

## 5.3 Biological Resources

This section addresses potential impacts to biological resources of the Ridgecrest Solar Power Project (RSPP or Project). The section is intended to support compliance by the California Energy Commission (CEC) with the requirements of the California Environmental Quality Act (CEQA), and by the Bureau of Land Management (BLM) with the requirements of the National Environmental Policy Act (NEPA). The two agencies are conducting a joint review of the Project and a combined CEQA/NEPA document will be prepared.

### Summary

RSPP impacts on biological resources would be less than significant with implementation of avoidance, minimization, and mitigation measures. The Project biological investigation included literature research, field surveys, and discussions with resources agencies staff. The investigation covered the 1,738-acre area that will be disturbed by Project construction and operation plus surrounding buffer area for a total study area acreage of about 9,312 acres.

The investigation focused on special-status plants and wildlife, including the federally and State-listed desert tortoise (DT), State-listed Mohave ground squirrel (MGS), and the western burrowing owl (WBO), a CDFG species of special concern. Spring surveys identified a total of 50 DTs in the study area, 40 inside the Project disturbance area and 10 in the buffer. The Project site is not located in DT critical habitat, or in a designated DT Desert Wildlife Management Area (DWMA). No MGS were observed in the study area, but 1,725.6 acres of suitable and 234.7 acres of high-quality MGS habitat occur within the disturbance area. A total of 844 acres of the RSPP disturbance area (south of Brown Road) occur within the MGS Conservation Area, a designated Wildlife Habitat Management Area. This represents 6.6 percent of the 12,801 acres allowed for development within the MGS Conservation Area. Several MGS records occur in the vicinity of the RSPP site, and thus MGS would be expected to occur in the area. One WBO pair, and four additional individuals were detected in the disturbance area, and an additional WBO pair was detected in the buffer. With implementation of avoidance, minimization, and mitigation measures, Project impacts to DT, MGS, and WBO would be less than significant.

One large and several associated smaller washes occur in the study area. Jurisdictional waters delineations indicate that there are unlikely to be waters considered jurisdictional by the U.S. Army Corps of Engineers (USACE), but the USACE has not yet provided official concurrence. However, there are about 16.6 acres of washes that are potential State jurisdictional waters in the disturbance area and these washes will be rerouted around the facility footprint. A Streambed Alteration Agreement (SAA) will be required. Project impacts to State waters would be less than significant with implementation of avoidance, minimization, and mitigation.

Mojave creosote bush scrub dominates the RSPP site, Mojave Desert wash scrub occurs along portions of desert washes; unvegetated ephemeral dry wash, and developed land also occur. Mojave Desert wash scrub and unvegetated ephemeral dry wash are considered sensitive vegetation communities by CDFG. No special-status plants were observed within or adjacent to the study area. No potentially important wildlife movement corridors or habitat linkages, as identified in the BLM's West Mojave Plan (WEMO) occur within or adjacent to the study area.

With implementation of the avoidance, minimization, and mitigation measures that would reduce Project impacts to less than significant, the Project's contribution to significant cumulative impacts would be less than considerable.

The section first addresses the applicable laws, ordinances, regulations, and standards (LORS) related to biological resources. Second, it describes the existing biological conditions in the biological resources survey area (BRSA) that encompasses the proposed RSPP disturbance area (area inside and outside the facility fence line that would be disturbed by the Project), solar facility footprint (area inside the facility fence line, i.e. solar fields, office and maintenance buildings, lay down area, drainage channels, bioremediation area, leach fields, a corridor for the transmission line and roads), and buffer. It also analyzes how construction and operation of the RSPP could potentially impact threatened, endangered, or special-status species or vegetation communities. Finally, the section identifies measures to mitigate potential adverse impacts. Additional detail on the biological surveys and studies that were performed and the names and qualifications of key staff conducting the surveys can be found in the Biological Resources Technical Report (BRTR) provided as Appendix F.

### 5.3.1 LORS Compliance

The RSPP will comply with applicable Federal, State, and local LORS throughout Project planning, construction and operation. Potentially applicable LORS relevant to biological resources within the RSPP's disturbance area are summarized in Table 5.3-1 and discussed below.

**Table 5.3-1 LORS Applicable to Biological Resources**

LORS	Applicability	Where Discussed In AFC
<b>Federal</b>		
Endangered Species Act of 1973 (ESA): 16 United States Code (USC) Section 1531 et seq., and implementing regulations, Title 50 CFR Section 17.1 et seq.	Designates and protects federally threatened and endangered plants and animals and their critical habitat. Requires Federal agency consultation with the U.S. Fish and Wildlife Service (USFWS) and issuance of Biological Opinion and incidental take authorization for listed species.	Sections 5.3.3 and 5.3.4
Migratory Bird Treaty Act (MBTA): 16 USC Sections 703-721	Prohibits the take of protected migratory birds.	Section 5.3.1
National Environmental Policy Act (NEPA): 42 USC Section 4321 et seq., and implementing regulations, Title 40 CFR Sections 1500-1508	Requires Federal agencies to analyze environmental impacts of proposed actions with a Federal nexus and to disclose impacts to the public.	Sections 5.3.3 and 5.3.4
California Desert Conservation Area Plan (CDCA) Plan	Under the Federal Land and Policy Management Act (FLPMA), BLM is required to develop Resource Management Plans. All activities proposed for public land must be consistent with the approved Resource Management Plan(s). The CDCA Plan, as amended by the West Mojave Plan (WEMO), is the resource management plan for the area including the BRSA.	Sections 5.3.1 and 5.7, Land Use
West Mojave Plan (WEMO)	Protects and conserves natural resources while simultaneously balancing human uses of the California portion of the Mojave Desert ecosystem. The WEMO is an amendment to the CDCA Plan (see below)	Sections 5.3.1 and Section 5.7, Land Use

**Table 5.3-1 LORS Applicable to Biological Resources**

<b>LORS</b>	<b>Applicability</b>	<b>Where Discussed In AFC</b>
<b>State</b>		
California Environmental Quality Act (CEQA): Public Resources Code Section 15000 et seq.	CEQA requires identification of significant environmental effects of proposed projects (including impacts on biological resources) and avoidance (where feasible) or mitigation of the significant effects. CEQA applies to “projects” proposed to be undertaken or requiring approval by State and/or local governmental agencies. “Projects” are activities that have the potential to have a physical impact on the environment. The CEC licensing process, under the Warren-Alquist Act, is a CEQA-equivalent process.	Sections 5.3.3 and 5.3.4
California Endangered Species Act of 1984 (CESA): Fish and Game Code (CFGC) Sections 2050 – 2098	Protects California’s endangered and threatened species, including species designated as candidates for listing.	Sections 5.3.3 and 5.3.4
CFGC Section 3503	Prohibits take, possession, or needless destruction of the nests or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto.	Section 5.3.1.2
CFGC Fully Protected Species: Sections 3503.3, 3511: Fully protected birds Section 4700: Fully protected mammals Section 5050: Fully protected reptiles and amphibians	Prohibits the taking of listed plants and animals that are classified as “Fully Protected” in California.	Section 5.3.1
Native Plant Protection Act of 1977 (NPPA): CFGC Section 1900 et seq.	Provides specific protection measures for identified populations of State-listed rare and endangered plants.	Section 5.3.1
Title 14 California Code of Regulations (CCR) Section 670.2 and 670.5	Listings of plants and animals of California declared to be threatened or endangered.	Section 5.3.1
Streambed Alteration Agreement (SAA): CFGC Section 1600 et seq.	Requires California Department of Fish and Game (CDFG) to review project impacts to waters of the State (bed, banks, channel, or associated riparian areas of a river, stream, or lake), including impacts to wildlife and vegetation from sediments, diversions, and other disturbances.	Sections 5.3.3 and 5.3.4
The 1969 Porter-Cologne Water Quality Control Act (Porter-Cologne): California Water Code (CWC) Section 13000 et seq.	Regulates discharges of waste and fill material to waters of the State, including “isolated” waters and wetlands.	Section 5.3.1

**Table 5.3-1 LORS Applicable to Biological Resources**

LORS	Applicability	Where Discussed In AFC
<b>Local</b>		
Land Use, Conservation and Open Space Element: Kern County General Plan (2003)	Provides land use designations, goals, and policies for the development and conservation of land within the unincorporated areas of Kern County.	Sections 5.3.1 and 5.7, Land Use

### 5.3.1.1 Federal LORS

Federal LORS that are applicable to the RSPP are discussed below.

#### **Endangered Species Act (ESA) (16 USC Section 1531 et seq.)**

This 1973 law, administered by USFWS, is designed to minimize impacts to imperiled plants and animals, as well as facilitate recovery of such species. Declining plant and animal species are listed as “endangered” or “threatened” based on a variety of factors. Applicants for projects requiring Federal agency action that could adversely affect listed species are required to consult with and mitigate impacts in consultation with USFWS. Adverse impacts are defined as “take” (“to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct”), which is prohibited except as authorized through consultation with USFWS and issuance of an Incidental Take Statement under Section 7 or Section 10 of the ESA, depending on whether there is a Federal nexus (Federal permit required or funding involved). The entire Project disturbance area and majority of the BRSA, is managed by BLM, providing a Federal nexus. Therefore, the Project will conduct the ESA consultation process under Section 7.

#### **Migratory Bird Treaty Act (MBTA) (16 USC Sections 703-712)**

This law prohibits actions resulting in the pursuit, capture, killing, and/or possession of any protected migratory bird, nest, egg, or parts thereof. USFWS maintains a list of designated migratory birds occurring in various regions of the United States. This regulation can constrain construction activities that have the potential to affect nesting birds either through vegetation removal and land clearing or other construction- or operation-related disturbance.

#### **Clean Water Act (CWA) (33 USC Section 1251 et seq.)**

Through formal field surveys following the latest established Federal protocol and guidance documents for delineating jurisdictional waters of the U.S., including hydrological investigation and analysis, the Project team determined that the disturbance area does not support jurisdictional waters of the U.S. No field surveys to delineate jurisdictional waters outside the disturbance area were conducted, with the exception of a small area surveyed within the previous disturbance limits of the Project prior to changes in the proposed Project. It is anticipated that U.S. Army Corps of Engineers (USACE) will not assert jurisdiction over any waters and/or aquatic features occurring within the disturbance area. Final acreages of jurisdictional waters of the U.S. will be based on the USACE’s approved jurisdictional determination (JD) process per the March 30, 2007, USACE Jurisdictional Determination Form Guidebook; the June 5, 2007, Approved JD Form; the June 5, 2007, Joint Guidance Memorandum; the December 2, 2008, Guidance Memorandum; or Regulatory Guidance Letter (RGL) 08-02 (if RGL 08-02 is deemed applicable and appropriate [i.e., the permit applicant, or other “affected party” can decline to request and obtain an Approved JD and elect to use a Preliminary JD instead]).

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**NEPA (42 USC Section 4321 et seq.)**

NEPA (42 USC Section 4321 et seq.) established a national policy for promoting environmental protection that includes a multidisciplinary approach to considering environmental effects in decision making is intended to “encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man...”

NEPA requires Federal agencies to analyze and publicly disclose of the environmental impacts of a proposed project. To do so, Federal agencies are required to prepare either an Environmental Assessment or, where an action may significantly affect the quality of the human environment, an Environmental Impact Statement (ELIS). These documents explore project alternatives and identify the likely environmental consequences of each action. These documents contain statements of the environmental impacts and include mitigation measures to lessen the effects of a proposed project to the extent practicable. The significance of an impact is determined by both its context and its intensity. “Context” includes society as a whole, the affected region, the affected interests, and the locality. “Intensity” refers to the severity of impact, including “the degree to which the action may adversely affect an endangered or threatened species or habitat that has been determined to be critical under [ESA].” Based on the potential for significant environmental impacts, it is anticipated that BLM would be required to prepare an ELIS for the proposed Project to satisfy NEPA, within the context of the CEC-BLM MOU, which calls for a joint NEPA/CEQA process.

**California Desert Conservation Area (CDCA) Plan**

Per Title 43 CFR Section 1610.5-3, BLM must manage the land within its jurisdiction in compliance with a Resource Management Plan. The entire Project disturbance area and majority of the BRSA will be located on lands under BLM jurisdiction and managed pursuant to the CDCA Plan. The CDCA Plan serves as a guide for the management of all BLM-administered lands in three desert areas: the Mojave, the Sonoran, and a small portion of the Great Basin. The CDCA Plan covers approximately 25 million acres, of which 12 million are public lands. The primary goal of the CDCA Plan is to provide overall maintenance of the land while planning for multiple uses and balancing the needs of people with the protection of the natural environment.

**West Mojave Plan (WEMO)**

The Federal Land Policy and Management Act (FLPMA) requires the BLM to develop land use plans, also known as Resource Management Plans, to guide BLM's management of public land. BLM is required to determine conformity of the Project with the CDCA Plan including the WEMO, which is an amendment to the CDCA Plan. The WEMO is the result of a multiagency Federal, State, and local planning effort. This plan was prepared under the regulations implementing the Federal Land Policy and Management Act of 1976. The WEMO is a multispecies landscape-scale habitat conservation plan and a CDCA Plan amendment developed: to protect and conserve the desert tortoise (*Gopherus agassizii*; DT), Mohave ground squirrel (*Spermophilus mohavensis*; MGS), and numerous other sensitive species and their habitats; to prevent future species listing; and provide a consistent, cost-effective, streamlined process for complying with threatened and endangered species law. The WEMO designates Areas of Critical Environmental Concern (ACECs) and other special management areas, designates off-road travel routes on public lands, reclassifies various land use categories for appropriate uses, and establishes regional standards and guidelines for grazing, mineral exploration and development, recreation, and other public land uses to meet the goals and objectives of the plan.”

Key components of the WEMO designed to promote species conservation include: the establishment of four DT Conservation Areas (CAs), designated by WEMO as Desert Wildlife Management Areas (DWMAs); a MGS CA; and 11 additional species and habitat-based conservation areas. The WEMO

specifically identifies goals and objectives for the protection and conservation of DT, MGS, and western burrowing owl (*Athene cunicularia hypugaea*; WBO) in addition to several other sensitive species occurring in the planning area. The WEMO includes compensatory mitigation requirements for projects proposed in the Plan area, with mitigation fees required for all new ground-disturbing activities located on public lands.

The portion of the Project located south of Brown Road would be built within the WEMO-designated MGS CA. The Project is not located within any WEMO-designated DT DWMA. The closest DT DWMA, the Fremont-Kramer DWMA, is located approximately seven miles southeast of the Project. Section 5.7 (Land Use) of this document provides additional information of the requirements of the CDCA Plan/WEMO.

### 5.3.1.2 State LORS

The following are State LORS that are applicable to the RSPP.

#### **CEQA (Public Resources Code [PRC] Section 15000 et seq.)**

CEQA requires identification of significant environmental effects of proposed projects (including impacts on biological resources) and avoidance (where feasible) or mitigation of the significant effects. CEQA applies to “projects” proposed to be undertaken or requiring approval by State and/or local governmental agencies. “Projects” are activities that have the potential to have a physical impact on the environment. The California Energy Commission (CEC) licensing process, under the Warren-Alquist Act, is a CEQA-equivalent process.

#### **California Endangered Species Act (CESA) (California Fish and Game Code [CFG] Section 2050 et seq.)**

This State law prohibits the “take” (defined as “to hunt, pursue, catch, capture, or kill”) of State-listed species except as otherwise provided in State law. CESA, administered by CDFG, is similar to the Federal ESA, although unlike the Federal law, CESA applies incidental take prohibitions to species currently petitioned for State-listing status (i.e., candidate species). State lead agencies are required to consult with the CDFG to ensure that their authorized actions are not likely to jeopardize the continued existence of any State-listed species or result in the degradation of occupied habitat.

Under Section 2081, CDFG authorizes “take” of State-listed endangered, threatened, or candidate species through incidental take permits or memoranda of understanding if: (1) the take is incidental to otherwise lawful activities; (2) impacts of the take are minimized and fully mitigated; (3) the permit is consistent with regulations adopted in accordance with any recovery plan for the species in question; and (4) the applicant ensures suitable funding to implement the measures required by the CDFG.

Because DT has been confirmed as present within the RSPP disturbance area and MGS is assumed present based on habitat suitability, it is expected that a Section 2081 incidental take permit (ITP) will need to be obtained prior to Project implementation to comply with CESA, and in the case of DT, a take authorization under Section 7 of the Federal ESA will be required (described in Section 5.3.1.1). CDFG may agree to provide a consistency determination for DT indicating that the Federal ESA permit meets the requirements of CESA, in which case the 2081 ITP would only be needed for MGS. Although the Applicant will work closely with CDFG, the formal permit issuance, if required, will occur through the CEC licensing process.

#### **CFG Section 3503**

This Code prohibits take, possession, or needless destruction of the nests or eggs of any bird, except as otherwise provided by the code or any regulation made pursuant thereto.

**CFG Section 3503.5**

This Code makes it unlawful to take, possess, or destroy birds of prey. It also prohibits the take, possession, or destruction of nests or eggs of any bird of prey.

**CFG Section 3511**

This law describes bird species, primarily raptors, that are “fully protected.” Fully protected birds may not be taken or possessed, except under specific permit requirements.

**CFG Sections 4700, and 5050**

These Codes list mammal, amphibian, and reptile species that are classified as fully protected in California.

**Native Plant Protection Act (NPPA) (CFG Section 1900 et seq.)**

The NPPA includes measures to preserve, protect, and enhance rare and endangered native plant species. Definitions for “rare and endangered” are different from those contained in CESA, although CESA-listed rare and endangered species are included in the list of species protected under the NPPA.

**Title 14, California Code of Regulations [CCR] Sections 670.2 and 670.5**

These regulations list plant and animal species designated as threatened and endangered in California. California species of special concern (SSC) is a category applied by CDFG to those species that are indicators of regional habitat changes or are considered potential future protected species. SSCs do not have any special legal status, but are intended by CDFG for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.

**CFG Section 1600 et seq.**

CDFG regulates all changes to the natural flow, bed or bank, of any river, stream, or lake that supports fish or wildlife resources. A stream is defined broadly as a body of water that flows at least periodically, or intermittently, through a channel that has banks and that supports fish or other aquatic biota. Such areas are formally referred to as “waters of the State.” Impacts to vegetation and wildlife from sediment, diversions, and other disturbances are included in the review.

Project proponents must provide CDFG with written notification before activities begin that will:

- Substantially divert or obstruct the natural flow of any river, stream, or lake;
- Substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake.

Notification is generally required for any activity that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks and support fish or other aquatic life, and watercourses having a surface or subsurface flow that support or have supported riparian vegetation. Generally, CDFG is concerned with activities that have the potential to impact State-regulated resources at the activity site, as well as the effects of those actions on the ecosystem at and surrounding the activity (i.e., upstream, downstream, and neighboring). As the Project’s disturbance area contains potential “waters of the State,” the Project will submit a CFGC Section 1603 Lake and

Streambed Alteration Agreement (SAA) notification to CDFG. Although the Applicant will work closely with CDFG, the formal SAA process will occur through the CEC licensing process.

**1969 Porter-Cologne Water Quality Control Act (Porter-Cologne) (California Water Code Section 13000 et seq.)**

Through a programmatic agreement between the Federal government and the State, the Regional Water Quality Control Board (RWQCB) has primary authority for permit and enforcement activities under Porter-Cologne and the CWA. Under Porter-Cologne, the RWQCB regulates the “discharge of waste” to waters of the State. The term “discharge of waste” is also broadly defined in Porter-Cologne, such that discharges of waste include fill, any material resulting from human activity, or any other “discharge” that may directly or indirectly impact waters of the State relative to implementation of Section 401 of the CWA.

Porter-Cologne authorizes the RWQCB to regulate discharges of waste and fill material to waters of the State, including “isolated” waters and wetlands, through the issuance of waste discharge requirements (WDRs). Under Porter-Cologne all parties proposing to discharge waste that could affect the quality of waters of the State, other than into a community sewer system, shall file with the appropriate RWQCB a Report of Waste Discharge (ROWD) containing such information and data as may be required by the RWQCB. The RWQCB will then respond to ROWD by issuing a WDR in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. The RWQCB has a statutory obligation to prescribe WDRs except where the RWQCB finds that a waiver of WDRs for a specific type of discharge is in the public interest. Therefore, all parties proposing to discharge waste that could affect waters of the State, but do not affect Federal waters (which requires a CWA Section 404 permit and CWA Section 401 Certification) must file an ROWD with the appropriate RWQCB.

**5.3.1.3 Local LORS**

**Kern County General Plan, Land Use, Conservation, and Open Space Element (2007)**

Kern County requires that habitats of threatened or endangered species should be protected to the greatest extent possible. The administering agency is the Kern County Planning Department. Refer to Section 5.7 (Land Use) of this document for a discussion of the applicability of the Kern County General Plan to the Project.

**5.3.1.4 Involved Agencies**

The Federal, State, and local agencies involved in biological resource issues related to the RSPF are provided in Table 5.3-2. Copies of correspondence with agency personnel are provided in Appendix F.

**Table 5.3-2 Agencies and Agency Contacts**

<b>Agency Contact</b>	<b>Phone/E-mail</b>	<b>Permit/Issue</b>
Hector Villalobos, Field Manager Bureau of Land Management Ridgecrest Field Office 300 S. Richmond Road Ridgecrest, CA 93555	(760) 384-5400 Hector_villalobos@ca.blm.gov	Right-of-Way (ROW) Permit and preparation of EIS per NEPA
Danielle Dillard, Wildlife Biologist USFWS Ventura Office 2493 Portola Road, Suite B Ventura, CA 93003	(805) 644-1766 danielle_dillard@fws.gov	Federal ESA, Section 7 Consultation

**Table 5.3-2 Agencies and Agency Contacts**

<b>Agency Contact</b>	<b>Phone/E-mail</b>	<b>Permit/Issue</b>
Jeffrey Single, Regional Manager CDFG Central Region 1234 E. Shaw Avenue Fresno, CA 93710	(559) 243-4005 JSingle@dfg.ca.gov	Section 2081 Take Permit, SAA Section 1600.
Mark Durham, Branch Chief USACE Regulatory Division 915 Wilshire Blvd Los Angeles, CA 90017-3401	(213) 452-3416 mark.durham@usace.army.mil	Concurrence that disturbance area and linears do not include "waters of the U.S."

**5.3.1.5 Required Permits and Permit Schedule**

As shown in Table 5.3-3, the proposed Project may require several permits that are specific to biological resources issues.

**Table 5.3-3 Required Biological Resource Permits and Permitting Schedule**

<b>Permit/Approval</b>	<b>Schedule</b>
Federal ESA, Section 7 Consultation	Because DT was confirmed present on the RSPP site, a take authorization under Section 7 of the Federal ESA will be required, as well as a Section 10(a)(1)(A) permit for the monitoring or handling of a Federal listed species. Section 7 Consultation will be initiated by BLM to obtain a Biological Opinion from USFWS for the Project. Section 7 consultation for this project is triggered by a ROW application to BLM from the Applicant. A Biological Assessment (BA) for the Project's effect on desert tortoise will be prepared and submitted to BLM and USFWS to initiate formal consultation. It is anticipated that the Draft BA will be submitted in January 2010. Once the Final BA is submitted by BLM the 135-day consultation period with USFWS begins.
California Endangered Species Act, Incidental Take (2081) Permit (ITP)	CDFG will be invited to participate in the Section 7 consultation with USFWS regarding species protected under both the ESA and the CESA. For this Project, desert tortoise and Mohave ground squirrel are the only State-listed species detected or assumed present on site. A Section 2081 permit may be required to comply with CESA for take of MGS, or in the case of DT, a CDFG consistency determination with the USFWS Biological Opinion may be issued. If the project determines that pursuing the 2081 is more appropriate, the Draft 2081 would be submitted in January 2010. Once the Final 2081 is submitted, CDFG provides their determination to the CEC and 2081 take authorization is included in the CEC Decision Document. A separate 2081 ITP will not be issued by CDFG. Additionally, a Memorandum of Understanding would be necessary for the handling of State-listed species.
CDFG 1602 SAA	The SAA application will be submitted to CDFG approximately three months after the AFC submittal. CDFG provides their determination to the CEC and SAA authorization is included in the CEC Decision Document. A separate SAA will not be issued by CDFG.

## 5.3.2 Affected Environment

### 5.3.2.1 Regional Location

The proposed RSPP site is located approximately five miles southwest of Ridgecrest, approximately six miles southeast of Inyokern, and less than one mile to the southwest of U.S. Highway 395 in eastern Kern County, California. The Project disturbance area (area inside and outside the facility fence line that would be disturbed by the Project) is composed of a large, contiguous area consisting of approximately 1,738 acres of undeveloped land administered by BLM. Other sections of this Application have applied a rounded up estimate of 1,742 acres for this area; plus an approximate 15 acres offsite for the proposed water pipeline, which will be located within existing roadway ROW, yet to be surveyed. When further rounded up, the disturbance in other sections of the Application has been estimated at 1,760 acres.

### 5.3.2.2 Project Site Description

The solar energy facilities and associated construction and operation activities for the RSPP will occur within the 1,738-acre disturbance area (Figure 5.3-1). Topography in the Project site is generally flat with elevations ranging from approximately 2,580 feet in the north to approximately 2,800 feet in the south. The RSPP site is located on an alluvial fan that slopes northward from the El Paso Mountains to the southwest; it consists primarily of undeveloped open space. The most notable topographic features include an ephemeral drainage passing generally from south to north, and a series of rock outcrops located in the eastern portion of the site near the intersection of Brown Road and U.S. Highway 395.

The RSPP site is located on Federal BLM land that is entirely within the WEMO planning area and is designated as BLM Multiple Use Class "Limited" and "Unclassified". Prior to project implementation, a CDCA (California Desert Conservation Area Plan) Plan Amendment will be required. Historic and current uses of the site (both approved and unapproved) include grazing allotments, off-road vehicle use, target practice, and trash dumping. The El Paso Mountains Wilderness Area is located to the southwest of the Project site, just beyond the one-mile buffer. The China Lake Naval Air Weapons Station (NAWS) occurs approximately six miles to the north and over 15 miles to the east.

### 5.3.2.3 Special-status Biological Resources

For the purposes of this report, species are considered to have special-status if they meet at least one of the following criteria:

- Covered under the Federal or California Endangered Species Act (ESA and CESA, respectively);
- CDFG species of special concern (SSC);
- CDFG fully-protected species;
- BLM sensitive species (BLM Sensitive);
- Covered as a State protected fur-bearing mammal (PFM) (California Code of Regulations [CCR]) (Title 14 CCR Section 460); or
- Listed by the CNPS as List 1A (presumed extinct in California); 1B (rare, threatened, and endangered in California and elsewhere); or 2 (rare, threatened, or endangered in California, but more common elsewhere). CNPS List 1A, 1B, and 2 species are considered special-status plant species if they fall within any of these categories as defined in the NPPA, CFGC Section 1901 or the CESA (CFGC Sections 2050 through 2098).

Prior to beginning field surveys, Project biologists consulted the CDFG California Natural Diversity Database (CNDDDB) (RareFind Version 3.1.0) the CNPS Inventory of Rare and Endangered Plants, and the Natural Resources Conservation Service (NRCS) Web Soil Survey. These resources along with the CDFG Special Animals list and range maps were consulted to determine historic occurrence of special-status plant and wildlife species and other sensitive natural resources within the BRSA, and within 10 miles of the Project disturbance area (Figure 5.3-2). Additionally, the USFWS provided a memo detailing special-status species that they require to be considered (Appendix F).

