co. Hostplant grass: <i>Distichils spicata</i> var . <i>stricta</i> .	No	Not expected	Not observed during butterfly surveys. No suitable habitat found on site. Not recorded in the CNDDDB 8-quad search ²
<i>Pyrgus ruralis lagunae</i> Laguna Mountains skipper	FE/ None/ Group 1, MSCP	Only in a few open meadows in yellow pine forest between 5,000 and 6,000 ft in the vicinity of Mt. Laguna and Palomar Mtn. Eggs laid on leaves of <i>Horkelia bolanderi clevelandi</i> . Larvae feed on leaves and overwinter on the host plant.	No	Not expected	Not observed during butterfly surveys. Project area is lower than the species' recorded elevation range. Not recorded in the CNDDDB 8-quad search ²
<i>Streptocephalus woottoni</i> Riverside fairy shrimp	FE/ None/ Group 1	Deep, long-lived vernal pools, vernal pool-like seasonal ponds, stock ponds; warm water pools that have low to moderate dissolved solids	No	Not expected	No vernal pools within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Trigonoscuta blaisdelli</i> Blaisdell trigonoscuta weevil	None/ None/ Group 2	(for <i>tigonoscuta</i> sp.) Restricted to one dune in the Los Medanos area, south of Kettleman Station in Kings Co. Found on an open slip-face covering about 200 square meters of a modified, vegetated relict dune.	No	Not expected	No dunes within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Tryonia imitator</i> <i>Mimic tryonia</i> , (=California brackishwater snail)	None/ None/ Group 2	Coastal lagoons, estuaries and salt marshes	No	Not expected	No lagoons or salt marshes within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Fish</i>					
<i>Cyprinodon macularius</i> Desert pupfish	FE/ SE/ Group 2	Desert ponds, springs, marshes and streams in Southern California. Can live in salinities from fresh water to 68 ppt., can withstand temperatures from 9-45 C and DO levels down to 0.1 ppm.	No	Not expected	No suitable streams or wetlands within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Eucyclogobius newberryi</i> Tidewater goby	FE/ SSC/ Group 1	Low-salinity waters in coastal wetlands	No	Not expected	No suitable streams or wetlands within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Gasterosteus aculeatus williamsoni</i> Unarmored threespine stickleback	FE/ SE, P/ Group 2	Weedy pools, backwaters, and among emergent vegetation at the stream edge in small Southern California streams. Cool (<24 C), clear water with abundant vegetation.	No	Not expected	No suitable streams or wetlands within the project area. Not recorded in the CNDDDB 8-quad search ²

APPENDIX F (Continued)

Scientific Name/ Common Name	Status (Federal/ State/ County) ¹	Habitat Preferences/Requirements	Verified on Site (Direct/ Indirect Evidence)	Potential to Occur On Site	Factual Basis for Determination
<i>Gila orcutti</i> Arroyo chub	None/ SSC/ Group 1	Warm, fluctuating streams with slow-moving or backwater sections of warm to cool streams at depths > 40 centimeters; substrates of sand or mud	No	Not expected	No suitable streams or wetlands within the project area. Not recorded in the CNDDDB 8-quad search ²
<i>Oncorhynchus mykiss irideus</i> southern steelhead – Southern California DPS (Rainbow trout)	FE/ SSC/ Group 1	(for ssp. <i>irideus</i>) Fed listing refers to pops. from Santa Maria River south to southern extent of range (San Mateo Creek in San Diego Co.); Southern steelhead likely have greater physiological tolerances to warmer water and more variable conditions.	No	Not expected	No suitable streams or wetlands within the project area. Not recorded in the CNDDDB 8-quad search ²

¹ **Status Designations:**

Federal

BCC U.S. Fish and Wildlife Service: Birds of Conservation Concern
 FC Candidate for federal listing as threatened or endangered
 (FD) Federally delisted; monitored for 5 years
 FE Federally listed Endangered
 FT Federally listed as Threatened
 WBWG: H Western Bat Working Group: High Priority
 WBWG: LM Western Bat Working Group: Low-Medium Priority
 WBWG: M Western Bat Working Group: Medium Priority
 WBWG: MH Western Bat Working Group: Medium-High Priority

State Designations:

SSC California Special Concern Species
 FP California Department of Fish and Game Fully Protected Species
 WL California Department of Fish and Game Watch List Species
 SE State listed as Endangered
 ST State listed as Threatened
 SC State Candidate for Endangered

County Designations:

MSCP Draft East County MSCP covered species
 Group 1 County of San Diego Sensitive Animal List
 Group 2 County of San Diego Sensitive Animal List

References

Nafis 2012
 Zeiner et al. 1990
 CDFG 2012a.
 Unitt 2004
 Brehme, C., D. Clark, C. Rochester, and R. Fisher. 2011

Notes:

² The 6-quad search includes species recorded in CNDDDB or USFWS databases for the Tierra Del Sol and Live Oak Springs and six surrounding quads (Campo, Cameron Corners, Mount Laguna, Sombrero Peak, Sweeny Pass, and Jacumba).

Bold species indicate species that were identified in the County's Pre-Application Summary Letter (County 2012)

APPENDIX G
Wetland Determination Forms

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierra del Sol Solar Site City/County: Boulevard/San Diego Sampling Date: 3/9/12
 Applicant/Owner: Dwain Boettcher State: CA Sampling Point: 1
 Investigator(s): Vipul Joshi, Thomas Liddicoat Section, Township, Range: Sec13, Range 6East, Township 18South
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0
 Subregion (LRR): C - Mediterranean California Lat: 32°36'20.25"N Long: 116°19'14.23"W Datum: _____
 Soil Map Unit Name: Kitchen Creek loamy coarse sand 5-9% slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>sampling is within possible historical stock pond; possible historical manufactured berm to the east</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover: _____ %				
Sapling/Shrub Stratum				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____ %				
Herb Stratum				
1. <u>Brassica nigra</u>	2	Yes	Not Listed	
2. <u>Erodium cicutarium</u>	1	No	Not Listed	
3. <u>Phacelia sp.</u>	1	No		
4. <u>Polypogon monspeliensis</u>	1	No	FACW	
5. <u>Laennecia coulteri</u>	1	No	FAC	
6. <u>Sisymbrium altissimum</u>	1	No	FACU	
7. _____				
8. _____				
Total Cover: _____ %				
Woody Vine Stratum				
1. _____				
2. _____				
Total Cover: _____ %				
% Bare Ground in Herb Stratum <u>93 %</u>		% Cover of Biotic Crust _____ %		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	_____	x 1 =	_____	0
FACW species	1	x 2 =	_____	2
FAC species	1	x 3 =	_____	3
FACU species	1	x 4 =	_____	4
UPL species	3	x 5 =	_____	15
Column Totals:	6	(A)	24	(B)
Prevalence Index = B/A =				4.00

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0¹

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No

Remarks: Bromus and Phacelia without flowers

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	7.5 YR 3/2	100					silty clay loam	oxidized rhizospheres
8-16	7.5 YR 3/2	80	2.5 YR 3/6	10	C	M		
8-16	7.5 YR 4/2	10					silty clay loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input checked="" type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils:⁴ <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
--	--	---	--

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____ Remarks: _____	Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
--	---

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
--	--	---

Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierra del Sol Solar Site City/County: Boulevard/San Diego Sampling Date: 3/9/12
 Applicant/Owner: Dwain Boettcher State: CA Sampling Point: 2
 Investigator(s): Vipul Joshi, Thomas Liddicoat Section, Township, Range: Sec13, Range 6East, Township 18South
 Landform (hillslope, terrace, etc.): upslope of depression Local relief (concave, convex, none): none Slope (%): 5
 Subregion (LRR): C - Mediterranean California Lat: 32°36'20.25"N Long: 116°19'14.23"W Datum: _____
 Soil Map Unit Name: Kitchen Creek loamy coarse sand 5-9% slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>sampling is adjacent to possible historical stock pond; possible historical manufactured berm to the east</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. <u>Salix exigua</u>	30	Yes	OBL	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7 %</u> (A/B)																																
2. _____																																				
3. _____																																				
4. _____																																				
Total Cover: <u>30 %</u>																																				
<u>Sapling/Shrub Stratum</u>				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td align="center" colspan="2">Total % Cover of:</td> <td align="center" colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td align="center">30</td> <td>x 1 =</td> <td align="center">30</td> </tr> <tr> <td>FACW species</td> <td align="center">25</td> <td>x 2 =</td> <td align="center">50</td> </tr> <tr> <td>FAC species</td> <td align="center">1</td> <td>x 3 =</td> <td align="center">3</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> <td align="center">0</td> </tr> <tr> <td>UPL species</td> <td align="center">12</td> <td>x 5 =</td> <td align="center">60</td> </tr> <tr> <td>Column Totals:</td> <td align="center">68</td> <td>(A)</td> <td align="center">143 (B)</td> </tr> <tr> <td align="center" colspan="4">Prevalence Index = B/A = <u>2.10</u></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	30	x 1 =	30	FACW species	25	x 2 =	50	FAC species	1	x 3 =	3	FACU species		x 4 =	0	UPL species	12	x 5 =	60	Column Totals:	68	(A)	143 (B)	Prevalence Index = B/A = <u>2.10</u>			
Total % Cover of:		Multiply by:																																		
OBL species	30	x 1 =	30																																	
FACW species	25	x 2 =	50																																	
FAC species	1	x 3 =	3																																	
FACU species		x 4 =	0																																	
UPL species	12	x 5 =	60																																	
Column Totals:	68	(A)	143 (B)																																	
Prevalence Index = B/A = <u>2.10</u>																																				
1. _____																																				
2. _____																																				
3. _____																																				
4. _____																																				
5. _____																																				
Total Cover: _____ %																																				
<u>Herb Stratum</u>				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.																																
1. <u>Brassica nigra</u>	10	Yes	Not Listed																																	
2. <u>Erodium cicutarium</u>	2	No	Not Listed																																	
3. <u>Rumex sp.</u>	1	No																																		
4. <u>Polypogon monspeliensis</u>	25	Yes	FACW																																	
5. <u>Laennecia coulteri</u>	1	No	FAC																																	
6. _____																																				
7. _____																																				
8. _____																																				
Total Cover: <u>39 %</u>																																				
<u>Woody Vine Stratum</u>																																				
1. _____																																				
2. _____																																				
Total Cover: _____ %																																				
% Bare Ground in Herb Stratum <u>61 %</u>		% Cover of Biotic Crust _____ %																																		

Remarks: One salix tree, remainder of area dominated by herbs as listed

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features			Loc ²	Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹			
0-8	7.5 YR 3/2	99	2.5 YR 3/6	1	C	PL	sandy clay loam	
8-16	2.5 YR 4/2	100					loamy sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<p>Indicators for Problematic Hydric Soils:⁴</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

<p>Restrictive Layer (if present):</p> Type: _____ Depth (inches): _____ Remarks: _____	<p>Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/></p>
--	--

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (2 or more required)</u></p> <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	<p>Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: approx 6" above pond bottom

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierra del Sol Solar Site City/County: Boulevard/San Diego Sampling Date: 3/9/12
 Applicant/Owner: Dwain Boettcher State: CA Sampling Point: 3
 Investigator(s): Vipul Joshi, Thomas Liddicoat Section, Township, Range: Sec13, Range 6East, Township 18South
 Landform (hillslope, terrace, etc.): upslope of depression Local relief (concave, convex, none): none Slope (%): 5
 Subregion (LRR): C - Mediterranean California Lat: 32°36'20.25"N Long: 116°19'14.23"W Datum: _____
 Soil Map Unit Name: Kitchen Creek loamy coarse sand 5-9% slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>sampling is further upslope of DS 2 and the stock pond</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover: _____ %				
Sapling/Shrub Stratum				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____ %				
Herb Stratum				
1. <u>Brassica nigra</u>	2	No	Not Listed	
2. <u>Erodium cicutarium</u>	2	No	Not Listed	
3. <u>Corethrogyne sp.</u>	1	No		
4. <u>Bromus madritensis</u>	4	Yes	Not Listed	
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____ %				
Woody Vine Stratum				
1. _____				
2. _____				
Total Cover: _____ %				
% Bare Ground in Herb Stratum <u>91 %</u>		% Cover of Biotic Crust _____ %		

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species _____ x 1 = 0
 FACW species _____ x 2 = 0
 FAC species _____ x 3 = 0
 FACU species _____ x 4 = 0
 UPL species 8 x 5 = 40
 Column Totals: 8 (A) 40 (B)
 Prevalence Index = B/A = 5.00

Hydrophytic Vegetation Indicators:
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No

Remarks:

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	10 YR 4/3	99	2.5 YR 3/6	1	C	PL	sandy clay loam	
7-16	10 YR 4/3	100					sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)		Indicators for Problematic Hydric Soils:⁴ <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)	
--	--	---	--	--	--

⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: _____

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: further upslope from DS 2 and approx 2' above pond bottom

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): March 2012

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, Tierra del Sol, No Number Assigned

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: California County/parish/borough: San Diego County City: Boulevard
Center coordinates of site (lat/long in degree decimal format): Lat. 32.605025° N, Long. 116.325361° W.
Universal Transverse Mercator:

Name of nearest waterbody:

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean

Name of watershed or Hydrologic Unit Code (HUC): Cottonwood-Tijuana, Catalog Unit 180703050501

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): March 9, 2012

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 0 linear feet: width (ft) and/or 0 acres.

Wetlands: 0.1 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

Elevation of established OHWM (if known): unknown, but site elevation is approximately 3,600 feet AMSL.

2. Non-regulated waters/wetlands (check if applicable):³

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: **Wetlands are isolated and do not have hydrologic connection to TNW or any tributary to TNW. Thus, no significant nexus to a TNW.**

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. TNW

Identify TNW: .

Summarize rationale supporting determination: .

2. Wetland adjacent to TNW

Summarize rationale supporting conclusion that wetland is “adjacent”:

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. Characteristics of non-TNWs that flow directly or indirectly into TNW

(i) General Area Conditions:

Watershed size: 495 square miles

Drainage area: 0.1 square miles

Average annual rainfall: 10 inches

Average annual snowfall: 0 inches

(ii) Physical Characteristics:

(a) Relationship with TNW:

Tributary flows directly into TNW.

Tributary flows through 10 (or more) tributaries before entering TNW.

Project waters are Pick List river miles from TNW.

Project waters are Pick List river miles from RPW.

Project waters are 30 (or more) aerial (straight) miles from TNW.

Project waters are Pick List aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: Topography on site suggests that stormwater flows travel south and cross the California border into Mexico.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW⁵: Topography on site and surrounding region suggests that stormwater flows travel south into Mexico and west towards the Pacific Ocean (i.e., nearest TNW). Because most of the adjacent watershed is in Mexico, river miles and RPW could not be determined.

Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural
 Artificial (man-made). Explain:
 Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: less than 1 foot wide feet
Average depth: unknown, no defined bed/bank feet
Average side slopes: **Pick List**.

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover:
 Other. Explain: No defined waters of the U.S. or any such tributaries on site; however, on site soils are sandy and

gravelly.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Unknown. See "Other" explanation above.

Presence of run/riffle/pool complexes. Explain: Unknown. See "Other" explanation above.

Tributary geometry: **Meandering**

Tributary gradient (approximate average slope): Unknown. See "Other" explanation above. %

(c) Flow:

Tributary provides for: **Ephemeral flow**

Estimate average number of flow events in review area/year: **6-10**

Describe flow regime: Ephemeral, low flow type of regime where onsite flows are short duration, directly related to rainfall, and not substantial enough to result in an OHWM.

Other information on duration and volume: Duration of flows on site are short and ephemeral in character. The flow volume is directly proportionate and dependant on site precipitation levels.

Surface flow is: **Discrete and confined**. Characteristics: Onsite elevations peak near the center of the site and suggest water flows toward the southeast and southwest portions of the site. Surface flows are concentrated to swale areas that are unvegetated, narrow (i.e., <1 foot wide), and support no defined bed or bank. The areas that support surface flows are generally located within the northern and central portions of the site, are discrete from one another, and short in length (e.g., <100 linear feet) before penetrating the onsite soils. The areas that support surface water flows on site are confined to the small (i.e., <1 foot wide and <100 feet long) unvegetated swale areas which do not extend through or directly connect to any drainages off site.

Subsurface flow: **Unknown**. Explain findings: No direct evidence of subsurface flow (emergent wetland vegetation, etc.); however, surface flows are limited to the swale features on site and there are no signs of surfacewater connectivity to offsite areas. Thus, water that does not evaporate, permeates the sandy soils and flows subsurface.

Dye (or other) test performed: No.

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):

Discontinuous OHWM.⁷ Explain: no defined continuous bed/bank; unvegetated areas with sandy soil are small (< 1' wide) and also discontinuous).

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁶ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷ Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- | | |
|--|--|
| <input type="checkbox"/> High Tide Line indicated by: | <input type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: No water detected during field investigations.

Identify specific pollutants, if known: None known.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: 0.1 acres

Wetland type. Explain: isolated wetlands, non-RPW, no significant nexus.

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain: Wetlands on site are isolated and do not serve as or cross state boundaries.

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow**. Explain: Wetland is isolated on site and there is no evidence of downstream flow connectivity with a non-TNW.

Surface flow is: **Confined**

Characteristics: Wetland is confined to a small (0.1 acre) swale in the central-eastern portion of the site and there is no evidence of downstream surface flow connectivity with any non-TNW.

Subsurface flow: **Unknown**. Explain findings: Wetland is confined to a small (0.1 acre) swale in the central-eastern portion of the site and there is no evidence of downstream subsurface flow connectivity with any non-TNW.

Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting

Not directly abutting

Discrete wetland hydrologic connection. Explain:

Ecological connection. Explain:

Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **30 (or more)** river miles from TNW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

Flow is from: **No Flow**.

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: No water detected during the field investigations.

Identify specific pollutants, if known: None known.

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

Riparian buffer. Characteristics (type, average width):

Vegetation type/percent cover. Explain: Wetland is within mapped a red shank chaparral vegetation community.

Vegetation directly associated with wetland is primarily herbs (i.e., Polypogon monspeliensis) and one willow tree (Salix exigua).

Habitat for:

Federally Listed species. Explain findings:

Fish/spawn areas. Explain findings:

Other environmentally-sensitive species. Explain findings:

Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.1) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
No	0.1		

Summarize overall biological, chemical and physical functions being performed: The wetland is located within the central-eastern portion of the site and is characterized as a swale type feature that supports a small area (i.e., less than 400 square feet) of non-RPW and a surrounding (directly abutting) ring of herbaceous vegetation; totaling 0.1 acres of wetlands. This wetland area does not support habitat for any special-status species and most likely receives seasonal water via precipitation events and drainage from upstream areas. Function of the wetland is most likely water filtration.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: The wetland area on site has no hydrologic connectivity to any non-RPW that flows directly or indirectly to downstream TNWs. Any surface water flows on site are very short in duration (i.e., ephemeral), directly related to seasonal precipitation events, and conveyed through small swales (i.e., <1 foot wide, non defined bed/bank, <100 feet long). There is no evidence on site that suggests water flow is confluent and continues draining off site directly or indirectly into the nearest TNW (i.e., Pacific Ocean), which is approximately 48 miles away from the site. Thus, there is no significant nexus.
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
 TNWs: linear feet width (ft), Or, acres.
 Wetlands adjacent to TNWs: acres.
2. **RPWs that flow directly or indirectly into TNWs.**

- Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- Tributaries of TNW where tributaries have continuous flow “seasonally” (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: acres.
- Identify type(s) of waters: .

3. Non-RPWs⁸ that flow directly or indirectly into TNWs.

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: acres.
- Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
 - Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
 - Wetlands directly abutting an RPW where tributaries typically flow “seasonally.” Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from “waters of the U.S.,” or
- Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- which are or could be used for industrial purposes by industries in interstate commerce.
- Interstate isolated waters. Explain: .
- Other factors. Explain: .

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.
Identify type(s) of waters: .
- Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: **The onsite wetland does not have a hydrologic connectivity downstream or to offsite areas and does not have a substantial effect on the chemical, physical, or biological integrity of a TNW or any tributary to a TNW. Nearest TNW is the Pacific Ocean approximately 48 miles away from the site. Additionally the isolated wetland on site does not support any interstate or foreign commerce activities.**
- Other: (explain, if not covered above): **The wetland on site does not provide habitat for migratory bird species or related to habitat constituents for any special-status plants or wildlife species.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: 0.1 acres. List type of aquatic resource: isolated wetland, non-RPW, no significant nexus.
- Wetlands: 0.1 acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 7.5-minute Tierra del Sol Quadrangle.
- USDA Natural Resources Conservation Service Soil Survey. Citation:USDA. 2011. NRCS. Websoil Survey.
- National wetlands inventory map(s). Cite name: .
- State/Local wetland inventory map(s): .

- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): Digital Globe. 2008.
or Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierra del Sol Solar Farm Project City/County: Boulevard, San Diego Sampling Date: 4/8/13
 Applicant/Owner: Tierra del Sol Solar Farm LLC State: CA Sampling Point: DS-1
 Investigator(s): Andy Thomson, Danielle Mullen Section, Township, Range: Section 13, Township 18 South, Range 6 East
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): C - Mediterranean California Lat: 6543779.934 Long: 1806846.843 Datum: NAD83
 Soil Map Unit Name: La Posta rocky loamy coarse sand, 5-30% NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Sampling point is on slope about 5 feet from the edge of the channel in uplands.	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	0 (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	2 (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	0.0 % (A/B)
4. _____	_____	_____	_____		
Total Cover: _____ %					
Sapling/Shrub Stratum				Prevalence Index worksheet:	
1. <i>Adenostoma sparsifolium</i>	50	Yes	UPL	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species	x 1 = 0
3. _____	_____	_____	_____	FACW species	x 2 = 0
4. _____	_____	_____	_____	FAC species	x 3 = 0
5. _____	_____	_____	_____	FACU species	1 x 4 = 4
Total Cover: 50 %				UPL species	67 x 5 = 335
				Column Totals:	68 (A) 339 (B)
				Prevalence Index = B/A = 4.99	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <i>Erodium cicutarium</i>	10	Yes	UPL	<input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
2. <i>Nemophila menziesii</i>	2	No	UPL	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
3. <i>Bromus diandrus</i>	2	No	UPL	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
4. <i>Acmispon glaber ssp. glaber</i>	1	No	UPL	¹ Indicators of hydric soil and wetland hydrology must be present.	
5. <i>Amsinckia menziesii</i>	1	No	UPL		
6. <i>Descurainia pinnata</i>	1	No	UPL		
7. <i>Dichelostemma capitatum</i>	1	No	FACU		
8. _____	_____	_____	_____		
Total Cover: 18 %					
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
Total Cover: _____ %					
% Bare Ground in Herb Stratum _____ %		% Cover of Biotic Crust _____ %			

Remarks:

SOIL

Sampling Point: DS-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR 5/4	100	None				Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<p>Indicators for Problematic Hydric Soils:⁴</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Remarks: _____

Hydric Soil Present? Yes No

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<p>Secondary Indicators (2 or more required)</p> <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations:

Surface Water Present? Yes No Depth (inches): _____

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierra del Sol Solar Farm Project City/County: Boulevard, San Diego Sampling Date: 4/8/13
 Applicant/Owner: Tierra del Sol Solar Farm LLC State: CA Sampling Point: DS-2
 Investigator(s): Andy Thomson, Danielle Mullen Section, Township, Range: Section 13, Township 18 South, Range 6 East
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): C - Mediterranean California Lat: 6543767.713 Long: 1806863.026 Datum: NAD83
 Soil Map Unit Name: La Posta rocky loamy coarse sand, 5-30% slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks:	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50.0 %</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
Total Cover: _____ %				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum				OBL species	<u>0</u>
1. _____	_____	_____	_____	FACW species	<u>30</u> x 2 = <u>60</u>
2. _____	_____	_____	_____	FAC species	<u>1</u> x 3 = <u>3</u>
3. _____	_____	_____	_____	FACU species	<u>34</u> x 4 = <u>136</u>
4. _____	_____	_____	_____	UPL species	<u>13</u> x 5 = <u>65</u>
5. _____	_____	_____	_____	Column Totals:	<u>78</u> (A) <u>264</u> (B)
Total Cover: _____ %				Prevalence Index = B/A = <u>3.38</u>	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <i>Juncus mexicanus</i>	30	Yes	FACW	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <i>Melilotus indicus</i>	30	Yes	FACU	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
3. <i>Lamium amplexicaule</i>	6	No	UPL	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <i>Erodium cicutarium</i>	5	No	UPL	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <i>Bromus hordeaceus</i>	3	No	FACU	¹ Indicators of hydric soil and wetland hydrology must be present.	
6. <i>Descurainia pinnata</i>	2	No	UPL	Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	
7. <i>Rumex crispus</i>	1	No	FAC		
8. <i>Ambrosia psilostachya</i>	1	No	FACU		
Total Cover: <u>78 %</u>					
Woody Vine Stratum					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
Total Cover: _____ %					
% Bare Ground in Herb Stratum _____ %		% Cover of Biotic Crust _____ %			
Remarks:					

SOIL

Sampling Point: DS-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	7.5 YR 3/2	100					Silty sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils:⁴ <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____ Remarks: _____	Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
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HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 14 Saturation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 10	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierra del Sol Solar Farm Project City/County: Boulevard, San Diego Sampling Date: 4/8/13
 Applicant/Owner: Tierra del Sol Solar Farm LLC State: CA Sampling Point: DS-3
 Investigator(s): Andy Thomson, Danielle Mullen Section, Township, Range: Section 13, Township 18 South, Range 6 East
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): C - Mediterranean California Lat: 6543733.622 Long: 1806886.753 Datum: NAD83
 Soil Map Unit Name: La Posta rocky loamy coarse sand, 5-30% slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>Sampling point is on secondary bench of floodplain.</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
Total Cover: _____ %				
Sapling/Shrub Stratum				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: _____ %				
Herb Stratum				
1. <i>Erodium cicutarium</i>	40	Yes	UPL	
2. <i>Juncus mexicanus</i>	10	No	FACW	
3. <i>Bromus sp.</i>	5	No		
4. <i>Acmispon glaber spp. glaber</i>	2	No	UPL	
5. <i>Descurainia pinnata</i>	1	No	UPL	
6. <i>Ambrosia psilostachya</i>	1	No	FACU	
7. <i>Nama sp.</i>	1	No		
8. _____				
Total Cover: 60 %				
Woody Vine Stratum				
1. _____				
2. _____				
Total Cover: _____ %				
% Bare Ground in Herb Stratum _____ %		% Cover of Biotic Crust _____ %		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	_____	x 1 =	<u>0</u>
FACW species	<u>10</u>	x 2 =	<u>20</u>
FAC species	_____	x 3 =	<u>0</u>
FACU species	<u>1</u>	x 4 =	<u>4</u>
UPL species	<u>43</u>	x 5 =	<u>215</u>
Column Totals:	<u>54</u> (A)		<u>239</u> (B)
Prevalence Index = B/A =			<u>4.43</u>

Hydrophytic Vegetation Indicators:

Dominance Test is >50%

Prevalence Index is ≤3.0¹

Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No

Remarks: _____

SOIL

Sampling Point: DS-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10 YR 5/3	100					Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<p>Hydic Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<p>Indicators for Problematic Hydic Soils:⁴</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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<p>Restrictive Layer (if present):</p> Type: _____ Depth (inches): _____ Remarks: _____	<p>Hydic Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p>
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HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (2 or more required)</u></p> <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	<p>Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierra del Sol Solar Farm Project City/County: Boulevard, San Diego Sampling Date: 4/8/13
 Applicant/Owner: Tierra del Sol Solar Farm LLC State: CA Sampling Point: DS-4
 Investigator(s): Andy Thomson, Danielle Mullen Section, Township, Range: Section 13, Township 18 South, Range 6 East
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): C - Mediterranean California Lat: 6543776.096 Long: 1807091.746 Datum: NAD83
 Soil Map Unit Name: La Posta rocky loamy coarse sandy, 5-30% slopes NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Data station is located within a channel and an understory of willows. Area burned last year and therefore vegetation is considered disturbed.	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <i>Salix laevigata</i>	40	Yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC:	3 (A)
2. _____				Total Number of Dominant Species Across All Strata:	3 (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0% (A/B)
4. _____				Prevalence Index worksheet:	
Total Cover: 40 %				Total % Cover of: _____ Multiply by: _____	
Sapling/Shrub Stratum				OBL species	x 1 = 0
1. _____				FACW species	110 x 2 = 220
2. _____				FAC species	x 3 = 0
3. _____				FACU species	x 4 = 0
4. _____				UPL species	13 x 5 = 65
5. _____				Column Totals:	123 (A) 285 (B)
Total Cover: %				Prevalence Index = B/A = 2.32	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <i>Juncus mexicanus</i>	50	Yes	FACW	<input checked="" type="checkbox"/> Dominance Test is >50%	
2. <i>Carex praegracilis</i>	20	Yes	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹	
3. <i>Lamium amplexicaule</i>	10	No	UPL	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <i>Melilotus sp.</i>	10	No		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <i>Descurainia pinnata</i>	2	No	UPL	¹ Indicators of hydric soil and wetland hydrology must be present.	
6. <i>Hirschfeldia incana</i>	1	No	UPL		
7. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	
8. _____					
Total Cover: 93 %					
Woody Vine Stratum					
1. _____					
2. _____					
Total Cover: %					
% Bare Ground in Herb Stratum %		% Cover of Biotic Crust %			

Remarks:

SOIL

Sampling Point: DS-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10 YR 4/3	100					Loamy sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<p>Indicators for Problematic Hydric Soils:⁴</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

<p>Restrictive Layer (if present):</p> Type: _____ Depth (inches): _____ Remarks: _____	<p>Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p>
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HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (any one indicator is sufficient)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (2 or more required)</u></p> <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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<p>Field Observations:</p> Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	<p>Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/></p>
--	--

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

SOIL

Sampling Point: DS-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-14	10 YR 3/1	100					Sandy loam	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	<p>Indicators for Problematic Hydric Soils:⁴</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Remarks: _____

Hydric Soil Present? Yes No

HYDROLOGY

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (any one indicator is sufficient)</p> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (2 or more required)</u></p> <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations:

Surface Water Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): _____
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 6

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Tierra del Sol Solar Farm Project City/County: Boulevard, San Diego Sampling Date: 4/8/13
 Applicant/Owner: Tierra del Sol Solar Farm LLC State: CA Sampling Point: DS-6
 Investigator(s): Andy Thomson, Danielle Mullen Section, Township, Range: Section 13, Township 18 South, Range 6 East
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): C - Mediterranean California Lat: 6547895.529 Long: 1813980.900 Datum: NAD83
 Soil Map Unit Name: La Posta loamy coarse sand, 5-30% slopes, eroded NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>Sampling point is within an artificial impoundment.</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status																																	
1. <u>Salix laevigata</u>	80	Yes	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)																																
2. _____																																				
3. _____																																				
4. _____																																				
Total Cover: <u>80 %</u>																																				
Sapling/Shrub Stratum				Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td align="center" colspan="2">Total % Cover of:</td> <td align="center" colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td align="center">_____</td> <td>x 1 =</td> <td align="center">0</td> </tr> <tr> <td>FACW species</td> <td align="center">80</td> <td>x 2 =</td> <td align="center">160</td> </tr> <tr> <td>FAC species</td> <td align="center">_____</td> <td>x 3 =</td> <td align="center">0</td> </tr> <tr> <td>FACU species</td> <td align="center">_____</td> <td>x 4 =</td> <td align="center">0</td> </tr> <tr> <td>UPL species</td> <td align="center">_____</td> <td>x 5 =</td> <td align="center">0</td> </tr> <tr> <td>Column Totals:</td> <td align="center">80</td> <td>(A)</td> <td align="center">160 (B)</td> </tr> <tr> <td align="center" colspan="4">Prevalence Index = B/A = <u>2.00</u></td> </tr> </table>	Total % Cover of:		Multiply by:		OBL species	_____	x 1 =	0	FACW species	80	x 2 =	160	FAC species	_____	x 3 =	0	FACU species	_____	x 4 =	0	UPL species	_____	x 5 =	0	Column Totals:	80	(A)	160 (B)	Prevalence Index = B/A = <u>2.00</u>			
Total % Cover of:		Multiply by:																																		
OBL species	_____	x 1 =	0																																	
FACW species	80	x 2 =	160																																	
FAC species	_____	x 3 =	0																																	
FACU species	_____	x 4 =	0																																	
UPL species	_____	x 5 =	0																																	
Column Totals:	80	(A)	160 (B)																																	
Prevalence Index = B/A = <u>2.00</u>																																				
1. _____																																				
2. _____																																				
3. _____																																				
4. _____																																				
5. _____																																				
Total Cover: _____ %																																				
Herb Stratum				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.																																
1. <u>Bromus sp.</u>	1	No																																		
2. _____																																				
3. _____																																				
4. _____																																				
5. _____																																				
6. _____																																				
7. _____																																				
8. _____																																				
Total Cover: <u>1 %</u>																																				
Woody Vine Stratum																																				
1. _____																																				
2. _____																																				
Total Cover: _____ %																																				
% Bare Ground in Herb Stratum _____ %		% Cover of Biotic Crust _____ %																																		

Remarks: _____

SOIL

Sampling Point: DS-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10 YR 3/1						Sandy clay loam	
8-16							Sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils:⁴ <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____ Remarks: _____	Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
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HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) <input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 6 Saturation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Depth (inches): 4	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Adventitious roots growing off Salix.

SOIL

Sampling Point: DS-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture ³	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10 YR 4/3						Sandy loam	
12-16	10 YR 5/3						Silty sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.
³Soil Textures: Clay, Silty Clay, Sandy Clay, Loam, Sandy Clay Loam, Sandy Loam, Clay Loam, Silty Clay Loam, Silt Loam, Silt, Loamy Sand, Sand.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR C) <input type="checkbox"/> 1 cm Muck (A9) (LRR D) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)		<input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Vernal Pools (F9)	Indicators for Problematic Hydric Soils:⁴ <input type="checkbox"/> 1 cm Muck (A9) (LRR C) <input type="checkbox"/> 2 cm Muck (A10) (LRR B) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
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⁴Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present): Type: _____ Depth (inches): _____ Remarks: _____	Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
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HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) (Nonriverine) <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Biotic Crust (B12) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (2 or more required) <input type="checkbox"/> Water Marks (B1) (Riverine) <input type="checkbox"/> Sediment Deposits (B2) (Riverine) <input type="checkbox"/> Drift Deposits (B3) (Riverine) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Data station taken in 1-foot wide channel.

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): March 2012

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Los Angeles District, Tierra del Sol, No Number Assigned

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: California County/parish/borough: San Diego County City: Boulevard
Center coordinates of site (lat/long in degree decimal format): Lat. 32.605025° N, Long. 116.325361° W.
Universal Transverse Mercator:

Name of nearest waterbody:

Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Pacific Ocean

Name of watershed or Hydrologic Unit Code (HUC): Cottonwood-Tijuana, Catalog Unit 180703050501

Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.

Check if other sites (e.g., offsite mitigation sites, disposal sites, etc...) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date:

Field Determination. Date(s): March 9, 2012

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "navigable waters of the U.S." within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [Required]

Waters subject to the ebb and flow of the tide.

Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce.
Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are no** "waters of the U.S." within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [Required]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply):¹

TNWs, including territorial seas

Wetlands adjacent to TNWs

Relatively permanent waters² (RPWs) that flow directly or indirectly into TNWs

Non-RPWs that flow directly or indirectly into TNWs

Wetlands directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs

Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs

Impoundments of jurisdictional waters

Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:

Non-wetland waters: 0 linear feet: width (ft) and/or 0 acres.

Wetlands: 0.1 acres.

c. Limits (boundaries) of jurisdiction based on: 1987 Delineation Manual

Elevation of established OHWM (if known): unknown, but site elevation is approximately 3,600 feet AMSL.

2. Non-regulated waters/wetlands (check if applicable):³

Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional.
Explain: **Wetlands are isolated and do not have hydrologic connection to TNW or any tributary to TNW. Thus, no significant nexus to a TNW.**

¹ Boxes checked below shall be supported by completing the appropriate sections in Section III below.

² For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).

³ Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**

Identify TNW: .

Summarize rationale supporting determination: .

2. **Wetland adjacent to TNW**

Summarize rationale supporting conclusion that wetland is “adjacent”:

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are “relatively permanent waters” (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody⁴ is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

(i) **General Area Conditions:**

Watershed size: 495 **square miles**

Drainage area: 0.1 **square miles**

Average annual rainfall: 10 inches

Average annual snowfall: 0 inches

(ii) **Physical Characteristics:**

(a) **Relationship with TNW:**

Tributary flows directly into TNW.

Tributary flows through **10 (or more)** tributaries before entering TNW.

Project waters are **Pick List** river miles from TNW.

Project waters are **Pick List** river miles from RPW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

Project waters are **Pick List** aerial (straight) miles from RPW.

Project waters cross or serve as state boundaries. Explain: Topography on site suggests that stormwater flows travel south and cross the California border into Mexico.

⁴ Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW⁵: Topography on site and surrounding region suggests that stormwater flows travel south into Mexico and west towards the Pacific Ocean (i.e., nearest TNW). Because most of the adjacent watershed is in Mexico, river miles and RPW could not be determined.

Tributary stream order, if known:

(b) General Tributary Characteristics (check all that apply):

Tributary is: Natural
 Artificial (man-made). Explain:
 Manipulated (man-altered). Explain:

Tributary properties with respect to top of bank (estimate):

Average width: less than 1 foot wide feet
Average depth: unknown, no defined bed/bank feet
Average side slopes: **Pick List.**

Primary tributary substrate composition (check all that apply):

Silts Sands Concrete
 Cobbles Gravel Muck
 Bedrock Vegetation. Type/% cover:
 Other. Explain: No defined waters of the U.S. or any such tributaries on site; however, on site soils are sandy and

gravelly.

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: Unknown. See "Other" explanation above.

Presence of run/riffle/pool complexes. Explain: Unknown. See "Other" explanation above.

Tributary geometry: **Meandering**

Tributary gradient (approximate average slope): Unknown. See "Other" explanation above. %

(c) Flow:

Tributary provides for: **Ephemeral flow**

Estimate average number of flow events in review area/year: **6-10**

Describe flow regime: Ephemeral, low flow type of regime where onsite flows are short duration, directly related to rainfall, and not substantial enough to result in an OHWM.

Other information on duration and volume: Duration of flows on site are short and ephemeral in character. The flow volume is directly proportionate and dependant on site precipitation levels.

Surface flow is: **Discrete and confined.** Characteristics: Onsite elevations peak near the center of the site and suggest water flows toward the southeast and southwest portions of the site. Surface flows are concentrated to swale areas that are unvegetated, narrow (i.e., <1 foot wide), and support no defined bed or bank. The areas that support surface flows are generally located within the northern and central portions of the site, are discrete from one another, and short in length (e.g., <100 linear feet) before penetrating the onsite soils. The areas that support surface water flows on site are confined to the small (i.e., <1 foot wide and <100 feet long) unvegetated swale areas which do not extend through or directly connect to any drainages off site.

Subsurface flow: **Unknown.** Explain findings: No direct evidence of subsurface flow (emergent wetland vegetation, etc.); however, surface flows are limited to the swale features on site and there are no signs of surfacewater connectivity to offsite areas. Thus, water that does not evaporate, permeates the sandy soils and flows subsurface.

Dye (or other) test performed: No.

Tributary has (check all that apply):

Bed and banks
 OHWM⁶ (check all indicators that apply):
 clear, natural line impressed on the bank the presence of litter and debris
 changes in the character of soil destruction of terrestrial vegetation
 shelving the presence of wrack line
 vegetation matted down, bent, or absent sediment sorting
 leaf litter disturbed or washed away scour
 sediment deposition multiple observed or predicted flow events
 water staining abrupt change in plant community
 other (list):

Discontinuous OHWM.⁷ Explain: no defined continuous bed/bank; unvegetated areas with sandy soil are small (< 1' wide) and also discontinuous).

⁵ Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.

⁶ A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.

⁷ Ibid.

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):

- | | |
|--|--|
| <input type="checkbox"/> High Tide Line indicated by: | <input type="checkbox"/> Mean High Water Mark indicated by: |
| <input type="checkbox"/> oil or scum line along shore objects | <input type="checkbox"/> survey to available datum; |
| <input type="checkbox"/> fine shell or debris deposits (foreshore) | <input type="checkbox"/> physical markings; |
| <input type="checkbox"/> physical markings/characteristics | <input type="checkbox"/> vegetation lines/changes in vegetation types. |
| <input type="checkbox"/> tidal gauges | |
| <input type="checkbox"/> other (list): | |

(iii) Chemical Characteristics:

Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).

Explain: No water detected during field investigations.

Identify specific pollutants, if known: None known.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- Riparian corridor. Characteristics (type, average width):
- Wetland fringe. Characteristics:
- Habitat for:
 - Federally Listed species. Explain findings:
 - Fish/spawn areas. Explain findings:
 - Other environmentally-sensitive species. Explain findings:
 - Aquatic/wildlife diversity. Explain findings:

2. **Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW**

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: 0.1 acres

Wetland type. Explain: isolated wetlands, non-RPW, no significant nexus.

Wetland quality. Explain:

Project wetlands cross or serve as state boundaries. Explain: Wetlands on site are isolated and do not serve as or cross state boundaries.

(b) General Flow Relationship with Non-TNW:

Flow is: **No Flow**. Explain: Wetland is isolated on site and there is no evidence of downstream flow connectivity with a non-TNW.

Surface flow is: **Confined**

Characteristics: Wetland is confined to a small (0.1 acre) swale in the central-eastern portion of the site and there is no evidence of downstream surface flow connectivity with any non-TNW.

Subsurface flow: **Unknown**. Explain findings: Wetland is confined to a small (0.1 acre) swale in the central-eastern portion of the site and there is no evidence of downstream subsurface flow connectivity with any non-TNW.

Dye (or other) test performed:

(c) Wetland Adjacency Determination with Non-TNW:

Directly abutting

Not directly abutting

Discrete wetland hydrologic connection. Explain:

Ecological connection. Explain:

Separated by berm/barrier. Explain:

(d) Proximity (Relationship) to TNW

Project wetlands are **30 (or more)** river miles from TNW.

Project waters are **30 (or more)** aerial (straight) miles from TNW.

Flow is from: **No Flow**.

Estimate approximate location of wetland as within the **500-year or greater** floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: No water detected during the field investigations.

Identify specific pollutants, if known: None known.

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

Riparian buffer. Characteristics (type, average width):

Vegetation type/percent cover. Explain: Wetland is within mapped a red shank chaparral vegetation community.

Vegetation directly associated with wetland is primarily herbs (i.e., Polypogon monspeliensis) and one willow tree (Salix exigua).

Habitat for:

Federally Listed species. Explain findings:

Fish/spawn areas. Explain findings:

Other environmentally-sensitive species. Explain findings:

Aquatic/wildlife diversity. Explain findings:

3. **Characteristics of all wetlands adjacent to the tributary (if any)**

All wetland(s) being considered in the cumulative analysis: **1**

Approximately (0.1) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>	<u>Directly abuts? (Y/N)</u>	<u>Size (in acres)</u>
No	0.1		

Summarize overall biological, chemical and physical functions being performed: The wetland is located within the central-eastern portion of the site and is characterized as a swale type feature that supports a small area (i.e., less than 400 square feet) of non-RPW and a surrounding (directly abutting) ring of herbaceous vegetation; totaling 0.1 acres of wetlands. This wetland area does not support habitat for any special-status species and most likely receives seasonal water via precipitation events and drainage from upstream areas. Function of the wetland is most likely water filtration.

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D:
2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: The wetland area on site has no hydrologic connectivity to any non-RPW that flows directly or indirectly to downstream TNWs. Any surface water flows on site are very short in duration (i.e., ephemeral), directly related to seasonal precipitation events, and conveyed through small swales (i.e., <1 foot wide, non defined bed/bank, <100 feet long). There is no evidence on site that suggests water flow is confluent and continues draining off site directly or indirectly into the nearest TNW (i.e., Pacific Ocean), which is approximately 48 miles away from the site. Thus, there is no significant nexus.
3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D:

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
 TNWs: linear feet width (ft), Or, acres.
 Wetlands adjacent to TNWs: acres.
2. **RPWs that flow directly or indirectly into TNWs.**

- Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial:
- Tributaries of TNW where tributaries have continuous flow “seasonally” (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: acres.
- Identify type(s) of waters: .

3. Non-RPWs⁸ that flow directly or indirectly into TNWs.

- Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):

- Tributary waters: linear feet width (ft).
 - Other non-wetland waters: acres.
- Identify type(s) of waters: .

4. Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
 - Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .
 - Wetlands directly abutting an RPW where tributaries typically flow “seasonally.” Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.

- Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.

- Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. Impoundments of jurisdictional waters.⁹

As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.

- Demonstrate that impoundment was created from “waters of the U.S.,” or
- Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
- Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):¹⁰

⁸See Footnote # 3.

⁹To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.

¹⁰Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA Memorandum Regarding CWA Act Jurisdiction Following Rapanos.

- which are or could be used by interstate or foreign travelers for recreational or other purposes.
- from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
- which are or could be used for industrial purposes by industries in interstate commerce.
- Interstate isolated waters. Explain: .
- Other factors. Explain: .

Identify water body and summarize rationale supporting determination:

Provide estimates for jurisdictional waters in the review area (check all that apply):

- Tributary waters: linear feet width (ft).
- Other non-wetland waters: acres.
Identify type(s) of waters: .
- Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):

- If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
- Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
 - Prior to the Jan 2001 Supreme Court decision in "SWANCC," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
- Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: **The onsite wetland does not have a hydrologic connectivity downstream or to offsite areas and does not have a substantial effect on the chemical, physical, or biological integrity of a TNW or any tributary to a TNW. Nearest TNW is the Pacific Ocean approximately 48 miles away from the site. Additionally the isolated wetland on site does not support any interstate or foreign commerce activities.**
- Other: (explain, if not covered above): **The wetland on site does not provide habitat for migratory bird species or related to habitat constituents for any special-status plants or wildlife species.**

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: acres. List type of aquatic resource: .
- Wetlands: acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):

- Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
- Lakes/ponds: acres.
- Other non-wetland waters: 0.1 acres. List type of aquatic resource: isolated wetland, non-RPW, no significant nexus.
- Wetlands: 0.1 acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: .
- Data sheets prepared/submitted by or on behalf of the applicant/consultant.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps: .
- Corps navigable waters' study: .
- U.S. Geological Survey Hydrologic Atlas: .
 - USGS NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name: 7.5-minute Tierra del Sol Quadrangle.
- USDA Natural Resources Conservation Service Soil Survey. Citation:USDA. 2011. NRCS. Websoil Survey.
- National wetlands inventory map(s). Cite name: .
- State/Local wetland inventory map(s): .

- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date): Digital Globe. 2008.
or Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Applicable/supporting case law:
- Applicable/supporting scientific literature:
- Other information (please specify):

B. ADDITIONAL COMMENTS TO SUPPORT JD:

APPENDIX H

*Evaluation of Biological Resources for the Soitec
Mitigation Site*

MEMORANDUM

To: Patrick Brown, Soitec Development LLC
From: David Hochart, Dudek
Subject: Evaluation of Biological Resources for the Soitec Mitigation Site
Date: November 21, 2013
cc: Brock Ortega, Dudek
Vipul Joshi, Dudek
Attachment(s): Figures 1–4

Soitec Development LLC is considering the purchase of 2,601.3 acres of open space (i.e., Soitec mitigation site) to satisfy habitat loss mitigation requirements for the development of solar facilities on properties located within the vicinity. The mitigation site, and the four solar farm sites, Tierra del Sol, Rugged LanEast and LanWest, are located within the unincorporated community of Boulevard, California (Figures 1 and 2). The mitigation site will serve as mitigation for the four solar farm projects. However, impacts have only been evaluated for the Tierra del Sol and Rugged sites; impacts for the LanEast and LanWest solar farms will be analyzed at a later date because neither project has been fully developed to a project-level of detail at this time. It is presumed that there will be sufficient habitat and resources available to mitigate for impacts on the LanEast and LanWest solar sites. Impacts for these sites will be evaluated prior to construction.