In addition, the WEMO was reviewed for maps of lands designated for Wildlife Management Areas; documentation of sensitive species, such as Red Rock tarplant (*Deinandra arida*), DT, MGS, and WBO. Several special-status plant and wildlife species with potential for occurrence on the Project site are included in the WEMO.

Habitat requirements for special-status species were evaluated with respect to conditions in the BRSA. Surveys were initiated to determine presence or absence of species with the potential to occur on or near the BRSA. The following 24 special-status species were identified as having the potential to occur on or near the BRSA, and are discussed in detail below:

#### **Federal- or State-Listed (ESA or CESA)**

- Red Rock tarplant (*Deinandra arida*, syn. *Hemizonia a.*) – CESA rare, CNPS List 1B.2, WEMO
- Mojave tarplant (*Deinandra mohavensis*, syn. *Hemizonia m.*) – CESA endangered, CNPS List 1B.3, WEMO
- Desert tortoise (*Gopherus agassizii*) – ESA and CESA threatened, WEMO
- Mohave ground squirrel (*Spermophilus mohavensis*) – CESA threatened, WEMO

#### **CDFG SSCs, PFM, BLM Sensitive or CNPS List 1A, 1B, or 2**

- Alkali mariposa lily (*Calochortus striatus*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Brown fox sedge (*Carex vulpinoidea*) – CNPS List 2.2
- Muir's tarplant (*Carlquistia muirii*, syn. *Raillardiopsis m.*) – CNPS List 1B.3, BLM Sensitive
- Gilman's goldenbush (*Ericameria gilmanii*) – CNPS List 1B.3
- Hall's daisy (*Erigeron aequifolius*) – CNPS List 1B.3, BLM Sensitive, WEMO
- Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) – CNPS List 1B.2, BLM Sensitive
- Creamy blazing star (*Mentzelia tridentata*) – CNPS List 1B.3, BLM Sensitive
- Sweet-smelling monardella (*Monardella beneolens*) – CNPS List 1B.3, BLM Sensitive, WEMO
- Charlotte's phacelia (*Phacelia nashiana*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Nine-mile canyon phacelia (*Phacelia novemmillensis*) – CNPS List 1B.2, BLM Sensitive, WEMO
- Latimer's woodland gilia (*Saltugilia latimeri*) – CNPS List 1B.2
- Northern harrier (*Circus cyaneus*) – CDFG SSC, WEMO
- Western burrowing owl (*Athene cunicularia hypugaea*) – CDFG SSC, BLM Sensitive, WEMO
- Bendire's thrasher (*Toxostoma bendirei*) – CDFG SSC, BLM Sensitive, WEMO
- Le Conte's thrasher (*Toxostoma lecontei*) – BLM Sensitive, WEMO

- Loggerhead shrike (*Lanius ludovicianus*) – CDFG SSC, WEMO
- American badger (*Taxidea taxus*) – CDFG SSC
- Desert kit fox (*Vulpes macrotis arsipus*) – PFM (California Code of Regulations)
- Nelson’s bighorn sheep (*Ovis canadensis nelsonii*) – BLM Sensitive, WEMO
- Pallid bat (*Antrozous pallidus*) – CDFG SSC, BLM Sensitive

Additionally, vegetation communities and cover types classified as “sensitive” were identified within the BRSA, and include those that are of special concern to CDFG due to their unique nature, limited distribution, or importance as habitat for special-status species and common wildlife. Also included are those that contain vegetation associated with perennial and intermittent drainages that are subject to seasonal flooding or are associated with jurisdictional waters of the U.S. (Section 1602 of the California Fish and Game Code, Sections 401 and 404 of CWA). The WEMO additionally designated several habitat conservation areas and areas of critical environmental concern (ACECs) identified as being of regional importance for cultural, scenic and natural resource values. Other than the MGS conservation area present within the disturbance area south of Brown Road, no other ACECs occur within or adjacent to the BRSA.

#### 5.3.2.4 Survey Protocols

During spring 2009, Project biologists completed the following surveys: vegetation mapping; focused rare plant surveys; jurisdictional delineation of waters; general wildlife surveys; protocol DT surveys; protocol WBO surveys; MGS habitat suitability assessment; and avian point count surveys. Comprehensive biological resource survey methodologies were designed to meet all applicable USFWS, BLM, CDFG, and CEC requirements. This chapter details the specific methodologies and protocols utilized for biological resources surveys within the biological resources survey area (BRSA) for the Project. The BRSA is a combination of the 1,760-acre disturbance area (area inside and outside the facility fence line that would be disturbed by the RSPP), a 1,000-foot buffer around Project linear features, and a 1-mile buffer around the disturbance area, as required by the CEC (hereafter collectively defined as the “buffer”). The BRSA is shown in Figure 5.3-1. The disturbance area for the purposes of this section of the document (5.3 Biological Resources) is 1,738 acres because it does not include the proposed water line. The proposed water line route is in the planning stages and has not been surveyed for biological resources yet. The water line route and other minor adjustments to the site plan, estimated at up to an additional 15 acres of disturbance offsite, have not yet been surveyed. As soon as Project designs are finalized, the proposed water line route and additional 15 acres will be surveyed (anticipated spring 2010) and results will be provided during the post-AFC submittal portions of the combined CEC/BLM RSPP review process.

Figure 5.3-3 illustrates the various survey areas defined by the agency survey protocols used for the Project, including those from the CEC, BLM, USFWS, and California Burrowing Owl Consortium (CBOC) (as adopted by CDFG).

Qualifications of field biologists conducting surveys for the Project are presented in Appendix F.

#### **CEC Survey Guidelines**

Biological survey methodologies for the Project were formulated in conformance, first and foremost, with the CEC’s *Draft Recommended Biological Resources Field Survey Guidelines for Large Solar Projects*, dated May 8, 2007, (hereafter referred to as CEC Draft Solar Guidelines). The CEC Draft Solar Guidelines recommend that biological surveys be conducted according to established protocols within and around the proposed disturbance area and additional surveys be conducted as necessary to ultimately cover a one-mile buffer around the disturbance area to evaluate suitable habitat and record occurrence and sign of special-status species in this area. The CEC Draft Solar Guidelines

were also intended to evaluate potential wildlife habitat and corridors in the RSPP vicinity that may be disrupted as a result of Project implementation.

The CEC Draft Solar Guidelines reference “established protocols,” which in the case of species listed as threatened or endangered by the Federal or State government, are guidelines promulgated by the USFWS or CDFG, respectively. In an effort to gain consensus regarding the survey methodologies to be employed, the Project team initiated discussions with the USFWS, BLM, CDFG and the CEC (hereafter collectively referred to as “the agencies”). A document entitled *Proposed Survey Protocols for the Solar Millennium Parabolic Trough Projects 2009* (Proposed Survey Protocols) was prepared by EDAW AECOM, and was discussed with relevant staff from the above-mentioned agencies via a conference call held on February 11, 2009. The protocols were modified slightly based on input received during this call. The revised version of the Proposed Survey Protocols was transmitted to agency staff on February 20, 2009, and is included in Appendix F.

The agencies reviewed the Proposed Survey Protocols collectively. It was determined that a unified agency response would be compiled and forwarded by CDFG. Agency input was received in the form of an email from Kimberly Nicol of CDFG dated March 10, 2009, and is included in Appendix F. The clarifications and elaborations requested by the agencies were incorporated.

The final version of the Proposed Survey Protocols is a compilation of the actual agency-required survey methodologies mentioned above, with modifications arising from the March 10, 2009 comments. Modifications to the standard USFWS DT survey protocol were made based on the need to incorporate CEC requirements as well as to make adjustments to standard survey protocols based on input received from individual agencies. Adjustments included the elimination of Zone of Influence (ZOI) transects from DT surveys and the addition of DT abundance estimates for the Project site according to the revised USFWS DT protocol. For more detail on the rationale for this adjustment refer to “Desert Tortoise” further below in this section. Additionally, based on information provided by CDFG, BLM, and MGS species expert Dr. Phil Leitner during a field visit to the Project site on April 29, 2009, no protocol-level trapping surveys were conducted for MGS because it is assumed that this species could occur within the BRSA (refer to “Mohave Ground Squirrel” under Special-status Wildlife Surveys below).

Figure 5.3-3 illustrates the various survey areas defined by the agency survey protocols used for the Project, including those from the CEC, BLM, USFWS, and CBOC (as adopted by CDFG).

### **Vegetation Communities**

Vegetation mapping was conducted within the BRSA between February 18 and May 8, 2009 by Project botanists. Vegetation communities within the BRSA were classified based on Holland, Sawyer and Keeler-Wolf and CDFG classifications were used to provide additional detail when needed. Project botanists utilized 200-foot scale ortho-topographic maps for both vegetation mapping and recording rare plant points or polygons. If rare plants were documented during vegetation mapping, these sites were revisited during additional focused rare plant surveys (see “Rare Plant Surveys” below) in order to accurately delineate species populations using Global Positioning System (GPS) equipment.

The minimum vegetation mapping unit, per CEC guidelines, was 0.01 acre for riparian areas and 1.0 acre for all other cover types within the disturbance area. Within the buffer, the minimum mapping unit for all land cover types was 1.0 acre. Vegetation communities were characterized based on the dominant plant species, according to the 50/20 dominance rule. Vegetation mapping within the disturbance area was conducted concurrently with rare plant surveys, by walking transects ranging from 10 feet to 100 feet apart. The buffer was also surveyed by walking transects within native

habitat, but developed areas were surveyed by a combination of walking transects and selecting key vantage points from existing dirt access roads.

Invasive species designated as List A-1, A-2, and B of the California Invasive Plant Council were noted when occurring in high concentrations (approximately 107 square feet or more) and nearly monotypic stands. Vegetation communities and cover types classified as “sensitive” according to CDFG, or delineated as potential waters of the U.S. or the State were identified within the BRSA.

### **State Waters Streambed Delineation**

Project ecologists conducted field assessments and surveys from March 6 through March 11, 2009, to formally delineate all jurisdictional “waters of the State” (jurisdictional waters) occurring within the disturbance area.<sup>1,2</sup> Jurisdictional delineations within the disturbance area were conducted based upon the one-parameter method outlined in CDFG/USFWS guidance documents and classification manual(s) to define presence and State jurisdictional extent. A field visit to the RSPP site by CDFG to review delineated State jurisdictional waters was conducted on July 2, 2009.

### **Rare Plant Surveys**

Rare plant surveys were conducted within the BRSA between February 11 and May 6, 2009, by Project botanists. A list of potentially occurring special-status plant species was compiled prior to surveys based on the following: results from previous survey efforts in the vicinity of the Project, CDFG’s CNDDDB (RareFind Version 3.1.0), CNPS Inventory of Rare and Endangered Plants, the NRCS Web Soil Survey, and Project biologists with floral expertise in the region of the proposed Project. In addition, the WEMO was reviewed for documentation of sensitive species. At the direction of BLM, cottontop cactus (*Echinocactus polycephalus* var. *polycephalus*), hedgehog cactus (*Echinocereus* sp.), and any species of the genus *Ferocactus* were recorded and mapped when encountered on site. The portions of the BRSA with potential to support rare plants were surveyed by botanists walking parallel transects ranging from 10 feet to 100 feet apart based on the distribution of botanical resources and topography. Transects were walked within native habitat, but developed areas were surveyed by a combination of walking transects and selecting key vantage points from existing dirt access roads.

### **General Wildlife Surveys and Avian Point Count Surveys**

General wildlife surveys were conducted concurrently with protocol wildlife surveys and vegetation mapping to document all wildlife species observed on site and to assess the suitability of the BRSA to support special-status wildlife species. General wildlife surveys were conducted from February to June 2009. Wildlife sign and sightings were recorded and special-status species were mapped using GPS units.

Point count surveys were conducted to characterize avian use of the BRSA during the spring breeding season. These surveys were requested by BLM and are based on the methodology outlined in the *Handbook of Field Methods for Monitoring Landbirds* and guidance from the BLM. Point counts were conducted for four consecutive weeks between April 14 and May 8, 2009. A total of 24 point count stations were established along three transect lines (8 stations per transect); transects were placed in a configuration designed to sample all major vegetation types and habitat features (e.g., low lying wash, upland) represented on the RSPP site. Each transect line was composed of eight 328-foot

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<sup>1</sup> Through field surveys, topographical and hydrological investigation and analysis, the Project team determined that the facility footprint does not support jurisdictional waters of the U.S. A formal determination and documentation of the absence of waters under USACE jurisdiction occurring within the facility footprint is currently being pursued through the USACE’s Jurisdictional Determination process.

<sup>2</sup> The jurisdictional delineation focused on the area within the disturbance area. Therefore there are no jurisdictional waters data for areas outside the disturbance area (i.e. the buffer area).

(100-meter) radius point count stations, each placed 820 feet (250 meters) apart (Figure 5.3-3). This design allows for a 164-foot (50-meter) zone between each point count, a distance considered sufficient to minimize or avoid duplicate counts of individual birds.

### **Special-status Wildlife Surveys**

Focused protocol surveys were conducted for DT, WBO, and MGS are described below. Surveys for other special-status species were conducted concurrently with these protocol surveys (see “General Wildlife Surveys and Avian Point Count Surveys” above).

*Desert Tortoise.* On February 14, 2009, prior to DT protocol surveys, Project biologists conducted a DT habitat assessment of the BRSA. Focused surveys for DT were completed between March 7 and May 28, 2009. The DT focused surveys followed the guidelines published in the USFWS *Field Survey Protocol for any Non-Federal Action That May Occur within the Range of the Desert Tortoise*, with the following exception: no surveys were conducted of the five ZOI transects that are typically required outside of and parallel to the disturbance area at 100, 300, 600, 1,200, and 2,400 feet. This modification to the DT survey protocol was agreed upon prior to survey initiation by the USFWS, CDFG, BLM, and CEC, per an email communication dated March 10, 2009, from Kimberly Nicol (Appendix F). To comply with the recommendations of the CEC Draft Guidelines, transects outside of and parallel to the disturbance area were surveyed for DT at 3,960 feet (0.75 -mile) and 5,280feet (one mile) out from and parallel to the edge of the disturbance area. These transects were more broadly focused than the DT protocol transects conducted inside the Project disturbance area and were not a formal part of the DT survey.

Adult DT abundance was estimated within the disturbance area at the request of USFWS. As described in the Preparing for Any Action That May Occur Within the Range of the Mojave Desert Tortoise (*Gopherus agassizii*) survey methodology the estimated abundance of adult DTs within the disturbance area (area surveyed) is:

$$\text{Estimated \# of Tortoises} = \frac{\text{Number of DTs observed above-ground}}{(P_a) (P_d)}$$

where:

$P_a$  = the probability that a tortoise is above ground-based on estimated rainfall from October 2008 through March 2009 (Source: Western Regional Climate Center site <http://www.wrcc.dri.edu/summary/Climsmsca.html> monthly totals and Table 1 from the USFWS protocol). The total rainfall at the Inyokern weather station during this time period was 1.5 inches, which corresponds to a probability ( $P_a$ ) of 0.64, with a variance of 0.08.

$P_d$  = the probability of detecting a tortoise, if above-ground (specified as 0.63 in the USFWS protocol)

The following additional information was used to estimate abundance of adult DTs:

- The number of DTs observed above-ground includes only DTs that are greater than or equal to 6.25 inches (160 mm) midline carapace length (adult) that were observed above-ground by surveyors.
- Above-ground is defined as all DTs that were observed (in burrows and above ground).
- DTs for which it wasn't possible to determine size class (i.e. deep in burrow) were included as adult DTs in this calculation.
- Abundance estimates are valid only for the disturbance area (area surveyed).

Density of adult DTs within the disturbance area was also calculated.

*Mohave Ground Squirrel.* No CDFG protocol trapping surveys for MGS were conducted within the BRSA due to guidance from species expert, Dr. Phil Leitner, and CDFG and BLM biologists. MGS trapping was not expected to accurately reflect MGS occurrence (or lack of occurrence) on the RSPP site given the species' tendency for dynamic population fluctuations in known occupied areas. Additionally during early consultation, CDFG and USFWS indicated that they would assume that this species was present on the Project site. Therefore, a habitat assessment in lieu of trapping was conducted by Dr. Leitner to quantify MGS habitat within the Project disturbance area. The MGS habitat assessment included a visual evaluation of conditions on the Project site as well as at numerous locations in the vicinity where MGS have been previously documented. Dr. Leitner conducted field surveys in support of the MGS habitat assessment for a total of three days in December 2008 and June 2009. Dr. Leitner also attended an onsite meeting on April 29, 2009 with Project biologists, David Hacker of CDFG, and BLM staff to discuss potential Project impacts to MGS.

*Western Burrowing Owl.* WBO surveys were performed according to the protocol established by the CBOC and accepted by CDFG. The CBOC protocol requires that the disturbance area as well as a 492-foot (150-meter) buffer surrounding the disturbance area be surveyed according to the CBOC protocol. Additionally as noted earlier in Section 5.3.2.4, the CEC requires a habitat evaluation within a 1-mile buffer surrounding the disturbance area. The CBOC protocol involves three phases of surveys: Phase I is a habitat assessment to determine if suitable habitat for the WBO exists on site; Phase II involves mapping all potential WBO burrows; Phase III involves four repeat presence/absence focused WBO surveys during the breeding season, and if there are no detections, during the wintering season as well. All three phases of WBO surveys were completed between February 14 and June 15, 2009; phase III surveys were completed between April 16 and June 15, 2009. No WBO surveys were performed during the wintering seasons since WBO was detected on the Project site during the breeding season. All WBO observations and WBO sign were recorded on data forms (Appendix F), and mapped with GPS units.

### 5.3.2.5 Survey Results

The existing conditions presented in this chapter represent findings within the BRSA (as defined in Section 5.3.2.4). The following sections describe existing conditions present on site in spring 2009 for vegetation communities, jurisdictional areas, and special-status plant and wildlife species.

#### Vegetation Communities

Four vegetation communities and other land cover types were identified within the BRSA during vegetation mapping: Mojave Desert wash scrub, unvegetated ephemeral dry wash, Mojave creosote bush scrub, and developed land (Table 5.3-4, Figure 5.3-4). The acreages of each vegetation community within the BRSA are provided below. Vegetation communities and land cover types are described in detail below and are based on a classification system by Holland. No seasonal or perennial aquatic habitats are present within the BRSA.

**Table 5.3-4 Vegetation Communities and Cover Types (Acres)**

<b>Vegetation Communities and Other Cover Types</b>	<b>Disturbance Area<sup>a</sup></b>	<b>Buffer (1-mile)</b>	<b>BRSA</b>
Mojave Desert Wash Scrub	8.2	50.2	58.4
Unvegetated Ephemeral Dry Wash	8.4	35.2 <sup>b</sup>	43.6
Mojave Creosote Bush Scrub	1,721.1	7,375.1	9,096.2
Developed	0.5	113.5	114.0
<b>Total Acres</b>	<b>1,738.2</b>	<b>7,574.0</b>	<b>9,312.2</b>

**Table 5.3-4 Vegetation Communities and Cover Types (Acres)**

Vegetation Communities and Other Cover Types	Disturbance Area <sup>a</sup>	Buffer (1-mile)	BRSA
<p><sup>a</sup> Disturbance area is based on the most recent design, as shown in Figure 5.3-1.</p> <p><sup>b</sup> Unvegetated channels are potentially jurisdictional aquatic features and were not mapped within the buffer because these surveys were conducted at a minimum mapping unit of 1.0 acre, as opposed to 0.01 of an acre for riparian vegetation communities within the disturbance area. This approach is consistent with the EDAW AECOM Jurisdictional Delineation methodology and is pursuant to Appendix B, Section (g), Subsection (13), Paragraph (B), Clause (iii) of the CEC Siting Regulations, which does not require detailed mapping of aquatic features beyond 250 feet of the disturbance limits.</p>			

#### *Mojave Desert Wash Scrub*

Mojave Desert wash scrub is designated by Holland as Code 63700. It also approximates the Sawyer and Keeler-Wolf's Catclaw Acacia Series 129. This vegetation community consists of an open to moderately dense evergreen scrub that attains a height of 3 to 6 feet. This community consists of three primary components: wash-dependent vegetation, vegetated ephemeral dry wash, and islands of Mojave creosote bush scrub (e.g., riparian interfluves). The dominant and indicator plant of this community within the BRSA is scale-broom (*Lepidospartum squamatum*), which occurs in patches throughout the dry washes scattered amongst creosote bush (*Larrea tridentata*), spiny senna (*Senna armata*), cheesebush (*Hymenoclea salsola*), burroweed (*Ambrosia dumosa*), Virgin River brittlebush (*Encelia virginensis*), and rayless goldenhead (*Acamptopappus sphaerocephalus*). Common herbaceous plants include California desert dandelion (*Malacothrix californica*), Fremont pincushion (*Chaenactis fremontii*), distant phacelia (*Phacelia distans*), and Wallace eriophyllum (*Eriophyllum wallacei*). Mojave Desert wash scrub is concentrated among the northern portion of the dry wash that traverses the central portion of the BRSA from south to northwest (Figure 5.3-4).

Approximately 8.2 acres of Mojave Desert wash scrub were mapped within the disturbance area and 50.2 acres in the buffer, for a total of 58.4 acres within the BRSA (Figure 5.3-4).

#### *Unvegetated Ephemeral Dry Wash*

This community consists of unvegetated washes that are dominated by sandy substrate and little to no perennial vegetation. Unvegetated ephemeral dry wash (which approximates nonvegetated channel, Holland Code 64200) predominantly occurs within the transition zone between the desert wash scrub, in locations where the washes transition to sheet flow (Figure 5.3-4). There were no dominant perennial plant species, specifically scale-broom which is the dominant indicator of Mojave Desert wash scrub, observed in association with nonvegetated channel as these areas are primarily devoid of vegetation.

Approximately 8.4 acres of unvegetated ephemeral dry wash occur within the disturbance area within the central wash and 35.2 acres in the buffer, for a total of 43.6 acres within the BRSA (Figure 5.3-4).

#### *Mojave Creosote Bush Scrub*

Mojave creosote bush scrub is designated by Holland as Code 34100 and Sawyer and Keeler-Wolf as the Catclaw Acacia Series 129. This community type occurs on well-drained decomposed granite and volcanic soils, and consists of widely spaced shrubs up to nine feet tall. This is the most common plant community within the BRSA, dominated by creosote bush, burroweed, cheesebush, and Virgin River brittlebush. Common herbaceous species include redstem stork's bill (*Erodium cicutarium*), Mediterranean grass (*Schismus* sp.), needle goldfields (*Lasthenia gracilis*), and blue dicks (*Dichelostemma capitatum*).

A large volcanic outcrop occurs along the western edge of the BRSA, where the Mojave creosote bush scrub becomes sparser and the herbaceous layer becomes more diverse. Vegetation associated with this outcrop includes such species as Parish's larkspur (*Delphinium parishii* ssp. *parishii*), snake's head (*Malacothrix coulteri*), and dwarf cottonrose (*Logfia depressa*). In the central-eastern portion of the BRSA, large granite boulder outcrops occur within the Mojave creosote bush scrub. In this area, sub-shrubs such as desert brickellbush (*Brickellia desertorum*), Eastern Mojave buckwheat (*Eriogonum fasciculatum* var. *polifolium*), and Cooper's goldenbush (*Ericameria cooperi*) become more common.

Approximately 1,721.1 acres of Mojave creosote bush scrub were mapped within the disturbance area and 7,375.1 acres in the buffer, for a total of 9,096.2 acres within the BRSA (Figure 5.3-4).

#### *Developed Areas*

Developed areas within the BRSA consist of roadways and residential lots. Brown Road is a two-lane paved roadway that traverses the entire central portion of the BRSA from east to west. In addition numerous unpaved dirt roads (over approximately 10 miles) traverse the Project site. U.S. Highway 395, a two-lane freeway, is located just east of the BRSA. Borders of paved roadways are highly managed and many of these areas are devoid of vegetation. Vegetation is also very limited on dirt roads; plants only occasionally grow along the center-line and are indicative of surrounding vegetation. A few residential lots occur within the BRSA at the northwestern corner of the disturbance area, while more extensive residential development occurs in the northeast corner of the BRSA at the outer limits of Ridgecrest, California. Plant composition on residential lots is primarily non-native, especially within the residential development in the northeast portion of the BRSA.

Approximately 0.5 acre of developed area was mapped within the disturbance area, and 113.5 acres in the buffer, for a total of 114.0 acres within the BRSA (Figure 5.3-4).

#### **State Jurisdictional Waters**

All Mojave Desert wash scrub and unvegetated ephemeral dry washes within the disturbance area were delineated as potential waters of the State (Figure 5.3-5) by Project ecologists. A detailed analysis of the waters of the State within the disturbance area is provided in the Jurisdictional Delineation Report which is included in Attachment B of Appendix F. Potential waters of the State were not delineated outside of the disturbance area, with the exception of a small area that was surveyed within the previous disturbance area, prior to changes in the proposed project; these data are not displayed in this document, but are presented in the JDR included in Appendix F.

The primary wash on site (El Paso Wash) is composed of several washes varying in width from 10 to 40 linear feet across interspersed between upland areas within the disturbance area. It extends up to approximately 17,000 linear feet across the disturbance area, in a southeast-to-northeast orientation. The El Paso Wash is the only feature that supports Mojave Desert wash scrub within the disturbance area. Unvegetated ephemeral dry wash, which is primarily devoid of wash-dependent plant species due to less availability of surface and subsurface hydrology, primarily occurs within the east and southeast portions of the disturbance area. The two smaller ephemeral washes located within the western portion of the disturbance area (e.g., secondary washes) are between 10 and 40 linear feet across each and generally run parallel to El Paso wash. Both washes could be considered part of El Paso wash.

The total area of all waters of the State delineated within the disturbance area is approximately 16.6 acres. Of these 16.6 acres of jurisdictional waters, 8.2 acres are composed of Mojave Desert wash scrub and 8.4 acres are composed of unvegetated ephemeral dry wash (Table 5.3-5). Of the 8.2 acres of Mojave Desert wash scrub occurring within the disturbance area, 0.4 acre is composed of

wash-dependent vegetation (absolute cover), 7.8 acres are composed of vegetated ephemeral dry wash, and there are no riparian interfluves (Figure 5.3-5).

**Table 5.3-5 Potential Jurisdictional Waters of the U.S. and State Occurring within the Disturbance Area<sup>a</sup>**

Type of Jurisdictional Waters	Type of Habitat (Holland 1986)	Type of Habitat (Cowardin et al. 1979)	Area of Aquatic Resource (ac) <sup>b, c</sup>
<b>Jurisdictional Waters of the U.S.</b>			
None	N/A	N/A	0.00
<i>Total USACE Waters =</i>			<i>0.00</i>
<b>Subtotal Jurisdictional Waters of the U.S.</b>			<b>0.00</b>
<b>Jurisdictional Waters of the State</b>			
Xeric Riparian Extent	Mojave Desert wash scrub (Holland Code 63700)	Palustrine; Scrub/Shrub, Broad-Leaved, Evergreen, Intermittently Flooded/Temporary, Well Drained/Fresh, Alkaline	8.2
Ephemeral Channel	Unvegetated ephemeral dry wash (e.g., Nonvegetated Channel [Holland Code 64200])	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Temporary, Well Drained/Fresh, Alkaline	8.4
<i>Total CDFG Waters =</i>			<i>16.6</i>
<b>Subtotal Jurisdictional Waters of the State</b>			<b>16.6</b>
<b>Grand Total Jurisdictional Waters</b>			<b>16.6</b>
<p>a Based upon the total area of potential jurisdictional waters delineated within the disturbance area. Final acreages of jurisdictional waters of the U.S. will be based upon the JD process undertaken by USACE/USEPA to confirm the findings of the JDR (see Appendix F). The total area of federally regulated waters may change as a result of the formal JD process.</p> <p>b Acreage of all potential jurisdictional waters occurring within the disturbance area was determined by using the GIS program ArcGIS. All acreages are rounded to the nearest tenth.</p> <p>c Disturbance area is based on the updated Project design (August 10, 2009).</p>			

### **Flora**

This section discusses plant species detected within the BRSA or with potential to occur on site. A total of 112 plant species were detected during vegetation mapping and rare plant surveys within the BRSA (Appendix F). Of all plant species detected, 106 are native and 6 are non-native species. A detailed summary of rare plant survey results is provided in the Botany Survey Report included in Appendix F. No Federal listed, State-listed, or other special-status plants were observed within the BRSA during spring 2009 surveys. A discussion of the special-status plant species categories and species detected within the BRSA follows. In addition, at the request of BLM, a section is included on cactus species detected within the BRSA.

### *Federal and State-Listed Plant Species*

No Federal or State-listed plant species were detected within the BRSA during spring 2009 surveys. Based on review of regional databases, including a CNDDDB record search, site-specific habitat evaluations conducted by Project botanists and literature review, two State-listed plant species were identified as potentially occurring in the BRSA: Mojave tarplant and Red Rock tarplant. However, upon visiting nearby locations of known habitat for Mojave tarplant, it was determined that habitat for this species has low potential to occur within the BRSA. Habitat for Red Rock tarplant may be present, but this species is considered to have low potential for occurrence due to the low water flow in the dry washes of the BRSA. Neither of these two species was detected during spring 2009 surveys.

The closest recorded occurrence of Mojave tarplant is approximately 15 miles northwest of the BRSA in Short Canyon. Plants have been observed in similar terrain to the BRSA near Jawbone Canyon. The closest occurrence of Red Rock tarplant to the BRSA is approximately 18 miles to the southwest. Field observations of plants near Red Rock State Park on May 6, 2009, a reference population from CNDDDB, confirm that a few specimens of this species were flowering during the time period that surveys were conducted by Project botanists in spring 2009. Therefore, the Red Rock tarplant would likely have been detected on site, if present, since this species was observed blooming at a nearby location during the time period surveys were conducted on the RSPP site. Based on results of rare plant surveys, occurrences of these species in the vicinity and habitat evaluations on the RSPP, both Mojave tarplant and Red Rock tarplant were determined to have a low potential to occur within the BRSA (Table 5.3-6).

### *Other Special-status Plant Species*

No other non-listed special-status plant species (i.e., CNPS List 1B or 2) were detected within the BRSA. However, 11 other special-status plants, in addition to the State-listed species mentioned above, were evaluated for their potential to occur in the BRSA because these species were either known to occur in the region or were identified as having the potential to occur in the region based on regional databases (CNDDDB); site-specific habitat evaluations conducted by EDAW; and literature review (see Section 5.3.2.4 Rare Plant Surveys above).

Two of the 11 non-listed special-status plants had a moderate potential to occur within the BRSA: Red Rock poppy (*Eschscholzia minutiflora* ssp. *twisselmannii*) and creamy blazing star (*Mentzelia tridentata*) (Table 5.3-6). These species are both associated with Mojave creosote bush scrub, and the Red Rock poppy occurs on volcanic tuff. Suitable habitat for both of these species occurs in the BRSA (Table 5.3-6). Neither of these species was detected during spring 2009 surveys.

Two of the 11 non-listed special-status plants had a low potential to occur within the BRSA: Charlotte's phacelia (*Phacelia nashiana*) and Latimer's woodland-gilia (*Saltugilia latimeri*) (Table 5.3-6). Only marginally suitable habitat occurs for these species within the BRSA and none of these species was detected during surveys in spring 2009. Additionally, off-road vehicle activity and invasive plant establishment contribute to a lower probability of these species occurring within the BRSA.

Seven species of non-listed special-status plants were not expected to occur within the BRSA due to the lack of suitable habitat: alkali mariposa-lily (*Calochortus striatus*), brown fox sedge (*Carex vulpinoidea*), Muir's tarplant (*Carlquistia muirii*), Gilman's goldenbush (*Ericameria gilmanii*), Hall's daisy (*Erigeron aequilifolius*), sweet-smelling monardella (*Monardella beneolens*), and nine-mile canyon phacelia (*Phacelia novenmillensis*). Alkali mariposa-lily and brown fox sedge need more mesic conditions. Muir's tarplant, Gilman's goldenbush, Hall's daisy, sweet smelling monardella, and nine-mile canyon phacelia all occur from 16.8 to 19 miles away from the BRSA at much higher elevations in the foothills of the eastern Sierra Nevada (Table 5.3-6).

*Cactus Species*

The BLM requested that cottontop cactus, hedgehog cactus, and any varieties of California barrel cactus (*Ferocactus spp.*), be mapped for future salvage when construction begins. Only four species of cactus were found in the BRSA: silver cholla (*Opuntia echinocarpa*), beavertail pricklypear (*Opuntia basilaris*), Mojave fish-hook cactus (*Sclerocactus polyancistrus*), and cottontop cactus. Mojave fish-hook cactus is listed by CNPS as a watch list species and three plants were found in the southwest portion of the buffer survey area of the BRSA. One species targeted by the BLM, cottontop cactus, was observed; three specimens of this species were located in the eastern portion of the disturbance area and one specimen which was located near these individuals within the buffer (Figure 5.3-4).

Table 5.3-6 Special-Status Plant Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status <sup>1</sup>	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area <sup>2</sup>	Potential for Occurrence within the Buffer <sup>2</sup>
Mojave tarplant ( <i>Deinandra mohavensis</i> , syn. <i>Hemizonia m.</i> )	CESA: Endangered CNPS: List 1B.3 WEMO	Chaparral, riparian scrub on low sand bars, mostly in riparian areas or in ephemeral grasslands 2,500 – 4,800 feet.	Annual herb to 1 foot that blooms July – September.	This species was not detected within the BRSA during spring 2009 surveys. Marginally suitable habitat for this species is present in the dry washes within the BRSA. The nearest record of this species is 15 miles to the northwest of the BRSA in Short Canyon.	Low	Low
Red Rock tarplant ( <i>Deinandra arida</i> , syn. <i>Hemizonia a.</i> )	CESA: Rare CNPS: List 1B.2 WEMO	Mojavean desert scrub where water has collected along ephemeral streams; clay soils 900 – 2,800 feet.	Annual herb to 3 feet that blooms May to November.	This species was not detected within the BRSA during spring 2009 surveys. Marginally suitable habitat for this species is present in the dry washes within the BRSA. The nearest documented population occurs 18 miles to the southwest of the BRSA in Red Rock State Park.	Low	Low
Alkali mariposa-lily ( <i>Calochortus striatus</i> )	CNPS: List 1B.2 BLM: Sensitive WEMO	Chaparral, chenopod scrub, meadows and seeps 200 – 4, 800 feet.	Perennial herb to 6 inches that flowers April – June.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not occur within the BRSA. This species prefers more mesic sites than those that occur within the BRSA. The nearest record of this species is 25 miles to the northwest of the BRSA.	Not Expected	Not Expected

Table 5.3-6 Special-Status Plant Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status <sup>1</sup>	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area <sup>2</sup>	Potential for Occurrence within the Buffer <sup>2</sup>
Brown fox sedge ( <i>Carex vulpinoidea</i> )	CNPS: List 2.2	Marshes and swamps riparian woodland 90 – 3,600 feet.	Perennial herb that blooms May – June.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not occur within the BRSA. This species prefers more mesic sites than those that occur within the BRSA. The nearest record of this species is 13.8 miles to the northwest of the BRSA.	Not Expected	Not Expected
Muir's tarplant ( <i>Carlquistia muirii</i> , syn. <i>Raillardiopsis m.</i> )	CNPS: List 1B.3 BLM: Sensitive	Chaparral, montane coniferous forest in crevices of granite ledges and dry sandy soils 3,300 – 7,500 feet.	Rhizomatous herb < 2 feet that blooms July to August.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Nine-Mile Canyon.	Not Expected	Not Expected
Gilman's goldenbush ( <i>Ericameria gilmanii</i> )	CNPS: List 1B.3	Subalpine coniferous forest, montane coniferous forest, generally on limestone 6,300 – 10,200 feet.	Shrub to 2 feet that blooms August to September.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak.	Not Expected	Not Expected

Table 5.3-6 Special-Status Plant Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status <sup>1</sup>	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area <sup>2</sup>	Potential for Occurrence within the Buffer <sup>2</sup>
Hall's daisy ( <i>Erigeron aequifolius</i> )	CNPS: List 1B.3 BLM: Sensitive WEMO	Broadleafed upland forest, lower montane coniferous forest, pinyon and juniper woodland, upper montane coniferous forest, rocky, granitic soils 4,500 – 13,500 feet.	Rhizomatous herb to 1 foot that blooms July – August.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak.	Not Expected	Not Expected
Red Rock poppy ( <i>Eschscholzia minutiflora</i> ssp. <i>twisselmannii</i> )	CNPS: List 1B.2 BLM: Sensitive	Mojavean desert scrub on volcanic tuff 2,000 – 6,120 feet.	Annual herb to 1 foot that blooms March – May.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species occurs in the western portion of the BRSA. The nearest documented population occurs 8.5 miles southeast of the BRSA.	Moderate	Moderate
Creamy blazing star ( <i>Mentzelia tridentata</i> )	CNPS: List 1B.3 BLM: Sensitive	Mojave desert scrub 2,100 – 3,500 feet.	Annual herb to 1 foot that blooms March – May.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species occurs within the BRSA. The nearest documented population occurs 17.5 miles southwest of the BRSA.	Moderate	Moderate

Table 5.3-6 Special-Status Plant Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status <sup>1</sup>	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area <sup>2</sup>	Potential for Occurrence within the Buffer <sup>2</sup>
Sweet-smelling monardella ( <i>Monardella beneolens</i> )	CNPS: List 1B.3 BLM: Sensitive WEMO	Alpine boulder and rock field, subalpine coniferous forest, upper montane coniferous forest 7,500 – 10,500 feet.	Rhizomatous herb to 1 foot that blooms July –September.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 19 miles to the northwest of the BRSA near Owen's Peak.	Not Expected	Not Expected
Charlotte's phacelia ( <i>Phacelia nashiana</i> )	CNPS: List 1B.2 BLM: Sensitive WEMO	Joshua tree "woodland," Mojave desert scrub, pinyon and juniper woodland 1,800 – 6,600 feet.	Annual herb to 8 inches that blooms April – May.	This species was not detected within the BRSA during spring 2009 surveys. Marginally suitable habitat is present within the BRSA. The nearest documented population occurs 12 miles to the west of the BRSA.	Low	Low
Nine-mile canyon phacelia ( <i>Phacelia novemmillensis</i> )	CNPS: List 1B.2 BLM: Sensitive WEMO	Broadleafed upland forest, cismontane woodland, pinyon and juniper woodland, upper montane coniferous forest 4,935 – 7,920.	Annual herb to 4 inches that blooms May – June.	This species was not detected within the BRSA during spring 2009 surveys. Habitat for this species does not exist within the BRSA. The nearest documented population occurs 16.8 miles to the northwest of the BRSA near Owen's Peak.	Not Expected	Not Expected

Table 5.3-6 Special-Status Plant Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status <sup>1</sup>	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area <sup>2</sup>	Potential for Occurrence within the Buffer <sup>2</sup>
Latimer's woodland-gilia ( <i>Saltugilia latimeri</i> )	CNPS: List 1B.2	Chaparral, Mojave desert scrub, pinyon and juniper woodland 1,200 – 5,700 feet.	Annual herb to 1 foot that blooms March – June.	This species was not detected within the BRSA during spring 2009 surveys. Marginally suitable habitat is present within the BRSA. The nearest documented population occurs 16.3 miles to the northwest of the BRSA.	Low	Low
<p><sup>1</sup> <b>Sensitivity Status Key</b></p> <p>CESA Endangered, California Endangered Species Act (CESA)</p> <p>CDFG Rare</p> <p>CNPS California Native Plant Society Lists:</p> <p>1B: Considered rare, threatened, or endangered in California and elsewhere.</p> <p>2: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere</p> <p>Decimal notations: .1 - Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California</p> <p>BLM Special-status Plants</p> <p>WEMO Special-status species considered in analysis of the West Mojave Plan</p> <p><sup>2</sup> <b>Species Potential for Occurrence</b></p> <p>Not Expected – Species not detected during Project surveys and not expected to occur</p> <p>Low Potential – Species not detected during Project surveys, but has low potential to occur because suitable habitat present, but of marginal quality</p> <p>Moderate Potential – Species not detected during Project surveys, but has moderate potential to occur because suitable habitat present</p> <p>High Potential – Species not detected during Project surveys, but has high potential to occur because suitable habitat present, and species known to occur within the vicinity</p> <p>Present – Species detected during Project surveys</p>						

## **Fauna**

This section discusses wildlife species detected or with potential to occur in the BRSA. In total, 77 animal species were detected during general reconnaissance and protocol wildlife surveys (Appendix F). Of these, nine special-status wildlife species were observed within the BRSA (Table 5.3-7); although three of these species were likely migrating individuals and not expected to occur regularly in the BRSA (and are not included in Table 5.3-7). The nine special-status wildlife species detected in the BRSA were:

- Desert tortoise
- Western burrowing owl
- Loggerheaded shrike
- Le Conte's thrasher
- American Badger
- Desert kit fox
- Yellow Warbler
- Yellow-headed blackbird
- Vaux's swift

One additional special-status species has a high potential (MGS), one species has a moderate potential (northern harrier), and three species have a low potential to occur (Bendire's thrasher, Nelson's bighorn sheep, and pallid bat) in the BRSA (Table 5.3-7). A discussion of non special-status wildlife species observed in the BRSA is provided below, followed by detailed discussions of each special-status species detected within the BRSA.

**Reptiles.** Seventeen species of reptiles were observed within the BRSA during spring 2009 surveys. Reptile species most commonly observed within the BRSA include the western whiptail (*Cnemidophorus tigris*), side-blotched lizard (*Uta stansburiana*), desert horned lizard (*Phrynosoma platyrhinos*), zebra-tailed lizard (*Callisaurus draconoides*), gopher snake (*Pituophis catenifer*), and desert iguana (*Dipsosaurus dorsalis*). These species were relatively common throughout the habitat types observed within the BRSA. Sagebrush or western fence lizard (*Sceloporus spp.*), long-nosed leopard lizard (*Gambelia wislizenii*), common chuckwalla (*Sauromalus ater*), common kingsnake (*Lampropeltis getula*), Mojave rattlesnake (*Crotalus scutulatus*), sidewinder (*Crotalus cerastes*), long-nosed snake (*Rhinocheilus lecontei*), and western lyre snake (*Trimorphodon biscutatus*) were also observed in the BRSA. One special-status reptile species, the Federal and State-threatened DT, was observed in the BRSA. A more detailed discussion of this species is provided below.

**Birds.** A detailed analysis of avian use of the BRSA is provided in the Avian Point Count Technical Report included as Attachment H. Additional incidental observations of avian species in the BRSA were made during various protocol surveys conducted on the Project site. The following summarizes avian use of the BRSA based on point count survey results and incidental detections by Project biologists.

A total of 41 bird species were detected during spring 2009 surveys. Of these, 14 species of resident breeding birds were recorded in the BRSA between April 14 and June 15, 2009. Cumulatively, across all habitat types, horned lark (*Eremophila alpestris*) and sage sparrow (*Amphispiza bellii*) were the most commonly recorded species during the point count surveys. Black-throated sparrow (*Amphispiza bilineata*) was also frequently detected.

**Table 5.3-7 Special-status Wildlife Species Detected or With Potential to Occur in the BRSA**

<b>Common Name Scientific Name</b>	<b>Sensitivity Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Survey Results and Discussion</b>	<b>Potential for Occurrence within the Disturbance Area<sup>2</sup></b>	<b>Potential for Occurrence within the Buffer<sup>2</sup></b>
<b>Reptiles</b>					
Desert tortoise ( <i>Gopherus agassizii</i> )	ESA: Threatened CESA: Threatened WEMO	Various desert scrubs and desert washes up to about 5,000 feet, but not including playas.	Fifty DTs were observed during surveys in spring 2009, 40 of which were within the disturbance area. Twenty-two occupied DT burrows and 48 DT burrows with sign of recent use (presumed active), were also documented in the BRSA. Based on survey results, 69 adult DT are estimated to occur in the disturbance area, equivalent to a density of approximately 0.040 DT per acre.	Present	Present
<b>Birds</b>					
Northern harrier ( <i>Circus cyaneus</i> )	CDFG: Species of Special Concern, Priority 3 (nesting) WEMO	Occurs in open sage scrub, desert scrub, grasslands, and agricultural fields during migration and in winter. Does not breed in the desert, but is fairly common in winter and during periods of migration.	This species was not detected within the BRSA. No suitable nesting habitat is present in the BRSA; however, species could forage in the BRSA during the nonbreeding season. Documented regular breeding in the west Mojave Desert is limited to Paiute Ponds on Edwards Air Force Base and Harper Dry Lake.	Moderate (nonbreeding)	Moderate (nonbreeding)

**Table 5.3-7 Special-status Wildlife Species Detected or With Potential to Occur in the BRSA**

<b>Common Name Scientific Name</b>	<b>Sensitivity Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Survey Results and Discussion</b>	<b>Potential for Occurrence within the Disturbance Area<sup>2</sup></b>	<b>Potential for Occurrence within the Buffer<sup>2</sup></b>
Western burrowing owl ( <i>Athene cunicularia hypugaea</i> )	CDFG: Species of Special Concern Priority 2 BLM: Sensitive WEMO	Found mainly in grassland and open scrub from the seashore to foothills. Also found in deserts and scrublands. Strongly associated with the burrows of ground squirrels or other fossorial mammals.	Seven active burrows were located in three separate regions of the BRSA, including five main or nest burrows and two satellite burrows. Of these, the 4 main or nest burrows and both satellite burrows were recorded in the disturbance area. A minimum of eight burrowing owls were detected, including at least two nesting pairs with juveniles.	Present	Present
Loggerhead shrike ( <i>Lanius ludovicianus</i> )	CDFG: Species of Special Concern, Priority 2 WEMO	Occurs in semi-open country with utility posts, wires, and trees to perch on.	One loggerhead shrike was detected during avian point count surveys in the disturbance area; three additional shrikes were observed during WBO and DT surveys, two of which were in the disturbance area. High-quality nesting habitat is limited in the BRSA due to the lack of larger shrubs and trees, and low abundance of thorny vegetation.	Present	Present

Table 5.3-7 Special-status Wildlife Species Detected or With Potential to Occur in the BRSA

Common Name Scientific Name	Sensitivity Status <sup>1</sup>	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area <sup>2</sup>	Potential for Occurrence within the Buffer <sup>2</sup>
Le Conte's thrasher ( <i>Toxostoma lecontei</i> )	CDFG: Species of Special Concern, Priority 1 (San Joaquin Valley population only) BLM: Sensitive WEMO	Open desert scrub, desert washes, and alluvial fans with sandy or alkaline soils. Where it occurs, silver cholla is the preferred nesting substrate.	One pair of Le Conte's thrasher was detected in the disturbance area on May 8, 2009, during avian surveys; a single Le Conte's thrasher was also observed during DT surveys, also in the disturbance area. Suitable habitat is present throughout the BRSA. Silver cholla, the preferred nesting plant, occurs in the BRSA.	Present	High
Bendire's thrasher ( <i>Toxostoma bendirei</i> )	CDFG: Species of Special Concern, Priority 3 BLM: Sensitive WEMO	Mojave Desert scrub with either <i>Yucca</i> spp., <i>Opuntia</i> spp., or other succulents present.	This species was not detected within the BRSA and is not expected to occur. Although Mojave creosote bush scrub and Mojave Desert wash scrub are potentially suitable for Bendire's thrasher, they are considered low quality for this species due to only sparse cover by succulents and lack of <i>Yucca</i> spp.	Not Expected	Not Expected
<b>Mammals</b>					
Mohave ground squirrel ( <i>Spermophilus mohavensis</i> )	CESA: Threatened WEMO	Mojave Desert shrub vegetation. High-quality habitat includes a diversity of shrub species, native herbaceous plants, and sandy or loamy soils that provide suitable substrate for burrow construction.	This species was not detected within the BRSA; however, the BRSA contains suitable habitat for MGS, including some high-quality habitat. This species is expected to occur in the BRSA. There have been 24 detections within 5 miles of the BRSA, generally to the north, outside of the MGS conservation area.	High	High

**Table 5.3-7 Special-status Wildlife Species Detected or With Potential to Occur in the BRSA**

<b>Common Name Scientific Name</b>	<b>Sensitivity Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Survey Results and Discussion</b>	<b>Potential for Occurrence within the Disturbance Area<sup>2</sup></b>	<b>Potential for Occurrence within the Buffer<sup>2</sup></b>
American badger ( <i>Taxidea taxus</i> )	CDFG: Species of Special Concern	Coastal sage scrub, mixed chaparral, grassland, oak woodland, chamise chaparral, mixed conifer, pinyon-juniper, desert scrub, desert wash, montane meadow, open areas, and sandy soils.	Badger was detected in the BRSA outside the disturbance area by a single digging and claw marks, approximately 3,500 feet north of the disturbance area. No badgers or their sign were detected in the Project disturbance area.	Moderate	Present
Desert kit fox ( <i>Vulpes macrotis arsipus</i> )	Calif. Code of Regulations: PFM	This fossorial species is found in desert habitats of western states.	Desert kit fox burrows, complexes, and scat were commonly observed throughout the BRSA during spring 2009 surveys. A total of four active kit fox burrows/complexes were detected within the disturbance area, and also in the buffer.	Present	Present
Nelson's bighorn sheep ( <i>Ovis canadensis nelsoni</i> )	BLM: Sensitive WEMO	Mountain slopes with sparse growth of trees above the desert floor in California. The species prefers open areas that are steep and rocky to avoid predators.	This species was not detected within the BRSA. Bighorn sheep has been reintroduced to China Lake NAWS, over 15 miles east-southeast of the BRSA. Bighorn sheep are not expected to occur within the BRSA due to low habitat quality and because the Project site does not occur between occupied mountain ranges.	Not Expected	Not Expected

**Table 5.3-7 Special-status Wildlife Species Detected or With Potential to Occur in the BRSA**

<b>Common Name Scientific Name</b>	<b>Sensitivity Status<sup>1</sup></b>	<b>Habitat Requirements</b>	<b>Survey Results and Discussion</b>	<b>Potential for Occurrence within the Disturbance Area<sup>2</sup></b>	<b>Potential for Occurrence within the Buffer<sup>2</sup></b>
Pallid bat ( <i>Antrozous pallidus</i> )	CDFG: Species of Special Concern BLM: Sensitive	This gregarious species usually roosts in small colonies in rock crevices and buildings but may nest in caves, mines, rock piles, and tree cavities.	This species was not detected within the BRSA. Potential roosting habitat for pallid bat is present in the large granite boulder outcrops in the central-eastern portion of the BRSA. However, this area is highly disturbed by recreational users.	Low	Low
<p><b><sup>1</sup> Sensitivity Status Key</b></p> <p>Federal Endangered Species Act (ESA)</p> <p>State California Department of Fish and Game (CDFG) California Endangered Species Act (CESA)</p> <p>BLM Sensitive</p> <p>WEMO Special-status species considered in analysis of the West Mojave Plan</p> <p><b><sup>2</sup> Species Potential for Occurrence</b></p> <p>Not Expected – Species not detected during Project surveys and not expected to occur</p> <p>Low Potential – Species not detected during Project surveys, but has low potential to occur because suitable habitat present, but of marginal quality</p> <p>Moderate Potential – Species not detected during Project surveys, but has moderate potential to occur because suitable habitat present</p> <p>High Potential – Species not detected during Project surveys, but has high potential to occur because suitable habitat present, and species known to occur within the vicinity</p> <p>Present – Species detected during Project surveys</p>					

Nine of the 14 resident bird species were detected within Mojave creosote bush scrub; this community averaged 2.9 species detected per point count station. The most common species observed in this habitat type were horned lark and sage sparrow. Horned lark and sage sparrow individuals accounted for 71 percent and 15 percent, respectively, of all birds detected during point counts in this habitat type. Other resident species detected less commonly within Mojave creosote bush scrub during point count or other surveys were black-throated sparrow, common raven (*Corvus corax*), verdin (*Auriparus flaviceps*), house finch (*Carpodacus mexicanus*), and mourning dove (*Zenaida macroura*), as well as the non-listed special-status species loggerhead shrike (*Lanius ludovicianus*) and WBO (further discussed in “Special-Status Species” below).

Additionally, rock wrens (*Salpinctes obsoletus*) were commonly detected in the large granite boulder outcrops in the central-eastern portion of the BRSA, amongst the Mojave creosote bush scrub; and a greater roadrunner (*Geococcyx californianus*) was detected at that location during rare plant surveys.

Mojave Desert wash scrub had the highest resident species richness. Eleven of the 14 resident species were detected in Mojave Desert wash scrub habitat; this community averaged 3.75 species detected per point count station. The most common species observed were horned lark and sage sparrow, accounting for 79 percent (combined) of all birds detected during point counts. Other species detected in this habitat type included all species found in Mojave creosote bush scrub except house finch, plus lesser nighthawk (*Chordeiles acutipennis*), Costa’s hummingbird (*Calypte costae*), and Le Conte’s thrasher (*Toxostoma lecontei*).

Twenty-three species of non-resident birds were identified in the BRSA during point counts and other surveys. Of the non-resident species detected during point counts, Brewer’s sparrow (*Spizella breweri*) was the most common, followed closely by white-crowned sparrow (*Zonotrichia leucophrys*), yellow-rumped warbler (*Dendroica coronata*), and blue-gray gnatcatcher (*Polioptila caerulea*). Tree swallow (*Tachycineta bicolor*), cliff swallow (*Petrochelidon pyrrhonota*), great-tailed grackle (*Quiscalus mexicanus*), and pine siskin (*Carduelis pinus*) were observed flying over the point count circles only and were not associated with any particular vegetation community. All other species observed on site were perched or foraging within the count circles for at least part of the observation period. Mojave Desert wash scrub had the highest number of nonresident species detected per station. This community averaged 3.00 species detected per point count station, while creosote bush scrub averaged 0.95 species per station.

Raptors observed on site include a red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and western burrowing owl (further discussed in “Special-Status Species” below). A State-listed Swainson’s hawk (*Buteo swainsoni*) was incidentally observed flying over the BRSA on April 28, 2009 (further discussed in “Special-Status Species” below).

**Mammals.** Eleven mammal taxa were detected within the BRSA during spring 2009 surveys. Desert kit fox (*Vulpes macrotis arsipus*) and coyote (*Canis latrans*) dens and sign were detected throughout the BRSA. Kangaroo rats (*Dipodomys* spp.) and pocket mice (*Perognathus* spp.), which were frequently observed on and adjacent to dirt roads at dusk or night after WBO surveys, are abundant in the BRSA. Black-tailed jackrabbit (*Lepus californicus*) was observed regularly, along with occasional sightings of white-tailed antelope squirrel (*Ammospermophilus leucurus*) and desert cottontail (*Sylvilagus audubonii*). Desert woodrat (*Neotoma lepida*) sign (e.g., middens and scat) was detected near rocky outcrops. Additionally, evidence of old wild burro (*Equus asinus*) scat was present on site. Mule deer (*Odocoileus hemionus*) was not detected in the BRSA but could occur. No bats were detected within the BRSA during spring 2009 surveys. Additionally, no significant roost sites for special-status bats, as identified in the WEMO, are known to occur within the BRSA. Marginal potential roosting habitat for bats is located amongst the rocky outcrops along the eastern border of the disturbance area and within the buffer.