In order to locate and characterize natural communities, including habitats for special-status species within the mitigation site, Dudek conducted vegetation mapping in accordance with the County of San Diego Report Format and Content Requirements (County of San Diego 2010a). This memo provides the results of the vegetation mapping and outlines the potential for special-status plant and wildlife species to occur within the mitigation site.

ENVIRONMENTAL SETTING (EXISTING CONDITIONS)

The mitigation site is situated between approximately 3,240 to 4,080 feet above mean sea level (amsl) in elevation. Land use on site, and in the surrounding areas, is a mixture of open space and rural residential areas. A portion of the mitigation land site borders Mexico and is separated by the border fence. The site is bisected by railroad tracks that are no longer in use. The western portion of the mitigation lands, just north of the train tracks, contains a large rock outcrop which

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

is the highest peak of the property and contains limited vegetation. The remaining portions of the project contain gently rolling hills with several low points that indicate signs of water flow, i.e., potential drainages. Several of the larger potential drainages have artificial impoundments (e.g., berms and basins), most of which are dry at the time of the survey. During the site visits two areas contained water: a small area located within the center of the site, just south of the railroad tracks, and Lake Domingo which is located in the southeastern corner of the site. The mitigation site is generally within the Peninsular Range in a transitional area between the coast and the desert. It is in a dry climate with average temperatures near the community of Campo ranging from approximately 34–94°F. This community generally receives an average rainfall of less than 15 inches per year (Western Regional Climate Center 2013).

According to USDA (2013), there are four soil types found in the project area, and descriptions based on those by Bowman (1973) and the Web Soil Survey appear as follows.

Acid igneous rock land soil is found in rough broken terrain. The topography ranges from low hills to steep mountains. Large boulders and rock outcrops of granite, quartz diorite, gabbro, basalt, and other rock types cover greater than 50% of the total area of this soil type. The soil material is very shallow consisting of loam to loamy coarse sand textures over decomposed granite or basic igneous rock. In some locales, pockets of deep soils may be present between the rocks. Many areas are practically barren and have very rapid runoff. The vegetation for this soil type varies by elevation and climate. In the foothills and mountains, acid igneous rock land supports various chaparral vegetation communities. On site, the mapping of this soil coincides with the large rock outcrop located within the western portion of the site, just north of the railroad tracks.

The La Posta series has grayish brown and brown, slightly acid and neutral, loamy coarse sand A horizons, grading to weathered acid igneous rock at a depth of 29 inches. These soils occur in hilly mountainous areas that are moderately sloping to very steep. The following La Posta soil inclusions occur within the project area: La Posta loamy coarse sand, 5–30% slopes, eroded; and La Posta rocky loamy coarse sand, 5–30% slopes, eroded. The soils formed in residuum weathered from granitic rocks at elevations of 2,000 to 4,500 feet. La Posta soils are somewhat excessively drained with medium or rapid runoff and rapid permeability, and native vegetation expected on this soil type in the project area is mainly annual grasses and forbs, chamise (*Adenostoma fasciculatum*), red shank (*Adenostoma sparsifolia*), manzanita (*Arctostaphylos* spp.), scrub oak (*Quercus* spp.), and a few scattered oak trees (*Quercus agrifolia*) along drainages.

The Mottsville series consists of very deep, excessively drained soils that formed in alluvium derived from granitic rocks. Mottsville soils occur on gently sloping (0–15%) alluvial fans, fan

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

remnants, and fan aprons. Mottsville soil inclusion occurs within the project area: Mottsville loamy coarse sand, 2–9% slopes. Mottsville soils occur at elevations of 4,500–5,300 feet. Mottsville soils have negligible or very low surface runoff, rapid or very rapid permeability, and high saturated hydraulic conductivity. Native vegetation expected on this soil type within the project area is mainly big sagebrush (*Artemisia tridentata* ssp. *tridentata*), other desert transition shrubs, and needlegrasses (*Stipa* spp.).

The Tollhouse series consists of shallow, somewhat excessively or excessively drained soils that formed in material weathered from granite and closely related coarse crystalline rocks. The following Tollhouse soil inclusion occurs within the project area: Tollhouse rocky, coarse sandy loam, 5–30% slopes, eroded; and Tollhouse rocky, coarse sandy loam, 30–65% slopes. Tollhouse soils are on strongly sloping to very steep mountain slopes. Rock outcrops are common to many soils of this series. Tollhouse soils occur at elevations of 650 to about 8,000 feet. Native vegetation expected on this soil type within the project area is primarily chaparral consisting of a variety of native shrubs and oak trees. Naturalized grasses and forbs may occur in some locations.

METHODS

Between February 2013 and September 2013, Dudek conducted vegetation mapping and rare plant surveys for the mitigation lands. Dudek biologists conducted vegetation mapping for 8 days in February, conducted surveys for desert beauty (*Linanthus bellus*) and Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*) for 5 days in April, conducted surveys for sticky geraea (*Geraea viscida*) and Jacumba milk-vetch for 13 days in June, and conducted surveys for Tecate tarplant (*Deinandra floribunda*) for 8 days in September.

Focused Plant Surveys

Focused surveys for special-status plants were implemented in three separate passes, spring summer, and fall to record species that have different blooming periods throughout the year. During these surveys, all plant species encountered during the field surveys were identified and recorded. Latin and common names for plant species with a California Rare Plant Rank (CRPR; formerly CNPS List) follow the *California Native Plant Society On-Line Inventory of Rare, Threatened, and Endangered Plants of California* (CNPS 2013). For plant species without a CRPR, Latin names follow the *Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California* (Jepson Flora Project 2012) and common names follow the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service Plants Database (USDA 2012).

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

Targeted survey methods for special-status plant species identified specific areas within the proposed mitigation lands that would be more likely to support these species. Survey areas were selected for the spring and summer pass to exclude areas mapped in the soil survey as acid igneous rock, partially based on the lack of species occurrence within this soil mapping area on the Rugged and Tierra del Sol sites. Survey areas were selected for the fall pass to include areas that contained U.S. Geology Survey (USGS) National Hydrography Dataset (NHD) information based on the presence of Tecate tarplant within drainages on the Rugged and Tierra del Sol sites. Due to the limited duration of the spring survey season, only Survey Areas 2, 4, and 5 (approximately 800 acres) were surveyed. During the summer season, all five Survey Areas were surveyed (approximately 1,100 acres).

In accordance with survey methods for the Rugged and portions of the Tierra del Sol project areas, numbers of special-status plant species individuals were counted in the field and reported as ranges including the following: 1 to 10; 11 to 50; 51 to 100; 101 to 500; 501 to 1,000; 1,001 to 5,000; and greater than 10,000. Point data were collected for each occurrence; no polygon data was collected.

Resource Mapping

Vegetation communities and land uses on and within 100 feet of the site were mapped in the field directly onto a 200-foot-scale (1 inch = 200 feet), aerial photograph–based field map of the mitigation site. Following completion of the fieldwork, all vegetation polygons were transferred to a topographic base and digitized using ArcGIS and a geographic information system (GIS) coverage was created. Once in ArcGIS, the acreage of each vegetation community and land cover present on site was determined.

Consistent with the latest County of San Diego *Report Format and Content Requirements: Biological Resources* (County of San Diego 2010a), vegetation community classifications used in this report follow Holland (1986) and Oberbauer et al. (2008), where feasible, with modifications to accommodate the lack of conformity of the observed communities to those of Holland (1986) or Oberbauer et al. (2008).

Survey Limitations

Over the past three water years, average rainfall within the mitigation site and associated project areas has steadily declined. The nearest weather station is located in Campo, California, and generally receives an average rainfall of approximately 15 inches per year (Western Regional Climate Center 2013). Precipitation water year (i.e., July 1 to June 30) amounts for Campo from

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

2010 to 2011 were recorded at 21.03 inches, from 2011 to 2012 were recorded at 15.84 inches, and from 2012 to 2013 were recorded at 11.21 inches.

Reference population checks were completed for each of the target species prior to conducting focused survey passes. Since annual plant species populations can fluctuate from year to year depending on a variety of conditions, including rainfall, the reference check for desert beauty also included a comparison of population numbers. A reference check of desert beauty was conducted within the Rugged and Tierra del Sol sites on April 4, 2013. A total of 4 locations where desert beauty was mapped in 2011 on the Rugged site were re-surveyed in 2013. Three of the locations had fewer desert beauty individuals than previously recorded (between 30–90% reduction) and one location had a greater number of individuals (approximately 200% increase). Overall it is estimated that the 2013 population was approximately 70% less than the population size recorded in 2011 at the Rugged site. On the Tierra del Sol site, the 2013 reference survey identified only one individual within four selected sites that had a total of 314 individuals recorded in 2012. These reference site surveys indicate that the population size of desert beauty recorded within the mitigation lands in spring 2013 is likely lower than what would be present during an average rainfall year.

A reference survey for Jacumba milk-vetch and sticky geraea was conducted within the Rugged site on June 14, 2013, and confirmed that these species were blooming and identifiable. Because these species are perennial, the number of individual is not expected to vary greatly from year to year and therefore population counts were not recorded for comparison with previous year counts.

A reference check of Tecate tarplant was conducted within the Rugged and Tierra del Sol sites on September 23, 2013. A total of two locations where Tecate tarplant was mapped in 2011 on the Rugged site were re-surveyed in 2013. Both of the locations had fewer Tecate tarplant individuals than previously recorded (between 99–100% reduction). Overall it is estimated that the 2013 population was less than the population size recorded in 2011 at the Rugged site. On the Tierra del Sol site, the 2013 reference survey identified only three individuals within 11 selected sites that had a total of 3,029 individuals recorded in 2012. These reference site surveys indicate that the population size of Tecate tarplant recorded within the mitigation lands in fall 2013 is likely lower than what would be present during an average rainfall year.

Focused surveys for special-status wildlife species, wintering raptors, and reptile/small mammal trapping were not conducted for the mitigation lands. Nocturnal surveys were not conducted for the project. Birds represent the largest component of the vertebrate fauna, and because most are active in the daytime, diurnal surveys maximize the number of observations of this portion of the fauna. In contrast, daytime surveys usually result in few observations of mammals, many of

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

which may be active at night. In addition, many species of reptiles and amphibians are nocturnal or cryptic in their habits and are difficult to observe using standard meandering transects. Wildlife occurrence data is based largely on previous bird count surveys conducted for the Jewel Valley area (Dudek 2012), with other species noted incidentally during vegetation mapping or focused plant surveys.

Approximately 206 acres of the mitigation lands were burned during the 2012 Shockey Fire. These areas were mapped per the County Guidelines which state: “Areas recovering from fire shall be mapped using the resurgent vegetation as indicators of the probable resultant habitat. When the fire is so recent that no new vegetation has emerged, historical evidence such as aerial photos and the County’s vegetation mapping information shall be used to map the habitat that was burned” (County of San Diego 2010b).

Habitat Types/Vegetation Communities

Twenty vegetation communities or land covers were mapped by Dudek within the project site. Native vegetation communities on site include big sagebrush scrub, granitic chamise chaparral, montane buckwheat scrub, red shank chaparral (including disturbed), red shank chaparral-rock, red shank chaparral/montane buckwheat scrub, granitic northern mixed chaparral, granitic northern mixed chaparral-rock, granitic northern mixed chaparral/montane buckwheat scrub, scrub oak chaparral, coast live oak woodland, southern coast live oak riparian forest, riparian habitat, and alkali meadow. One non-native vegetation community, non-native grassland, and four land cover types (non-vegetated areas), open water, rock outcrops disturbed land, and urban/developed also occur within the mitigation site. These vegetation communities and land cover types are described as follows, their acreages are presented in Table 1, and their spatial distributions are presented on Figures 3a-e.

In September 2010, the CDFG published the *List of California Vegetation Alliances and Associations* (CDFG 2010), which uses the scientific name of the dominant species in that alliance as the alliance name and includes a global and state rarity rank based on the NatureServe Standard Heritage Program methodology (NatureServe 2013). The conservation status of a vegetation community is designated by a number from 1 to 5, preceded by a letter reflecting the appropriate geographic scale of the assessment (G = global, N = national, and S = subnational). The numbers have the following meaning (NatureServe 2013):

- 1 = critically imperiled
- 2 = imperiled
- 3 = vulnerable to extirpation or extinction
- 4 = apparently secure
- 5 = demonstrably widespread, abundant, and secure.

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

For example, G1 would indicate that a vegetation community is critically imperiled across its entire range (i.e., globally). A rank of S3 would indicate the vegetation community is vulnerable and at moderate risk within a particular state or province, although it may be more secure elsewhere (NatureServe 2013). Because NatureServe ranks vegetation communities at the global level, they have few rankings at the state or province level available. However, the *List of California Vegetation Alliances and Associations* (CDFG 2010) includes state-level rarity rankings (i.e., the subnational (S) rank) for vegetation communities. The *List of California Vegetation Alliances and Associations* (CDFG 2010) is considered the authority for ranking the conservation status of vegetation communities in California.

CDFG’s guidelines for determining high priority vegetation types include considering any communities listed with a ranking of S1 to S3 and ascertaining whether the specific stands of the community type within the project area are “considered as high-quality occurrences of a given community.” The consideration of stand quality includes cover of non-native invasive species, human-caused disturbance, reproductive viability, and insect or disease damage (CDFG 2012).

Vegetation communities considered special-status are those with an “S” ranking of 1, 2, or 3 (CDFG 2010), as well as communities that require mitigation by the County (County of San Diego 2010b, Table 5). These communities are denoted in Table 1 with an asterisk (*).

There are two power lines scheduled to be installed within the mitigation lands, the Gen-Tie alignment (associated with the Tierra del Sol Project) and the East County (ECO) alignment. Impacts resulting from construction of these two alignments, based on the limits of the proposed right-of-way, are excluded from the vegetation tables. Approximately 1 acre of the site was excluded as mitigation due to the presence of the planned Gen-Tie alignment and 17 acres of the site were excluded due to the ECO alignment.

Table 1
Vegetation Communities and Land Cover Types

Habitat Types/Vegetation Communities	Code ¹	Existing Acreage Within Mitigation Lands
<i>Upland Scrub and Chaparral</i>		
Big Sagebrush Scrub*	35210	46.2
Granitic Chamise Chaparral*	37210	165.2
Montane Buckwheat Scrub*	37K00	69.6
Red Shank Chaparral *	37300	932.8
Red Shank Chaparral-disturbed *	37300	1.6
Red Shank Chaparral-Rock *	37300	4.9
Red Shank Chaparral / Montane Buckwheat Scrub *	37300/37K00	8.9
Granitic Northern Mixed Chaparral*	37131	984.0

Table 1
Vegetation Communities and Land Cover Types

Habitat Types/Vegetation Communities	Code ¹	Existing Acreage Within Mitigation Lands
Granitic Northern Mixed Chaparral-Rock*	37131	244.1
Granitic Northern Mixed Chaparral/Montane Buckwheat Scrub*	37131/37K00	6.0
Scrub Oak Chaparral*	37900	0.3
<i>Subtotal</i>		2,463.6
<i>Upland Woodland and Savannah</i>		
Coast Live Oak Woodland*	71160	17.1
<i>Riparian and Bottomland Habitat</i>		
Southern Coast Live Oak Riparian Forest*	61310	6.8
Riparian Habitat*	63000	9.8
<i>Subtotal</i>		16.6
<i>Riparian Herb</i>		
Alkali Meadow*	45300	2.2
<i>Unvegetated Areas</i>		
Open Water	64100	9.9
Rock Outcrops	N/A	4.0
<i>Subtotal</i>		13.9
<i>Non-Native Communities and Land Covers</i>		
Non-Native Grassland	42200	50.6
Disturbed Land	11300	35.8
Urban/Developed	12000	0.066
<i>Subtotal</i>		86.5
Total		2,601.2

¹ Holland (1986) as modified by Oberbauer et al. (2008)

* Considered special-status by the County (2010b).

Upland Scrub and Chaparral

Big Sagebrush Scrub (35210)

Big sagebrush scrub is characterized as being a moderately open shrubland consisting predominantly (greater than 50% absolute cover) of big sagebrush. It often occurs in or adjacent to the floodplain in the sandy transition to chaparral. This scrub community is relatively common on site, although it occurs in smaller, distinct patches. Some areas mapped as big sagebrush scrub include California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), but at less than 15% absolute cover.

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

The *Artemisia tridentata* alliance has a rank of G5S5 in CDFG (2010), meaning it is globally secure and secure in the state. Big sagebrush scrub is considered special-status based on mitigation recommendations of the County (2010b).

Granitic Chamise Chaparral (37210)

According to Holland (1986), chamise chaparral is strongly dominated by chamise and is adapted to repeated fire by stump sprouting. The herb layer is usually very sparse (Holland 1986). On site, chamise was observed at approximately 50–75% absolute cover, with a sparse herb layer of annual forbs comprising 5–15% absolute cover. Other woody shrubs include manzanita, and cupleaf ceanothus (*Ceanothus perplexans*), which collectively comprise less than 15% absolute cover.

The *Adenostoma fasciculatum* alliance has a rank of G5S5 in CDFG (2010), meaning it is globally secure and secure in the state. Granitic chamise chaparral is considered special-status based on mitigation recommendations of the County (2010b).

Montane Buckwheat Scrub (37K00)

Montane buckwheat scrub is not described by Holland but is included in Oberbauer et al. (2008). Montane buckwheat scrub is characterized by a nearly monoculture community of flat-topped buckwheat found at higher elevations in San Diego County. On site, areas mapped as montane buckwheat scrub are almost exclusively dominated by Eastern Mojave buckwheat (*Eriogonum fasciculatum* var. *polifolium*), which occurs at approximately 25–50% absolute cover, and has a well-developed herb layer, composed of annual brome grasses and herbs at approximately 25–50% absolute cover.

The *Eriogonum fasciculatum* alliance has a rank of G5S5 in CDFG (2010), meaning it is globally secure and secure in the state. Montane buckwheat scrub is not included in the Habitat Mitigation Ratios in the County Significance Guidelines (Table 5, County of San Diego 2010b); however, it was originally classified together with flat-topped buckwheat scrub, which is considered special-status based on mitigation recommendations of the County (2010b).

Red Shank Chaparral (37300)

Red shank chaparral is composed of nearly pure stands of red shank (*Adenostoma sparsifolium*) (Holland 1986). It is similar to chamise chaparral but is typically taller and somewhat more open (Holland 1986). On site, red shank chaparral intergrades with chamise chaparral (37200) and scrub oak chaparral (37900). Red shank comprises approximately 50–75% absolute cover, with chamise occasionally present at less than 15% absolute cover. Like chamise chaparral, the herb layer in red shank chaparral is sparse. This vegetation

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

community was found throughout the site. Red shank chaparral – rock was mapped in areas that supported a high percentage of large boulders within the vegetation. Areas mapped as disturbed red shank chaparral were located along a dirt access road and contained fewer shrubs and more annual grasses than pure stands of red shank chaparral.

The *Adenostoma sparsifolium* alliance has a rank of G4S4 in CDFG (2010), meaning it is considered apparently secure globally and in the state. Red shank chaparral is considered special-status based on mitigation recommendations of the County (2010b).

Montane Buckwheat Scrub/ Red Shank Chaparral/ (37K00/37300)

Montane buckwheat scrub/red shank chaparral is not described by Holland (1986) or Oberbauer et al. (2008). This community is co-dominated by Eastern Mojave buckwheat and red shank . On site, areas mapped as montane buckwheat scrub/red shank chaparral are dominated by buckwheat and red shank, but also include species such as chamise, and chaparral yucca (*Hesperoyucca whipplei*).

The *Eriogonum fasciculatum/Adenostoma sparsifolium* association is not recognized by CDFG (2010). However, montane buckwheat and red shank chaparral are considered special-status based on mitigation recommendations of the County (2010a).

Granitic Northern Mixed Chaparral (37131)

Granitic northern mixed chaparral consists of broad-leaved sclerophyll shrubs that range from 2–4 meters (7–13 feet) in height and that form dense stands dominated by chamise, red shank, manzanita, and ceanothus (*Ceanothus* spp.). This community occurs inland of southern mixed chaparral in San Diego County and is indicated by desert ceanothus (*Ceanothus greggii*) and other codominants (chamise, scrub oak, and other oak hybrids). Granitic northern mixed chaparral is underlain by granitic soils.

Granitic northern mixed chaparral has a rank of G4S4 in CDFG (2010), meaning it is considered apparently secure globally and in the state. Granitic northern mixed chaparral is not considered special-status by CDFG, but it is considered special-status based on mitigation recommendations of the County (2010a).

Granitic Northern Mixed Chaparral/Montane Buckwheat Scrub

Granitic northern mixed chaparral/montane buckwheat scrub is not described by Holland (1986) or Oberbauer et al. (2008). This community is co-dominated by broad-leaved sclerophyll shrubs such as chamise, redshank, ceanothus, and Eastern Mojave buckwheat.

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

This association is not recognized by CDFG (2010); however, granitic northern mixed chaparral/montane buckwheat scrub are considered special-status based on mitigation recommendations of the County (2010a).

Scrub Oak Chaparral (37900)

Scrub oak chaparral is a dense, evergreen chaparral up to 20 feet tall (Holland 1986). Holland describes the community as dominated by scrub oak. On site, scrub oak chaparral is dominated by scrub oak at between 50–75% absolute cover. Red shank is commonly associated with this vegetation community, but occurs at less than 15% absolute cover. The herb layer is similar to that of chamise and red shank chaparral communities.

The *Quercus berberidifolia* alliance has a rank of G4S4 in CDFG (2010), meaning it is considered apparently secure globally and in the state. Scrub oak chaparral is considered special-status based on mitigation recommendations of the County (2010b).

Upland Woodland and Savannah

Coast Live Oak Woodland (71161)

Coast live oak woodland is an evergreen woodland dominated by coast live oak (*Quercus agrifolia* var. *oxyadenia*). The understory is typically made up of grassland, scrub, or chaparral species, and the community often intergrades with coastal sage scrub or mixed chaparral (Holland 1986). On site, coast live oak woodland is an open woodland, with generally less than 40% cover of coast live oak. The understory is dominated by non-native grasses and annual forbs.

The *Quercus agrifolia* alliance has a rank of G5S4 in CDFG (2010), meaning it is globally secure and apparently secure in the state. Coast live oak woodland is considered special-status based on mitigation recommendations of the County (2010b).

Riparian and Bottomland Habitat

Southern Coast Live Oak Riparian Forest (61310)

Southern coast live oak riparian forest is a dense riparian forest dominated by evergreen sclerophyllous trees (oaks) with a closed, or nearly closed, canopy. Within the mitigation site, this vegetation community is dominated by coast live oaks and riparian species such as willows, mulefat (*Baccharis salicifolia*) and tamarisk (*Tamarix* spp.), and is associated with a channel that drains into Domingo Lake.

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

Southern coast live oak riparian forest has a rank of G4S4 in CDFG (2010), meaning it is globally secure and apparently secure in the state. Southern coast live oak riparian forest is considered special-status based on mitigation recommendations of the County (2010b).

Riparian Habitat (60000)

Areas mapped as riparian habitat encompass all areas that have a potential to contain riparian species and are associated with open water or stream channels. Willow species (*Salix* sp.) were observed in some of these areas however, due to the timing of the survey, willow species and tamarisk were not easily distinguishable. These areas will be refined later in the spring during rare plant surveys.

Riparian Herb

Alkali Meadow (45300)

Alkali meadow is a low-growing, dense or open association of grasses, sedges, and rushes on moist, alkaline soils. This community may intergrade with marsh communities in wetter settings or Great Basin scrub or non-native grassland in drier settings. Representative species of alkali meadow includes Mexican rush (*Juncus mexicanus*), salt grass (*Distichlis spicata*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and seaside heliotrope (*Heliotropium curassavicum*).