Large mammalian predator activity was documented across the BRSA during spring 2009. Predator digs in ground squirrel, kangaroo rat, and pocket mouse burrow complexes were prevalent. Most predator activity in the BRSA appears to be by kit fox and coyote. Bobcat (*Lynx rufus*) scat was observed in the large granite boulder outcrops in the central-eastern portion of the BRSA during vegetation surveys. American badger (*Taxidea taxus*) was detected by its claw marks at one location in the BRSA, approximately 3,500 feet north of the disturbance area. No evidence of mountain lion (*Felis concolor*) was detected in the BRSA.

#### *Special-status Wildlife Species*

Two wildlife species listed under the ESA or the CESA occur or have potential to occur in the BRSA: DT, listed as threatened under the ESA and CESA, and MGS, listed as threatened under CESA. Of these two species, DT, was observed and is well-distributed over the BRSA (Figure 5.3-6). MGS could occur in the BRSA; suitable habitat for MGS is present on the Project site and records of this species occur nearby (Table 5.3-7). Focused surveys to determine presence or absence of MGS were not conducted in the BRSA (see “Mohave Ground Squirrel” in Section 5.3.2.4 above). One Swainson’s hawk, listed as threatened under CESA, was incidentally observed flying over the BRSA on April 28, 2009. This individual was likely migrating over the area. Swainson’s hawk was not observed using the BRSA; this species is not expected to breed or regularly use the BRSA due to the lack of suitable nesting habitat and no breeding records nearby. The nearest Swainson’s hawk record is approximately 50 miles from the BRSA. Therefore, Swainson’s hawk is not addressed further in this analysis.

Eight other special-status wildlife species were documented in the BRSA during Project surveys: WBO, loggerhead shrike (*Lanius ludovicianus*), Le Conte’s thrasher (*Toxostoma lecontei*), yellow warbler (*Dendroica petechia*), Vaux’s swift (*Chaetura vauxi*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), American badger, and desert kit fox (Table 5.3-7; Figure 5.3-9). However, three of these species—yellow warbler, yellow-headed blackbird, and Vaux’s swift—were detected during their migration. These migratory birds are not addressed further in this analysis because the BRSA does not provide suitable breeding or wintering habitat.

Four additional special-status species have a low or moderate potential to occur within the BRSA and were not detected during Project surveys in 2009: northern harrier (*Circus cyaneus*), Bendire’s thrasher (*Toxostoma bendirei*), pallid bat (*Antrozous pallidus*), and Nelson’s bighorn sheep (*Ovis canadensis nelsoni*) (Table 5.3-7).

Discussions of special-status wildlife species detected and considered resident in the BRSA are provided below and summarized in Table 5.3-7; observations of these species are displayed in Figure 5.3-9 (with the exception of DT [Figure 5.3-6], MGS [Figure 5.3-7], and WBO [Figure 5.3-8]). Special-status species with potential to occur but not detected are discussed in Table 5.3-7.

#### *Federal Listed Wildlife Species – Desert Tortoise*

One Federal listed wildlife species, the DT, was detected in the BRSA. This species is discussed below. No other Federal listed species were detected or determined to have potential for occurrence in the BRSA.

During a habitat assessment in spring 2009, it was determined that the entire Project disturbance area and majority of the survey buffer contain suitable habitat for DT. Suitable landscapes for DT are generally defined as alluvial fans and plains and rocky slopes at elevations of 1,969 to 3,937 feet above sea level. DTs require soils that support burrows, and that also allow for excavation. Generally DTs prefer creosote bush scrub habitat with a high diversity and cover of perennial plant species and high productivity of ephemeral plants. Less commonly DT will occur in blackbrush (*Coleogyne ramosissima*), Joshua tree (*Yucca brevifolia*) and juniper (*Juniperus* sp.) at higher elevations, and saltbush (*Atriplex* sp.)

at lower elevations. The vegetation within the disturbance area consists primarily of Mojave creosote bush scrub (Figure 5.3-4) that is suitable for DT.

The DT is widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. Declines in over 50 percent of its population in the U.S. (30 percent of its overall range) have been attributable to several factors, paramount of which are an upper respiratory tract disease; habitat loss, degradation, and fragmentation; predation on young tortoises, especially by ravens; and potentially drought. These declines have been documented at the local level and are most notable in the western extent of the listed range (i.e., the Western Mojave), where the proposed Project is located. The Project site occurs in the northern limits of the West Mojave recovery unit but does not occur within designated DT critical habitat. Four DT sub-populations occur south of the Project site, which have been identified as part of the West Mojave recovery unit. DT populations within these sub-populations have been characterized as variable and patchy with some areas containing high densities of DT while others contain low densities. DT population densities outside these sub-populations; however, are generally very low. CNDDDB records show seven DT records within 10 miles of the BRSA.

A total of 50 DTs were observed within the BRSA during focused surveys for DT and incidentally during other biological surveys, 40 of which were detected within the disturbance area (Figure 5.3-6). Of all detections within the BRSA, 29 were adult DTs, 12 were juveniles, and 9 were DTs of unknown age. Over 200 DT burrows and 33 pallets were observed throughout the BRSA and are mapped in Figure 5.3-6. Twenty-two burrows were occupied by DTs; 48 burrows were noted as active (showing recent evidence of use by DT). Thirty-six of active burrows and 18 of the occupied burrows were within the disturbance area. The following additional DT sign was detected within the disturbance area: four active DT pallets, 23 additional DT pallets, 99 observations of scat (12 of which were fresh), eight observations of bone fragments, and five carcasses (2 of which were adults) (Figure 5.3-6). Additionally, DT tracks were common within active DT burrows.

Desert Tortoise Abundance Estimation. Based on USFWS Mojave Desert Tortoise survey methodology, the estimated abundance of adult DTs within the disturbance area is 69. The corresponding adult DT density within the disturbance area is 0.040 DTs per acre, or 9.8 DTs per km<sup>2</sup>. These reported densities at the Project site are comparatively higher than DT densities recently reported within the nearby Fremont-Kramer DWMA (5.3 to 7.6 DTs per km<sup>2</sup>).

#### *State-Listed Wildlife Species – Desert Tortoise and Mohave Ground Squirrel*

Other than DT, no State-listed wildlife species were observed within the BRSA. While the MGS was not detected, this species is expected to occur in the BRSA based on habitat suitability within the BRSA and known occurrences in the vicinity of the Project site.

Mohave Ground Squirrel. MGS was not detected within the BRSA during Project wildlife surveys conducted in spring 2009; however, this species has the potential to occur within the BRSA. The BRSA contains suitable habitat for MGS, including 234.7 acres of high-quality habitat. This species is most often associated with Mojave creosote bush scrub, which typically supports abundant herbaceous annuals, but also inhabits desert saltbrush scrub, shadscale scrub, desert greasewood scrub, and Joshua tree woodland. Within its range, which occurs almost entirely within the WEMO planning area, MGS inhabits flat to moderate desert terrain, including alluvial fans, basins, and plains with deep sandy or gravelly friable soils with an abundance of native herbaceous vegetation. Important habitat features for MGS are food availability and appropriate soil composition for burrow construction. MGS primarily feeds on green vegetation and seeds of shrubs and forbs but may also eat invertebrates. Spiny hop-sage (*Grayia spinosa*), winterfat (*Krascheninnikovia lanata*), and saltbush (*Atriplex* spp.) are of particular importance in the MGS diet in the northern portion of its range, especially during portions of the year when herbaceous annuals are no longer available and in drought

years. Both spiny hop-sage and winterfat were observed in areas along or adjacent to desert washes; in particular these shrub species were common in the southern portion of the BRSA. High-quality habitat includes a diversity of shrub species, native herbaceous plants, and sandy or loamy soils (often with large soil accumulations at the bases of shrubs) that provide suitable substrate for burrow construction.

The MGS has not been previously documented within the BRSA and no presence/absence trapping surveys were conducted during spring 2009 (see “Mohave Ground Squirrel” in Section 5.3.2.4 above). However, MGS has been documented outside the BRSA; a total of 24 historical records occur within 5 miles of the RSPP site, generally to the north outside the MGS Conservation Area (CDFG 2009b, Leitner 2008; Figure 5.3-7). A total of 234.7 acres of high-suitability habitat was determined to be present within the disturbance area (see below). Although presence of MGS on site is not known, MGS is expected to occur within the BRSA due to habitat suitability and proximity to known population occurrences.

Four MGS habitat quality types were identified within the RSPP ROW, which encompasses the Project disturbance area: unsuitable (rocky terrain), low (monotypic creosote bush scrub), medium (low diversity creosote bush scrub), and high (desert washes and adjacent high-diversity creosote bush scrub) quality habitat. It should be noted that vegetation descriptions for the purposes of MGS habitat quality does not correspond to mapped vegetation communities or State jurisdictional areas discussed earlier. Of these, all but the rocky terrain, occurring in the central-eastern portion of the disturbance area, are considered potentially suitable for MGS; neither rocky terrain nor monotypic creosote bush scrub are expected to support resident populations of MGS. Rocky terrain and monotypic creosote bush scrub, occurring in the BRSA, may support dispersing MGS individuals. Desert washes and adjacent areas provide high-quality MGS habitat due to greater shrub density, vegetation diversity, presence of sandy soils, and inclusion of important food shrubs such as spiny hop-sage and winterfat. A total of 1,725.6 acres of potentially suitable MGS habitat, of which 234.7 acres are potentially high-quality habitat, occur in the disturbance area. Areas of potential high-quality MGS habitat occur along the primary wash, and in the southwest portion of the BRSA (Figure 5.3-7). A total of 844 acres of the disturbance area (south of Brown Road) occur within the MGS Conservation Area (Figure 5.3-10), a Wildlife Habitat Management Area designated by the WEMO.

#### *Non-listed Special-status Wildlife Species*

In addition to the Federal and State-listed wildlife species discussed above, eight non-listed special-status species (e.g., CDFG species of special concern, CDFG fully protected species, BLM sensitive species, and State-protected fur-bearing mammals) were detected in the BRSA: WBO, loggerhead shrike, Le Conte’s thrasher, yellow warbler, Vaux’s swift, yellow-headed blackbird, American badger, and desert kit fox. These species, with the exception of the yellow warbler, Vaux’s swift, and yellow-headed blackbird (considered migrants and nonbreeding season residents on site) are discussed in detail below. The yellow warbler, Vaux’s swift, and yellow-headed blackbird are not further addressed in this document. In addition, four special-status species, the northern harrier, Nelson’s bighorn sheep, Bendire’s thrasher, and pallid bat, have potential to occur within the BRSA but were not detected during spring 2009 surveys. These species are discussed in Table 5.3-7.

Western Burrowing Owl. WBO is designated as a SSC (Priority 2 Bird SSC) by CDFG due to rapid habitat loss and degradation from urbanization. Suitable WBO habitat consists of annual and perennial grasslands, deserts, and scrublands, characterized by low-growing vegetation. Suitable WBO habitat may also include trees and shrubs if the canopy covers less than 30 percent of the ground surface. Burrows are the essential component of WBO habitat, and both natural and artificial burrows provide protection, shelter, and nests for WBO. WBOs typically use burrows made by mammals, such as kit foxes, ground squirrels, or badgers, but also may use man-made structures,

such as cement culverts; cement, asphalt, or wood debris piles; or openings beneath cement or asphalt pavement. Where the ranges of WBO and DT overlap, WBOs also use DT burrows.

WBOs in California are generally nonmigratory and most abundant in the Central and Imperial valleys, primarily in agricultural areas. Small, scattered populations occur in the Mojave Desert. Although the WBO population in the southern desert region is primarily resident (i.e., present year-round), some migration from northern populations to this area occurs during winter. Seasonal nonmigration movements and shifts in burrow use by juveniles and adults within a region also occur. The West Mojave Plan documents 53 records of WBOs in the west Mojave Desert, only five of which are confirmed or probable breeding pairs. Other sources document scattered WBO occurrences in eastern Kern County, including near the BRSA in the Ridgecrest region (Appendix F).

Figure 5.3-8 displays the locations of WBOs observed, active burrows (i.e., occupied by WBO), and other locations where WBO sign was observed during surveys. During Phase II and Phase III of the CBOC protocol surveys, seven active burrows were located in three separate regions of the BRSA, including five main or nest burrows and two satellite burrows. A minimum of eight WBOs were detected, including at least two nesting pairs with juveniles. One pair, and four individual WBOs were recorded within the disturbance area; a second WBO pair was detected in the northwest portion of the buffer, outside of the disturbance area.

Suitable WBO nesting habitat occurs throughout most of the disturbance area, with the exception of the volcanic outcrop along the western edge and the granite rock outcrops in the central-eastern portion of the site. A total of 78 burrows with various levels of WBO sign (29 percent of the 272 suitable burrows) were detected during the Phase II and Phase III surveys (Figure 5.3-8), including the seven active burrows; 55 of these occur in the current Project disturbance area. Sign observed at the 71 inactive burrows (i.e., burrows not occupied by WBO during the surveys) was old and consisted primarily of pellets that were bleached, desiccated, and disintegrated; or whitewash remnants that were partly eroded. Of these 71 inactive burrows, 15 had relatively abundant old sign and showed evidence of past regular use (e.g., multiple pellets and whitewash spots) (Figure 5.3-8); sign at the other 56 burrows was sparse and did not indicate regular use in recent years (e.g., one degraded pellet, single spot of whitewash, etc.). The number of inactive burrows with WBO sign, particularly those with abundant old sign, suggests that other areas of the disturbance area may have been used previously by WBO for breeding.

Loggerhead Shrike. Loggerhead shrike is designated as a SSC (Priority 2 Bird SSC) by CDFG. It inhabits open habitat types such as grasslands, old (fallow) fields, pastures, farmland, and desert scrub. For foraging, this species requires perches of tall enough stature to overlook hunting areas, such as tree snags, stumps, and fence posts. They also require vegetation with thorns (or barbed wire fences) for impaling their prey. Prey includes invertebrates and small vertebrates, including small mammals, birds, and reptiles.

One loggerhead shrike was detected foraging in Mojave Desert wash scrub in the disturbance area during avian point count surveys. Additionally, three loggerhead shrikes were observed in Mojave creosote bush scrub in the BRSA during WBO and DT surveys (two in the disturbance area, one outside the disturbance area) (Figure 5.3-9). Although suitable habitat for loggerhead shrike is present, high-quality nesting habitat is limited in the BRSA due to the lack of larger shrubs and trees and relatively low abundance of thorny vegetation.

Le Conte's Thrasher. Le Conte's thrasher is designated as a BLM sensitive species and is considered in the WEMO. This species was previously designated range-wide as a California SSC; however, Shuford and Gardali, recognizing that desert populations were more common and widespread than previously thought, included only the San Joaquin Valley population in the updated list of California Bird Species of Special Concern. Le Conte's thrasher is associated primarily with open desert scrub,

desert washes, and alluvial fans with sandy or alkaline soils. Where it occurs, silver cholla is the preferred nesting substrate.

One pair of Le Conte's thrasher was detected on May 8, 2009, in the disturbance area during avian surveys (Figure 5.3-9). Also, an individual Le Conte's thrasher was observed in the disturbance area during DT surveys. Suitable habitat is present throughout the BRSA in Mojave creosote bush scrub and Mojave Desert wash scrub. Silver cholla, the preferred nesting plant, occurs in the BRSA.

American Badger. American badger is designated as a SSC by CDFG. This species is a resident of level, open areas in grasslands, agricultural areas, and open shrub habitats. It digs large burrows in dry, friable soils and feeds mainly on fossorial mammals: ground squirrels, gophers, rats, mice, etc. Badgers are primarily active during the day, but may become more nocturnal in proximity to humans. The home range of male badger has been measured to be 1,327 to 1,549 acres for males and 338 to 751 acres for females in Utah and 400 to 600 acres in Idaho. American badger was detected in the BRSA by a single digging and claw marks, approximately 3,500 feet north of the disturbance area; however, no badgers or their sign were detected within the disturbance area. Most of the disturbance area is suitable for this species.

Desert Kit Fox. The desert subspecies of kit fox is a State PFM. Suitable habitat for this fossorial mammal consists of arid open areas, shrub grassland, and desert ecosystems. Kit fox diet consists mostly of small rodents, especially kangaroo rats.

Active and inactive desert kit fox burrows and complexes were found throughout the BRSA during spring 2009 surveys (Figure 5.3-9). A total of 75 burrows and burrow complexes, including four active complexes (and three with pups confirmed), were recorded in the disturbance area. An additional 44 kit fox complexes, including four active complexes, were located in the buffer. Nearly all of the Mojave creosote bush scrub, Mojave Desert wash scrub, and unvegetated ephemeral dry wash communities in the BRSA are considered suitable kit fox habitat. An abundant prey base and suitable soils for burrowing are well-distributed in these communities, and provide highly suitable habitat for this species throughout the BRSA in undeveloped areas. Areas within these communities that do not provide suitable denning conditions for kit fox are the large volcanic outcrop on the western edge of the disturbance area and the large granite boulder outcrops in the central-eastern portion of the BRSA.

### **Wildlife Movement**

The Project site could be used by a variety of wildlife species for movement purposes. Wildlife movement activities typically fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (e.g., foraging for food or water; defending territories; or searching for mates, breeding areas, or cover). Potentially important wildlife movement corridors and habitat linkages were identified in the WEMO; however, none occur within or adjacent to the BRSA. The closest identified corridor (for MGS), the Sierra Foothills Habitat Connector, is over 10 miles to the northwest.

In general, several species are likely to use habitat on the Project site, in particular the Mojave Desert wash scrub vegetation community, as movement corridors at multiple scales for the above-mentioned wildlife movement activities. Movement by large mammals such as coyote, kit fox, mule deer, bobcat, American badger, and mountain lion could be associated with the desert washes on site because these areas may provide greater foraging opportunities.

The Project site is located in an area that could provide dispersal opportunities and habitat connectivity for special-status species such as MGS and DT. MGS occurrences are concentrated in Indian Wells Valley, located north of the Project site (Figure 5.3-7). There are also two CNDDB

occurrences south of the Project site. MGS could occur elsewhere in the Project vicinity because much of this area has not been previously surveyed. MGS expert Dr. Phil Leitner concluded that past development in this valley has fragmented occupied and potential Mohave ground squirrel habitat and created barriers between the core Mohave ground squirrel population southwest of Inyokern and the known population to the east of Ridgecrest. Construction and operation of U.S. Highway 395 and State Routes 14 and 178 have also adversely affected MGS habitat connectivity. Due to its overall large size, the proposed Project could contribute to a potentially significant loss of suitable habitat available for MGS dispersal between local populations. However, no studies have been conducted to determine to what extent past habitat loss and fragment in the vicinity of Ridgecrest may have altered MGS historic movement patterns. Any substantial adverse affects would generally only pertain to short-distance movement as MGS is a resident (i.e., nonmigratory) species that occupies a relatively small home range.

The Project site occurs within the DT West Mojave recovery unit; four DT sub-populations and areas of critical habitat have been designated as DWMA by the WEMO to the south of the Project site; however, the closest DT DWMA, the Fremont-Kramer DWMA, is greater than 7 miles southeast of the Project site. DT populations within this recovery unit are characterized by localized areas of high density surrounded by areas of low density amongst suitable habitat. Movements between local populations are important for long-term population viability. The Project site was determined to support a fairly high density of DT relative to known populations nearby (see “Federal Listed Wildlife Species – Desert Tortoise” above), and DT habitat at the Project site could contribute to population connectivity with known populations to the south. Due to its overall large size, the proposed Project could contribute to a potentially significant loss of suitable habitat available for DT dispersal between local populations. Movements to the north and east are probably limited by development associated with Ridgecrest and movement barriers associated with U.S. Highway 395, and State Routes 14 and 178.

Additionally, the intermountain areas of desert (valley floor) where the Project occurs could potentially serve as a seasonal and dispersal movement corridor for Nelson’s bighorn sheep, a CDFG fully protected and BLM Sensitive species. Use of any potential movement corridors for bighorn sheep through the Project site; however, is not expected due to the lack of known use of the Project site (there were no observations of this species in the 2009 surveys), relatively high levels of human disturbance in and adjacent to the BRSA, and relatively large distance between neighboring mountain ranges in the vicinity of the Project site. The Project site does not occur between occupied mountain ranges.

### 5.3.3 Environmental Impacts

This section addresses RSP- related impacts on vegetation communities and special-status plant and wildlife species during both Project construction and operation. Direct and indirect impacts may be either permanent or temporary. These impact categories are defined below.

- **Direct:** Direct impacts are caused by the project and occur at the same time and place as the project. Any alteration, disturbance, or destruction of biological resources that would result from Project-related activities is considered a direct impact. Direct impacts include direct losses to native habitats, potential jurisdictional waters, wetlands, and sensitive species, and diverting natural surface water flows. Specifically, direct impacts may include injury, death, and/or harassment of listed and/or sensitive species. Direct impacts may also include the destruction of habitats necessary for species breeding, feeding, or sheltering. Direct impacts to plants can include crushing of adult plants, bulbs, or seeds.
- **Indirect:** As a result of Project-related activities, biological resources may also be affected in a manner that is not direct. Indirect impacts may occur later or at a place that is farther removed

than direct impacts from the Project site, but are still reasonably foreseeable and attributable to project-related activities. Examples include habitat fragmentation; elevated noise, dust, and lighting levels; soil compaction; increased human activity; decreased water quality; changes in hydrology, runoff, and sedimentation; and the introduction of invasive wildlife and plants.

- Permanent: All impacts that result in the long-term or irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources.
- Temporary: Any impact considered to have reversible effects on biological resources can be viewed as temporary. Examples include the generation of fugitive dust during construction or removing vegetation for underground pipeline trenching activities and either allowing the natural vegetation to recolonize or actively revegetating the impact area. Surface disturbance that removes vegetation and disturbs the soil could be considered a long-term temporary impact if vegetation is allowed to reestablish over time. However, because of the very slow natural recovery in arid ecosystems (such as those present in the disturbance area and vicinity), all such impacts in the BRSA are considered permanent.

For the purpose of this analysis, the following applicable thresholds of significance have been used to determine whether implementing the RSPP would result in a significant impact. These thresholds of significance are based on Appendix G of the State CEQA Guidelines. A biological resources impact is considered significant if implementation of the proposed project would do any of the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFG or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marshes, vernal pools, and coastal areas) or any State-protected wetlands through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any 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;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
- Conflict with the provisions of an adopted habitat conservation plan; natural community conservation plan; or other approved local, regional, or State habitat conservation plan; or
- Substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; or substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

### 5.3.3.1 Key Definitions and Biology-Related Design Elements

The following paragraphs define some of the key Project design elements as they are related to the biological resources impact analysis below.

The biological resources investigation uses a number of definitions for the area(s) of interest.

- The BRSA includes the disturbance area and the buffer surrounding the disturbance area and linear features. The disturbance area is 1,738 acres and the BRSA encompasses approximately 9,312 acres.
- The buffer includes the area within a one-mile radius of the disturbance area and within 1,000 feet of Project linear features; the buffer totals 7,574 acres.
- Project linear features include a transmission line (located entirely within the facility footprint) that will interconnect the Project with Southern California Edison's (SCE) existing Inyokern/Kramer Junction transmission line, and a water pipeline to connect the Project with the Indian Wells Valley Water District (IWVWD) supply. The water pipeline is not included in this report because the route has not yet been finalized.
- The ROW application covers 3,920 acres; the facility footprint encompasses the entire area within the fence line of the Project site, including the transmission line for a total of about 1,440 acres.
- The disturbance area is the area inside and outside the facility fence line that would be disturbed by the Project. The disturbance area totals 1,738 acres, excluding the proposed water line.

#### **Solar Fields, Access Roads, and Maintenance Facilities**

The 1,440 acres occupied by the facility footprint include solar fields, office and maintenance buildings, laydown area, drainage channels, Land Treatment Unit (LTU for the bioremediation or land farming of HTF-contaminated soil, and a corridor for the transmission line, and roads (Figure 5.3-11). The two solar fields would occupy approximately 1,400 acres. It is assumed that the entire 1,738-acre disturbance area would be directly and permanently affected by the RSPP. The disturbance area for the purposes of this report is 1,738 because it does not include the proposed water line. The proposed water line route is in the planning stages and has not been surveyed for biological resources yet.

The minimum number of lights necessary to provide safety and security will be installed in the power block. All lights will be installed within the footprint of the Project. Where practicable, lights will be focused downward and shielded towards the power block, away from adjacent undeveloped areas when near the perimeter of the site.

#### **Rerouted Desert Washes**

The following summary of existing drainage patterns and planned modifications is based on information presented in the Hydrology Report included as part of Appendix F.

As part of the RSPP, the series of desert washes that cross the disturbance area generally from south to north would be rerouted into three channels along the east and west sides of the disturbance area (Figure 5.3-11). These channels would intercept flows prior to their entry to the site and convey them into realigned channels to approximately the same locations where they exit the site under existing conditions. Outlets for each channel would end in diffusers.

The rerouted channels would be located outside of the Project's proposed perimeter fence. The channels would be constructed with native material, and scour protection (i.e., rip rap) would be added to the channel sides and bottoms in stress areas such as curves and slope transitions. No scour protection is proposed for the channel bottom in the straight sections of the channels. This is to allow

the low flows to meander across the bottom, replicating as nearly as possible the flow regimes under current conditions.

### 5.3.3.2 Construction

This section identifies impacts to the biological resources within the BRSA that would result from construction of the Project.

#### Vegetation Communities

Sensitive vegetation communities and other land cover types were described in Section 5.3.2.5. All potential State-jurisdictional waters, including Mojave Desert wash scrub and ephemeral dry washes, are considered sensitive.

*Direct Impacts.* Table 5.3-8 identifies the vegetation communities and other cover types within the disturbance area that would be directly and permanently affected. The majority of the site supports vegetation communities that are nonsensitive. Direct, permanent impacts to 1,721.1 acres of nonsensitive Mojave creosote bush scrub vegetation would not be considered significant, and therefore, would not require mitigation in this respect. However, Mojave creosote bush scrub supports the Federal and State threatened desert tortoise and the State threatened Mohave ground squirrel, as discussed, below. Mojave Desert wash scrub and unvegetated ephemeral dry wash are considered potential jurisdictional State waters and therefore are considered sensitive. Direct, permanent impacts would occur to 8.2 acres of Mojave Desert wash scrub and 8.4 acres of unvegetated ephemeral dry wash and would be considered significant, if left unmitigated.