Juncus mexicanus alliance has a rank of G5S4 in CDFG (2010), meaning it is considered globally secure and apparently secure within the state. Alkali meadow is considered special-status by the County (2010b) based in its qualification as a Resource Protection Ordinance (RPO) wetland and the County's recommended mitigation ratio for this vegetation community.

Unvegetated Areas

Open Water (64100)

Open water is not a vegetation community; therefore, it is not included in the *List of California Vegetation Alliances and Associations* (CDFG 2010). Although the County does recommend mitigation for impacts to open water, this land cover type is typically considered an RPO wetland and is typically considered jurisdictional waters (County 2010b). On site, open water consists of areas where stream channels have been dammed at some point downstream, creating reservoirs and/or detention basins, most of which are dry. During the site visits two areas contained water: a small area located within the center of the site, just south of the railroad tracks, and Lake Domingo which is located in the southeastern corner of the site.

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

Rock Outcrops

One large rock outcrop was mapped within the mitigation lands. This area is located in the western part of the site, just north of the railroad tracks. Rock outcrops are not a vegetation community; therefore, are not included in the *List of California Vegetation Alliances and Associations* (CDFG 2010).

Rock outcrops are not considered special-status by CDFG or the County (2010b).

Non-Native Communities and Land Covers

Non-Native Grassland (42200)

According to Holland (1986), non-native grasslands include a dense to sparse cover of annual grasses that die during the summer months, persisting as seeds. Due to the timing of the survey, the species composition within areas mapped as non-native grassland could not be determined. In addition, some of the areas mapped as non-native grassland may actually contain alkali meadow species. These areas will be refined during the spring plant surveys.

Non-native grassland has a rank of G4S4 in CDFG (2010), meaning it is apparently secure globally and in the state. Because non-native grassland can provide habitat for a variety of species, the County requires mitigation for impacts to it; therefore, it is considered special-status by the County (2010b).

Disturbed Habitat (11300)

Disturbed land refers to areas that have been permanently altered by previous human activity that has eliminated all future biological value of the land for most species. The native or naturalized vegetation is no longer present, and the land lacks habitat value for sensitive wildlife, including potential raptor foraging. Disturbed habitat on site consists of unpaved roads and some areas immediately adjacent to dirt roads. These roads are graded periodically, and no native vegetation remains.

Disturbed habitat is not considered special-status by CDFG or the County (2010b).

Urban/Developed (12000)

Urban/developed land refers to areas that have been constructed upon or disturbed so severely that native vegetation is no longer supported. Developed land includes areas with permanent or semi-permanent structures, pavement or hardscape, landscaped areas, and areas with a large

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

amount of debris or other materials (Oberbauer et al. 2008). Urban/developed areas in the mitigation lands are associated with historically used train tracks that bisect the mitigation lands.

Urban/developed areas are not considered special-status by CDFW or the County (2010a).

Suitability of Mitigation Lands

The mitigation lands are currently planned to be used as mitigation for at least four proposed projects -, Rugged, Tierra del Sol (which includes the Gen-Tie alignment), LanWest and LanEast projects. Mitigation required for the Rugged and Tierra del Sol projects totals 753.1 acres for a variety of upland habitat types, as shown in Table 2. There is a total of 2,531.3 acres of mitigation lands (excluding rock outcrops, wetlands/riparian habitats, disturbed land, and urban/developed) that is available for mitigation. This results in excess habitat within the mitigation lands that totals 1,759.0 acres. Most of this excess habitat results from excess chaparral habitat within the mitigation lands. A portion of this excess habitat is expected to be used as mitigation for other projects.

Table 2
Summary Mitigation Requirements for the Rugged, and Tierra del Sol Projects

Habitat Types/Vegetation Communities	Rugged Mitigation Requirements (acres)	Tierra del Sol Mitigation Requirements (acres)	Total Mitigation Required	Vegetation within the Mitigation Site (acres)	Total Mitigation Acreage (+/- acreage required)
<i>Upland Scrub and Chaparral</i>					
Big Sagebrush Scrub*	135.8	32.4	168.2	46.2	-122.0
disturbed Big Sagebrush Scrub*	7.0	--	7.0	--	-7.0
Montane Buckwheat Scrub*	65.3	41.7	106.9	69.6	-37.3
disturbed Montane Buckwheat Scrub*	7.3	2.3	9.6	--	-9.6
Granitic Chamise Chaparral*	48.4	88.5	136.9	165.2	+28.3
Granitic Chamise Chaparral/ Montane Buckwheat Scrub *	--	2.2	2.2	--	-2.2
Granitic Northern Mixed Chaparral*	--	37.6	37.6	984.0	+946.4
Granitic Northern Mixed Chaparral-Rock*	--	--	--	244.1	+244.1
Granitic Northern Mixed Chaparral/ Montane Buckwheat Scrub *	--	13.3	13.3	6.0	-7.3
Red Shank Chaparral*	36.0	69.8	105.8	932.8	+827.0
disturbed Red Shank Chaparral*	--	--	--	1.6	+1.6
Red Shank Chaparral-Rock *	--	--	--	4.9	+4.9

Table 2
Summary Mitigation Requirements for the Rugged, and Tierra del Sol Projects

Habitat Types/Vegetation Communities	Rugged Mitigation Requirements (acres)	Tierra del Sol Mitigation Requirements (acres)	Total Mitigation Required	Vegetation within the Mitigation Site (acres)	Total Mitigation Acreage (+/- acreage required)
Montane Buckwheat Scrub/ Red Shank Chaparral*	--	2.0	2.0	8.9	+6.9
Scrub Oak Chaparral*	58.7	6.6	65.3	0.3	-65.0
disturbed Scrub Oak Chaparral*	0.5	--	0.5	--	-0.5
Semi-Desert Chaparral*	57.8	--	57.8	--	-57.8
Semi-Desert Chaparral – Rock*	1.5	--	1.5	--	-1.5
disturbed Semi-Desert Chaparral*	0.3	--	0.3	--	-0.3
<i>Subtotal</i>	418.6	296.4	715	2,463.6	+1,748.6
<i>Upland Woodland and Savannah</i>					
Coast Live Oak Woodland*	--	included in oak root zone mitigation ²	included in oak root zone mitigation ²	17.1	+17.1
Disturbed Coast Live Oak Woodland	--	included in oak root zone mitigation ²	included in oak root zone mitigation ²	--	--
Mixed Oak Woodland*	--	--	--	--	--
Oak Root Zone ¹	--	7.5	7.5	--	-7.5 ³
<i>Subtotal</i>	--	7.5	7.5	17.1	-9.6 ³
<i>Non-Native Communities and Land Covers</i>					
Non-Native Grassland*	30.4	0.2	30.6	50.6	+20.0
Total**	449.0	304.1	753.1	2,531.3⁴	1,759.0

¹ These features are overlays to the vegetation community layer and are not counted toward the overall acreage.

² Because the oak root zone impacts require a higher mitigation ratio, acres of vegetation communities included in the oak root zone category that have less than a 3:1 mitigation ratio are not counted in the vegetation communities and land cover types.

³ Mitigation requirements for impacts to oak root zone will be mitigated through conservation of oak riparian forest. A total of 6.8 acres of oak riparian forest occurs within the mitigation site.

⁴ Does not include 4 acres of rock, 36 acres of disturbed land, and 0.07 acres of urban/developed habitat.

* Considered special-status by the County (2010a).

** Totals may not add due to rounding.

Although the mitigation site does not support adequate habitat to mitigate each specific vegetation communities separately, taken as a whole, the overall suite of habitats that exist within the mitigation lands provide adequate mitigation to compensate for the losses associated with the two current projects, with remaining habitat available to mitigate future projects. The final acreage of the mitigation site that will be dedicated to mitigate each project will be determined during preparing of a Final Resource Management Plan (RMP), taking into account areas required to mitigate special-status plant species. It is expected that more than 753.1 acres

will be required to mitigate impacts to special-status plant species. Therefore the lack of in-kind habitat mitigation for certain communities (e.g., big sagebrush scrub, scrub oak chaparral) will be compensated by an overall greater acreage of mitigation.

This approach is appropriate because species in this region generally utilize a variety of habitats (e.g., scrub, chaparral, and oak woodlands) as opposed to being specifically restricted to one habitat type. Special-status wildlife will generally utilize all of these habitats indiscriminately, provided there is suitable cover, habitat connectivity, and water and food resources. During Dudek’s field investigations, special-status plant species were found in many different chaparral habitats, indicating that they will serve the same special-status species that were found on the three project sites. Furthermore, these species benefit from the consolidated nature of the proposed mitigation lands through reduced edge effects and enhanced regional connectivity.

SPECIAL-STATUS PLANT AND WILDLIFE SPECIES

In addition to the compensation for impacts to special-status vegetation communities, the mitigation lands are being proposed to compensate for impacts to special-status plant species and habitat for special-status wildlife species associated with the Rugged and Tierra del Sol solar farm projects.

Special-Status Plant Species

Mitigation is required to offset impacts to 4 of the 10 special-status plant species observed within either the Rugged or Tierra del Sol project areas including: Tecate tarplant (*Deinandra* [=*Hemizonia*] *floribunda*), desert beauty (*Linanthus bellus*), Jacumba milk-vetch (*Astragalus douglasii* var. *perstrictus*), and sticky geraea (*Geraea viscida*) (Table 3). These four species, have been observed within the mitigation lands (Table 3).

**Table 3
Special-Status Plant Species with a Potential to Occur in the Mitigation Site**

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/County/CRPR) ¹	Habitat Requirements/Life Form/Blooming Period/Elevation Range	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Astragalus douglasii</i> var. <i>perstrictus</i> Jacumba milk-vetch	None/None/List A, MSCP/1B.2	Chaparral, cismontane woodland, pinyon and juniper woodland, riparian scrub, valley and foothill grassland; rocky/perennial herb/April–June/2,953 to 4,495 feet	Observed within both Tierra del Sol, Rugged.	Observed within mitigation lands. Suitable soils found within the western and central regions of the mitigation site. The mitigation site also contains suitable vegetation communities.

Table 3
Special-Status Plant Species with a Potential to Occur in the Mitigation Site

Scientific Name Common Name	Sensitivity Code and Status (Federal/State/County/CRPR) ¹	Habitat Requirements/Life Form/Blooming Period/Elevation Range	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Deinandra</i> [= <i>Hemizonia</i>] <i>floribunda</i> Tecate tarplant	None/None/List A, MSCP/1B.2	Chaparral, coastal scrub/annual herb/August–October/230 to 4,003 feet	Observed within both Tierra del Sol, and Rugged.	Observed within mitigation lands. Suitable soils and vegetated habitat located within the mitigation site. This species was observed along ephemeral drainages in both solar farm project areas and similar drainages are located within the mitigation site.
<i>Geraea viscida</i> Sticky geraea	None/None/List B, MSCP/2.3	Chaparral (often disturbed)/perennial herb/May–June/1,476 to 5,577 feet	Observed within both Tierra del Sol, and Rugged.	Observed within mitigation lands. Suitable chaparral habitat and soils located throughout the mitigation site.
<i>Hesperocyparis forbesii</i> Tecate cypress	None/None/List A, MSCP/1B.1	Closed-cone conifer forest, chaparral/evergreen tree/NA/255–1,500 meters	Observed within Tierra del Sol. Absent from Rugged.	Not observed. This species was presumed an ornamental planted on the Tierra del Sol site. No Tecate cypress trees were observed during the initial biological surveys.
<i>Linanthus bellus</i> Desert beauty	None/None/List B, MSCP/2.3	Chaparral; sandy/annual herb/April–May/3,281 to 4,593 feet	Observed within both Tierra del Sol, and Rugged.	Observed within mitigation lands. Suitable vegetated and soil habitats found within mitigation site

¹ **Status Designations:**
MSCP: Proposed Covered Species under the Draft East County MSCP
SE: State-listed as endangered
ST: State-listed as threatened
SR: State-listed as rare

CRPR: California Rare Plant Rank

- 1A (formerly List 1A): Plants Presumed Extinct in California
- 1B (formerly List 1B): Plants Rare, Threatened, or Endangered in California and Elsewhere
- 2 (formerly List 2): Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
- 3 (formerly List 3): Plants About Which We Need More Information – A Review List
- 4 (formerly List 4): Plants of Limited Distribution – A Watch List
- 0.1–Seriously threatened in California (over 80% of occurrences threatened/high degree and immediacy of threat)
- 0.2–Fairly threatened in California (20–80% occurrences threatened/moderate degree and immediacy of threat)
- 0.3–Not very threatened in California (<20% of occurrences threatened /low degree and immediacy of threat or no current threats known)

Tecate Tarplant (*Deinandra floribunda*)

Tecate tarplant is a CRPR 1B.2 (CNPS 2013) and a County List A species (County of San Diego 2010a). A member of the sunflower (*Asteraceae*) family, this species blooms from August

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

through October in chaparral and coastal scrub habitats. Tecate tarplant is an annual herb that occurs at elevations of 70 to 1,220 meters (230 to 4,003 feet) (CNPS 2013).

On the mitigation lands approximately 2,455–8,285 occurrences of Tecate tarplant have been identified (Table 4, Figure 4). Most occurrences within the mitigation lands were documented within sandy drainages and roadsides. The amount of Tecate tarplant recorded within the mitigation site provides the required mitigation for this species.

Desert Beauty (*Linanthus bellus*)

Desert beauty is a CRPR 2.3 (CNPS 2013) and a County List B species (County of San Diego 2010a). A member of the phlox (*Polemoniaceae*) family, this annual herb blooms from April through May in chaparral habitats. This species typically occurs at elevations of 1,000 to 1,400 meters (3,281 to 5,493 feet) (CNPS 2013).

On the mitigation lands approximately 811–2,790 occurrences of desert beauty have been identified (Table 4, Figure 4). Most occurrences were documented in the north-central portion of the mitigation lands within open sandy areas in red shank chaparral. Few occurrences were documented within granitic chamise chaparral, as well.

Fewer numbers of desert beauty were detected within the mitigation lands than are required by the mitigation ratios. However, prior to conducting focused surveys, a check of reference populations within Rugged and Tierra del Sol project areas found reduced population sizes for this species when compared with survey results from 2011 and 2012. As such, it is suggested that the population size results found in 2013 within the mitigation lands are not indicative of generally reduced population size; rather, that fewer individuals were blooming during 2013 surveys. It is therefore presumed that there is sufficient desert beauty within the mitigation lands during other years that are in accordance with the mitigation ratio.

The 2,601-acre mitigation site supports approximately 2,464 acres of potentially suitable habitat for this species. Approximately 800 acres (32%) of the suitable habitat was surveyed during the focused spring surveys for desert beauty. Although additional surveys are required, it is expected that in a more typical rainfall year, conservation of 800–1,000 acres of the site will be adequate to support the required numbers of desert beauty.

Jacumba Milk-vetch (*Astragalus douglasii* var. *perstrictus*)

Jacumba milk-vetch is a CRPR 1B.2 (CNPS 2013) and County List A species (County of San Diego 2010a). This perennial herb in the pea or bean family (*Fabaceae*) blooms from April through June. It occurs in chaparral, cismontane woodland, pinyon and juniper woodland,

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

riparian scrub, valley and foothill grassland, and rocky communities at elevations of 900 to 1,370 meters (2,953 to 4,495 feet) (CNPS 2013).

Within the mitigation lands, there are approximately 225–672 occurrences, concentrated in the north-central, southeast, and southwest portions of the site (Figure 4). Since the first pass of focused surveys resulted in the detection of fewer plants than are required for mitigation, the fall pass will also focus on recording any additional milk-vetch that may be located outside of the originally defined focused survey areas.

Sticky Gerarea (*Geraea viscida*)

Sticky gerarea is a CRPR 2.3 (CNPS 2013) and a County List B species (County of San Diego 2010a). A member of the sunflower (*Asteraceae*) family, this perennial herb blooms from May through June in chaparral habitats and occurs at elevations between 450 and 1,700 meters (1,476–5,557 feet) (CNPS 2013). Approximately 356–1,333 individuals were observed during the June 2013 survey pass (Figure 4). Most of the observations were in northern mixed chaparral or redshank chaparral in the northern area of the mitigation lands, and in areas southeast of the railroad tracks. The amount of sticky gerarea recorded within the mitigation site provides the required mitigation for this species.

Table 4
Mitigation Requirements for Special-Status Plant Species

Species	Impacts to Special-Status Plant Species			Mitigation Requirements			Total Recorded within Mitigation Lands	Approx. Acres Surveyed (portion of high suitability habitat)
	Tierra del Sol	Rugged	Gen-tie Alignment	Mitigation Ratio	Total Needs (Low)	Total Needs (High)		
Tecate tarplant	3,103	1–10	n/a	2:1*	6,206	6,226	2,455–8,285	n/a
Desert beauty	727	414–1,820	84–600	1:1	1,225	3,147	811–2,790	800 (32%)
Jacumba milk-vetch	315	66–480	27–150	2:1*	816	1,890	251–872	1,122 (46%)
Sticky gerarea	274	161–690	10–50	1:1	445	1,014	356–1,333	1,122 (46%)

* Due to their relative abundance within the project areas, a two to one ratio was chosen for impacts to List A plant species.

Special-Status Wildlife Species

Mitigation for significant long-term direct impacts to County Group 1 wildlife species as a result of removal of suitable habitat within the Tierra del Sol and Rugged solar farm projects,

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

will be reduced to a level that is less than significant through habitat conservation of equivalent function and value. Combined, the two solar farm projects have the potential to directly impact 8 reptile and amphibian species, 10 bird species, and 11 bat species (Table 5). A preliminary assessment of vegetation communities, elevation, and range of these species has determined that all 29 species have a potential to occur within the mitigation site (Table 4). The following sources were also consulted for pertinent special-status species information: the California Natural Diversity Database (CNDDDB) (CDFW 2013a), information provided by the California Department of Fish and Wildlife (CDFW) (CDFG 2011, CDFW 2013b), the San Diego County Bird Atlas (Unitt 2004), and previous bird utilization count surveys conducted by Dudek (Dudek 2012). Focused surveys for quino checkerspot (*Euphydryas editha quino*) were conducted on the Tierra Del Sol, Gen-tie and Rugged project sites in 2012 and 2013. The surveys were negative. In the unlikely event that quino checkerspot were to be found, the habitats on the proposed mitigation property would be similar and consistent with their needs. A habitat assessment for these species will be conducted in the spring/summer of 2013 to confirm the potential for these species to occur and to document species observed within the mitigation site.

**Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site**

Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Amphibians and Reptiles</i>				
<i>Aspidoscelis hyperythra beldingi</i> Belding's orange-throated whiptail	None/SSC/ Group 2, MSCP	Coastal sage scrub, chamise-redshank chaparral, mixed chaparral, valley-foothill hardwood especially in area with summer fog. Found from Santa Ana River and near Colton in San Bernardino County, west of Peninsular Ranges, south throughout Baja California, 0 to 2,001 feet (1, 2).	Observed within Rugged and moderate potential to occur within Tierra del Sol.	Moderate. Suitable habitat is present within the mitigation site. The mitigation site is above the elevation range for this species, however this species was observed at the Rugged site where the elevation ranges from 3,500 to 3,670 feet amsl. The nearest CNDDDB occurrence for this species is approximately 10 miles west of the mitigation site (6).

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Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Phrynosoma blainvillii</i> Blainville's horned lizard	None /SSC/ Group 2, MSCP	Area of sandy soil and low vegetation in valleys, foothills, and semiarid mountains. Annual grassland, chaparral, woodland, coniferous forest, sandy area, frequently near ant hills. Foothills and coastal plains from Los Angeles to northern Baja California (1, 3).	Observed within both Tierra del Sol, and Rugged.	Observed within mitigation lands. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is less than 0.4 miles northeast of the mitigation site (6).
<i>Salvadora hexalepis virgultea</i> Coast patch-nosed snake	None/SSC/ Group 2, MSCP	Semi-arid, brushy area and chaparral in canyons, rocky hillsides, plains from northern Carrizo Plains south through coastal zone, south and west of the deserts into coastal northern Baja California, at elevations below sea level to 6,988 feet (1).	High potential to occur within Rugged, and moderate potential to occur within Tierra del Sol.	High. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 28 miles northwest of the mitigation site (6).
<i>Plestiodon skiltonianus interparietalis</i> Coronado skink	None/SSC/ Group 2, MSCP	Grassland, woodlands, pine forests, chaparral, especially open sunny areas, such as clearings and edges of creeks, and rocky areas near streams with lots of vegetation; in litter, rotting logs, under flat stones. Found in coastal ranges and Sierra Nevada and foothills, 0 to 8,300 feet (1, 2).	High potential to occur within Rugged, and low potential to occur within Tierra del Sol due to lack of habitat.	High. Suitable habitat for this species is located around Domingo Lake. The nearest CNDDDB occurrence for this species is approximately 24 miles west of the mitigation site (6).
<i>Crotalus ruber ruber</i> Northern red-diamond rattlesnake	None/SSC/ Group 2, MSCP	Chaparral, oak and pine woodland, arid desert, rocky grassland habitats in rocky area and dense vegetation; rocky desert flats on desert slopes of mountains; Morongo Valley (1).	High potential to occur within both Tierra del Sol and Rugged.	High. Suitable habitat for the northern red-diamond rattlesnake is present within the rocky outcrops observed throughout the mitigation site. Also, any area with dense vegetation provides suitable habitat, including chaparral, scrub, and woodland habitats. The nearest CNDDDB occurrence for this species is approximately 2.3 miles east of the mitigation site (6).
<i>Anniella pulchra pulchra</i> Silvery legless lizard	None/SSC/ Group 2	Loose soils (sand, loam, humus) in coastal dune, coastal sage scrub, woodlands, and riparian habitats (1).	High potential to occur within both Tierra del Sol and Rugged.	High. Suitable habitat for this species is located within the oak woodlands and surrounding areas of open water. The nearest CNDDDB occurrence for this species is approximately 32 miles north of the mitigation site (6).

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Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Thamnophis hammondi</i> Two-striped garter snake	None/SSC/ Group 1, MSCP	Permanent or semipermanent bodies of water bordered by dense vegetation in rocky area, oak woodland, chaparral, brushland, coniferous forest. Found on Diablo Range, South Coast and Transverse Ranges, and Santa Catalina Island (1, 2).	High potential to occur within Rugged, no potential to occur in Tierra del Sol due to lack of suitable habitat.	High. Suitable habitat is present within areas of open water and surrounding open water. The nearest CNDDDB occurrence for this species is approximately 10.4 miles west of the mitigation site (6).
<i>Spea</i> [= <i>Scaphiopus</i>] <i>hammondi</i> Western spadefoot	None/SSC/ Group 2, MSCP	Sandy/gravelly soils within mixed woodlands, grasslands, coastal sage scrub, chaparral, sandy washes, foothills, mountains, and other habitats. Breed in rainpools that do not have bullfrogs, fish, or crayfish. Found throughout Great Valley and foothills south of Redding, throughout South Coast Ranges in Southern California south of Transverse Mountains and west of Peninsular Mountains, 0 to 4,478 feet (1).	High potential to occur within Rugged, no potential to occur in Tierra del Sol due to lack of suitable habitat.	High. Suitable habitat is present within areas of open water, and surrounding open water, as well as stream channels located throughout the site. The nearest CNDDDB occurrence for this species is approximately 27.5 miles west of the mitigation site (6).
<i>Birds</i>				
<i>Accipiter cooperii</i> Cooper's hawk (nesting)	None/WL/ Group 1, MSCP	Dense stands of live oak, riparian deciduous, forest habitats near water. Breeds in southern Sierra Nevada foothills, New York Mountains., Owens Valley, and other local area in Southern California, 0 to 8,858 feet (2).	Observed within Rugged and Tierra del Sol.	Known to occur. Suitable habitat for this species is located within the oak woodlands and surrounding areas of open water and this species was observed within the mitigation site during focused bird count surveys ¹ (7). The nearest CNDDDB occurrence for this species is approximately 1.3 miles west of the mitigation site (6). Recorded in U26 and surrounding grids T25-27 and U25 and U27 (8).

¹ This is a modified point-count survey method used to obtain a baseline index of bird use within the area. Monitoring data collected, taken from November 2010 through July 2012, included data such as time, the number and species of birds observed, distance and flight height estimate in general, distance and height estimate, habitat, flight pattern and direction, perch height, and behavior of raptors.

Memorandum

Subject: Evaluation of Biological Resources for the Soitec Mitigation Site

Table 5
Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Agelaius tricolor</i> Tricolored blackbird	BCC/SSC/ Group 1, MSCP	Breeds in emergent wetland with tall, dense cattails or tules; willow, blackberry, tall herb thickets. Feeds in grassland and cropland habitats. Found throughout Central Valley and coastal area south of Sonoma County (2).	High potential to forage within Rugged, not expected to nest. No suitable habitat on Tierra del Sol.	High potential to forage. Meadow habitat, and non-native grassland habitat on site provides suitable foraging habitat. Potential nesting suitable habitat on site around Domino Lake. Red-winged blackbirds have been observed in the area (7). The nearest CNDDDB occurrence for this species is approximately 4.5 miles east of the mitigation site (6). Recorded in U26 and surrounding grids T25-27 and U25 (8).
<i>Aimophila ruficeps canescens</i> Southern California rufous-crowned sparrow	None/WL/ Group 1, MSCP	Sparse mixed chaparral and coastal scrub habitats (especially coastal sage) in Southern California on slopes of Transverse and Coastal Ranges, north to Los Angeles County, and northwestern Baja California. Found on steep, rocky hillsides with grass and forb patches, and grassy slopes without shrubs, if rock outcrops are present (2, 4).	High potential to occur within Tierra del Sol and Rugged.	High. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 26.5 miles northwest of the mitigation site (6). Recorded in U26 (8).
<i>Amphispiza belli belli</i> Bell's sage sparrow	BCC / WL/ Group 1, MSCP	Low, dense stands of shrubs; chaparral dominated by chamise; coastal scrub dominated by sage. Coast Ranges from northern California to northwestern Baja California, western slope of Sierra Nevada (2, 4).	Observed within both Tierra del Sol and Rugged.	High. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 22 miles northwest of the mitigation site (6). Not recorded in grids; sage sparrow (<i>Amphispiza belli</i>) recorded in U26 and surrounding grids T25-27, U25 and U27 (8).

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Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Aquila chrysaetos</i> Golden eagle (nesting and wintering)	BCC/FP, WL/ Group 1, MSCP	Rolling foothills, mountain area, sage-juniper flats, and desert throughout California (2).	High potential to forage on Rugged with a low potential to nest. Not expected to forage or nest within Tierra del Sol.	Known to occur. Suitable foraging habitat is present within most of the mitigation site; moderate potential to nest within rocky areas. Recorded nesting sites are located in the region, but off site. This species was observed within the mitigation site during focused bird count surveys for the area (7). The nearest CNDDDB occurrence for this species is approximately 13 miles west of the mitigation site (6). Recorded in surrounding grids T26, T27, and U25 (8).
<i>Buteo lineatus</i> Red-shouldered hawk	None/None/ Group 1	Riparian and woodland habitats interspersed with swamps and wetlands found along coast, southern deserts, and in Central Valley, 0 to 4,921 feet (2).	Moderate potential to occur within Tierra del Sol and high potential to occur within Rugged.	Known to occur. Suitable habitat for this species is located throughout the mitigation area. May use the project area for nesting and foraging. This species was observed within the mitigation site during focused bird count surveys for the area (7). There are no CNDDDB occurrence records for this species (6). Recorded in surrounding grids T25-27 and U25 (8).
<i>Cathartes aura</i> Turkey vulture	None/None/ Group 1, MSCP	Rangeland, agriculture, grassland; uses cliffs and large trees for roosting, nesting, and resting throughout most of California during breeding season (2).	Observed within both Tierra del Sol and Rugged.	Known to occur. Suitable habitat for this species is located throughout the mitigation area. Suitable open foraging habitat present on site. Suitable nesting habitat not available on site. This species was observed within the mitigation site during focused bird count surveys for the area (7). There are no CNDDDB occurrence records for this species (6). Recorded in grid U26 and surrounding grids T25-27, U25, and U27 (8).

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Special-Status Wildlife Species within a Potential to Occur in the Mitigation Site

Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Circus cyaneus</i> Northern harrier (nesting)	None/SSC/ Group 1, MSCP	Open wetlands (nesting), pasture, old fields, dry uplands, grasslands, rangelands, coastal sage scrub. Resident of northeastern plateau and coastal area; less common resident in Central Valley. Breeds at marsh edge in shrubby vegetation in Central Valley and Sierra Nevada (0 to 5,577 feet), and northeastern California (up to 2,625 feet (2)).	Observed within Rugged and not expected to occur within Tierra del Sol.	Known to occur. This species is only expected as a winter visitor in grassland habitat and the more open area of scrub and chaparral communities on site. This species was observed within the mitigation site during focused bird count surveys for the area (7). The nearest CNDDDB occurrence for this species is approximately 47 miles west of the mitigation site (6). Recorded in U26 and surrounding grids T27 and U27 (8).
<i>Falco mexicanus</i> Prairie falcon (nesting)	BCC/WL/ Group 1	Grassland, savannas, rangeland, agriculture, desert scrub, alpine meadows; nest on cliffs or bluffs. Southeastern deserts northwest through Central Valley and along inner Coast Ranges and Sierra Nevada (2).	Observed within Rugged. Not expected to nest within either site but there is a high potential for foraging.	High. There is suitable foraging habitat throughout the site and potential nesting habitat within the rocky areas. The nearest CNDDDB occurrence for this species is centered approximately 2 miles west of the mitigation site (6). Not recorded in grids (8).
<i>Lanius ludovicianus</i> Loggerhead shrike (nesting)	BCC/SSC/ Group 1, MSCP	Open habitats with scattered shrubs, trees, or other perches; highest density in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Found in foothills and lowlands throughout California (2).	Observed within Rugged and Tierra del Sol.	Known to occur. Suitable nesting habitat for this species is located throughout the mitigation area. This species was observed within the mitigation site during focused bird count surveys for the area (7). The nearest CNDDDB occurrence for this species is approximately 24 miles north of the mitigation site (6). Recorded in U26 and surrounding grids T25-27, U25 and U27 (8).
<i>Mammals</i>				
<i>Chaetodipus californicus femoralis</i> Dulzura (California) pocket mouse	None/SSC/ Group 2	Open habitat, coastal sage scrub, chaparral, oak woodland, chamise chaparral, mixed conifer habitats; disturbance specialist; 0 to 3,000 feet (5).	Low potential to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	Moderate. Suitable habitat for this species exists within the oak woodland and chaparral habitats within the mitigation area. Mitigation area is located just outside of the range for this species. The nearest CNDDDB occurrence for this species is approximately 4 miles north of the mitigation site (6).

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Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Chaetodipus fallax fallax</i> Northwestern San Diego pocket mouse	None/SSC/ Group 2	Coastal sage scrub, grassland, sage scrub-grassland ecotones, sparse mixed and chamise chaparral; rocky and gravelly area with yucca overstory, 500 to 3,000 feet (3).	Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	Moderate. Suitable habitat for this species is located throughout the mitigation area. Mitigation area is located just outside of the range for this species. The nearest CNDDDB occurrence for this species is approximately 12 miles west of the mitigation site (6).
<i>Choeronycteris mexicana</i> Mexican long-tongued bat	None/SSC/ Group 2, WBWG: H	Desert and montane riparian, desert succulent scrub, desert scrub, and pinyon-juniper woodland. Roosts in caves, mines, and buildings. Summer resident in San Diego County (2).	Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 40 miles northwest of the mitigation site (6).
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	None/SSC/ Group 2, MSCP, WBWG:H	Mesic habitats; gleans from brush or trees, or feeds along habitat edges. Found in all habitats but subalpine and alpine throughout California (2).	Low potential to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 11 miles northwest of the mitigation site (6).
<i>Euderma maculatum</i> Spotted bat	None/SSC/ Group 2, WBWG:H	Foothills, mountains, desert regions of Southern California, including arid deserts, grasslands, and mixed conifer forests. Roosts in rock crevices and cliffs. Feeds over water and along washes (2).	Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 55 miles northwest of the mitigation site (6).

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Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Eumops perotis californicus</i> Greater western mastiff bat	None/SSC/ Group 2, MSCP, WBWG:H	Roosts in small colonies in cracks and small holes, seeming to prefer man-made structures. All subalpine and alpine habitats; 50 to 10,000 feet (3).	Low potential to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 11 miles northwest of the mitigation site (6).
<i>Lasiurus blossevillii</i> Western red bat	None/SSC/ Group 2, WBWG:H	Prefers edges with trees for roosting and open areas for foraging. Roosts in woodlands and forests. Forages over grasslands, shrublands, woodlands, forests, and croplands. Found south of Shasta County to Mexican border, and west of the Sierra Nevada/Cascade Crest. In winter, occupies coastal regions and lowlands south of San Francisco Bay (2).	Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 15 miles west of the mitigation site (6).
<i>Lepus californicus bennettii</i> San Diego black-tailed jackrabbit	None/SSC/ Group 2, MSCP	Arid habitats with open ground; grasslands, coastal sage scrub, agriculture, disturbed area, and rangelands in Southern California (2, 4).	Observed within Tierra del Sol and Rugged.	This species was observed during surveys. The nearest CNDDDB occurrence for this species is less than 1 mile north of the mitigation site (6).
<i>Macrotus californicus</i> California leaf-nosed bat	None/SSC/ Group 2, WBWG:H	Desert riparian, desert wash, desert scrub, desert succulent shrub, alkali desert scrub, and palm oasis. Found from Riverside, Imperial, San Diego, and San Bernardino Counties, south to Mexican border; fairly common along parts of Colorado River, elevation approximately 1,969 feet (2).	Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 14 miles northeast of the mitigation site (6).

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Scientific Name/ Common Name	Status (Federal/ State/County) ¹	Habitat Preferences/Requirements	Verified on Rugged and/or Tierra del Sol (direct/indirect evidence)	Potential to Occur within the Mitigation Site and Factual Basis for Determination
<i>Neotoma lepida intermedia</i> San Diego desert woodrat	None/SSC/ Group 2	Joshua tree, pinyon-juniper, mixed and chamise-redshank chaparral, sagebrush, and most desert habitats. Found south of San Luis Obispo County to San Diego County and San Bernardino and Riverside Counties, 0 to 8,530 feet (2, 4).	Observed within Tierra del Sol and high potential to occur within Rugged.	High. Suitable habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 1 mile west of the mitigation site (6).
<i>Nyctinomops macrotis</i> Big free-tailed bat	None/SSC/ WBWG:MH, Group 2	Rugged, rocky canyons in Riverside, Los Angeles, and San Diego Counties, but scattered records across California to Oakland (2).	Not expected to occur within Tierra del Sol due to lack of suitable habitat. High potential to occur within Rugged.	High. Suitable foraging habitat for this species is located throughout the mitigation area. The nearest CNDDDB occurrence for this species is approximately 16 miles northwest of the mitigation site (6).

¹ Status Designations:

Federal

BCC U.S. Fish and Wildlife Service: Birds of Conservation Concern
 WBWG: H Western Bat Working Group: High Priority
 WBWG: MH Western Bat Working Group: Medium-High Priority

State Designations:

SSC California Special Concern Species
 FP California Department of Fish and Game Fully Protected Species
 WL California Department of Fish and Game Watch List Species

County Designations:

MSCP Draft East County MSCP covered species

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6. CDFW 2013b. CNDDDB.
7. Dudek 2012. Unpublished data. Bird Utilization Counts (BUC) for Jewell Valley. Conducted June 2010 through June 2012.
8. Unitt 2004.

CONCLUSION

Based upon vegetation mapping, elevation ranges, soils, and location of the mitigation site, the mitigation site contains suitable habitat to compensate for the loss of special-status plant and wildlife species that will be, or could potentially be impacted by the Tierra del Sol and Rugged solar farm projects. The mitigation lands, as a whole, provide adequate mitigation for most identified impacts, including impacts to vegetation communities, one special-status plant species – sticky geranium – and special-status wildlife species. Additional mitigation will be required for desert beauty, Jacumba milk-vetch and Tecate cypress because the site does not support sufficient populations of these two species. The site has not yet been evaluated for Tecate tarplant, and a survey pass for this species is scheduled for fall 2013.

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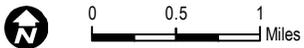
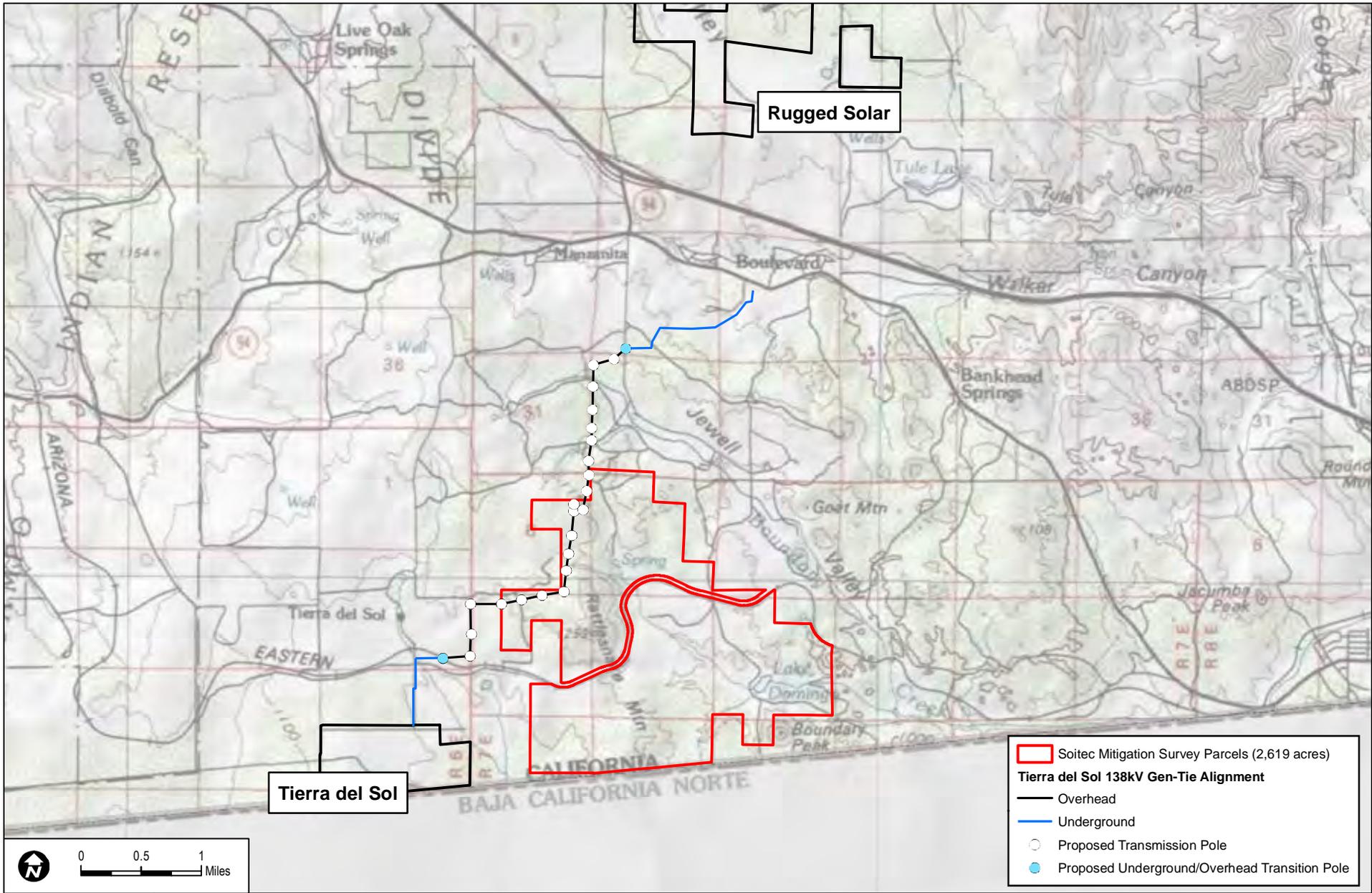


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EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE

FIGURE 1
Regional Map



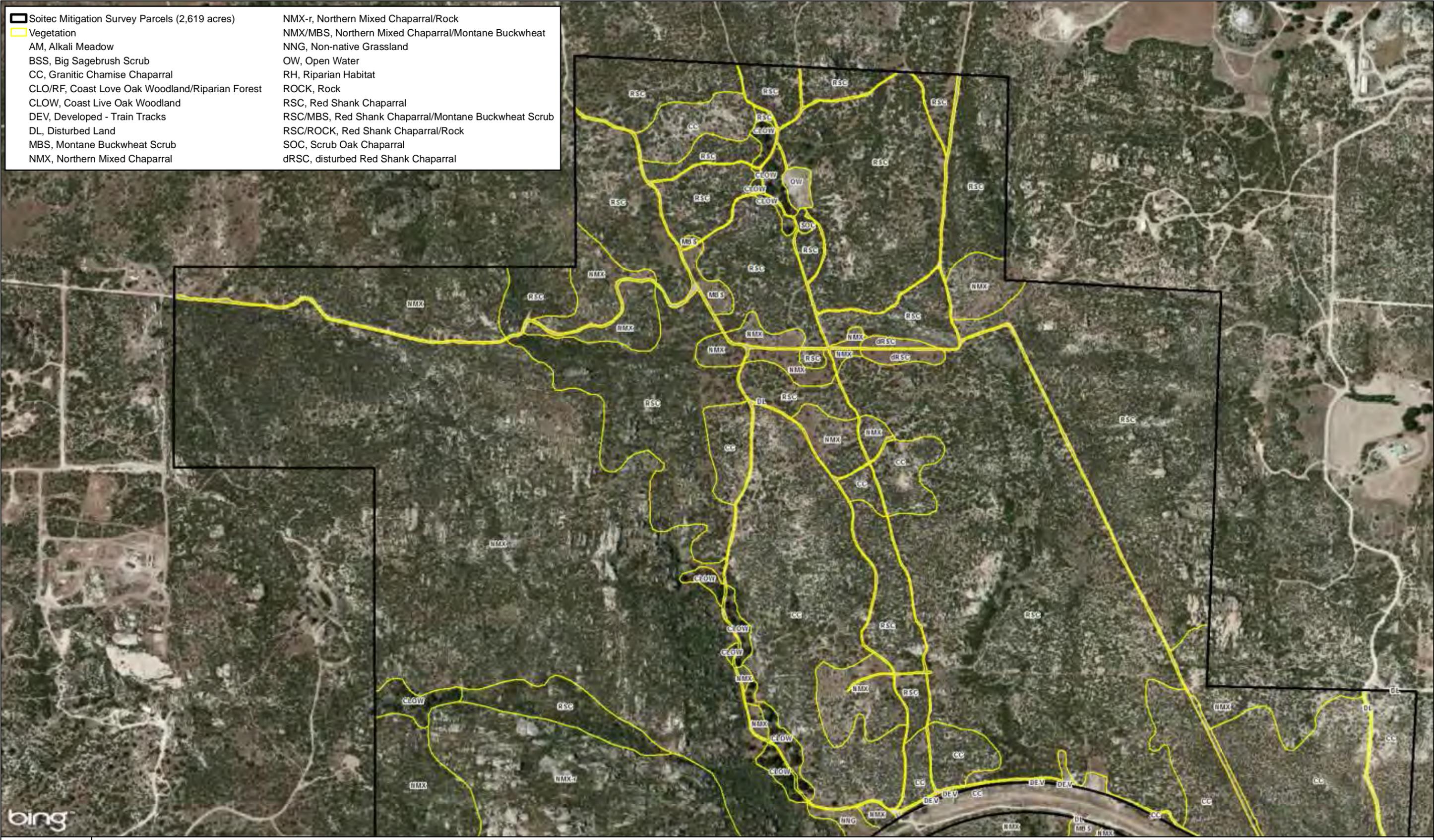
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SOURCE: USGS 7.5' Live Oak Springs and Tierra del Sol Quadrangles

FIGURE 2
Vicinity Map

7123

EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE



- Soitec Mitigation Survey Parcels (2,619 acres)
- Vegetation
 - AM, Alkali Meadow
 - BSS, Big Sagebrush Scrub
 - CC, Granitic Chamise Chaparral
 - CLO/RF, Coast Live Oak Woodland/Riparian Forest
 - CLOW, Coast Live Oak Woodland
 - DEV, Developed - Train Tracks
 - DL, Disturbed Land
 - MBS, Montane Buckwheat Scrub
 - NMX, Northern Mixed Chaparral
 - NMX-r, Northern Mixed Chaparral/Rock
 - NMX/MBS, Northern Mixed Chaparral/Montane Buckwheat
 - NNG, Non-native Grassland
 - OW, Open Water
 - RH, Riparian Habitat
 - ROCK, Rock
 - RSC, Red Shank Chaparral
 - RSC/MBS, Red Shank Chaparral/Montane Buckwheat Scrub
 - RSC/ROCK, Red Shank Chaparral/Rock
 - SOC, Scrub Oak Chaparral
 - dRSC, disturbed Red Shank Chaparral