**Table 5.3-8 Anticipated Permanent Impacts to Plant Communities and Waters of the State in the Disturbance Area**

<b>Vegetation Communities and Other Cover</b>	<b>Total Permanent Impact Acreage</b>
<b>Vegetation Communities</b>	
Mojave Desert Wash Scrub <sup>1</sup>	8.2
Unvegetated Ephemeral Dry Wash <sup>1</sup>	8.4
Mojave Creosote Bush Scrub	1,721.1
Developed	0.5
<b>Total Acres</b>	<b>1,738.2</b>
<sup>1</sup> Potential Waters of the State	

*Indirect Impacts.* Potential temporary, indirect impacts to the vegetation communities surrounding the disturbance area would occur as a result of grading activities creating airborne dust and potential offsite sedimentation. Potential permanent, indirect impacts include alteration of drainage patterns, spreading of exotic plant species in native vegetation communities such as those in transmission line corridors, and increased incidence of accidental wildfires (potentially caused by construction or downed new transmission wires) destroying or disturbing native vegetation communities. Potential indirect impacts to offsite vegetation communities downstream of the Project site would be minimized by the plans (described above) to reroute the desert wash channels around the site and return drainage to approximately the same locations where they exit the site under existing conditions. Potential accidental wildfires and site-wide ground-disturbing activities could adversely affect vegetation communities by altering adjacent vegetation boundaries and creating disturbed areas that are more conducive to invasion by exotic plant species. The introduction of exotic species could

potentially reduce native plant growth, dispersal, and recruitment. The potential spread of exotic species into the surrounding vegetation communities would be considered a permanent, indirect impact. The introduction and invasion of exotic species would be considered a significant impact to sensitive vegetation communities surrounding the disturbance area and transmission line corridor if left unmitigated.

Potential temporary, indirect impacts resulting from grading include sedimentation and erosion. A Storm Water Pollution Prevention Plan (SWPPP) and a Drainage, Erosion, and Sedimentation Control Plan (DESCP) will be prepared to comply with RWQCB, BLM, and CEC requirements. A preliminary construction SWPPP/DESCP is provided in Appendix L. The DESCP and SWPPP will identify the design features and Best Management Practices (BMPs) that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during both construction and for long-term operation.

*Significance after Mitigation.* Potential construction-related direct and indirect impacts to sensitive vegetation communities would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-15 and BIO-16.

### **Jurisdictional Waters**

*Direct Impacts.* The potential waters of the State that traverse the BRSA (approximately 16.6 acres within the disturbance area) would be directly and permanently affected by Project construction. No temporary direct impacts to jurisdictional waters are expected as a result of construction. The permanent direct impacts would be a result of grading and installation of the solar facility, which would result in the permanent removal of all jurisdictional waters within the disturbance area. Direct permanent impacts would occur to 8.2 acres of Mojave Desert wash scrub and 8.4 acres of unvegetated ephemeral dry wash for a total of 16.6 jurisdictional acres. The permanent removal of these jurisdictional waters would be considered a significant impact if left unmitigated.

This impact would be reduced to the greatest extent practicable by Project plans (see Section 5.3.3.1) to reroute washes around Project features, revegetating the new channels in a manner that approximates existing channel vegetation, and returning the channels to approximately the same locations where they exit the site under existing conditions north and west of the RSPP site.

*Indirect Impacts.* Potential temporary, indirect impacts to State waters surrounding the disturbance area would occur as a result of grading activities creating airborne dust and potentially offsite sedimentation. These impacts would be considered significant where jurisdictional Mojave Desert wash scrub or unvegetated ephemeral dry wash occur adjacent to the disturbance area. Potential temporary, indirect impacts resulting from grading including possible sedimentation and erosion would be reduced through implementation of the BMPs in the SWPPP and DESCP, as described above.

Potential permanent, indirect impacts to the jurisdictional waters surrounding the disturbance area would result from modifications to existing drainage patterns on site. As described previously, existing desert washes within the facility would be rerouted around the disturbance area. This could result in offsite jurisdictional waters receiving lower or higher volumes and rates of water than current conditions. Permanent indirect impacts to offsite jurisdictional waters resulting from the alteration of drainage patterns would be considered a significant impact if left unmitigated.

*Significance after Mitigation.* Potential construction-related impacts to jurisdictional waters of the State would be reduced to less than significant through project plans to re-route washes around the Project site, as described above, and implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-15 and BIO-16.

## **Flora**

*Direct Impacts.* No permanent, direct impacts to special-status plant species are expected to occur from implementation of the RSPP. No special-status plants are known to occur in the BRSA, and none were found during focused surveys within the disturbance area or buffer in 2009.

*Indirect Impacts.* No temporary or permanent indirect impacts to special-status plant species are expected to occur from implementation of the Project. No special-status plant species were detected within the disturbance area or buffer during focused 2009 surveys. Potential temporary and permanent indirect effects (e.g., fugitive dust, erosion, sedimentation, introduction or spread of nonnative invasive weeds) of the proposed Project to special-status plants would not be expected to extend outside of the Project site because there are no known special-status plant species in the immediate vicinity of the RSPP site where these indirect effects are most likely to occur.

*Significance after Mitigation.* There are no significant direct or indirect impacts to mitigate for flora.

## **Wildlife Species**

*Direct Impacts.* The RSPP would result in direct impacts to special-status wildlife species. Direct impacts include destruction of habitat for sensitive species and could result in injury, death, and/or harassment of sensitive species.

*Indirect Impacts.* The RSPP would potentially result in permanent and temporary indirect impacts to special-status wildlife species that include: 1) habitat fragmentation, where removal of habitat elements results in isolated patches of formerly connected habitat; 2) edge effects, where Project facilities would lead to increased lighting, exotic plant and wildlife invasion, dust/air pollution, predators, pesticides, parasites, and other factors that could affect native plants and animals; and 3) alteration of hydrology, runoff, and sedimentation, which could alter foraging and breeding habitat for animals by adversely affecting native plant populations.

If left unmitigated, temporary, indirect impacts would result from dust accumulation on surrounding vegetation, increased ambient noise levels adjacent to construction areas, and accidental wildfires (potentially caused from construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP), which could potentially lead to temporary, indirect impacts to special-status avian species that may use the adjacent plant communities by disrupting their natural foraging patterns, destroying foraging habitat (dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration), and adversely affecting species communication. If construction activities are conducted at night, the use of lighting could temporarily indirectly impact special-status wildlife species adjacent to construction areas by increasing possible detection by predators, obscuring lunar cycles, and/or causing direct habitat avoidance in lighted areas. Potential indirect impacts from increased erosion and rates of scouring associated with changes in drainage patterns, which could result in downstream habitat loss for some species, would be reduced to less than significant by implementation of the SWPPP and DESCP, as described above, which will include flood management procedures.

The potential for Project-related direct and indirect impacts specific to special-status wildlife species are discussed in the following text.

### *Federal Listed Wildlife Species – Desert Tortoise (DT)*

*Direct Impacts.* The RSPP would result in permanent, direct impacts to DT. The Project site currently supports a large DT population. Fifty DT individuals (29 adults, 12 juveniles, and 9 of unknown age class) were observed during 2009 surveys, 40 of which (23 adults, 12 juveniles, and 5 of unknown age

class) were within the disturbance area. Site grading and installation of Project facilities would permanently and directly impact 1,738.2 acres of occupied DT habitat. Project construction would destroy DT burrows and remove foraging habitat. DT could also be killed or injured during construction, as individuals could be entombed or crushed in their burrows. DTs are not expected to depart the Project site on their own after construction begins. Therefore, direct mortality is assumed for DT occupying the disturbance area unless those individuals are successfully removed from harm's way as part of DT clearance surveys. These permanent, direct, impacts are considered significant.

Significant temporary impacts to DT could also occur. Temporary direct impacts to DT could result from an increase in vehicle traffic while the Project is under construction. The increased vehicular traffic volumes could lead to an increase in vehicular strikes on roads near the RSPP site. Because DT is a Federal listed species, any adverse direct impact would be considered significant.

*Indirect Impacts.* Indirect impacts to DT could occur from increased habitat fragmentation, which could adversely affect the local DT population outside of the disturbance area by reducing habitat connectivity. Indirect impacts could also result from a potential increase in the population of common raven (*Corvus corax*) resulting from the construction of new elevated perching and nesting sites (e.g., new transmission line towers, perimeter fencing, facility structures). Additionally garbage from increased human presence may attract common ravens. Temporary ponding of water from construction (e.g., dust suppression during construction), which could attract common ravens, is not expected to occur as a result of the RSPP. Currently, common ravens are not common within the Project area. However, new features as a result of Project construction could increase raven numbers and result in increased predation on DT. Indirect impacts could also result from invasive plants that out-compete native plants, or from increased incidence of accidental wildfires (potentially caused by construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP), both of which could reduce foraging habitat for DT. Potential deposition of sediment loads during heavy rain events and flooding downstream of the site could affect existing DT burrows outside of the survey area. However, the rerouting of desert washes as part of the proposed Project would contribute to the reduction of such impacts. Since DT is a federally listed species, any adverse indirect impact would be considered significant.

*Significance after Mitigation.* Potential construction-related direct and indirect impacts to DT would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4 below, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-17 through BIO-32.

#### *State-Listed Wildlife Species – Desert Tortoise and Mohave Ground Squirrel*

Impacts to DT, which is listed under ESA and CESA, are described immediately above. Impacts to MGS are described in detail below.

*Direct Impacts.* The RSPP could result in permanent, direct impacts to MGS, if MGS occurs on the Project site. It is assumed that MGS could occur on the Project site. The current distribution and abundance of this species on the RSPP site are unknown. No focused surveys for MGS were conducted as part of this analysis, and there are no previous documented occurrences from the RSPP site. Project biologists conducting surveys for other special-status species did not report any MGS during 2009 surveys. However, there are 24 documented occurrences of MGS within 5 miles of the RSPP site, and 1,725.6 acres of suitable habitat occurs within the disturbance area. Therefore, the potential for this species to occur on site is assumed based on documented occurrences in the Project vicinity and the presence of suitable habitat. Direct impacts on MGS would include the permanent loss of 1,725.6 acres of potentially suitable MGS habitat, including 234.7 acres of potentially high-quality habitat. The majority of the site (1,490.9 acres) was categorized by Leitner as low or medium habitat quality for MGS. The portion of the Project disturbance area located south of Brown Road (844

acres), is located within a WEMO designated MGS Conservation Area. Project construction resulting in the loss of 844 acres within the MGS Conservation Area represents as loss of approximately 6.6 percent of allowable take as defined in the WEMO, as identified by the BLM Ridgecrest office as within a current limit of 12,801 acres within the MGS Conservation Area.

The magnitude of permanent, direct impacts to MGS that would result from implementation of the Project is difficult to quantify or otherwise measure because of the lack of known occurrences within the Project site. However, it is assumed that Project construction could result in direct loss of individuals during construction. MGS mortality could result from site grading and installation of Project facilities. MGS could be crushed or entombed in their burrows during construction. The Project would also result in the loss of foraging and burrowing habitat. These permanent, direct, impacts are considered significant. Significant temporary impacts on MGS could also occur. Temporary direct impacts to MGS could result from an increase in vehicle traffic while the Project is under construction. The increased vehicular traffic volumes could lead to an increase in vehicular strikes on roads near the RSPP site. Because MGS is a State-listed species, any adverse direct impact would be considered significant.

*Indirect Impacts.* Indirect impacts to MGS could occur from increased habitat fragmentation, which could adversely affect the local MGS population outside of the disturbance area by reducing habitat connectivity. Indirect impacts could also result from a potential increase in opportunistic predators (e.g., coyotes) as a result of garbage generated from increased human presence associated with construction. Indirect impacts could also result from invasive plants that out-compete native plants, or from accidental wildfires (potentially caused by construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP), both of which could reduce foraging habitat for MGS. Indirect impacts to high-quality MGS habitat downstream of the site could result from potential deposition of sediment loads during heavy rain events and flooding downstream of the site. However, these impacts would be reduced by Project design (i.e., rerouting the desert wash and connecting to offsite channels, and grading and compacting the entire footprint of the solar fields, thereby reducing onsite erosion). Similarly, indirect impacts to habitat by changes in drainage patterns potentially altering offsite vegetation communities would be minimized by Project design. Because MGS is a State-listed species, any adverse indirect impact would be considered significant.

*Significance after Mitigation.* Potential construction-related direct and indirect impacts to MGS would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-17, BIO-18, BIO-27, BIO-30, BIO-31, BIO-32, and BIO-44.

#### *Non-listed Special-status Wildlife Species*

*Direct impacts.* Installation of Project facilities and the establishment of work areas on site could result in direct impacts to non-listed special-status wildlife species. Project construction could result in the crushing of occupied burrows, destruction of nests, collisions with construction and maintenance vehicles, and loss of habitat.

*Indirect impacts.* Indirect impacts from potential deposition of sediment loads during heavy rain events and flooding downstream of the site could impact existing habitat for non-listed special-status wildlife outside of the Project site. However, these impacts would be minimized by Project design (i.e., rerouting the desert wash and connecting to offsite channels, and grading and compacting the entire footprint of the solar fields, thereby reducing onsite erosion). Similarly, indirect impacts to habitat by changes in drainage patterns potentially altering offsite vegetation communities would be minimized by Project design.

Indirect impacts could result from invasive plants that out-compete native plants, or from accidental wildfires (potentially caused by construction or downed new transmission wires, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP), both of which could reduce wildlife foraging habitat. Indirect impacts could also result from increased common raven and raptor predation on WBO associated with the addition to new elevated perching sites, including the transmission structures, perimeter fencing, and transmission lines. Temporary ponding of water from construction (e.g., dust suppression during construction), which could attract common ravens, is not expected to occur as a result of the RSPP. These indirect impacts could adversely affect breeding success and would be considered significant. Implementation of the mitigation measures described in Section 5.3.4 would reduce the Project's indirect impacts on non-listed, special-status wildlife species to less-than-significant levels.

The potential for Project-related direct and indirect impacts to non-listed specific to special-status wildlife species are discussed in the following text.

#### *Western Burrowing Owl*

*Direct impacts.* Based on survey data, the Project facilities would permanently impact burrows and habitat for at least two nesting pairs of WBO and four additional individual WBO. The entire 1,738.2-acre disturbance area is considered suitable WBO foraging and nesting habitat, with the exception of the rocky outcrops in the central-eastern portion of the disturbance area. Temporary direct impacts to WBO could also result from an increase in vehicle traffic while the Project is under construction and, consequently, an increase in vehicular strikes of this species. The loss of occupied WBO habitat is considered a significant impact if left unmitigated. The following potential effects on WBO as a result of Project implementation would be significant and require mitigation: 1) disturbance or harassment of WBOs within 160 feet of occupied burrows; 2) destruction of active burrows and burrow entrances; and 3) degradation of foraging habitat adjacent to occupied burrows.

*Indirect Impacts.* Indirect impacts of Project construction on WBO are discussed above (see "Non-listed Special-status Wildlife Species").

*Significance after Mitigation.* Potential construction-related impacts to WBO would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-17, BIO-18, and BIO-33 through BIO-38.

#### *Loggerhead Shrike*

*Direct Impacts.* Suitable loggerhead shrike foraging habitat is present throughout the disturbance area. However, high-quality nesting habitat is limited due to the lack of larger shrubs and trees and relatively low abundance of thorny vegetation. Three individuals were documented on the RSPP site but no nests were found. Direct impacts expected to loggerhead shrike include the loss of foraging habitat. The loss of foraging habitat would be less than significant because similar or higher quality foraging habitat is common in the vicinity of the Project site. There is a low probability that this species would nest on the Project site. The loss of an active nest during the breeding season coinciding with construction would be considered significant; however, this impact would be reduced to less than significant by implementation of nest clearance surveys (BIO-40 and BIO-41) as described in Section 5.3.4.

*Indirect Impacts.* Indirect impacts of Project construction on loggerhead shrike are discussed above (see discussion under Non-listed Special-Status Wildlife Species). The potential degradation or loss of habitat resulting from indirect impacts to this species would be less than significant because similar or higher quality habitat is common in the vicinity of the Project site.

### *Le Conte's Thrasher*

*Direct impacts.* Suitable foraging habitat for Le Conte's thrasher is present throughout the disturbance area. Two detections, including one pair and one individual, were documented during Project surveys in the disturbance area. The low-diversity creosote scrub that covers most of the Project site is considered marginal nesting habitat. However, areas that support higher plant diversity, particularly silver cholla, are considered suitable for nesting.

Direct impacts on Le Conte's thrasher include the loss of foraging habitat and potential loss of nesting habitat. The loss of foraging habitat would be less than significant because similar or higher quality foraging habitat is common in the vicinity of the Project site. The loss of an active nest during the breeding season coinciding with construction would be considered significant; however, this impact would be reduced to less than significant by implementation of nest clearance surveys (BIO-40 and BIO-41) as described in Section 5.3.4.

*Indirect Impacts.* Indirect impacts of Project construction on Le Conte's thrasher are discussed above (see discussion under Non-listed Special-Status Wildlife Species). The potential degradation or loss of habitat resulting from indirect impacts to this species would be less than significant because similar or higher quality habitat is common in the vicinity of the Project site.

### *American Badger*

*Direct impacts.* Although most of the 1,738.2-acre disturbance area is suitable for this species, no American badgers or their sign were detected there. One American badger burrow was detected in the BRSA approximately 3,500 feet north of the disturbance area. Temporary direct impacts to American badger could also result from an increase in vehicle traffic while the Project is under construction and, consequently, an increased potential for vehicular strikes of this species. Since it is unlikely for any permanent loss of occupied American badger burrows and immediately adjacent foraging habitat to occur as a result of the RSPP, direct impacts to this species are not considered to be significant. Temporary direct impacts to American badger could result from an increase in vehicle traffic while the Project is under construction and, consequently, an increased potential for vehicular strikes of this species. However, the potential for such an impact is very low given the lack of detection of this species in the disturbance area and limited occurrence in the BRSA; hence, the potential impact is also considered less than significant.

*Indirect Impacts.* Indirect impacts of Project construction on American badger are discussed above (see discussion under Non-listed Special-Status Wildlife Species). The potential degradation or loss of habitat resulting from indirect impacts to this species would be less than significant because similar or higher quality habitat is common in the vicinity of the Project site.

### *Desert Kit Fox*

*Direct impacts.* Direct permanent impacts would occur to approximately 1,738.2 acres (the entire disturbance area) of occupied desert kit fox habitat as a result of construction in the disturbance area. Desert kit fox burrows and complexes are distributed throughout the disturbance area and were noted within the buffer areas. A total of 75 known burrows and burrow complexes, including four active complexes (three with pups confirmed), would be affected by construction. Temporary direct impacts to desert kit fox would also result from an increase in vehicle traffic while the Project is under construction and, consequently, an increased potential for vehicular strikes of this species. However, because this species is mostly nocturnal and construction is expected to be limited primarily to daylight hours, this potential temporary, direct impact is considered less than significant.

The permanent loss of foraging habitat resulting from Project construction is not expected to substantially reduce the number or otherwise substantially affect this species because this species is relatively common regionally and similar quality habitat is present in the Project vicinity. However, potential mortality that could result from destroying active Section 5.3.4, especially a preconstruction desert kit fox clearance survey (BIO-42) would reduce potential Project impacts to desert kit fox to less than significant.

*Indirect Impacts.* Indirect impacts of Project construction on desert kit fox are discussed above (see discussion under Non-listed Special-Status Wildlife Species). The potential degradation or loss of habitat resulting from indirect impacts to this species would be less than significant because similar or higher quality habitat is common in the vicinity of the Project site.

#### *Migratory Birds*

*Direct Impacts.* The Project could result in direct impacts to native migratory birds on the RSPP site in the form of habitat destruction, and potentially death, injury, or disturbance of nesting birds and active nests. The potential loss of active nests would be greatest if vegetation removal occurred during the nesting season. The loss of foraging habitat for nonsensitive migratory birds would be a less-than-significant impact because quality habitat is present in the Project vicinity and elsewhere throughout the region. The loss of an active migratory bird nest would be considered a significant impact, if left unmitigated.

*Indirect Impacts.* Temporary, indirect impacts that may arise from construction-related activities that could destroy active nests or reduce nesting success are increased noise levels; construction-generated fugitive dust accumulation on surrounding vegetation; and construction-related erosion, runoff, and sedimentation into plant communities resulting in damage and destruction of native vegetation. Indirect impacts on migratory birds could also include collisions with tower structures and transmission lines. These indirect impacts would be considered significant, if left unmitigated.

*Significance after Mitigation.* Implementation of the mitigation measures described in Section 5.3.4 would reduce this impact to less than significant, in particular, measures BIO-40, BIO-41, and BIO-43.

#### **Wildlife Movement**

*Direct Impacts.* The proposed Project would result in direct impacts to wildlife movement and habitat connectivity. These impacts would result from construction of the perimeter fence that would surround the disturbance area. The fence would represent a permanent barrier and prevent movement across the site by most terrestrial wildlife. Habitat connectivity would be reduced because the large Project footprint would contribute to fragmentation of what is currently a mostly contiguous desert landscape south of Ridgecrest, with the exception of existing roads bordering, and in some cases traversing this portion of the landscape. Although impacts on wildlife movement are anticipated, these impacts would generally be less than significant for most species. The Project site is not located within documented important migration routes for any terrestrial wildlife species, and most of the animals expected to move across the Project site are considered common in California. Regional habitat connectivity would be reduced by implementation of the proposed Project, but much of the land surrounding the site is expected to remain as natural desert plant communities for the foreseeable future, allowing regional movement by common terrestrial wildlife species to continue outside of the perimeter of the site without significant impediment. For these reasons, impacts on common terrestrial wildlife species would be less than significant.

Special-status terrestrial wildlife species detected or with potential to occur in the BRSA include DT, MGS, Nelson's bighorn sheep, desert kit fox, and American badger. Of these, only DT and MGS movement would be substantially affected outside of the disturbance area perimeter fence. Nelson's bighorn sheep has not been documented on the Project site and is not expected because of the

current relatively high levels of human disturbance and the relatively large distance between the site and mountain ranges known to be occupied by bighorn sheep. Movement by desert kit fox and American badger across the Project site would be eliminated by construction of the perimeter fence. However, this impediment is not expected to substantially affect movement by either species because similar desert habitat outside of the Project perimeter would likely provide adequate movement opportunities for foraging and dispersal.

The RSPP could substantially affect the local movement and reduce the habitat connectivity of the State- and Federal listed DT and the State-listed MGS. Although DT and MGS are not migratory animals, opportunities for local movements within their home ranges and dispersal are important for maintaining viable populations. It is reasonable to assume that, as with other terrestrial wildlife species, impacts on MGS and DT would be relatively minor in the context of affecting regional movement—MGS and DT are both resident species that move within their home ranges and disperse, but individuals do not make regular long distance movements beyond their home ranges. Opportunities for DT movement around the perimeter of the Project site would remain, as would suitable habitat, after project construction. However, because DT is protected under ESA and CESA, and MGS is protected under CESA, even a minor decrease in opportunities for unimpeded movement across the RSPP site would be considered a significant impact, if left unmitigated.

*Indirect Impacts.* The RSPP could potentially result in permanent indirect impacts to wildlife movement and population connectivity. Potential indirect impacts of the proposed Project could occur as a result of edge effects and include the potential for wildlife to be deterred from using habitat adjacent to the Project site for movements due to changes in conditions on the Project site such as increased artificial light, noise, human activity, and unnatural structures.

*Significance after Mitigation.* Potential construction-related impacts to DT and MGS movement would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including general measures BIO-1 through BIO-14, and resource-specific measures BIO-17, BIO-18, and BIO-44. BIO-17, BIO-18, and BIO-44 would ensure no net loss in sensitive habitat value through requiring the applicant to consult with appropriate agencies to either compensate through mitigation fees or replacement habitat that contributes to habitat connectivity in the region.

### 5.3.3.3 Operation

Direct and indirect impacts on biological resources during the operation of the Project are discussed below.

#### **Vegetation Communities**

*Direct Impacts.* Operation of the Project is not expected to result in additional permanent, direct impacts to vegetation communities because all vegetation would be removed before and during Project construction.

*Indirect Impacts.* Operation of the Project may result in permanent, indirect impacts to vegetation communities, including edge effects such as the introduction of invasive plant species that could replace native plant species in adjacent vegetation communities. In addition, new transmission wires could result in an increase in the number of accidental wildfires that could damage or destroy native vegetation, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP. The SWPPP and DESCP will identify the Project design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) for long-term operations to avoid and minimize potential indirect impacts.

*Significance after Mitigation.* Potential operation-related direct and indirect impacts to sensitive vegetation communities would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including BIO-45, BIO-47, BIO-48, BIO-50, and BIO-51.

### **Jurisdictional Waters**

*Direct Impacts.* Operation of the Project is not expected to result in additional permanent, direct impacts to waters of the State because channels would only be directly altered during Project construction.

*Indirect Impacts.* Operation of the Project may result in potentially significant indirect impacts to waters of the State, including edge effects such as the introduction of invasive plant species that could replace native plant species along washes. In addition, new transmission wires could result in an increase in the number of accidental wildfires that could damage or destroy native vegetation along washes, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP. The SWPPP and DESCP will identify the Project design features and BMPs that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) for long-term operations to avoid and minimize potential indirect impacts.

*Significance after Mitigation.* Potential operation-related impacts to jurisdictional waters of the State would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including BIO-45, BIO-47, BIO-48, BIO-50, and BIO-51.

### **Flora**

*Direct Impacts.* Operation of the Project would not result in significant direct impacts to special-status plant species because they are not known to occur within the disturbance area and all vegetation would be removed prior to construction or operation of the facility.

*Indirect Impacts.* No temporary or permanent indirect impacts to special-status plant species are expected to occur from operation of the Project. No special-status plant species were detected within the disturbance area or buffer during focused 2009 surveys. Potential temporary and permanent indirect effects (e.g., fugitive dust, erosion, sedimentation, introduction or spread of nonnative invasive weeds, increased incidence of accidental wildfire) of the proposed Project to special-status plants would not be expected to extend outside of the Project site because there are no known special-status plant species in the immediate vicinity of the RSPP site where these indirect effects are most likely to occur.

*Significance after Mitigation.* There are no significant direct or indirect impacts to mitigate for flora.

### **Wildlife Species**

*Direct Impacts.* Direct impacts to wildlife species could occur during Project operation from mortality of individuals by crushing or vehicle collisions. However, these impacts are not anticipated within the disturbance area because Project mitigation includes permanent perimeter fencing that would restrict terrestrial animals from entering the Project site during operation and it is assumed that the Project site will not provide suitable habitat for special-status species after construction is complete, as a result of permanent loss of habitat due to construction of the RSPP.

*Indirect Impacts.* Operation of the Project may result in permanent, indirect impacts to special-status wildlife species. These include edge effects where Project facilities could lead to increased noise and lighting, the introduction of invasive plant species, and increased incidence of accidental wildfire.

Nighttime lighting could disrupt normal activity by nocturnal wildlife species and/or result in increased predation. New transmission wires could increase the frequency of accidental wildfires (potentially from downed wires) that could damage or destroy wildlife habitat, but the potential for this is low due to the relatively small length of transmission lines proposed in the RSPP. The accumulation of water on site and/or off site as a result of Project operation may attract common ravens or other opportunistic predators that could prey on sensitive species. This impact would be considered potentially significant for special-status wildlife species, if left unmitigated.

*Significance after Mitigation.* Potential operation-related impacts to special-status wildlife species occurring or assumed to occur within the BRSA (i.e., DT, MGS, WBO, loggerhead shrike, Le Conte's thrasher, and desert kit fox) would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including BIO-45 through BIO-51.

### **Wildlife Movement**

*Direct Impacts.* Operation of the Project would not result in any additional direct impacts to wildlife movement beyond those already described in Section 5.3.3.2.

*Indirect Impacts.* Operation of the Project would not result in any additional indirect impacts to wildlife movement beyond those already described in Section 5.3.3.2.