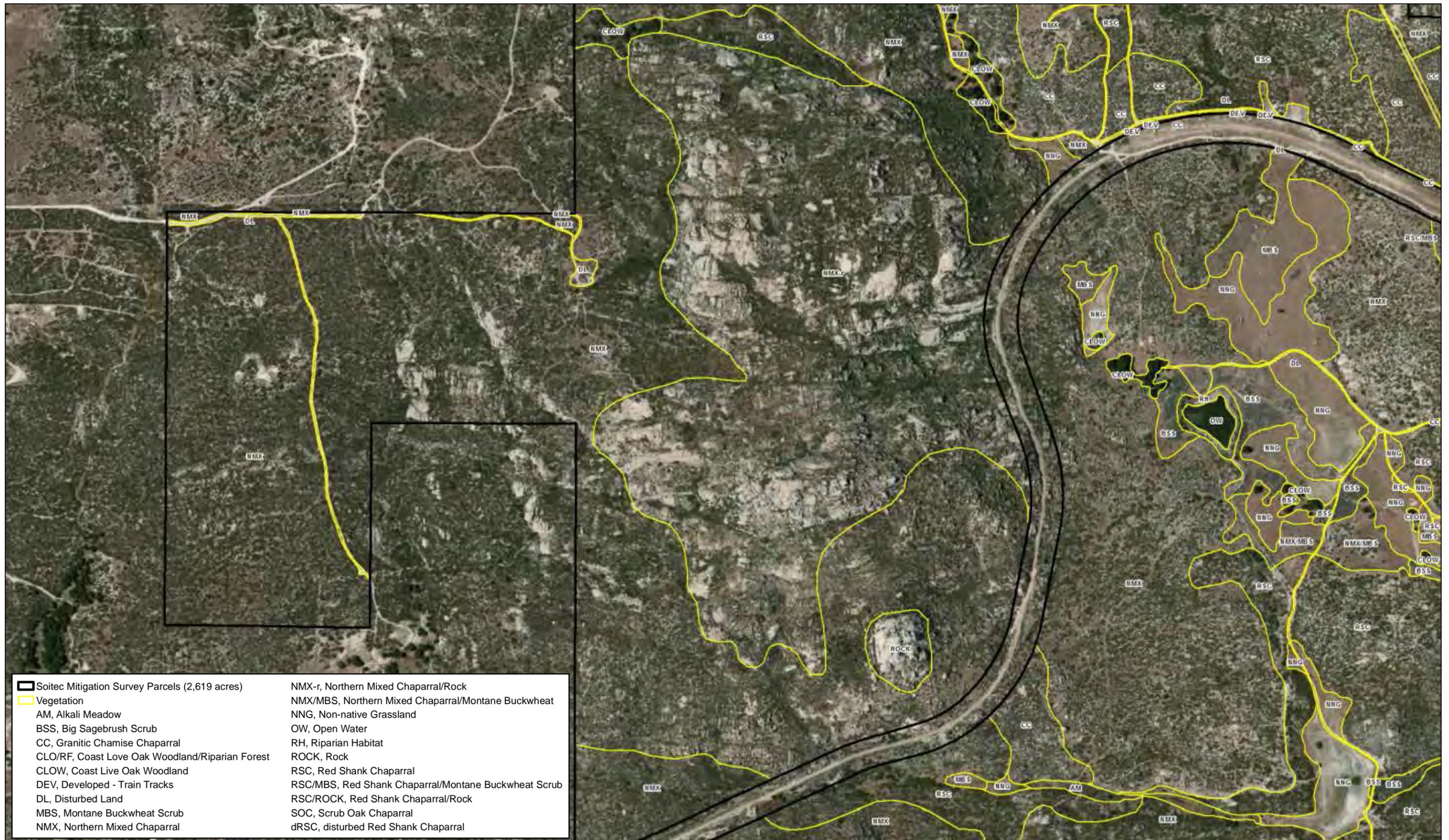
DUDEK

0 250 500 Feet

7345

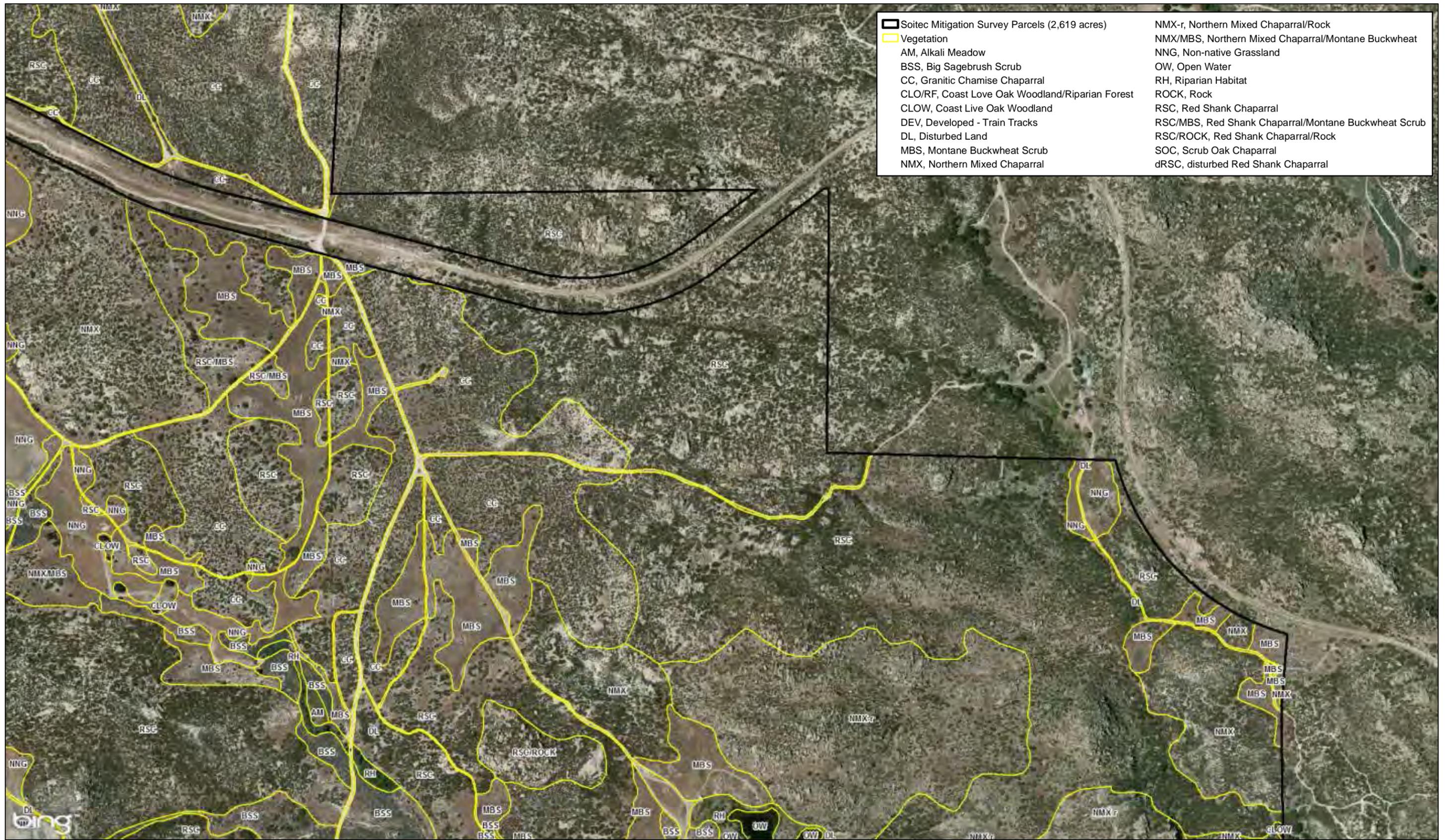
EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE

FIGURE 3a
Vegetation Communities



- | | |
|---|---|
| <ul style="list-style-type: none"> ▭ Soitec Mitigation Survey Parcels (2,619 acres) ▭ Vegetation AM, Alkali Meadow BSS, Big Sagebrush Scrub CC, Granitic Chamise Chaparral CLO/RF, Coast Live Oak Woodland/Riparian Forest CLOW, Coast Live Oak Woodland DEV, Developed - Train Tracks DL, Disturbed Land MBS, Montane Buckwheat Scrub NMX, Northern Mixed Chaparral | <ul style="list-style-type: none"> NMX-r, Northern Mixed Chaparral/Rock NMX/MBS, Northern Mixed Chaparral/Montane Buckwheat NNG, Non-native Grassland OW, Open Water RH, Riparian Habitat ROCK, Rock RSC, Red Shank Chaparral RSC/MBS, Red Shank Chaparral/Montane Buckwheat Scrub RSC/ROCK, Red Shank Chaparral/Rock SOC, Scrub Oak Chaparral dRSC, disturbed Red Shank Chaparral |
|---|---|

FIGURE 3b
Vegetation Communities

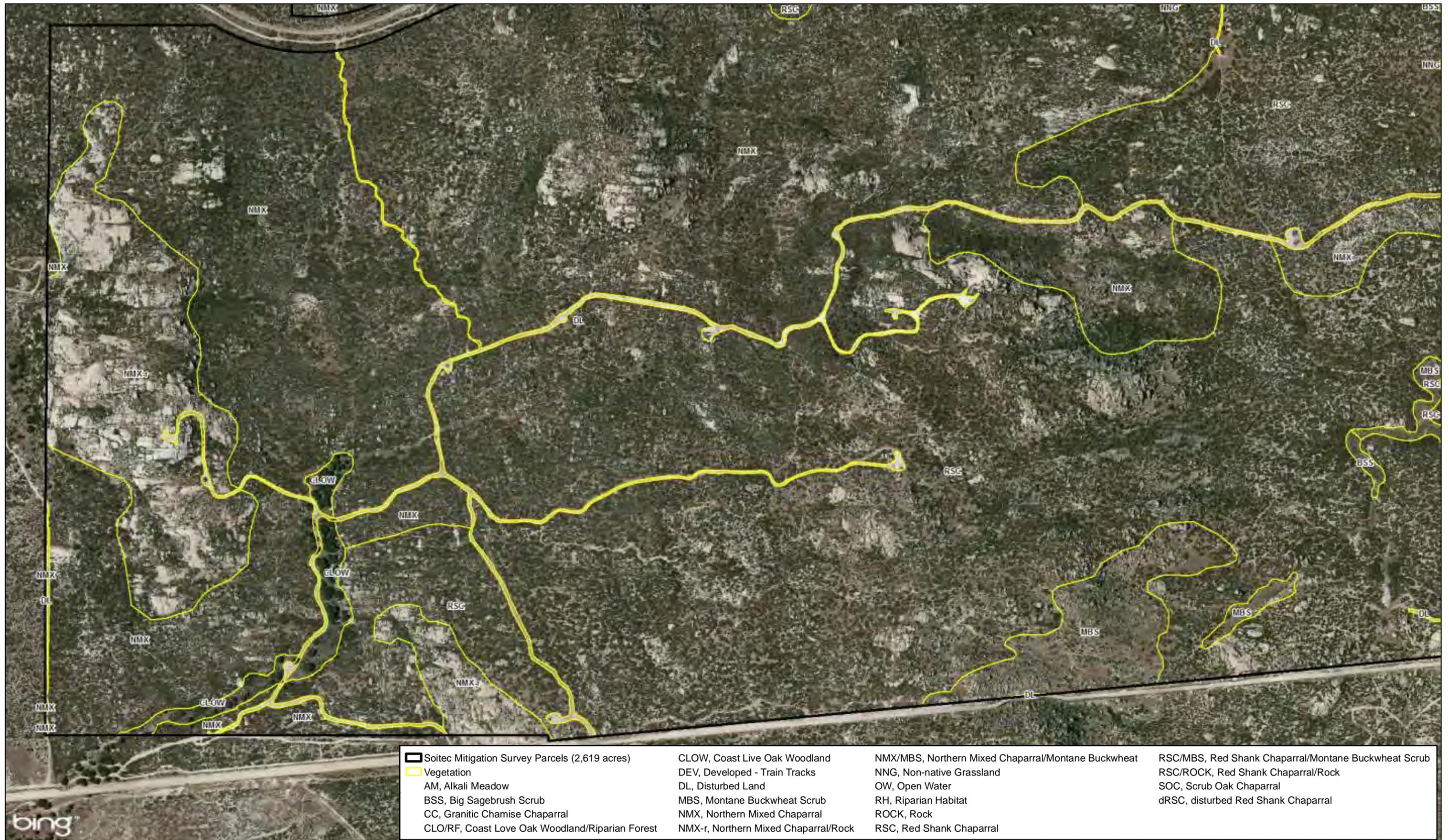


DUDEK 0 250 500 Feet

7345

FIGURE 3c
Vegetation Communities

EVALUATION OF BIOLOGICAL RESOURCES FOR THE SOITEC MITIGATION SITE



<ul style="list-style-type: none"> ▭ Soitec Mitigation Survey Parcels (2,619 acres) ▭ Vegetation AM, Alkali Meadow BSS, Big Sagebrush Scrub CC, Granitic Chamise Chaparral CLO/RF, Coast Live Oak Woodland/Riparian Forest 	<ul style="list-style-type: none"> CLOW, Coast Live Oak Woodland DEV, Developed - Train Tracks DL, Disturbed Land MBS, Montane Buckwheat Scrub NMX, Northern Mixed Chaparral NMX-r, Northern Mixed Chaparral/Rock 	<ul style="list-style-type: none"> NMX/MBS, Northern Mixed Chaparral/Montane Buckwheat NNG, Non-native Grassland OW, Open Water RH, Riparian Habitat ROCK, Rock RSC, Red Shank Chaparral 	<ul style="list-style-type: none"> RSC/MBS, Red Shank Chaparral/Montane Buckwheat Scrub RSC/ROCK, Red Shank Chaparral/Rock SOC, Scrub Oak Chaparral dRSC, disturbed Red Shank Chaparral
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FIGURE 3d
Vegetation Communities

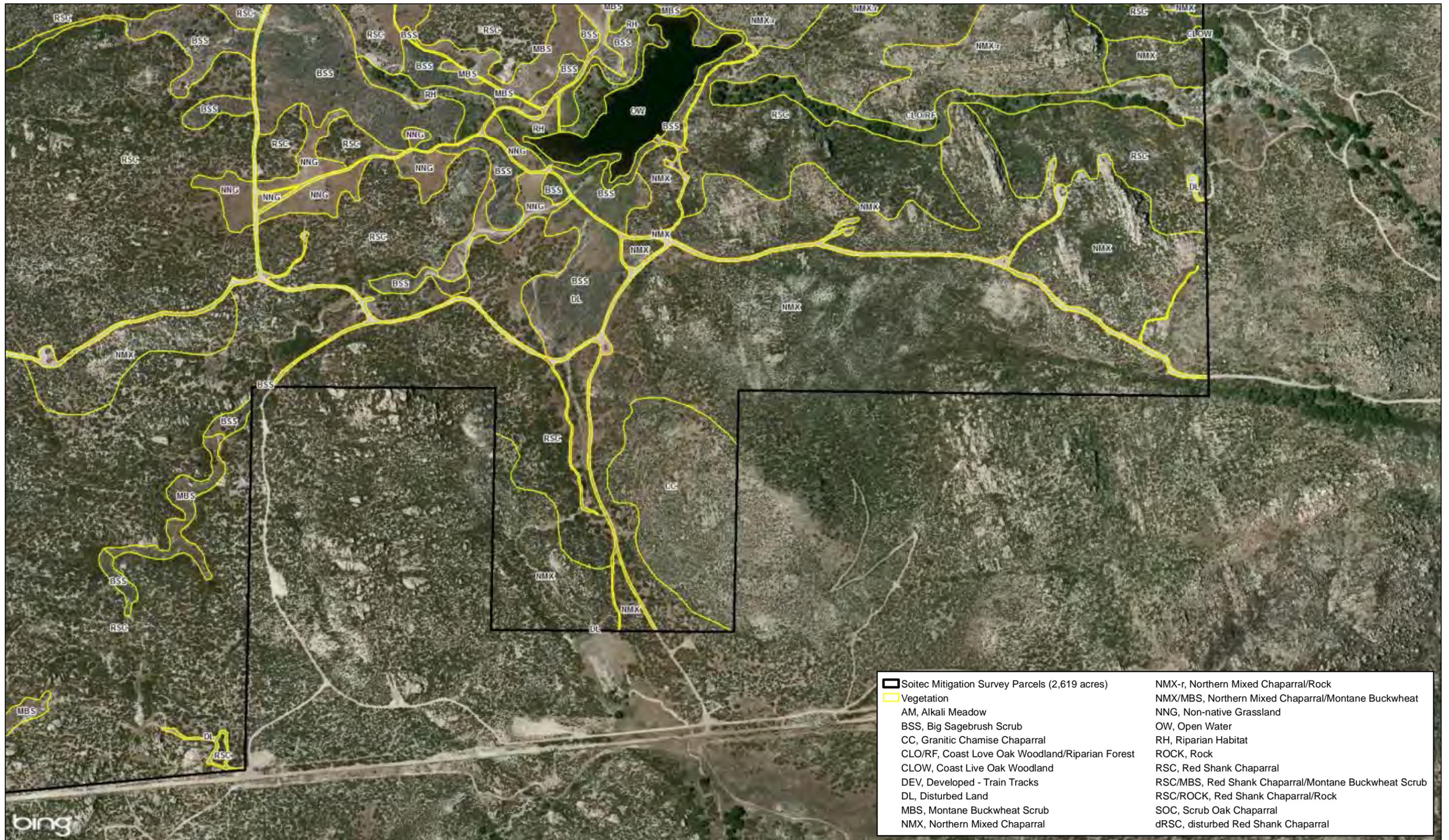
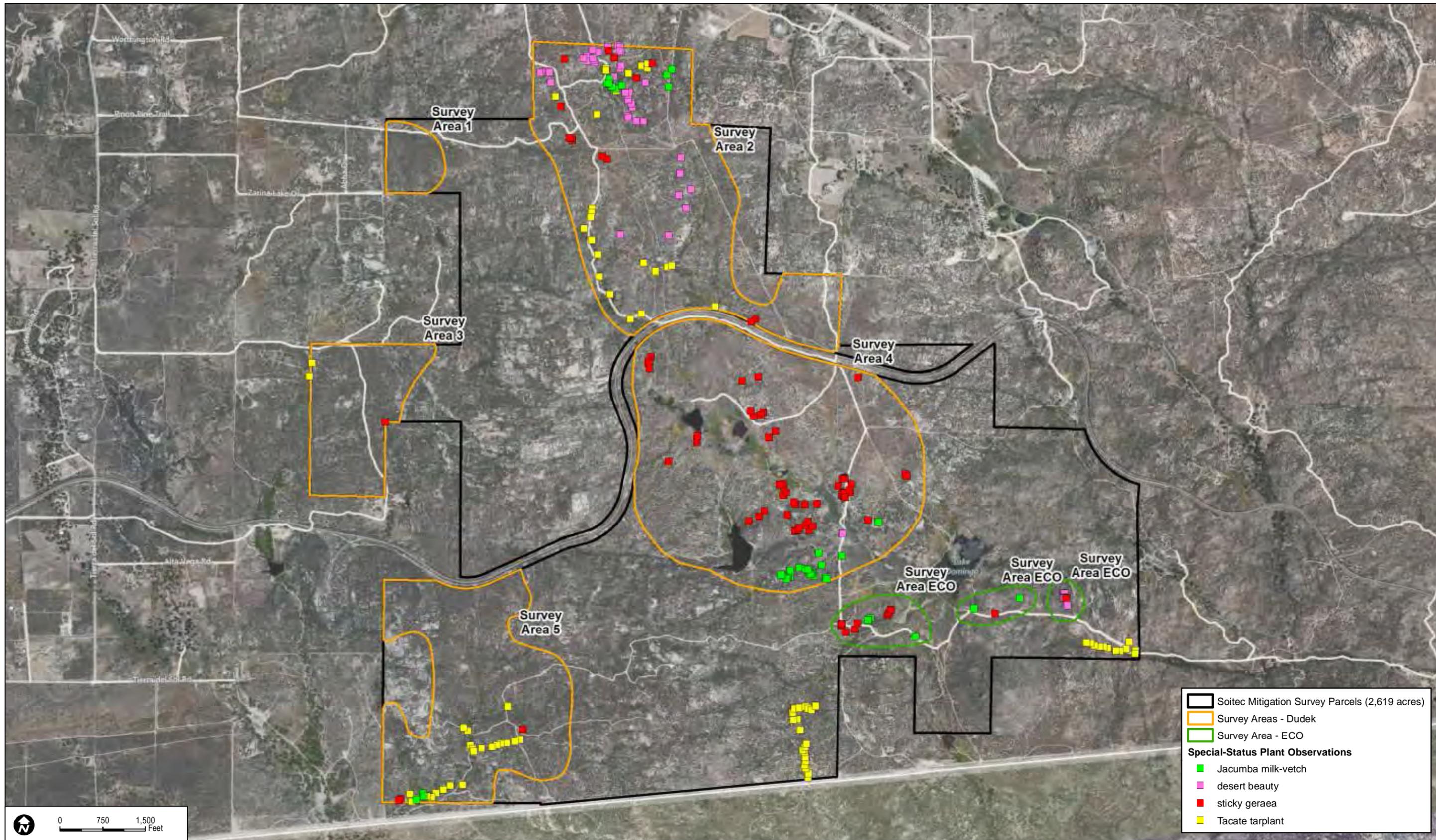


FIGURE 3e
Vegetation Communities



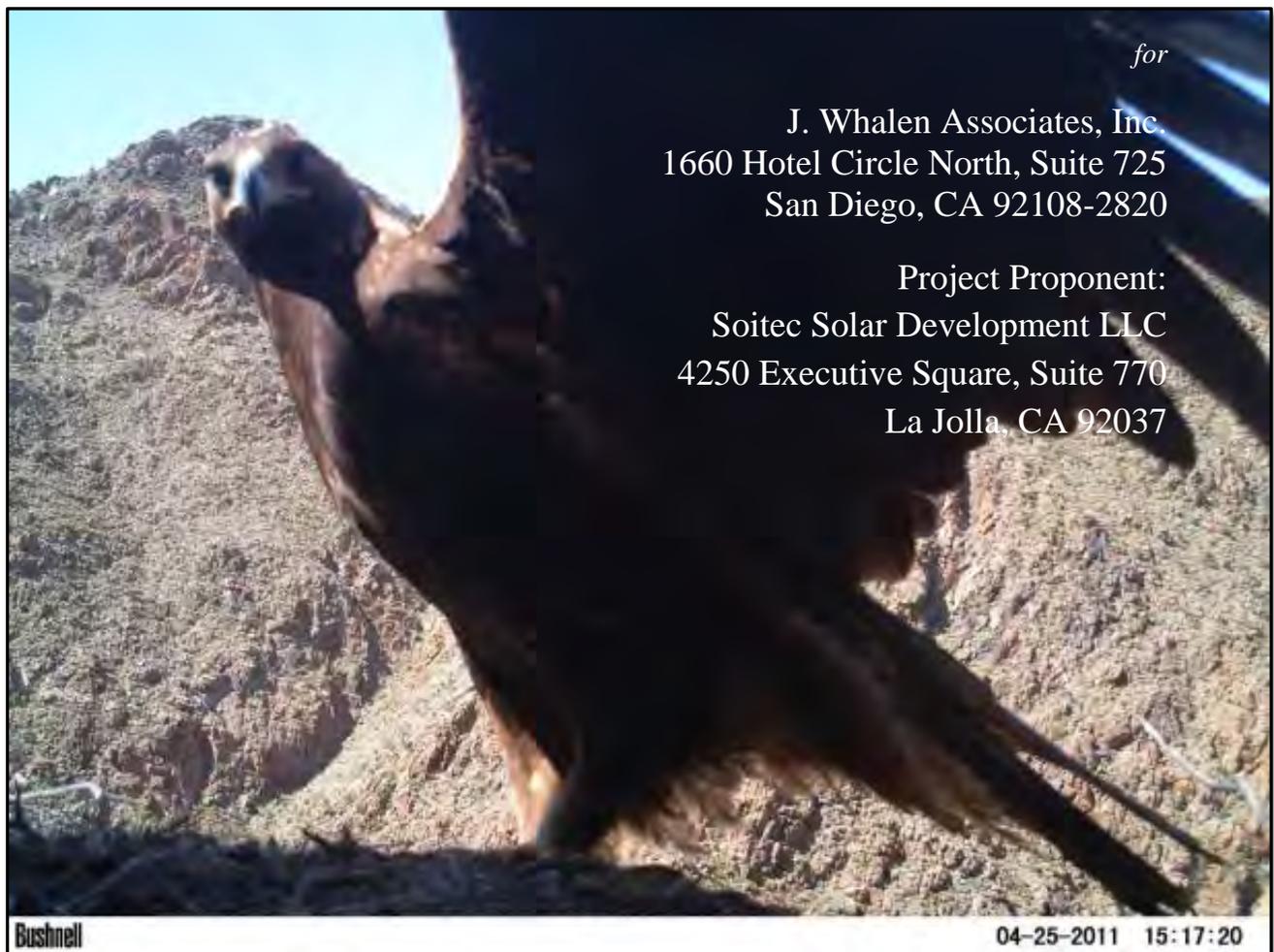
APPENDIX I

*Golden Eagles and the Rugged LLC, LanEast
LLC, LanWest LLC, and Tierra del Sol
Solar Farm LLC Projects in San Diego, California
(Confidential)*

Final Report



Golden Eagles and the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Projects in San Diego County, California



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April 11, 2013

TABLE OF CONTENTS

CONFIDENTIALITY STATEMENTiv

GOLDEN EAGLE INFORMATION..... 1

EXECUTIVE SUMMARY 2

BACKGROUND 4

 Objectives of This Report 5

 Objectives of WRI’s Long-Term Study of Golden Eagles 5

METHODS 6

 Historical Data 6

 Ground Surveys..... 6

Data 7

 Aerial Surveys..... 7

Survey 9

GPS..... 10

Photography 10

Data 10

 Satellite Telemetry 11

Data 11

 Nest Cameras 11

Data 12

 Constraints 12

RESULTS 13

 ████████ Golden Eagle Territory 17

 ████████ Golden Eagle Territory 18

 ████████ Golden Eagle Territory..... 21

 ████████ Golden Eagle Territory 24

 ████████ Golden Eagle Territory 25

DISCUSSION 28

 Rugged LLC, LanEast LLC and LanWest Project Areas 29

 Tierra del Sol Solar Farm LLC Project Area 29

 ████████ Golden Eagle Territory 29

 ████████ Golden Eagle Territory 30

 ████████ Golden Eagle Territory..... 30

 ████████ Golden Eagle Territory 31

 ████████ Golden Eagle Territory 31

PHOTOGRAPHS 33

ACKNOWLEDGEMENTS 41

REFERENCES..... 42

LIST OF FIGURES

Figure 1. Estimated Golden Eagle Territory Outlines* near the Rugged LLC, LanEast LLC and LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas 13

Figure 2. WRI Aerial Survey Paths 2010-2012 and Estimated Golden Eagle Territory Outlines* near the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas. 14

Figure 3. Approximate Golden Eagle Flight Paths Observed via Ground Surveys near Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas. 15

Figure 4. Golden Eagle Flight Paths° between GPS Points Observed via Satellite Telemetry near Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas..... 16

Figure 5. [REDACTED] 17

Figure 6. [REDACTED] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1990-2012). 19

Figure 7. [REDACTED] 20

Figure 8. [REDACTED] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1994-2012). 22

Figure 9. [REDACTED] 23

Figure 10. [REDACTED] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (2010-2012). 24

Figure 11. [REDACTED] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1988-2012). 26

Figure 12. [REDACTED] Golden Eagle Nest Site Documented as of 2012. 27

LIST OF TABLES

Table 1. Historical Golden Eagle Record for [REDACTED] in San Diego County, California. 17

Table 2. Historical Golden Eagle Record for [REDACTED] in San Diego County, California. 18

Table 3. Frequency of Confirmed Number of Golden Eagle Young Produced at [REDACTED] Golden Eagle Territory (1990-2012)..... 19

Table 4. Historical Golden Eagle Record for [REDACTED] in San Diego County, California.. 21

Table 5. Frequency of Confirmed Number of Golden Eagle Young Produced at [REDACTED] Golden Eagle Territory (1994-2012)..... 22

Table 6. Historical Golden Eagle Record for Tecate East Territory in San Diego County, California [REDACTED] 24

Table 7. Frequency of Confirmed Number of Golden Eagle Young Produced at Tecate East Golden Eagle Territory (2010-2012)..... 24

Table 8. Historical Golden Eagle Record for [REDACTED] in San Diego County, California.... 25

Table 9. Frequency of Confirmed Number of Golden Eagle Young Produced at [REDACTED] Golden Eagle Territory (1988-2012)..... 26

LIST OF PHOTOGRAPHS

CONFIDENTIALITY STATEMENT

The Wildlife Research Institute, Inc. (WRI) cares deeply about the fate of the population of golden eagles in San Diego County. That is why this report is marked “Confidential.” Documentation of the reported territories is part of the WRI research database on golden eagles that includes data for the longest studied golden eagle population in the Western Hemisphere.