#### **5.3.3.4 Cumulative Impacts**

The cumulative impact of multiple solar projects in combination with other energy developments and continued urban expansion in the California and Nevada desert region would contribute to significant impacts on biological resources. Solar and wind development projects are currently proposed on over one million acres of BLM lands in California and Nevada (See Section 5.1, Environmental Introduction). Further, projects proposed on BLM lands in the WEMO plan area alone include approximately 250,000 acres of solar projects, and another roughly 400,000 acres of wind energy projects; however, it is not likely that all projects would be developed. It is expected that primarily solar projects totaling nearly 260,000 acres of BLM land in the WEMO plan area would be reasonably foreseeable, and probable. There is a high likelihood that these projects would have adverse impacts on biological resources similar to and overlapping with the proposed RSPP, in particular for special-status species such as DT, WBO, and MGS. These species are present or have potential to occur throughout much of the WEMO plan area and their habitat is present at many of the proposed project sites (see Attachment N of Appendix F). Due to the similar nature of solar project development actions, primarily resulting in habitat loss, the collective reduction in total habitat for these species would be substantial; for some species, nearly their entire range (MGS) or a significant portion of their range (DT) occurs within the WEMO plan area, and would likely be impacted.

Additionally continued urban expansion (e.g., commercial and residential development) in and around the City of Ridgecrest that is expected to occur (from projected population growth) and would have similar adverse effects on some of these same biological resources (e.g., DT, WBO, and MGS). These projects include proposed expansion at the China Lake NAWS, and infrastructure enhancement projects, such as the Inyokern Four-Lane highway expansion and the Wal-Mart superstore. Not only would direct habitat conversion occur as a result of proposed projects, but further expansion of development (i.e., growth inducement) would potentially cause greater reductions in available habitat for special-status species, as well as reduced habitat connectivity, and increased habitat fragmentation. The various projects individually would be required to mitigate their own impacts as part of the project-specific environmental review process through measures such as providing suitable habitat at an agreed upon ratio for the affected species to compensate for the habitat loss. Cumulatively, even with mitigation that would have the effect of permanently protecting habitat for

these species, the loss of habitat for special-status species, particularly DT and MGS, would be significant.

The WEMO provides Federal authorization for take (e.g., destruction of habitat for utility development and other approved activities) of up to one percent of the total land surface designated as an MGS habitat conservation area, or 12,801 acres, according to the BLM Ridgecrest Office. The RSPP would result in removal of 844 acres of the MGS conservation area, or approximately 6.6 percent of the total authorized by the WEMO. While the degree of overlap between other solar and development projects and the MGS Conservation area is unknown, given proposals for nearly 260,000 acres of desert developments, it is a reasonable assumption that the acreage of impact for these other projects, collectively, is likely to be much greater than that of the proposed RSPP. Therefore, the proposed RSPP is not likely to contribute considerably to the cumulatively significant impact on DT and MGS. The mitigation described in Section 5.3.4 would compensate for impacts to the MGS Conservation Area and ensure consistency with other WEMO requirements.

### **5.3.4 Avoidance, Minimization, and Mitigation Measures**

This section describes avoidance, minimization, and mitigation measures, also referred to as biological resource protection measures, to be implemented as part of the RSPP. Implementation of these measures would reduce potential environmental impacts of the RSPP to a less-than-significant level. Biological resource protection measures described in the following sub-sections include general avoidance and minimization measures for implementation during project construction and operations, and additional resource-specific avoidance, minimization, and mitigation measures for RSPP impacts determined to be potentially significant.

#### **5.3.4.1 General Avoidance and Minimization Measures**

The following is a list of general impact avoidance and minimization measures applicable to Project construction activities. These measures are standard practices designed to prevent environmental degradation, and the Project applicant shall be responsible for implementation of these measures to avoid and minimize impacts to the greatest extent feasible. A Biological Resources Mitigation Implementation and Monitoring Plan (BRMIMP) will be developed for review by the CEC as a Condition of Certification. The BRMIMP comprehensively describes avoidance, minimization, and mitigation measures, and provides a matrix to document their implementation and monitor their effectiveness. Those measures include the following:

- BIO-1** The Project proponent shall designate a USFWS-, CDFG-, and BLM- approved Designated Biologist(s). The Designated Biologist shall be responsible for monitoring and verifying compliance with biological resource protective measures. A Section 10(a)(1)(A) permit would be necessary for the monitoring or handling of Federal listed species. A Memorandum of Understanding would be necessary for the handling of State-listed species. The Designated Biologist shall maintain communications with the appropriate personnel (project manager, resident engineer) to ensure that issues relating to biological resources are appropriately and lawfully managed. The Designated Biologist shall submit reports that document compliance with these measures to USFWS upon request or, at a minimum, once per year in the end-of-the-year report. In addition, the Designated Biologist shall perform the following duties:
- a. Oversee the proper installation of desert tortoise exclusion fencing around the perimeter of the disturbance area prior to conducting pre-construction clearance surveys.

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- b. Conduct pre-construction surveys for listed species within 30 days prior to commencement of construction activities in the disturbance area.
  - c. Be on site during all vegetation clearing and grubbing, and weekly during project construction in upland and riparian habitat that will be impacted.
  - d. Review and modify, if necessary, specific best management practice (BMP) plans prior to implementation. Erosion control measures (i.e., BMPs) shall be regularly checked by the Designated Biologist, project inspectors, and/or resident engineer. Fencing and erosion control measures of all Project areas shall be inspected a minimum of once per week.
  - e. A Storm Water Pollution Prevention Plan (SWPPP) and a Drainage, Erosion, and Sedimentation Control Plan (DESCP) shall be prepared to comply with Regional Water Quality Control Board (RWQCB) and CEC requirements; a preliminary DESCP (equivalent to a SWPPP but covering both construction and operation phases) is provided as Appendix L. The DESCP and SWPPP identify the design features and Best Management Practices (BMPs) that will be used to effectively manage drainage-related issues (e.g., erosion and sedimentation) during construction. Erosion control measures shall be regularly checked by inspectors, the Designated Biologist, and/or resident engineer. Specific best management practice plans shall be reviewed by A Designated Biologist and modified, if necessary, prior to implementation. Fencing and erosion control measures of all Project areas shall be inspected a minimum of once per week.
  - f. Inform construction contractor(s)/crews about the biological constraints of the Project. All construction personnel who work in the BRSA shall participate in a training/awareness program presented by the Designated Biologist prior to working on the proposed Project (e.g., commencement of construction activity). Construction crews and contractor(s) shall be responsible for unauthorized impacts from construction activities to sensitive biological resources that are outside the areas defined as subject to impacts by the CEC and other agencies that issue approvals for the Project.
  - g. Ensure proper implementation of protective measures developed in coordination with USFWS and CDFG to avoid or minimize impacts to all encountered sensitive species and nesting birds.
  - h. Immediately notify the resident engineer to halt work, if necessary, and coordinate with USFWS and CDFG to ensure the proper implementation of biological resource protection measures. The Designated Biologist would report any breach of protection measures to appropriate agencies within 24 hours of occurrence.
- BIO-2** Anticipated impact zones, including areas for staging, materials and equipment storage; equipment access; and the disposal, stockpiling, or temporary placement of spoils, shall be delineated with stakes and flagging prior to construction to avoid natural resources where possible. Spoils shall be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas should be marked to define the limits where stockpiling can occur. No construction-related activities shall occur outside of the designated impact area (i.e., disturbance area).
- BIO-3** The Project proponent shall ensure that all construction materials, staging, storage, dispensing, fueling, and maintenance activities are located in upland areas outside of

sensitive habitat, and that adequate measures are taken to prevent any potential runoff from entering waters of the State.

- BIO-4** New and existing roads that are planned for either construction or widening shall not extend beyond the disturbance area. All vehicles passing or turning around shall do so within the disturbance area. Where new access is required outside of existing roads or previously disturbed areas within the disturbance area, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.
- BIO-5** Underground pipeline construction shall involve nearly simultaneous trenching, laying of pipe, and backfilling so that no open trenches shall be left unattended during daylight hours. Any open trenches that cannot be backfilled shall be covered with steel plates at night. The Designated Biologist(s) shall be present during pipeline construction to verify that special-status resources are avoided or moved to a safe location when necessary.
- BIO-6** The solar fields shall be graded generally following the existing contours of the site to minimize the amount of ground disturbance.
- BIO-7** Spoils, trash, or any debris shall be removed to an approved disposal facility off site. A trash abatement program shall be established. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.
- BIO-8** Workers shall be prohibited from bringing pets and firearms to the site.
- BIO-9** If construction activities occur at night, all project lighting (e.g., staging areas, equipment storage sites, roadway) shall be directed onto the roadway or construction site and away from sensitive habitat. Light glare shields shall be used, when necessary, to reduce the extent of illumination into adjoining areas.
- BIO-10** BMPs shall be employed to prevent loss of habitat due to erosion caused by Project-related impacts (i.e., grading or clearing for new roads). The Designated Biologist shall periodically monitor the work area to ensure that construction-related activities do not generate erosion or excessive amounts of fugitive dust. All detected erosion shall be remedied within 2 days of discovery.
- BIO-11** Fueling of equipment shall take place within existing paved roads and not within 300 feet of, or adjacent to, drainages or native desert habitats. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.
- BIO-12** Wildfires shall be prevented by all means possible by exercising care when driving and by not parking vehicles where catalytic converters could ignite dry vegetation. In times of high-fire hazard (e.g., high wind or drought conditions), trucks shall carry water and shovels or fire extinguishers in the field, and high-fire-risk installations (e.g., electric lines) shall be delayed. The use of shields, protective mats, or other fire-prevention equipment shall be used during grinding and welding to prevent or minimize the potential for fire. No smoking or disposal of cigarette butts shall take place within vegetated areas.
- BIO-13** A Weed Management Plan shall be developed and implemented to minimize the introduction of exotic plant species. The introduction of exotic plant species would be minimized through prevention strategies and physical or chemical removal. Preventing exotic plants from entering the site via vehicular sources shall include measures such as

implementing Trackclean or other similarly effective methods of vehicle cleaning for vehicles entering and leaving the site. Earth-moving equipment shall be cleaned prior to transport to the Project site. Preventing exotic weeds from entering the site via materials sources shall require that weed-free rice straw or other certified weed-free straw be used for erosion control. Weed populations inadvertently introduced into the site during construction shall be eliminated promptly by chemical and/or mechanical means approved by agency representatives (CDFG, BLM, USFWS, and the CEC).

- BIO-14** In addition to the avoidance and minimization measures outlined in this section, the Project proponent shall implement any measures required by the CEC, BLM, USFWS, and CDFG as a condition of Project certification. Such measures include those set forth in the USFWS Biological Opinion and the CDFG 2081 Incidental Take Permit (ITP).

### 5.3.4.2 Construction

#### Resource-specific Avoidance, Minimization, and Mitigation Measures

Resource-specific impact avoidance, minimization, and mitigation measures for RSPP impacts determined to be potentially significant are discussed below. Incorporation of these measures would reduce potentially significant impacts to a less-than-significant level.

#### *Vegetation Communities*

No mitigation is required for impacts to nonsensitive vegetation communities.

#### *Sensitive Vegetation Communities*

No sensitive vegetation communities, other than waters of the State, would be permanently or temporarily impacted by Project-related activities; therefore, no mitigation is required. See below for mitigation required to compensate for impacts to waters of the State.

#### *Waters of the State*

The following are recommendations for compensatory mitigation of impacts to 16.6 acres of jurisdictional waters of the State in the form of Mojave Desert wash scrub and unvegetated ephemeral dry wash:

- BIO-15** Impacts to State waters shall require the following permit application: CDFG CFGC, Section 1602 agreement application for alteration of a streambed to ensure Project compliance with State policy, i.e., California Wetlands Conservation Policy (EO W-59-93), provides for “no overall net loss” of jurisdictional waters and achieving a “long-term net gain in the quantity, quality, and permanence of [jurisdictional waters] acreage and values in California.” In lieu of a separate 1602 permit, the CDFG will coordinate with the CEC to have any mitigation requirements incorporated into the CEC project certification requirements. Mitigation for unavoidable permanent impacts to jurisdictional waters within the disturbance area could be accomplished via one or a combination of alternative methods. The mitigation could occur in the form of approved mitigation bank credits, an approved In-Lieu fee program, conservation easement(s), and/or jurisdictional habitat creation-restoration, and/or enhancement. Project-specific mitigation ratios shall be developed in consultation with CDFG.
- BIO-16** The development of a conceptual mitigation, maintenance, and monitoring plan shall be required in support of the above mitigation, when accomplished via jurisdictional habitat creation-restoration and/or enhancement (see BIO-15). This plan is a requirement of both State 1602 permit applications. This plan shall include details regarding site preparation

(e.g., grading), planting specifications, and irrigation design, as well as maintenance and monitoring procedures. The plan shall outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria. Any mitigation that cannot be achieved through onsite creation-restoration and enhancement shall be performed off site, typically per agency guidance within the same hydrologic unit (watershed) where impacts occur. This plan shall be developed in consultation with CEC and CDFG and would be subject to their approval.

#### *Special-status Plants*

No mitigation is required for impacts to special-status plants. However, cottontop cactus was found in the disturbance area. At the request of BLM, the three individuals of cottontop cactus detected within the disturbance area shall be salvaged by an experienced contractor and replanted within any potential onsite mitigation area or other secure land that is preserved in perpetuity.

#### *Special-status Wildlife*

- BIO-17** The Project proponent shall implement compensatory mitigation measures to achieve consistency with the WEMO and to compensation for permanent impacts to habitat for special-status wildlife species (e.g., DT, MGS, and WBO).
- BIO-18** The Project proponent shall consult with BLM, CDFG, and USFWS to prioritize and acquire compensatory mitigation lands (see BIO-17) within the immediate vicinity of the Project that contribute to the preservation of wildlife habitat connectivity.

#### *Desert Tortoise*

- BIO-19** Prior to the onset of construction, the entire disturbance area shall be enclosed with a permanent DT-proof perimeter fence to permanently restrict DT from entering the site. Any utility (i.e., pipeline or transmission) corridors and tower locations shall be temporarily fenced to prevent DT entry during construction. Permanent and temporary fencing shall follow guidelines outlined in Appendix I of the WEMO, or as modified and approved by agency representatives. All fence construction shall be monitored by the Designated Biologist to verify that no DTs are harmed. Following installation, the perimeter fencing shall be inspected monthly and during all major rainfall events. Damage to the fencing shall be repaired immediately.
- BIO-20** A clearance survey for any DTs that may be within the disturbance area shall be conducted as specified in Appendix I of the WEMO, or as modified and approved by agency representatives. A minimum of two clearance passes shall be completed after DT-proof fencing is installed around the disturbance area. The clearance survey shall coincide with heightened DT activity, from late March through May and during October. Excavation of all potential DT burrows encountered shall occur as a part of clearance surveys. Any DT found shall be removed using techniques established in Guidelines for Handling Tortoises During Construction Projects. Any DTs removed from the Project site shall be relocated or otherwise used (e.g., museum specimens) as determined in consultation with USFWS, CDFG, and BLM. It is anticipated that DT will be found during the clearance survey. The Designated Biologist (s) conducting the DT clearance survey shall report any listed species seen, at minimum, to the local USFWS jurisdiction so that potential take can be tracked. Once the disturbance area is deemed free of DTs after two consecutive clearance passes, then heavy equipment will be allowed to enter the sites to perform construction activities.

- BIO-21** In addition to general compliance monitoring responsibilities (see BIO-1), the Designated Biologist shall oversee compliance with the protection measures for the DT and other species. The Designated Biologist shall:
- Be on site during fencing activities;
  - Have the right to halt all activities that are in violation of the DT protection measures;
  - Allow work to proceed only after hazards to the DT are removed and the species is no longer at risk, or the individual has been moved from harm's way;
  - Monitor DT during construction activity to avoid direct impacts to individuals. DT may be moved during seasons when daily ambient temperatures exceed lethal levels, but only late in the day when ground temperatures fall below 107°F and air temperatures fall below 89.6°F. Relocated DTs shall be temporarily monitored to ensure that being moved does not impact their survival.
  - Have a copy of all the compliance measures in their possession while work is being conducted on site;
  - Be responsible for awareness trainings, surveys, and reporting related to the DT;
  - Distribute an educational brochure, as necessary, to onsite personnel that outlines the steps to be taken if a DT is encountered on the construction site after all Designated Biologist(s) have left the site;
  - Maintain records of all DTs and other listed species encountered during project activities, including any capture and release dates, if applicable; locations of all DT found; general conditions and health of individual DTs found, including whether animals voided their bladder, and any diagnostic markings; and amount of habitat lost (e.g., cleared of vegetation) as a result of the construction activity; and
  - Prepare a report to document the clearance survey and results. This report shall be submitted in a timely manner to agency representatives.
- BIO-22** During construction activities, monthly and final compliance reports shall be provided by the Designated Biologist to CDFG and other applicable resource agencies to document the effectiveness and practicality of the protection measures that are in place and make recommendations for modifying the measures to enhance species protection, as needed. The report shall additionally provide information on the overall biological resources-related activities conducted, including the worker awareness training, clearance/preactivity surveys, monitoring activities, and any observed DTs including injuries and fatalities.
- BIO-23** The Project proponent shall submit the names and statement of qualifications of all proposed Designated Biologists to USFWS, CDFG, BLM, and CEC (agency representatives) for review and approval at least 30 days prior to initiation of any DT handling, clearance, and preactivity surveys. Project activities shall not begin until the Designated Biologist(s) are approved by the aforementioned agencies. Only Designated Biologist(s) shall be allowed to handle and relocate DT, when necessary. Qualifications of Designated Biologist(s) shall meet the minimum standards set forth in the WEMO. Workers shall notify the Designated Biologist of all DT observations.
- BIO-24** Proposed channels that reroute the washes around the site shall be made as natural as feasible, with earthen bottoms that facilitate DT movement outside the site.
- BIO-25** Personnel shall use established roadways (paved or unpaved) in traveling to and from the site and existing tracks on site whenever possible. Cross-country vehicle and equipment use outside designated work areas shall be prohibited. To minimize the likelihood for

vehicle strikes of DTs, a speed limit of 15 miles per hour shall be established for travel within DT habitat along off-highway access roads to the site.

- BIO-26** As much as is feasible, parking and storage shall occur within the DT exclusion fencing, following the completion of the pre-construction surveys and site grubbing and grading. Anytime a vehicle or construction equipment is parked in unfenced desert tortoise habitat, the ground under the vehicle shall be inspected for the presence of DT before the vehicle is moved. If a DT is observed, it shall be left to move on its own. If it does not move within 15 minutes, the Designated Biologist shall remove and relocate the DT to a safe location according to the techniques established in Guidelines for Handling Tortoises during Construction Projects.
- BIO-27** All vehicles and equipment shall be in proper working condition to ensure that there is no potential for fugitive emissions of motor oil, antifreeze, hydraulic fluid, grease, or other hazardous materials. The Designated Biologist shall be informed of any hazardous spills immediately. Hazardous spills shall be immediately cleaned up and the contaminated soil shall be properly disposed of at a licensed facility.
- BIO-28** Intentional killing or collection of DT in the survey area and surrounding areas is prohibited. The Designated Biologist shall be notified of any such occurrences immediately and USFWS and CDFG shall be notified of any such occurrences within 24 hours.
- BIO-29** For emergency response situations, the Designated Biologist shall notify USFWS and CDFG within 24 hours. As a part of this response, USFWS and CDFG may require additional measures to protect DT. During any responses related to human health, fire, hazardous waste, or repairs requiring off-road vehicle and equipment use, USFWS and CDFG may also require measures to recover damaged habitat; these additional measures shall be implemented.
- BIO-30** Water shall be applied to the construction ROW, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions. During the DT active season, a Designated Biologist shall patrol these areas to ensure water does not puddle for long periods of time and attract DTs, common ravens, or other wildlife to the site that may prey on sensitive species.
- BIO-31** Standing water shall be minimized on site to the extent feasible to minimize the attractiveness to opportunistic predators such as common ravens, coyotes, and feral dogs that may prey on sensitive species.
- BIO-32** Upon locating a dead or injured DT, the Designated Biologist shall make initial notification to the USFWS and CDFG within 24 hours of its finding. The notification shall be made by telephone and writing to the USFWS Field Office with jurisdiction over the project. Additionally, the Designated Biologist shall take prompt appropriate action as outlined in Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises (*Gopherus agassizii*). If an injured DT recovers, the offices of the agency representatives shall be contacted for final disposition of the DT.

#### *Mohave Ground Squirrel*

Impacts to MGS would be reduced to less than significant by implementation of BIO-17 and BIO-18. No additional mitigation is required (see also BIO-44 below).

*Western Burrowing Owl*

- BIO-33** A preconstruction survey of the disturbance area shall be conducted no more than 30 days prior to construction to locate active WBO burrows and to estimate the current number of WBO individuals on site. The survey shall follow CBOC guidelines, consisting of walking parallel transects and noting any fresh WBO sign or presence of WBOs (may be combined with DT preconstruction surveys). The results of the preconstruction survey shall be provided to CDFG.
- BIO-34** It is recommended that preconstruction surveys begin during the nonbreeding season (September 1 through January 31) regardless of the construction start date to identify WBOs that may breed on site, and to initiate passive relocation, if necessary, prior to the breeding season. If WBO activity is detected at a burrow during the nonbreeding season (September 1 through January 31), a 160-foot buffer shall be flagged surrounding the occupied burrow and all Project-related activity shall remain outside of the flagged area while the birds are passively relocated. WBOs shall be excluded from active burrows during the nonbreeding season (September 1 through January 31) and encouraged to passively relocate to suitable, unoccupied habitat at least 160 feet outside of the exclusion area. WBO shall be excluded from burrows according to procedures outlined in CBOC guidelines, by installing one-way doors in burrow entrances. One-way doors shall be left in place 48 hours to ensure owls have left the burrow before excavation. One alternate natural or artificial burrow shall be provided for each burrow to be excavated in the disturbance area. The excluded burrows shall be monitored daily for one week to confirm owl use of alternate burrows before excavating burrows. After burrows are confirmed to no longer be in use (1 week), the burrow shall be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe or burlap bag shall be inserted into the tunnels during excavation to maintain an escape route for any WBOs inside the burrow. Preconstruction surveys shall be conducted no more than 30 days prior to construction..
- BIO-35** If, during preconstruction surveys, WBO activity is detected at a burrow during the breeding season (February 1 through August 31), a Designated Biologist approved by CDFG shall verify through noninvasive methods the breeding status of the birds. If the birds have not begun egg-laying and incubation or juveniles from the occupied burrow are foraging independently and are capable of independent survival, then WBO can be excluded from the burrows as described above. However, if it is determined that the burrow is occupied (e.g., eggs or juveniles still dependent on their parents are present) then, per CBOC guidelines, a 250-foot buffer shall be flagged surrounding the occupied burrow and all Project-related activity shall remain outside of the flagged area until a Designated Biologist determines the burrow is no longer occupied (e.g., juveniles are foraging independently).
- BIO-36** A Designated Biologist shall be on site during all construction activities in potential WBO habitat.
- BIO-37** The WBO shall be covered as part of the training/awareness program presented by the Designated Biologist (see BIO-1), as required by CEC.
- BIO-38** During construction activities, monthly and final compliance reports shall be provided to CDFG and other applicable resource agencies documenting the effectiveness of mitigation measures and the level of take associated with the Project. Biological issues shall also be covered in the ongoing compliance reporting required by the CEC.

- BIO-39** The CBOC mitigation guidelines adopted and used by CDFG recommend that mitigation for impacts to WBOs be based on the number of pairs directly impacted. Mitigation ratios are based on whether suitable acquired habitat is occupied by the species or is contiguous to the impact area. Destruction of occupied and/or active burrows shall be mitigated at a 2:1 replacement ratio of enhanced natural, unoccupied burrows or artificial burrows, per guidelines from the CBOC and CDFG Memorandum. The CBOC and CDFG mitigation guidelines recommend a ratio of 9.75 to 19.5 acres per pair of WBOs (or single individual) impacted, depending on the replacement habitat type and/or Project-specific negotiations with CDFG. CBOC's mitigation guidelines recommend offsite mitigation should use one of the following ratios:
- a. Replacement of occupied habitat with occupied habitat: 9.75 acres per pair or single bird;
  - b. Replacement of occupied habitat with unoccupied habitat contiguous to currently occupied habitat: 13 acres per pair or single bird; or
  - c. Replacement of occupied habitat with suitable unoccupied habitat: 19.5 acres per pair or single bird.

Mitigation to compensate for impacts to occupied WBO habitat, as referenced in BIO-39, would be provided by implementation of BIO-17 and BIO-18. No additional mitigation is required. BIO-17 and BIO-18 would be sufficient to meet CBOC guidelines for mitigation of impacts to WBO (BIO-39).

*Other Special-Status Wildlife Species*

- BIO-40** In accordance with the MBTA and California Fish and Game Code Sections 3503, 3503.5, and 3513, if vegetation removal is scheduled to take place during the migratory bird breeding season (roughly February through June for most species in the desert), a Designated Biologist shall be retained 30 days prior to vegetation removal to monitor on a weekly basis the protected native birds on the site, and within a 300-foot buffer of the disturbance area, for nesting activity. The last survey shall be conducted no more than 3 days prior to initiation of vegetation clearance. If a nest with eggs or young is found or suspected, every effort shall be made to avoid the area around the nest until the young have fledged, the nest has failed, or CDFG, USFWS, and the CEC agree that construction can proceed with the incorporation of resource agency agreed-to monitoring measures.
- BIO-41** If nesting birds, including but not limited to special-status species and those species protected by the MBTA, are detected on the site or within a 300-foot buffer of the disturbance area, the nest shall be flagged and no construction activity shall take place near the nest until nesting is complete (nestlings have fledged or nest has failed).
- BIO-42** Desert kit fox dens present in the disturbance area shall have a one-way trap door installed to passively exclude the kit foxes from the den. After 48 hours post-installation, the den shall be excavated and collapsed, following the same protocol to be used for WBO burrows (see BIO-34 and BIO-35). These dens shall be collapsed prior to construction of the DT fence, to allow foxes the opportunity to move off site without impediment. Alternatively, a Designated Biologist shall trap and remove foxes from occupied dens and move them off site into appropriate habitat.
- BIO-43** Construction of electric utility lines shall be raptor-safe. Approved raptor-safe designs should follow those outlined in Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996, or other updated guidelines as approved by CDFG and BLM.

**Wildlife Movement**

The following measure shall be implemented to reduce potential direct and indirect impacts to wildlife movement.

**BIO-44** Prioritize and acquire land (see BIO-18) within the immediate vicinity of the Project that contributes to the preservation of adequate wildlife habitat connectivity.

**5.3.4.3 Operation**

**BIO-45** All vehicles passing or turning around shall do so within the planned impact area (i.e., disturbance area).

**BIO-46** The Project proponent shall support a monitoring program to document potential nesting ravens. The details of the funding mechanism and monitoring shall be coordinated with USFWS prior to initiation of the Project. The raven monitoring, management, and control plan shall include the following components:

- a. How the monitoring and control plan will be coordinated with CDFG and USFWS;
- b. Area covered by the plan;
- c. Potential use of perch-deterrent devices and locations of their installation;
- d. Measures that might reduce raven presence and nesting activities (e.g., removing food items, garbage, and access to water);
- e. A monitoring plan, including discussion of survey methods and frequency for establishing baseline data on pre-Project raven numbers and activities, assessing post-Project changes from this baseline, and the funding mechanism for the monitoring plan;
- f. Remedial actions that would be employed (e.g., nest removal) if raven predation of desert tortoise is detected;
- g. The circumstances that would trigger the implementation of remedial actions; and
- h. Payment of an in-lieu fee to a third-party account established by USFWS to support a regional raven monitoring and management plan.