Golden eagles are a top predator and survive today only by nesting in remote, inaccessible places where they are subject to minimal human disturbance. Currently, new green energy projects are being proposed for areas that were formerly considered remote and inaccessible by most people. New roads that facilitate frequent access will further challenge the eagles in the future. Golden eagles often have to flee from humans if they are to survive; they are most sensitive to the presence of humans around their nest sites. The presence of humans within 400 meters (quarter mile) of a nesting pair imposes significant impacts on several aspects of golden eagle nesting behavior, and a distance of 800 meters (half mile) may still be insufficient to safeguard some nests from disturbance (Steidl *et al.* 1993). Golden eagles exhibit greater sensitivity to pedestrian stimuli compared to other raptors by flushing when pedestrian stimuli are at farther distances than the trigger distances of other raptors (Holmes *et al.* 1993). Therefore, releasing the enclosed information to the public or to persons who might use the information to visit the nests for climbing, photography or curiosity could cause the nest to fail during breeding season.

Human disturbance is one of the main factors negatively affecting golden eagles. WRI offers this report with detailed information about golden eagles and their nest sites for the sole purpose of protecting existing or potential breeding pairs from human-derived encroachment and development in and near these golden eagle territories. We hope and trust that the agencies and developers that use and share this information will be sensitive to the confidential nature of the following data and work toward the common goal of protecting golden eagles near Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas and elsewhere.

GOLDEN EAGLE INFORMATION

Generally, habitat changes in Southern California have been dramatic over time due to extensive urbanization (Bittner and Oakley 1998). The clear and compelling evidence is that man has caused a 55% reduction in the San Diego County golden eagle population since the 1800s, as the population has dropped from 104 breeding pairs in the late 1800s to 47 breeding pairs in 2011 (Bittner *et al.* 2011). A reduction of over 41% has been documented in this population over the last 61 years and the rate has increased 3-fold in the last 15 years from 0.5% per year to 1.5% per year (Bittner *et al.* 2011). Golden eagles' behaviors and their ability to survive and produce young, factors that contribute to the overall success of the species itself, are being directly affected. Habitat losses are increasing throughout the Western United States, and associated pressures on golden eagle populations are expected to increase if human activity and development continue to increase (Good *et al.* 2007).

In general, tolerance of human activity is not being adopted by the eagles, and the effects of the incompatibility are distinct. There is an inverse correlation between land development and golden eagle productivity, one that is not isolated to San Diego County or California (WRI unpub. data). Clear spatial overlaps were identified between new forests and abandoned golden eagle territories in Scotland (Whitfield *et al.* 2007). Prey abundance is one of the primary factors supporting the reproductive success of raptors, and available foraging habitat is one of the contributing factors that encourage overall health of golden eagles (Newton 1979, Krebs *et al.* 2001). The golden eagle is a meaningful umbrella species and their success, or lack thereof, reflects the health of many other species that occupy the same territories but are often harder to monitor. When we lose golden eagles, the reason is often that we are degrading the habitat to such a great extent that we are also affecting hundreds of other species.

WRI research of golden eagles via satellite telemetry indicates the constraining effects human encroachment is having on golden eagles in their territories. Golden eagle flight paths tracked by satellite are distributed to areas void of human disturbance, areas that are becoming less and less available with increases in development. Territories that are becoming formally listed as extirpated are most commonly due to human impact within territorial or foraging boundaries. There is the possibility that gradual and strategically-timed introduction of human activity may potentially desensitize wildlife, namely golden eagles, conditioning them to tolerate disturbance (WRI unpublished data). However, ensuring that lands used by golden eagles for foraging and nesting remain unaltered is the most effective way to avoid extirpation. This report is an attempt to recognize the significance of historical and current golden eagle activity in and around the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas.

EXECUTIVE SUMMARY

WRI documented an extirpated golden eagle territory, referred to by WRI as the [REDACTED] golden eagle territory, [REDACTED] the project footprint. All other golden eagle territories in this report lie outside of or partially overlap the [REDACTED] buffer recommended by San Diego County for nest site disturbance on the [REDACTED] of the project footprint.

[REDACTED] golden eagle territory has been monitored consistently by WRI since 1990. Historical records at [REDACTED] date back to 1920. Photos were taken of the [REDACTED] golden eagles in 1920 by John Colton. Prior to his death, John Colton communicated details and data about this territory to John Oakley and Dave Bittner. Numerous other biologists and the Bureau of Land Management (BLM), who manage the land on which the eagles nest, have also recognized the longevity of the [REDACTED] territory. In the 1990s, WRI reported to the BLM that shooting at the [REDACTED] by target shooters was killing nesting golden eagles. The BLM shut off the [REDACTED] to shooting in 1995 and began closer monitoring. This stopped the [REDACTED]. However, [REDACTED] activity has increased over the past 15 years and the Department of Homeland Security now has a great deal of activity on [REDACTED] that may now be a contributing factor in the failed attempts of this pair to nest and raise young. Although the pair continues to be seen on territory, production of young at [REDACTED] has been negligible since 1997.

The golden eagle territory in [REDACTED] (historically known as [REDACTED]) is a well-established territory also with a long history of activity. Golden eagles were seen in [REDACTED] by WRI volunteers in 1990 and the first nest site documented by WRI volunteer, Randy West, was occupied by a single young golden eagle chick in 1994. Data for [REDACTED] are limited due to [REDACTED] of the core nesting area, which is [REDACTED]. However, most nests found by WRI since the initial documentation of the [REDACTED] have revealed the likelihood of a long history of activity and occupancy far beyond the scope of the oldest available recorded data. Recently, golden eagles in [REDACTED] produced chicks in 2011 and 2012, and WRI has documented nesting activity within this territory recently via remote, motion-activated nest cameras.

[REDACTED] golden eagle territory is [REDACTED] of the project. This pair has been sporadically productive over the years of observation. Human disturbance and nest cliff instability have been factors documented by WRI. In at least two separate years, mortality of young eagles while still in the nest has been an issue impacting this pair's productivity.

Additionally, WRI research identified a pair of breeding golden eagles, [REDACTED]. This pair may

forage near or within the proposed project area for Tierra del Sol Solar Farm LLC. [REDACTED]
[REDACTED].

The cumulative project area is identified by WRI as a potential golden eagle flyway. Straight trajectory paths between GPS points collected via satellite telemetry estimate flight paths of golden eagles that fledged from other territories in San Diego County that are not adjacent to the cumulative project footprint. Six individual golden eagles' estimated flight paths were documented via satellite telemetry over the cumulative project footprint from 2007-2012; [REDACTED] flight paths were estimated over the Rugged LLC project area, [REDACTED] over the LanEast LLC project area, [REDACTED] over the LanWest LLC project area and [REDACTED] over the Tierra del Sol Solar Farm LLC project area. Flight paths of [REDACTED] golden eagles were estimated via satellite telemetry to have traversed over multiple project areas and [REDACTED] golden eagles were documented flying within the Rugged LLC [REDACTED] zone as well as just outside of the project area by WRI ground observers.

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BACKGROUND

In 1987, a group of eight biologists gathered at the home of Dan Brimm to discuss the obvious decline of the golden eagle population in San Diego County. Tom Scott and John Oakley were among those eight. In subsequent years, efforts turned to fully documenting the entire San Diego population after an initial survey of old golden eagle nest sites to determine if they were extirpated or active. The Golden Eagle Project, co-directed by Dave Bittner and John Oakley, funded mainly by Dave Bittner and maintained purely by volunteer efforts, became active in this undertaking in 1988 and subsequently, in 1992, assumed full responsibility for the project. As many as 50 volunteers and biologists each year have helped observe, document and band nesting pairs of golden eagles in San Diego and neighboring counties. In 1996, the Wildlife Research Institute, Inc. became incorporated as a self-funded, non-profit research institute and further expanded the Golden Eagle Project's study of the San Diego golden eagle population.

WRI has spent a great deal of effort training volunteers and new biologists extensively because identifying golden eagles is not an innate or common skill. Training is accomplished by taking each individual into the field with one or more of our experienced Golden Eagle Biologists numerous times during their first year. Most new WRI biologists also undergo an intensive 4-week training regimen during golden eagle migration in Montana. All WRI volunteers sign a non-disclosure agreement that binds them to not reveal any of the information they obtain from our work. This is to protect the information and prevent disturbance of golden eagle nest sites.

WRI has gained copious insight about behavioral adaptations exhibited by golden eagles. WRI Senior Biologist and Executive Director, Dave Bittner, has over 48 years of research experience with golden eagles and WRI staff have been studying San Diego's golden eagle population including [REDACTED] for over 24 years. Thousands of hours of ground and aerial surveys have allowed WRI to anticipate certain circumstances from which outcomes can be extrapolated. Furthermore, interpretation of data collected using satellite and VHF transmitter technology has provided WRI with information on the flight and nesting behavior of golden eagles of all ages; data that can be compared to the terrain, weather patterns and areas of development. Data from satellite transmitters have demonstrated a broad picture of flight patterns adopted by golden eagles that can be generalized at least across the local population.

WRI's research of San Diego County's golden eagles has incorporated present-day analysis of data collected historically and more recently. Data from field observations and historical egg collections (Dixon 1937) help estimate productivity (ability to produce young) and activity within each territory. Data from James Dixon's 41-year study in the early 1900s and Tom Scott's analysis in the early 1980s (Scott 1985) have allowed WRI biologists to accurately determine the decline in the breeding golden eagle population of Northwestern San Diego County. These data were subsequently compiled with research performed by WRI for the most comprehensive dataset available for golden eagles in San Diego County.

Objectives of This Report

1. To provide information necessary for understanding significant historical and current golden eagle activity near Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas.
2. To provide a statement of facts that can be used to identify impacts and mitigation strategies to better manage golden eagle activity near Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas.
3. Identify any constraints on the project due to golden eagle use within the buffered landscape.

Objectives of WRI's Long-Term Study of Golden Eagles

1. To document past and present golden eagle nests and their territories.
2. To provide documentation on the primary foraging areas that may be critical to the success of future golden eagle pairs.
3. To monitor, over successive years, the use of nesting territories, cliffs, trees, etc., that may be central to territories and their success.
4. To monitor and document the pairs of golden eagles, their life history, and other data that may help evaluate the future success, or lack thereof, of the species in San Diego County and environs.
5. To track, with bands and telemetry, as many golden eagles as possible to determine movements, migration, pair exchanges and feeding areas for each pair.
6. To provide baseline data for city, county, state, federal and private land planners to help evaluate the merit of construction permitting in certain areas.
7. To provide statements of facts that will assist in mitigating land development that might destroy nesting territories in the future.
8. To document the level of adaptation of golden eagles to human encroachment so that eagles can be saved before the entire population, or a significant portion, of golden eagles in San Diego County become extirpated.
9. To determine by regular documentation the fledging success of golden eagles over time and the varying weather conditions that affect that success.
10. To determine golden eagle nesting history by documenting chronological information over extended time periods.
11. To determine the effects of major fires on the golden eagle; both short and long term.

METHODS

Historical Data

Historical information for [REDACTED] territories comes from a compilation of museum records made by oologists who collected and traded eggs dating back to the late 1800s. Historical data was also collected from the Western Museum of Vertebrate Zoology, Los Angeles, California and university researchers and educators with an interest in eagles. WRI also interviewed some of the few remaining egg collectors (now deceased) and their young assistants who did the climbing into the nests. Most of the personal interviews were about nests and eggs collected from 1895 to the 1940s. John Oakley, Professor Emeritus, met and spoke with J. B. Dixon, a well-known egg collector, who collected golden eagle eggs from 1895 to 1936, and also spoke with and befriended several of the young assistants. Dave Bittner and John Oakley also met with Ray Quigley, who donated many of his records to WRI upon his death. John Oakley started studying golden eagles in San Diego County in the 1930s and has been associated with WRI's golden eagle research efforts since 1988. Contributors on record from private collections pertaining to the territories in question include early egg collectors and researchers like Randy West (volunteer and falconer), Tom Scott (professor and eagle researcher in the late 1970s and early 1980s), John Oakley (professor and eagle researcher from the 1930s thru 2012), Ray Quigley and many others. WRI has an established team of Golden Eagle Biologists and volunteer observers that has been active since 1988; WRI's ongoing golden eagle studies have been added to the above-mentioned historical records to assemble the most comprehensive database of golden eagle data in San Diego County, California.

Ground Surveys

Ground observations highlight behaviors otherwise missed during the short duration of an aerial survey of a single nest. Ground surveys provided an opportunity to make observations in a territory for long durations to gain information about the feeding areas and habits of golden eagles. Data from these types of surveys allowed WRI to infer what types of activities could disrupt incubation and/or disturb the adults. WRI observers spent approximately 4 hours in each territory on each visit. Observers visited a core nest area once a week until they could confirm incubation and, later, hatching and fledging. All flight paths of the eagles observed were documented and transcribed onto a map.

Field surveys were conducted from December through May of each year of study. Ground observers used at least 8x42-zoom binoculars and 20x60-zoom scopes to make observations. WRI's protocol disallows making ground observations that require approaching a golden eagle nest any closer than half a mile during incubation or the first 4 weeks after hatching. All eagle bandings are scheduled when the eagles are at least 5 weeks and before 8 weeks of age.

Data

The following data are specifically collected and are on file at WRI. Hand-drawn maps documenting flight paths, nests and perched eagles accompany datasets pertaining to golden eagle observations:

- Species and quantity observed
- Number of nests/alternative nests observed
- Condition of each nest, if possible, and whether or not it was active
- Nest aspect and elevation
- Approximate nest GPS coordinates and azimuth from observation point
- Nest substrate (cliff, transmission tower, etc.)
- Age class of golden eagles and other species observed, if determinable
- Behavior of species observed.

Aerial Surveys

WRI began using helicopters to supplement ground surveys in 1996 to determine the productivity of golden eagles in California. Using helicopters allowed nest site areas to be checked efficiently and allowed our biologists a unique vantage point from which new nests may be located that would most likely be missed from a ground position. Furthermore, due to the unobstructed downward view into the nests, we could document the age and number of young that facilitated the scheduling of subsequent banding and helped document nesting success. Twenty to thirty territories can be surveyed in a day from a helicopter, whereas a comparable survey via ground would take a month or more and could produce less exact nesting and productivity data.

Our methods have been adopted by the US Fish and Wildlife Service (USFWS) and integrated into the USFWS Interim Golden Eagle Guidance for surveying golden eagle territories (Pagel *et al.* 2010). WRI utilizes aerial survey opportunities via helicopter and pays out-of-pocket to add onto contracted routes in an effort to obtain information via aerial surveys on territories that exist but are not part of a specific project outline. Hughes 500 helicopters are used for these surveys because they are safe, small, stable and very maneuverable. Their stability allows a close approach (to within 20 to 30 meters of the cliff side) thereby making counts of young or eggs possible using stabilizing binoculars and high resolution, digital cameras equipped with long-focal-length, optically-stabilized lenses. These photos allow us to maintain an efficient 10- to 20-second hover period at each nest and to subsequently evaluate the details, such as nest contents, age of young and any other information, more carefully once we return to headquarters.

WRI data support golden eagles' indifference to helicopters. Most eagles will stand or sit in the nest undeterred from their usual behavior of preening or feeding. In over 700 golden eagle nests we have checked with a helicopter, we have flushed only one adult eagle off young and never off eggs. However, the eagle that flushed with a 4-week old chick in its nest may not have flown as a result of the helicopter, but may have coincidentally been ready to depart as we approached. We have actually observed adult eagles flying under the hovering helicopter and landing on their nest to deliver food or sticks to the nest while we documented activity and took pictures of the young. Similar results with helicopters have been documented at over 500 nest visits by other golden eagle researchers such as Carol McIntyre of Alaska, Mike Kochert of Idaho and in a recent focused study (Grubb *et al.* 2010, Kochert *et al.* 2007, McIntyre 2006). While monitoring golden eagles during the construction of a power line in 2011, WRI documented 24 helicopter flights within 30 minutes immediately above a golden eagle that was perched within 300 feet of its nest. The eagle only took brief glances in the direction of the helicopters as they first appeared in its field of vision then immediately resumed looking about its territory. In contrast, a person on foot within 400 meters (quarter mile) of a nesting pair imposes significant impacts on several aspects of golden eagle nesting behavior, and a distance of 800 meters (half mile) may still be insufficient to safeguard some nests from disturbance by pedestrians (Steidl *et al.* 1993).

According to the USFWS guidance (Pagel *et al.* 2010), all nest sites within a breeding territory are deemed occupied while raptors are demonstrating pair bonding activities and developing affinity to a given area. A golden eagle territory may be determined to be "active" (or more specifically "occupied") for the current breeding season if either of the following observations is made: (1) one or both of a golden eagle pair is explicitly observed demonstrating pair bonding activity, such as nest building or courtship behavior (deemed active with confirmed occupancy) or (2) if *evidence* of pair bonding activities is observed, such as observing a decorated nest, (deemed active with implied occupancy). A golden eagle territory is determined to be inactive if occupancy or breeding cannot be confirmed. This occurs if no pair bonding or evidence of nest building is observed for the current breeding season during the surveys. Territories that are inactive may subsequently become active again; golden eagles sometimes take a year or two hiatus from breeding and may continue to occupy the territory even in the absence of breeding.

Based on experience, WRI protocol requires that five years pass from the last recorded breeding and/or sighting of the bonded pair or single adult eagle on the territory in order to make the determination that the territory is "extirpated." Two examples depict why we wait at least five years: first, the [REDACTED] golden eagle pair in San Diego, California, which hadn't successfully raised a single young in 11 years (1997 to 2008) due to constant human disturbance by climbers and hikers during breeding season, remained on territory and in 2008 began to breed again. This may have been a result of fires opening up additional foraging habitat which supported reproduction, but coincided more directly with climbing and hiking restrictions in the area. In this case, the [REDACTED] pair had to rely on a change in habitat and a change in

human behavior to compensate for imposed human disturbance. Second, the [REDACTED] golden eagle territory, also in San Diego County, was listed as extirpated in 2005 and became active in 2007 when the [REDACTED] pair subsumed the [REDACTED] nest and foraging area. This shift to [REDACTED] was a result of continuous disturbance by illegal immigrants within the core nesting territory at [REDACTED] and the loss of a breeding bird due to electrocution. The net result was a reactivation of one territory and the loss of another.

Aerial survey routes were recorded and reported using a GPS system. During the surveys, significant incidental wildlife are recorded and reported including other sensitive species (i.e., peregrine falcons, prairie falcons, bighorn sheep). Golden eagle nests and their associated territories were documented. The activity status of all golden eagle nests were defined during the survey, if possible, and/or confirmed later upon review of photographs. Even in the absence of incubating females, observations of nest decoration such as fresh yucca or leafy green branches, as well as new nest sticks built into and above old nest material helped assess activity at the nest site for the current breeding season.

We surveyed previously documented core nesting areas and looked for new and/or alternate nest sites by concentrating on any area with suitable golden eagle nesting habitat. Nesting substrate included cliffs with geological features such as flat ledges or shallow cavities/caves that could allow for safe nest construction and that were high enough to provide protection from ground-dwelling predators. Cliffs were approached by helicopter systematically from the front and surveys were flown at speeds of approximately 20 to 30 knots; hovering near a specific nest site was periodically required to collect specific nest details or take photographs but usually did not exceed 10 to 20 seconds. Golden eagle nests can also be found with trees as the substrate. Tree-nesting golden eagles were harder to find because a good view of the substrate was often blocked by foliage. Therefore tree nesting areas were surveyed with a greater amount of helicopter time and supplemental ground surveys to determine the core nesting area. Helicopter surveys early in the nesting season would sometimes identify activity areas by direct observation of the adults sitting on dead trees or other open perch sites. This perch behavior is part of establishing and selecting a suitable nesting site; further detailed examination of the area generally revealed the actual nest.

Survey

Aerial surveys have been conducted in various years for [REDACTED] [REDACTED] golden eagle territories. The most recent initial Phase 1 occupancy surveys in [REDACTED] golden eagle territories were conducted on February 22, 2012, with follow up Phase 2 productivity surveys conducted on April 24, 2012. [REDACTED] was surveyed in 2010 by air and 2012 via ground. Surveys were conducted for the target species, golden eagle, and other raptor species. We used a Hughes-500 helicopter for the aerial surveys that provided seating for 3 Wildlife Biologists (including at least 2 Golden Eagle Biologists) and the pilot. Observer 1 (front right seat) was a Golden Eagle

Biologist who served as the primary observer for the right side of the helicopter as well as the navigator for the survey, observer 2 (back left seat) was a Golden Eagle Biologist who served as the primary observer for the left side of the helicopter and observer 3 (back right seat) was the primary note taker and secondary observer for the right side of the helicopter. The pilot used by WRI for these surveys also had extensive experience flying mountainous habitat for golden eagles and other cliff-dwelling raptors; the pilot was not responsible for survey observations.

GPS

Nest site and other location-specific data were determined and documented using hand-held GPS units (Garmin Map60GSx). A sequential number was assigned to each observation that corresponded to the GPS waypoint. Waypoints were recorded using the UTM grid in the NAD 83 Datum. GPS were also used to track our survey routes. Handwritten notes were taken on field forms that documented species, detailed observations and corresponding GPS waypoints.

Photography

Photographs were taken with Nikon equipment with GPS units attached so that latitude and longitude could be automatically recorded on each digital picture. Two high-resolution cameras were used; one for recording wide-angle shots (18-200mm optically-stabilized zoom lens) and another for recording close-ups (200-400mm optically-stabilized zoom lens). The 400mm zoom lens plus the ability to enlarge the digital photographs allowed accurate and detailed records to be captured with minimal disturbance to wildlife. This was also important because it allowed for thorough review and confirmation of our observations later in an environment that was more stable than the cockpit of a helicopter.

Data

We photographed all active golden eagle nests, some other raptor nests, representations of numerous inactive golden eagle nest sites and significant other wildlife species observed. The following data were also specifically collected and are on file at WRI:

- Species and quantity observed
- Number of nests/alternative nests observed
- Condition of each nest and whether or not it was active
- Nest aspect and elevation
- Nest GPS coordinates represented by a corresponding waypoint number
- Nest substrate (cliff, transmission tower, etc.)
- Age class of golden eagles and other species observed, if determinable
- Behavior of species observed.

It should be noted that red-tailed hawks in particular, as well as other raptors such as prairie falcons, sometimes utilize golden eagle nests for their own nesting. During surveys, these nests

were attributed to the current occupant (i.e., hawk or falcon), however the original nest builder (i.e., golden eagle) is recorded in the “Notes” section of the transect data sheet. These old golden eagle nests, when viewed along with more current nests, often help define the history and core nesting area/territory of a particular pair of eagles and were therefore included in the total count of golden eagle nests for the surveys.

Satellite Telemetry

WRI has affixed 22 satellite transmitters to golden eagles since 2007 in Southern California (model type: PTT-100, 70 gram unit from Microwave Telemetry, Inc.). The units were all attached via Teflon[®] ribbon harness backpack mount prepared and applied by WRI biologists. Marking/ telemetry was applied to nestlings in the nest via bio-climbing, whereas trapping of hatch-year, sub-adults and adults was via bow nets baited with live (vest-protected) pigeons or carcasses.

Return data were analyzed regularly and prepared via Google Earth Pro and ArcGIS and provided a spatial display of general flight paths by connecting GPS data points. Data were also analyzed for behavioral analysis. The data fields provided the location, and the time and date of a golden eagle at a given location, which could then be compared to topographical terrain maps, other golden eagle flight paths and behaviors, as well as development project sites in order to achieve all objectives.

GPS location data were the only explicit data recorded via satellite telemetry, whereas the flight paths displayed on the maps that follow were generalized as a straight trajectory represented by a straight line between two successive GPS points.

Data

- GPS coordinates
- Date
- Time
- Altitude
- Speed
- Course

Nest Cameras

Golden eagle nests at [REDACTED] were affixed with motion-triggered remote field cameras (Bushnell Trophy Camera Camo, Model # 119446) by WRI biologists in 2012. Cameras were placed near the nests in the summer or fall, prior to nesting, and the cards

were retrieved after fledging. Photographs were reviewed and behaviors and activity were analyzed by WRI biologists upon retrieval of the memory cards.

Data

- Photograph
- Date
- Time
- Temperature
- Photograph number

Constraints

Data were limited for some years when no observations were recorded. Funding resources and/or limited personnel yielded missed opportunities for data collection by WRI. Historical data were a compilation of personal collections, museum records and personal communications and were often not researched systematically on an annual basis.

RESULTS

Although site-specific studies have not been conducted for any projects in the cumulative project area of Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas, WRI has conducted aerial and ground surveys in neighboring areas since 1988 and aerial surveys since 1996 (Figure 2). WRI's Senior Golden Eagle Biologists have used this accumulated data to create a best estimate of the breeding territories of golden eagles in the area surrounding Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas. The 4,000-foot buffer for nest site disturbance recommended by San Diego County was used as the criteria for determining potential impacts. The cumulative footprint of all project areas is located in an historical golden eagle territory that is currently extirpated and no current breeding or adult eagles are using this extirpated territory. WRI biologists have confirmed recent golden eagle breeding activity in [REDACTED] territories surrounding the cumulative project footprint, [REDACTED] (Figure 1).

Figure 1. Estimated Golden Eagle Territory Outlines* near the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Areas

WRI biologists observed 2 golden eagles flying between the [REDACTED] of Rugged LLC Project Area and its [REDACTED] on April 5, 2011, from 13:31 to 13:42 PST. On the same day from 13:47 to 13:56 PST, 1 golden eagle was observed flying from the [REDACTED]

[REDACTED] (Figure 3). Although some assumptions can be made, neither physical markings nor tracking equipment were observed distinguishing the identity of the golden eagles, therefore it cannot be confirmed that they were the same individual golden eagles seen on both occasions.

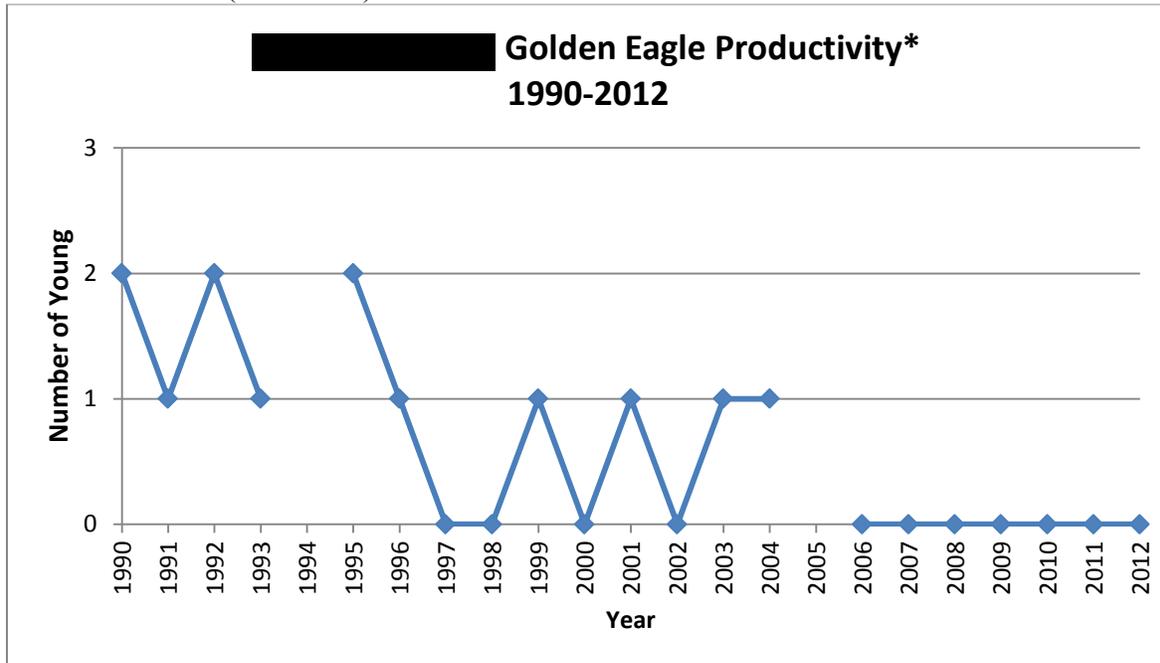
██████████ Golden Eagle Territory

WRI collected data pertaining to the nesting golden eagles on ██████████ per personal communications with Randy West, a falconer and WRI volunteer since 1988 and a lifetime resident of Boulevard, CA. Randy West is the only living biologist that remembers active breeding golden eagles in the ██████████ territory. He toured the territory with Dave Bittner in 1992 and identified locations of his observations of golden eagles and their nests. One nest, above ██████████ still exists but is active with breeding red-tailed hawks.

Golden Eagle Territory

WRI collected data pertaining to the nesting golden eagles on [REDACTED] from 1990 to 2012 via ground and/or aerial surveys (Table 2).

Figure 6. [REDACTED] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1990-2012).



* Data included only for confirmed numbers of young; gaps in data represent years for which number of young was unconfirmed.

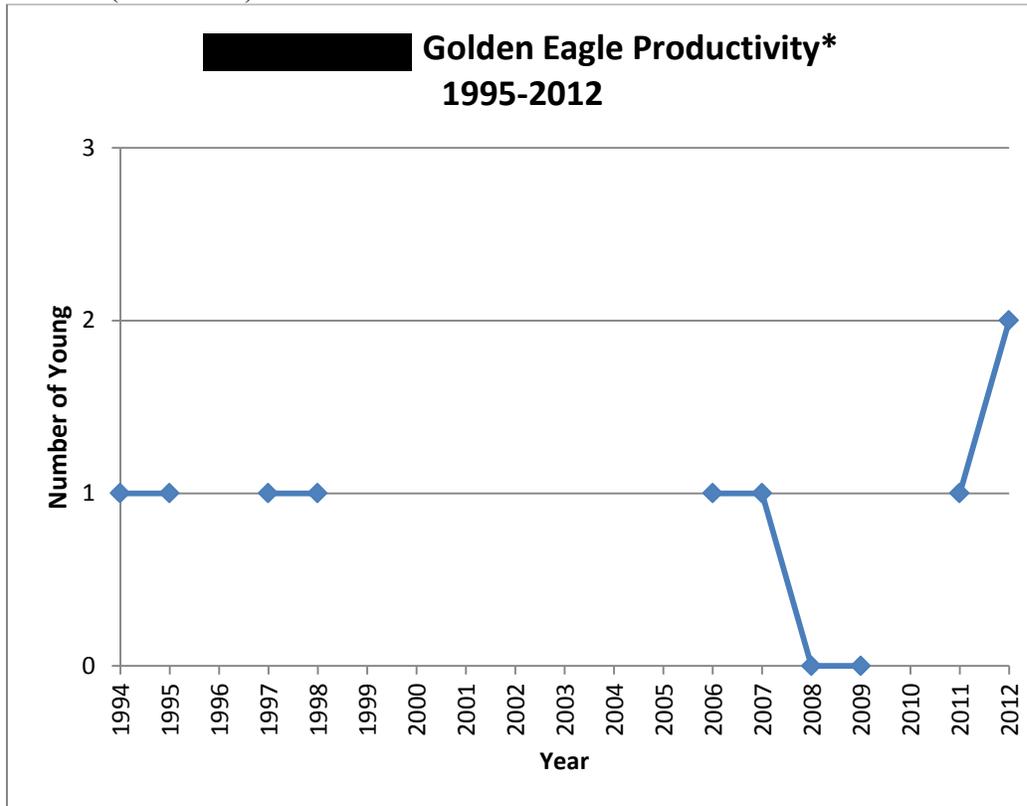
Table 3. Frequency of Confirmed Number of Golden Eagle Young Produced at [REDACTED] Golden Eagle Territory (1990-2012).

Number of Young in a Year	Frequency of Number of Young
0	11
1	7
2	2
Total	20

Golden Eagle Territory

WRI collected data pertaining to the nesting golden eagles in [REDACTED] from 1994 to 2012 via ground and/or aerial surveys (Table 4).

Figure 8. [REDACTED] Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1994-2012).



* Data included only for confirmed numbers of young; gaps in data represent years for which number of young was unconfirmed.

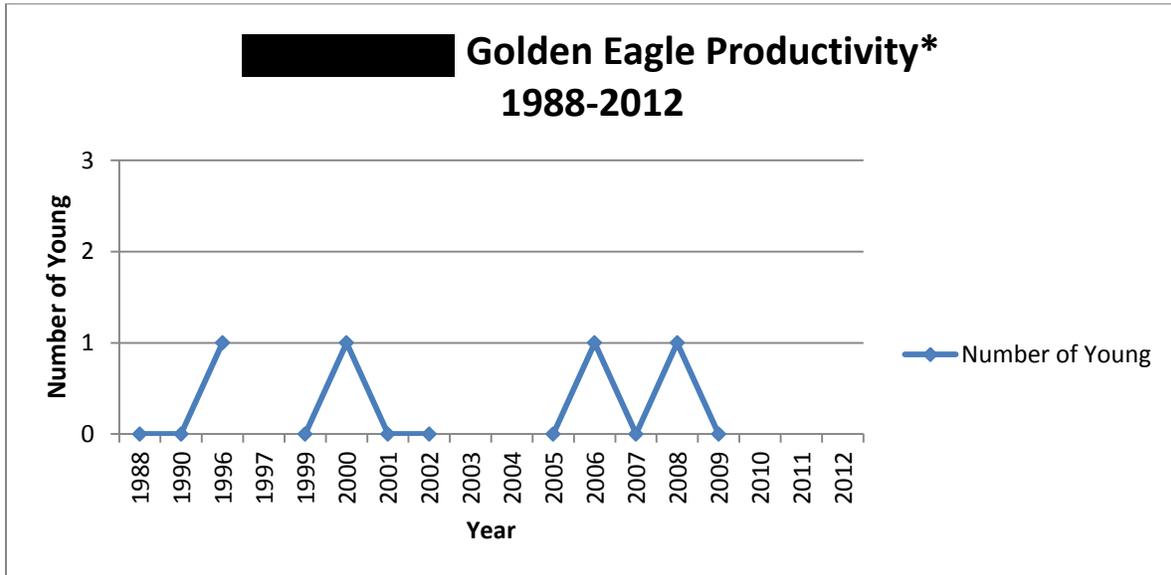
Table 5. Frequency of Confirmed Number of Golden Eagle Young Produced at [REDACTED] Golden Eagle Territory (1994-2012).

Number of Young in a Year	Frequency of Number of Young
0	2
1	4
2	1
Total	7

Golden Eagle Territory

WRI collected data pertaining to the nesting golden eagles in [REDACTED] from 1988 to 2012 via ground and/or aerial surveys (Table 8).

Figure 11. ██████████ Golden Eagle Productivity as a Function of Number of Young Produced Each Year (1988-2012).



* Data included only for confirmed numbers of young; gaps in data represent years for which number of young was unconfirmed.

Table 9. Frequency of Confirmed Number of Golden Eagle Young Produced at ██████████ Golden Eagle Territory (1988-2012).

Number of Young in a Year	Frequency of Number of Young
0	7
1	4
Total	11

DISCUSSION

Based on historical data and the results of WRI research in Southern California over the past 25 years, several golden eagle pairs have changed territory usage as human activity and development encroached on their established territories. Golden eagles are more likely than other grassland raptors to flush from their nests due to human disturbance (Holmes *et al.* 1993). After a single instance of disturbance by humans, golden eagles will return to their nests after people leave the area, but their return might be in vain if the weather is cool or rainy because the eggs will have been chilled or the young will have died from exposure or predation, often by ravens or red-tailed hawks. Given the incredible investment of time and energy that is required to successfully produce even one young, disturbance is a serious impact on the eagle population.

Nature also plays a role in impacting golden eagle populations. The [REDACTED] pair raised young almost every year from 1990 to 1996 (Table 2). The [REDACTED] pair raised young almost every year from 1994 to 1998 (Table 4). However, reproduction has been much lower for both territories since the ongoing drought that started in 1998. This is consistent with all other desert-associated golden eagle breeding pairs. Along the desert margins and within the desert habitat of San Diego County, territories have been established by [REDACTED] of golden eagles. Since 1998, only one or two of these [REDACTED] have successfully fledged young each year. This likely coincides with low jackrabbit populations, a dietary component that desert-nesting eagles depend upon for feeding young; golden eagle reproduction was documented as being limited by black-tailed jackrabbit scarcity during a 23-year study (Kochert *et al.* 2007).

The cumulative project area is located in a potential golden eagle flyway zone, especially for golden eagles in territories established in [REDACTED]. Years of research shows that eagles move great distances in a very short period of time (Bittner *et al.* 2011). Results from WRI's satellite telemetry research documented [REDACTED] individual golden eagles flying near all project areas with estimated flight paths within every project's 4,000-ft buffer zone (Figure 4). For example, golden eagles tracked via satellite telemetry with GPS locations on either side of Tierra del Sol Solar Farm LLC with altitudes recorded 1000 meters AGL indicate the golden eagles were in transit when in that area. Golden eagles equipped with telemetry are a small sample size of the local population; many other unmarked golden eagles could have traversed the area near or within project areas. Therefore we cannot say with certainty that eagles do not use the area around or within the project footprint although there are other nearby open areas in addition to those apportioned for Rugged LLC, LanEast LLC, LanWest LLC or Tierra del Sol Solar Farm LLC that are suitable for golden eagle foraging activity. For example, WRI has been observing adult and juvenile golden eagles foraging in the open valley and oak grassland savannah areas around [REDACTED], California, for many years. In their current states, the project areas would not be conducive to good eagle foraging, however one fire would open it up and create a suitable golden eagle foraging habitat from 2 years to at least up to 8 years post fire. Work involving road access construction for solar panel placement might also open up hunting territory. These are

unknowns but need to be considered when evaluating the overall potential impacts to golden eagles.

Over the past three years, WRI has had biologists studying golden eagles in the area just north of the proposed solar projects. During these studies, several non-resident hatch-year golden eagles have been observed flying north from Mexico. Although the natal origin of each of those birds has not been confirmed, WRI has records of more than [REDACTED] pairs of golden eagles in northern Baja California Norte, Mexico, and these transient eagles may be from breeding territories immediately south of the border.

Rugged LLC, LanEast LLC and LanWest Project Areas

Golden eagles at [REDACTED] use land apportioned in the Rugged LLC and LanEast LLC Project Areas as part of their territories; these territorial boundary data are based on ground observations and 25 years of monitoring (Figure 1). The Rugged LLC, LanEast LLC and LanWest LLC project footprints are located at the [REDACTED] [REDACTED] golden eagle territories; therefore usage at the project site is expected to be less than that in their core nesting areas. However, eagles will fly several miles to acquire food or water; Tule Lake, located just east of the project footprint is an area that the [REDACTED] golden eagles frequent to drink, bathe or hunt for waterfowl based on visual observations by WRI Senior Golden Eagle Biologist Dave Bittner and Randy West, BLM Biologist (pers. comm.). Golden eagles in the [REDACTED] territories have not been equipped with satellite transmitter backpacks but a VHF transmitter was placed on one young golden eagle from the [REDACTED] pair in 2007. This bird flew to Altamont Pass near Livermore, California, and was killed by collision with a wind turbine blade in the Altamont Wind Resource Center. During his first 6 months of life, he frequented the McCain Valley site on a number of occasions and always returned to [REDACTED] to roost.

Tierra del Sol Solar Farm LLC Project Area

Although the core nesting area has been documented, the complete boundary of the [REDACTED] golden eagle foraging territory is currently unknown. Based on best available information, an approximation is provided in Figure 1 from criteria that are documented in WRI's database of golden eagle information. WRI recommends that territory analyses be undertaken to determine the current status and activity within [REDACTED] golden eagle territory. Options for territory analysis include marking via satellite telemetry or ground surveys during an entire breeding season to determine the territory size and shape.

[REDACTED] Golden Eagle Territory

An extirpated golden eagle territory, "[REDACTED]" the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC project footprints (Figure 1). This void allows for subsumation of this territory by other golden eagles.

However, this territory has been considered extirpated since the 1980s. No resident golden eagles have been seen breeding in this territory for over 40 years. However, subsumation of habitat and extension of territories by neighboring golden eagles has been documented when a territory has become extirpated. Therefore, it would be possible for neighboring adult eagles to occasionally be seen in the old [REDACTED] territory.

[REDACTED] Golden Eagle Territory

The [REDACTED] pair of golden eagles has a long history of occupancy. The nest site was known and documented as early as 1920, although annual data only became available when WRI resumed observations at a later date. WRI began banding and monitoring the annual nesting and reproduction of this pair starting in 1990. Due to vehicle access to the area from [REDACTED], disturbance of the nesting pair has been occurring since monitoring began at the site in 1990. WRI worked with BLM during the 1990s in an effort to stop target shooting activities that occurred near the nesting cliffs. During this period, [REDACTED] with signs that designated the area as a no shooting zone. Also at this time a young banded golden eagle was documented by WRI to have been shot in the nest prior to fledging.

[REDACTED]

[REDACTED] Golden Eagle Territory

[REDACTED] golden eagle territory has been monitored consistently by WRI from 1990 to 2012. [REDACTED]

[REDACTED]

[REDACTED]. Through empirical nest evidence, WRI senior biologists established that this territory has likely existed throughout at least the last century. The same pair of golden eagles was found to be nesting in a second canyon within the [REDACTED]

[REDACTED]. This second nesting canyon is part of the core nesting area and has obviously been active for many years prior to being discovered by our biologists. [REDACTED] have been identified and some show signs of usage over multiple years.

During ground surveys conducted by WRI in 2011, this pair of golden eagles has been documented foraging and flying out of [REDACTED] near the area that is now the proposed Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC Project Sites (Figure 3). WRI is also monitoring this territory via motion-activated nest cameras installed in active and inactive nests, data that are currently in process of review (Photo 7 and Photo 8).

[REDACTED] Golden Eagle Territory

In 2010, WRI located the core nesting area in a golden eagle territory [REDACTED] with an active breeding pair of golden eagles who have successfully produced young in 2010 and 2012. Nest productivity was not checked by WRI in 2011. This pair of eagles has likely been established for some time prior to its discovery by WRI in 2010 due to [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]. WRI Senior Golden Eagle Biologists deduce that the primary hunting portion of the [REDACTED] territory of these golden eagles is east of their core nesting area. [REDACTED]

[REDACTED]
[REDACTED]

[REDACTED]. The core nest area is within [REDACTED] of the project. The hunting area has not been specifically confirmed so the use of the area by golden eagles near or within the Rugged LLC, LanEast LLC, LanWest LLC and Tierra del Sol Solar Farm LLC project footprints is not well defined by WRI Biologists. The exact territory boundary of this pair of golden eagles is currently unknown but WRI has provided our best estimate based on field observations (Figure 1).

[REDACTED] Golden Eagle Territory

WRI worked with the [REDACTED] to identify and define this golden eagle territory. WRI had identified the only known nest of the pair by 1990. Another nest site exists although the exact location has not been identified. Young golden eagles

have been seen on territory in years when the known nest site was not used. This type of observation suggests productivity and rearing of young is occurring at an unknown nest site. The territory covers [REDACTED] limiting access to thoroughly search all locations within the territory for the active nest site.

[REDACTED]
[REDACTED].

ACKNOWLEDGEMENTS

Many individuals, including those egg collectors like Dixon, who contributed their egg collections and notes to research institutions, helped make this project a success. Historical data was kindly shared by the Western Museum of Vertebrate Zoology, Los Angeles, California, university researchers, and educators with an interest in eagles, egg collectors and their helpers still living and other WRI Golden Eagle studies. Contributors on record for our comprehensive report of Golden Eagle history from private collections include early egg collectors J. B. Dixon, A.M. Ingersoll, Harry L. Heaton, Raymond Quigley, E.E. SeChrist, Maurice Burns, N. K. and B.P. Carpenter, and Ed N. Harrison.

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John Oakley, John gave graciously of his time, field experience and money for over 40 years to help us and others learn about the San Diego County Golden Eagles

Dr. Tom Scott, Professor, UC Riverside. Tom conducted research on Golden Eagles in San Diego County from 1978-1982 for a Masters' Thesis. Tom has continued to help on this project and is on WRI's Board of Advisors.

We would also like to thank all the kind people who allowed us access to their property or provided keys to their locked gates so that we could drive instead of walk all those miles. Since "time" is our most valuable commodity during breeding season surveys, every saved step contributes to the success of a project like this one. The Bureau of Land Management, California State Parks, City of San Diego Water District, US Fish and Wildlife Refuges, Miramar Marine Air Station, Camp Pendleton, San Diego Parks and Recreation Department, and many private ranchers helped by allowing access to their lands for the surveys necessary to retrieve data for our comprehensive database.

Without the help of the above individuals and organizations, and at least 100 other volunteers, who for over 24 years have helped WRI gather the data necessary to present this report, we could not have presented so much information or as complete a report. To them we extend a very special "Thank you."

WRI, through its members and private donations contributed over \$1,450,000 and thousands of volunteer hours, toward the gathering of the data used in this report. Without their contributions, this project could not have been undertaken.

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