**BIO-47** Fueling of equipment shall take place within existing paved roads and not within 300 feet of, or adjacent to, drainages or native desert habitats. Maintenance equipment shall be checked for leaks prior to operation and repaired as necessary.

**BIO-48** The Project shall employ a comprehensive system of management controls, including site-specific BMPs, to minimize erosion and stormwater contact with contaminants and thereby reduce exposure of wildlife and plants to pollutants in the stormwater. These management controls shall include erosion and sediment control BMPs; an employee training program; good housekeeping and preventive maintenance programs; structural BMPs, including temporary containment during maintenance activities and permanent secondary containment structures at chemical storage and process areas; materials, equipment, and vehicle management practices; spill prevention and response programs; and inspection programs.

**BIO-49** The Project's lighting system shall provide the minimum illumination required to meet safety and security objectives and shall be oriented to minimize additional illumination in areas not pertinent to the facility. If lighting is adjacent to sensitive habitat, it shall be

directed or shielded away from the habitat. No permanent lights shall be installed within sensitive habitat. All facility lighting shall be directed onto the roadway or Project site and away from sensitive habitat. Light glare shields shall be used, if necessary, to reduce the extent of illumination into adjoining areas.

- BIO-50** During Project operation, the disturbance area including pipeline and transmission corridors shall be maintained free from nonnative invasive plant species. This can be accomplished through physical or chemical removal and prevention. If necessary, application of an approved herbicide (not toxic to wildlife) shall be performed or directly supervised by a State licensed applicator following the label instructions, including application rates and protective equipment.
- BIO-51** Decommissioning of the facility shall include the removal of all improvements and restoration of the disturbance area to the preexisting (“as-found”) condition. All surface improvements shall be removed, and all ground level penetrations and subsurface storage tanks (if any) shall be removed and filled/capped to prevent the access and entrapment of wildlife. The channel realignments shall be filled and the ephemeral desert washes shall be restored to preexisting hydrology, as deemed appropriate by CDFG, USFWS, and BLM. Funding for such restoration, whether it is needed at the anticipated facility closure date or is needed earlier due to untimely closure (i.e., bankruptcy), shall be provided by the Applicant once a comprehensive decommissioning plan is established.

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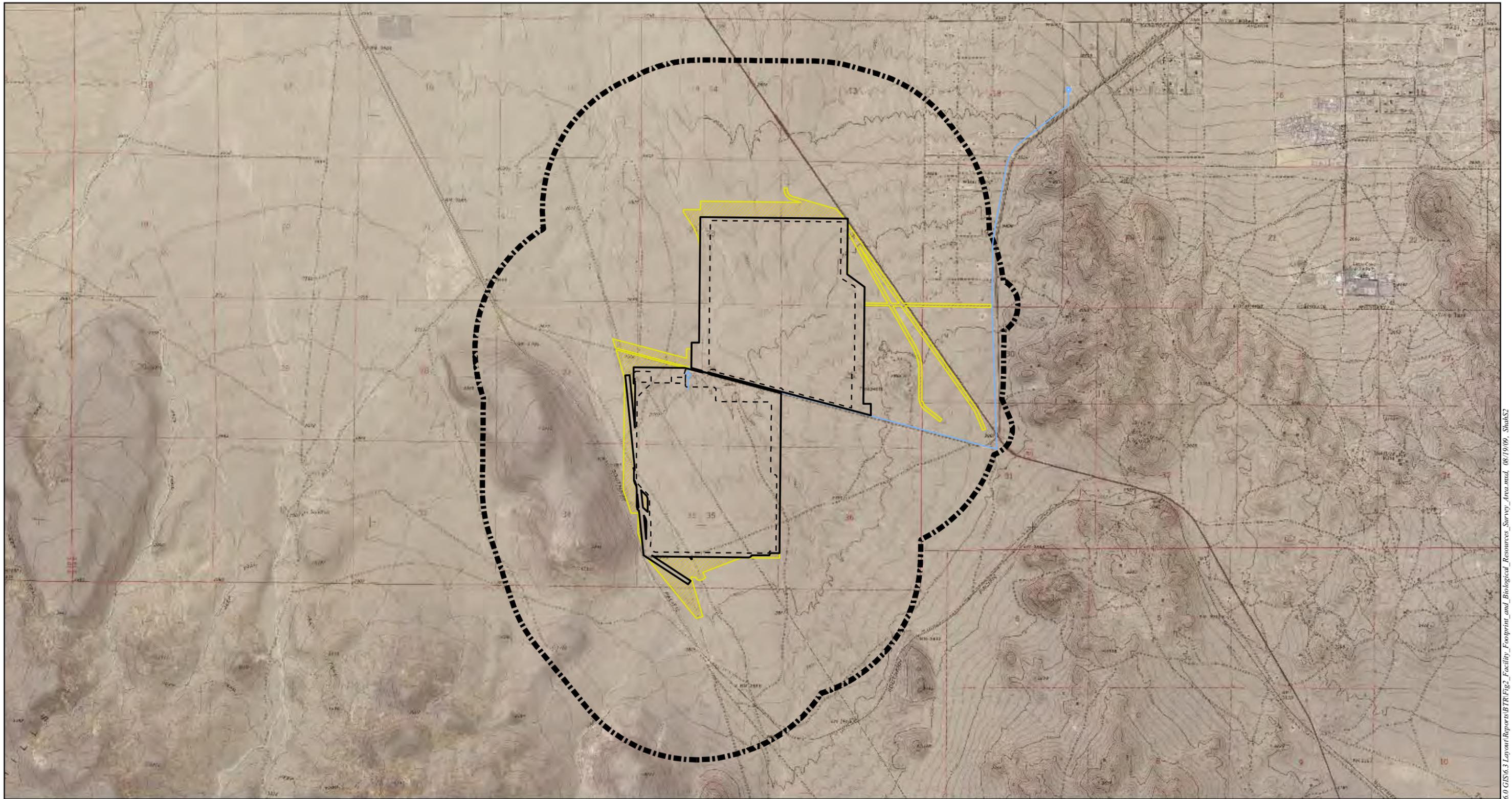
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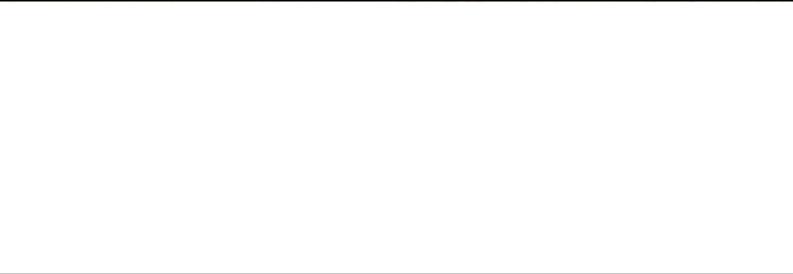
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**Legend**

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)
- Disturbance Area (Surveyed - No Longer Proposed)

Source: NAIP 2005; AECOM 2009; EDAW 2009

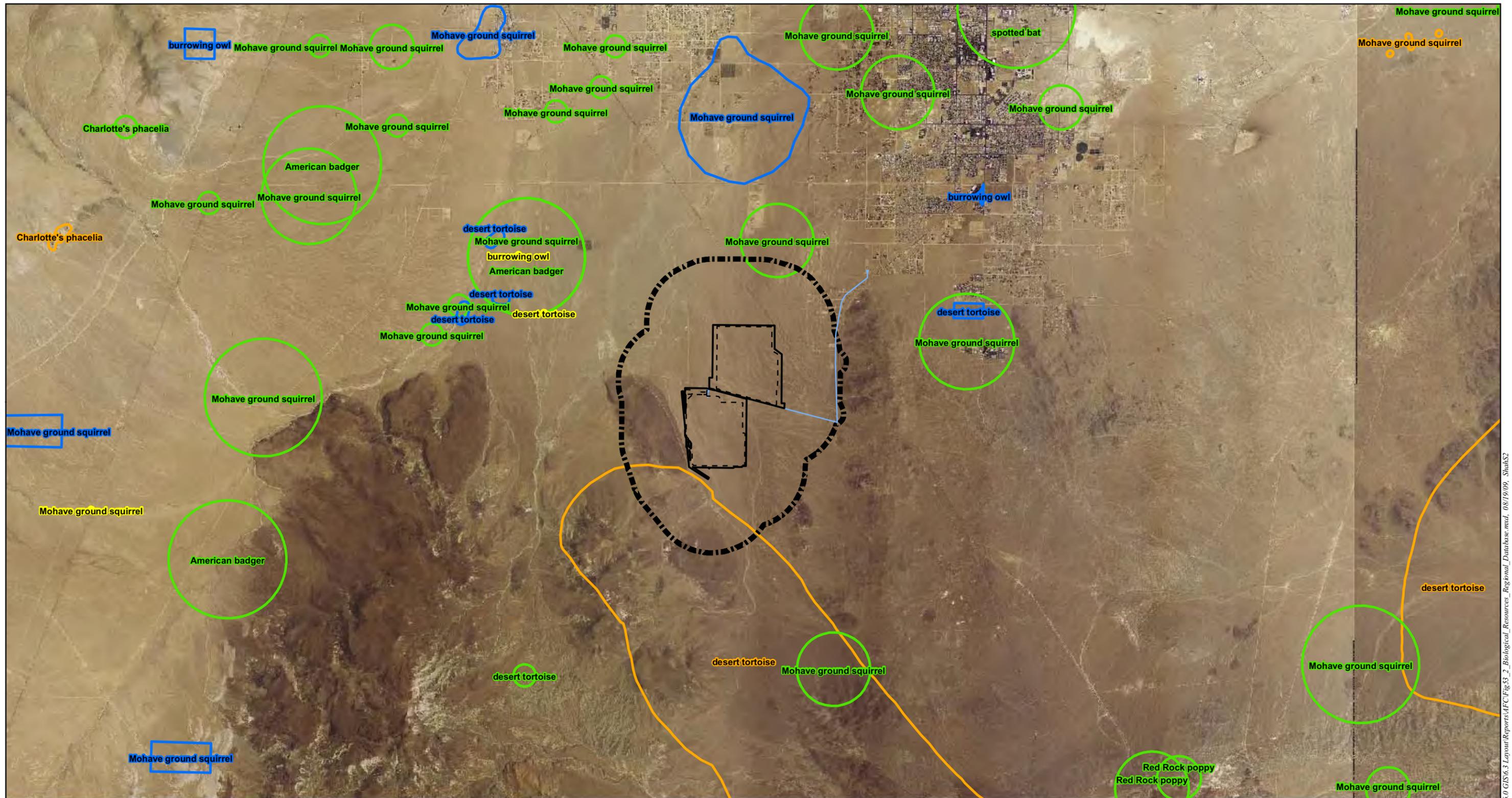


1 inch = 3,500 feet

**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-1  
Facility Footprint, Disturbance Area,  
and Biological Resources Survey Area**

Date: September 2009



**Legend**

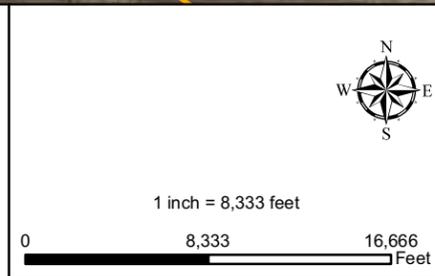
- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Source: NAIP 2005; CNDDDB 2009; AECOM 2009; EDAW 2009

**CNDDDB Species Inventory (May 2009)**

**Accuracy**

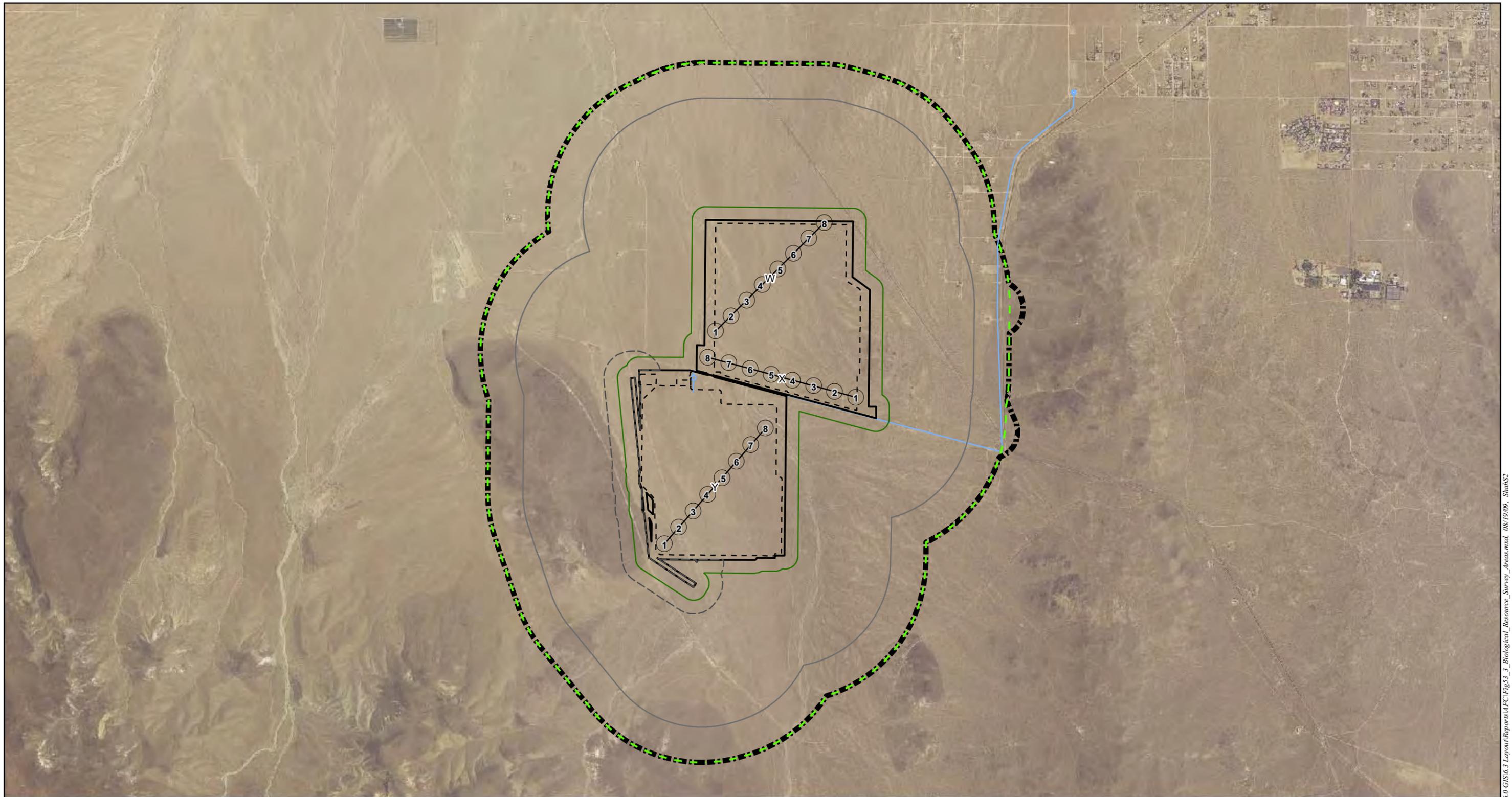
- Specific Area Record
- Specific Area Record, 1/20-mile Accuracy
- Point Location Record, Variable Accuracy Shown as Radius Buffer
- Non-specific Area Record



**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-2  
Biological Resources  
Regional Database**

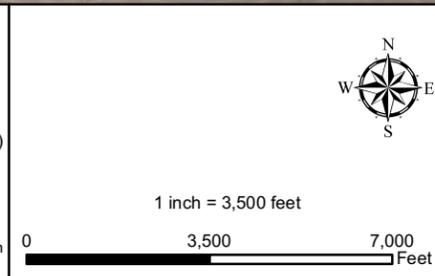
Date: September 2009



- Legend**
- Disturbance Area
  - Facility Footprint
  - Possible Water Line Route
  - Biological Resources Survey Area (BRSA)

- Desert Tortoise and CEC Buffer Transects**
- 1-mile Transect
  - 0.75-mile Transect<sup>1</sup>
  - 1,000-foot Transect (Unsurveyed)
- Burrowing Owl Survey Buffer**
- CBOC 492-foot

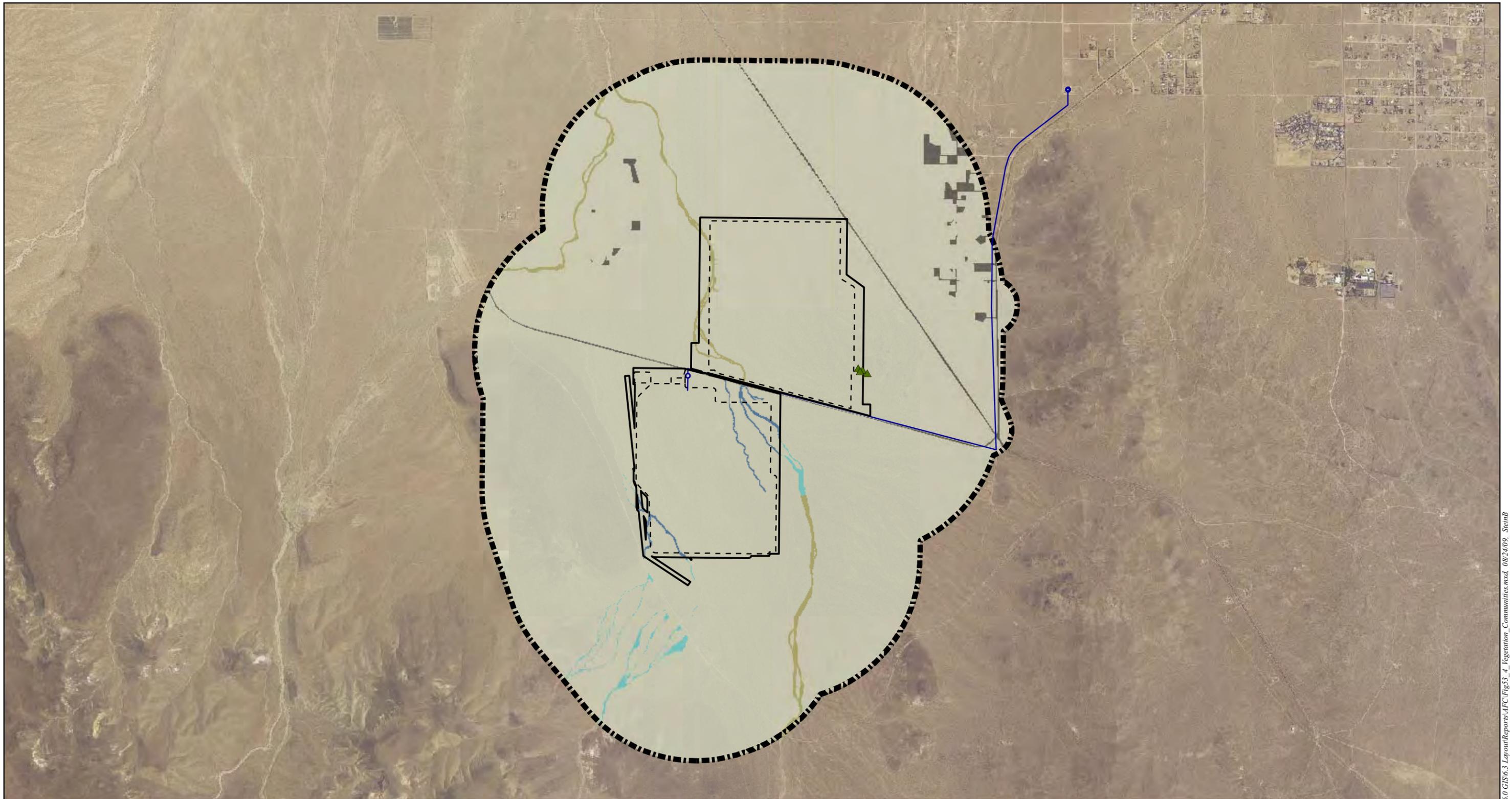
- Avian Point Counts**
- Transect Identifier
  - Point Count Location Identifier and Buffer (Radius 328 feet)
- <sup>1</sup> Note:  
The 1-mile and 3/4-mile CEC Buffer Transects on the southern side are greater than these distances from the disturbance area due to changes in project design.



**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-3  
Biological Resources  
Survey Area**

Date: September 2009



**Legend**

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

**BLM Targeted Cactus Observations**

- Cottontop Cactus

Source: NAIP 2005; CNDDDB 2009; AECOM 2009; EDAW 2009

**Vegetation Communities**

**Riparian**

- Mojave Desert Wash Scrub
- Unvegetated Ephemeral Dry Wash
- Unvegetated Ephemeral Dry Wash (Presumed)<sup>1</sup>

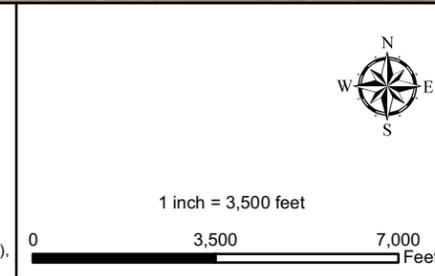
**Upland**

- Mojave Creosote Bush Scrub

**Other**

- Developed

<sup>1</sup> NOTE:  
Due to minimum mapping unit within buffer (1.0 mile), these areas are presumed to be unvegetated.



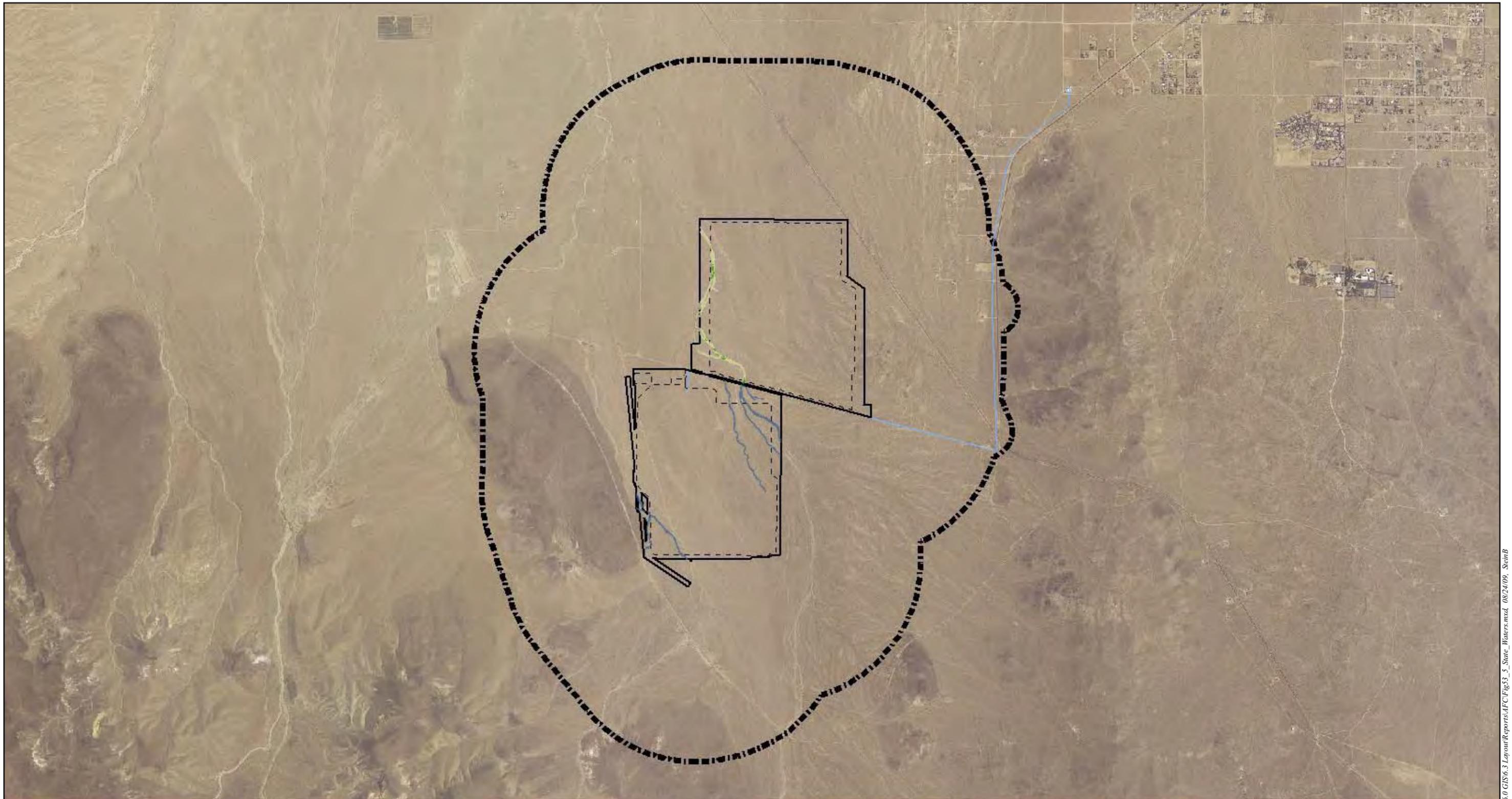
**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-4  
Vegetation Communities and  
BLM Targeted Cactus Observations**

Solar Millennium

AECOM

Date: September 2009

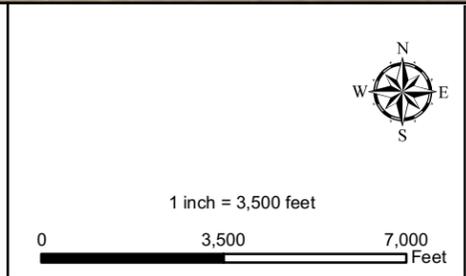


**Legend**

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

**Jurisdictional Waters of the State**  
**Mojave Desert Wash Scrub**

- Wash Dependent Vegetation (Subsampled Areas)
- Vegetated Ephemeral Dry Wash
- Unvegetated Ephemeral Dry Wash

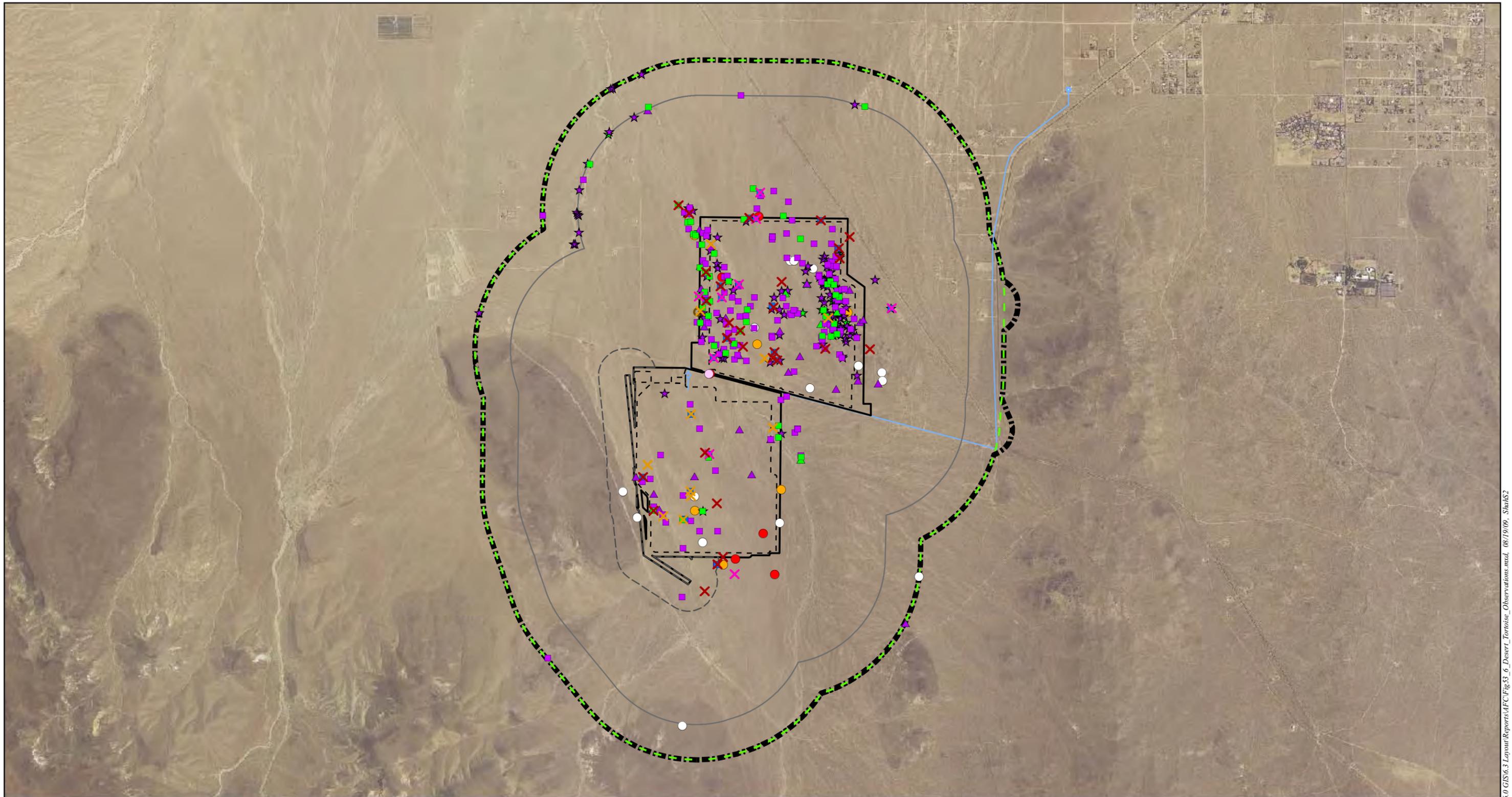


**Ridgecrest Solar Power Project**  
**Application for Certification**  
**Biological Resources**

**Figure 5.3-5**  
**State Jurisdictional Waters**

Date: September 2009

Source: NAIP 2005; AECOM 2009; EDAW 2009



**Legend**

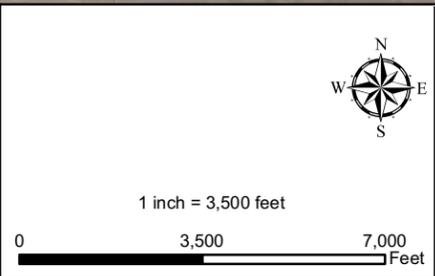
- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)
- Desert Tortoise and CEC Buffer Transects**
- 1-mile Transect<sup>1</sup>

Source: NAIP 2005; CNDDDB 2009; AECOM 2009; EDAW 2009

**Desert Tortoise Observations**

- Adult Tortoise
- Juvenile Tortoise
- Tortoise (Unknown Age)
- Tortoise Burrow - Active
- Tortoise Burrow - Occupied
- Tortoise Burrow
- Tortoise Pallet - Active
- Tortoise Pallet
- Tortoise Scat
- Tortoise Scat - Fresh
- Tortoise Tracks
- Tortoise Bone Fragments
- Tortoise Carcass - Adult
- Tortoise Carcass - Juvenile
- Juvenile Tortoise - Vehicle Collision

<sup>1</sup> Note:  
The 1-mile and ¼-mile CEC Buffer Transects on the southern side are greater than these distances from the disturbance area due to changes in project design.



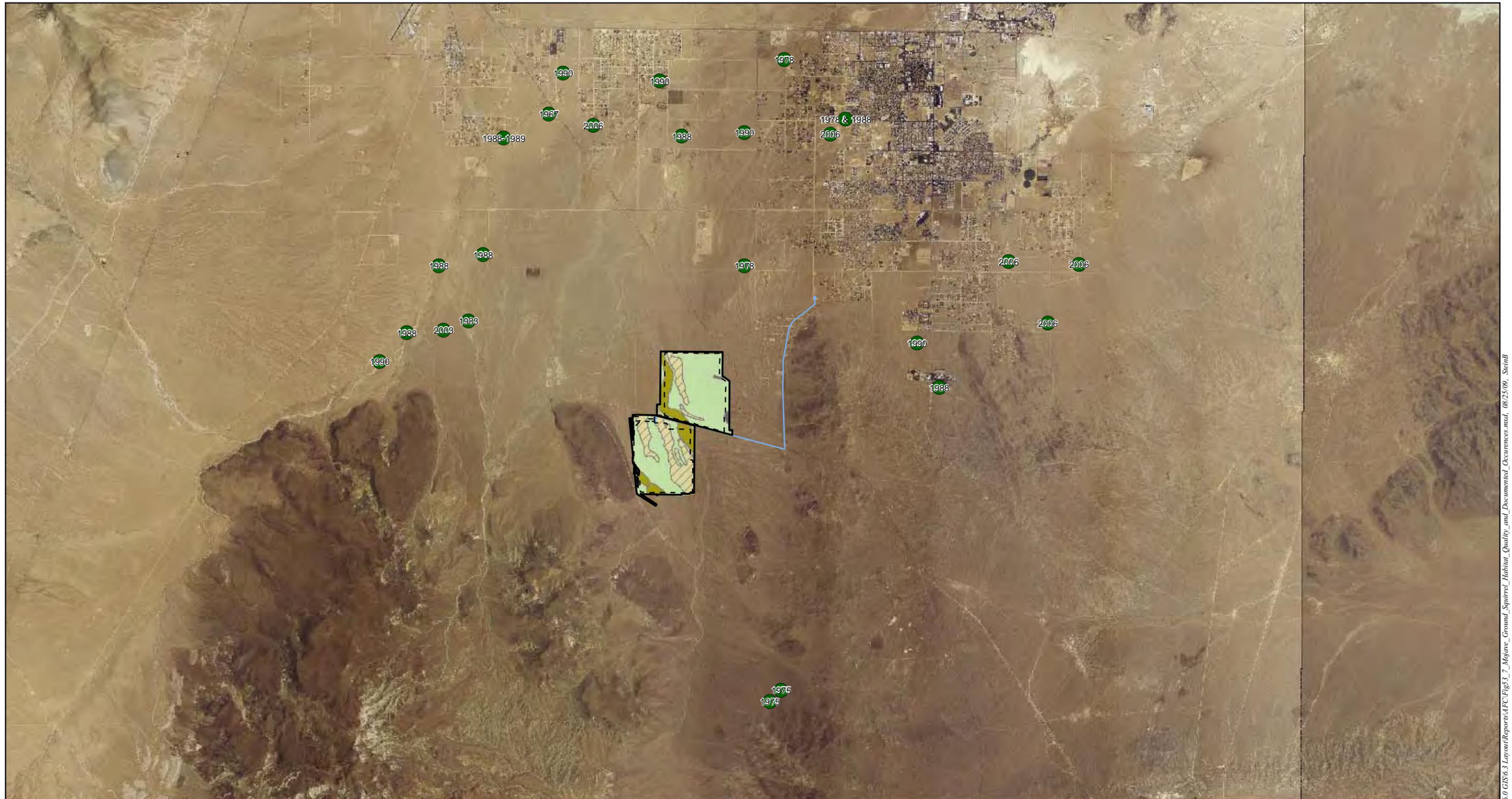
**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-6  
Desert Tortoise Observations**

Solar Millennium

AECOM

Date: September 2009



**Legend**

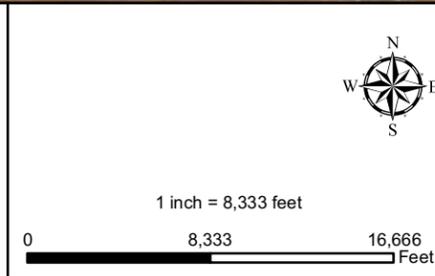
- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- CNDDDB Occurrence (May 2009)
- Mojave Ground Squirrel

**Mojave Ground Squirrel Habitat Quality<sup>1</sup>**

- High - Desert Washes and Adjacent High Diversity Creosote Bush
- Medium - Low Diversity Creosote Bush
- Low - Monotypic Creosote Bush
- Unsuitable - Rocky Terrain

Source: NAIP 2005; CNDDB 2009; AECOM 2009; EDAW 2009

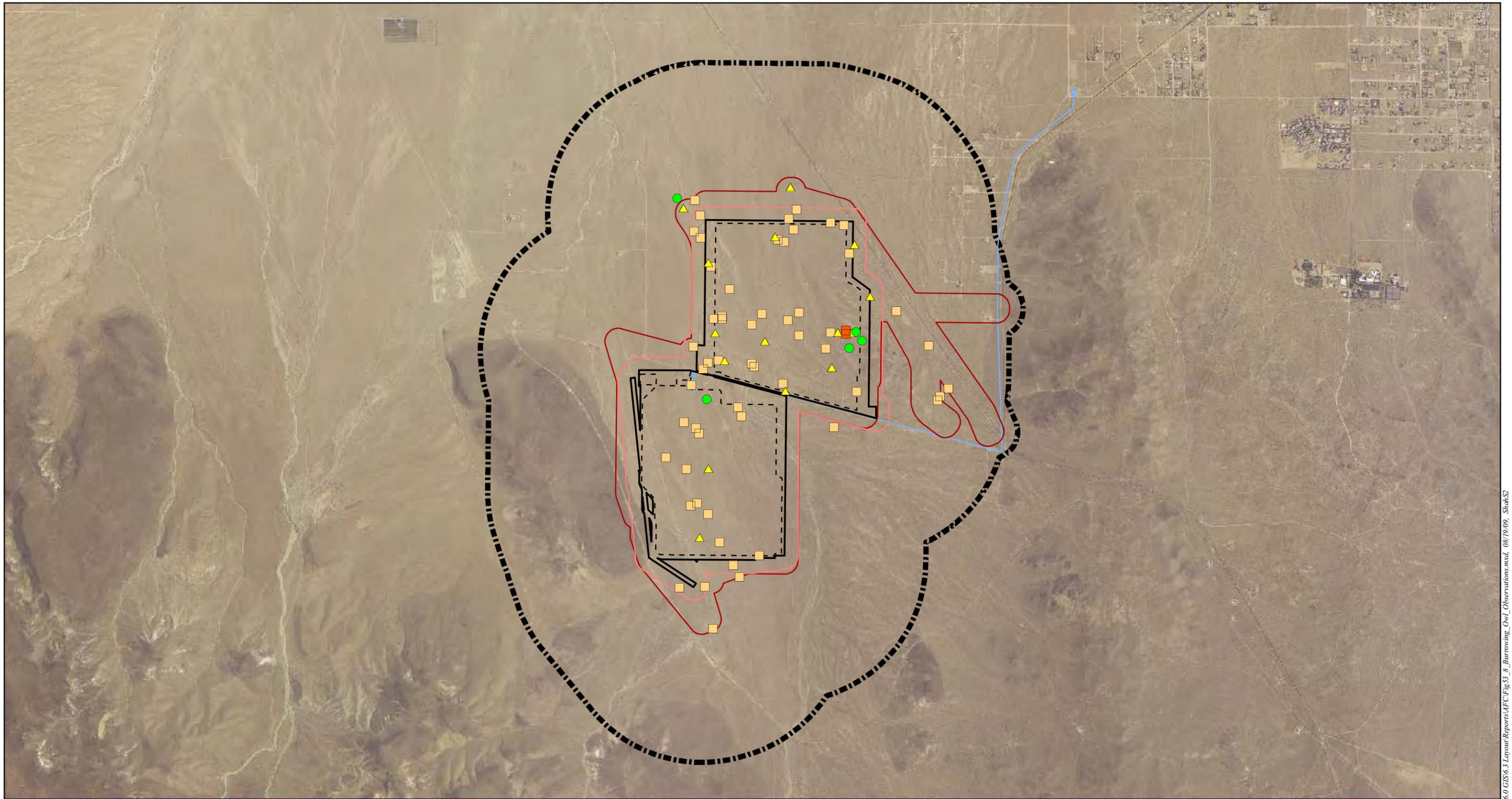
<sup>1</sup> NOTE: Vegetation descriptions for the purposes of MGS habitat quality does not correspond to mapped vegetation communities



**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-7  
Mojave Ground Squirrel Habitat  
Quality and Documented Occurrences**

Date: September 2009



**Legend**

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

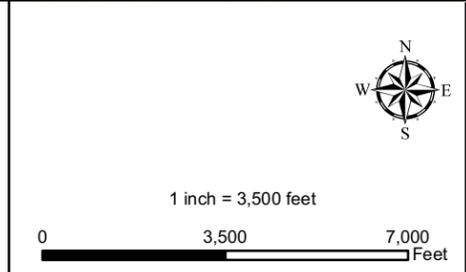
Source: NAIP 2005; AECOM 2009; EDAW 2009

**Burrowing Owl Survey Buffer**

- Previous CBOC 492-foot
- CBOC 492-foot

**Burrowing Owl Observations**

- Active Burrow (Main)
- Active Burrow (Satellite)
- Burrow with Abundant Sign
- Burrow with Sign



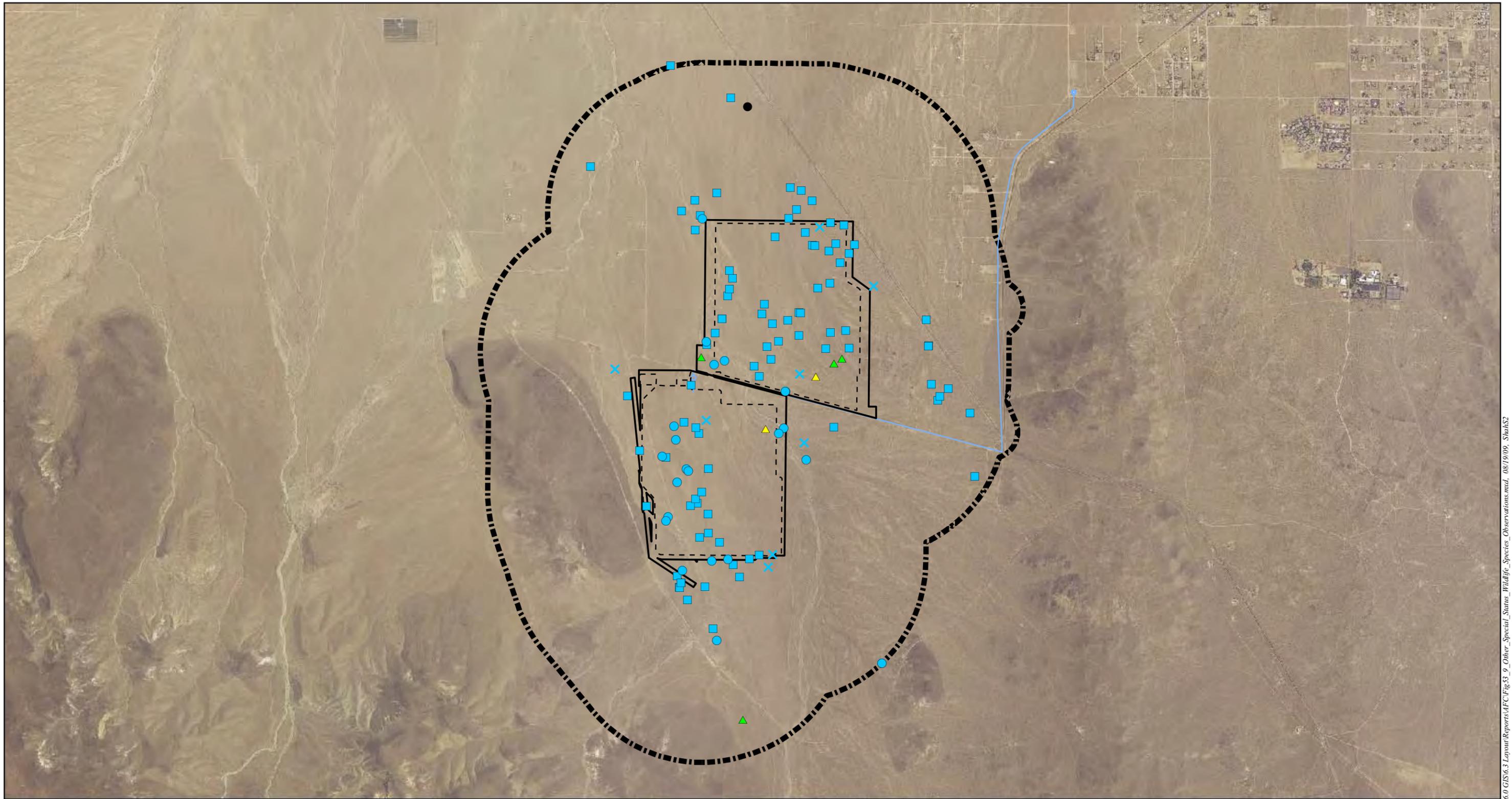
**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-8  
Burrowing Owl Observations**

Solar Millennium

AECOM

Date: September 2009



**Legend**

- Disturbance Area
- Facility Footprint
- Possible Water Line Route
- Biological Resources Survey Area (BRSA)

Source: NAIP 2005; AECOM 2009; EDAW 2009

**Resident Special-Status Wildlife Species Observations**

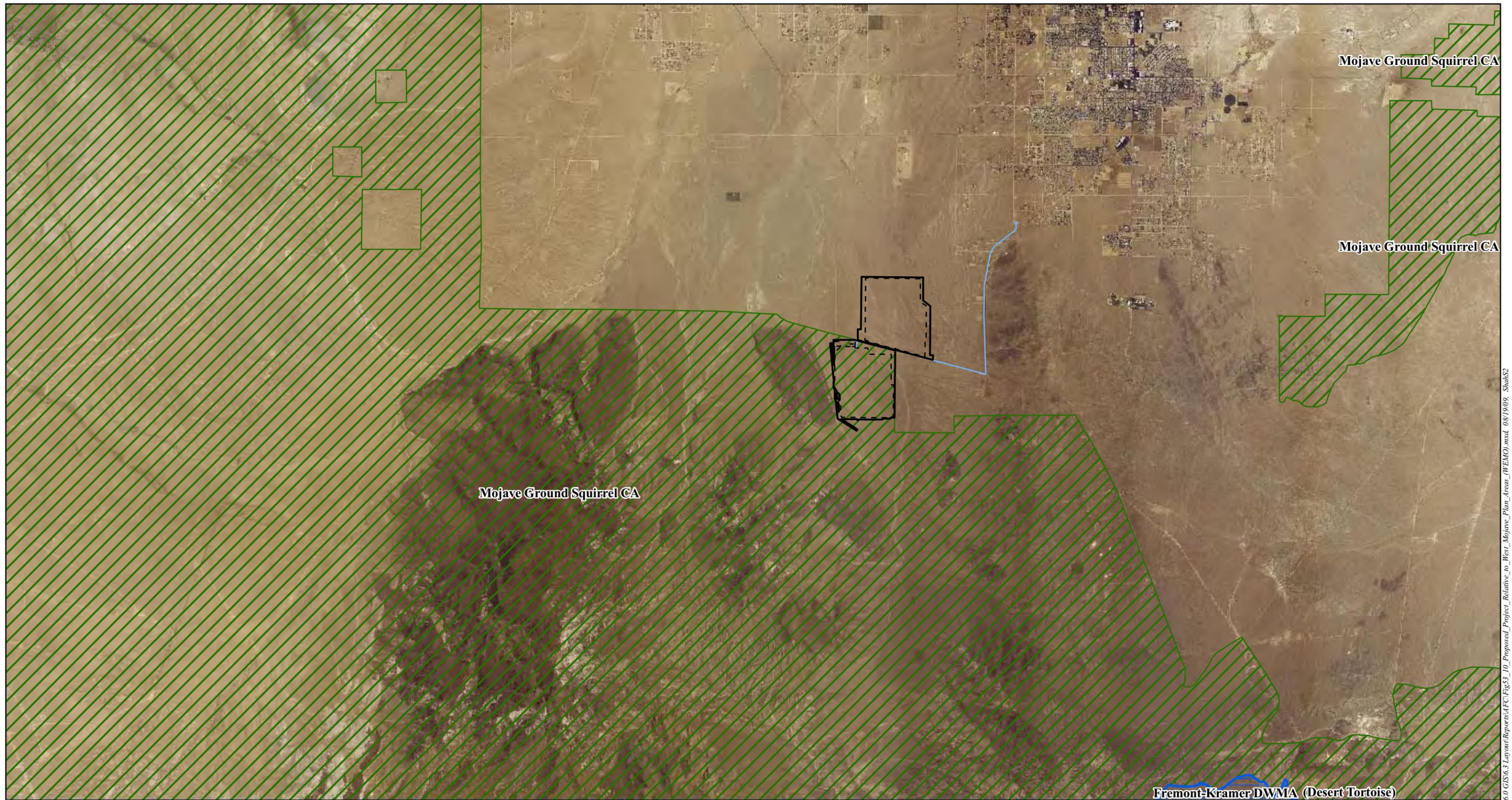
- Burrow with Badger Claw Marks
- Kit Fox Burrow
- Kit Fox Burrow Complex
- Loggerhead Shrike
- Le Conte's Thrasher
- Active Kit Fox Burrow Complex

1 inch = 3,500 feet

**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-9  
Other Resident Special Status  
Wildlife Species Observations**

Date: September 2009



**Legend**

- Disturbance Area
- Facility Footprint
- Possible Water Line Route

**West Mojave Plan Areas**

- Conservation Areas (CA)
- Desert Wildlife Management Areas (DWMAs)

Source: NAIP 2005; BLM; AECOM 2009

1 inch = 8,333 feet

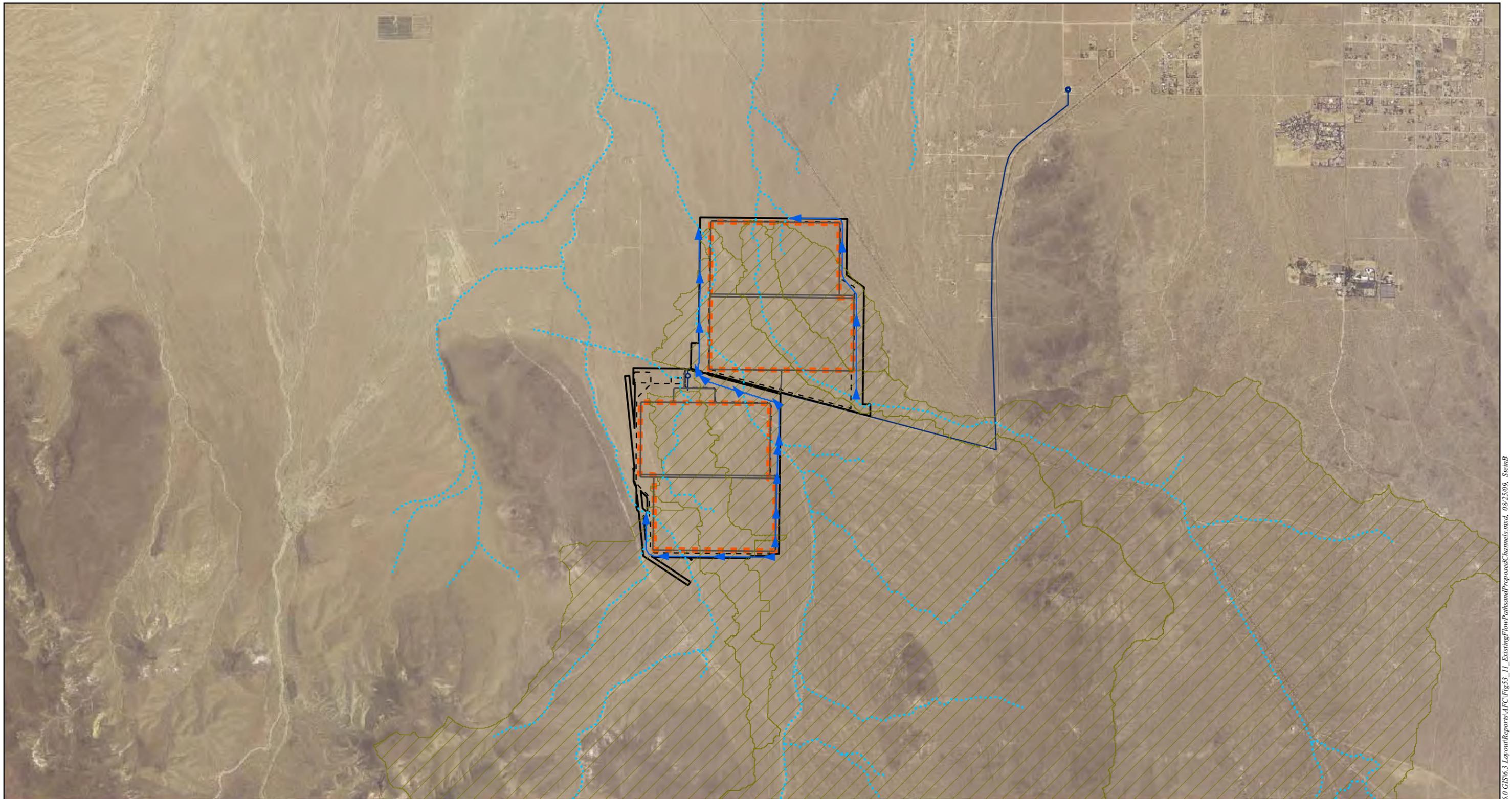
0 8,333 16,666 Feet

**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-10  
Proposed Project Relative to the  
West Mojave Plan Areas (WEMO)**

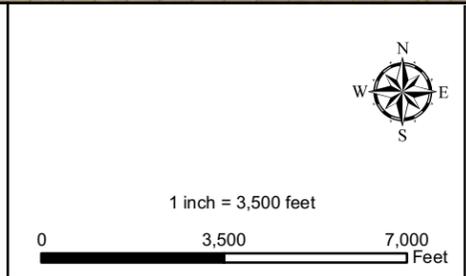
Date: September 2009

Path: P:\2009\09080880\Sol.Mt.Ridgecrest\6.0\GIS\6.3\Layout\Reports\Fig5.3-10\_Proposed\_Project\_Relative\_to\_West\_Mojave\_Plan\_Areas\_(WEMO).mxd 08/19/09 5:48:52



<b>Legend</b>		<b>Facilities Layout</b>		<b>Existing Hydrology</b>	
	Disturbance Area		Roads		FlowLine
	Facility Footprint		Solar Unit		Drainage Area
	Possible Water Line Route		Rerouted Drainages		

Source: NAIP 2005; AECOM 2009; EDAW 2009



**Ridgecrest Solar Power Project  
Application for Certification  
Biological Resources**

**Figure 5.3-11  
Existing Flow Paths and  
Proposed Channels**

Date: September 2009