

5.3 Biological Resources

This section addresses potential impacts to biological resources of the Blythe Solar Power Project (BSPP or Project). The section is intended to support California Energy Commission's (CEC's) compliance with California Environmental Quality Act (CEQA) as well as Bureau of Land Management's (BLM's) compliance with National Environmental Policy Act (NEPA). The two agencies will jointly prepare a combined NEPA/CEQA document.

Summary

BSPP impacts on biological resources would be less than significant with implementation of avoidance, minimization, and mitigation measures, except for unmitigable significant impacts to desert tortoise (DT) dispersal. The Project biological investigation included literature research, field surveys, and discussions with resources agencies staff. The investigation covered the 7,030-acre area that will be disturbed by BSPP construction and operation, plus a surrounding 11,870-acre buffer, for a total of about 19,000 acres.

The area that will be affected by Project construction and operation is relatively undisturbed at present and is dominated by Sonoran creosote brush scrub. Other communities found in the disturbance area include desert dry wash woodland, unvegetated ephemeral dry wash, and developed areas. Agricultural areas occur at the eastern side of the BRSA. The fallow fields within the BRSA are being reclaimed by Sonoran creosote bush scrub. Las Animas colubrine, a California Native Plant Society (CNPS) and BLM-listed species, was found in the disturbance area as well as the survey buffer. Harwood's milkvetch, also CNPS and BLM-listed, was found in the survey buffer but not in the disturbance area. Jurisdictional waters delineations by Project scientists indicate that there are unlikely to be waters on the site considered jurisdictional by the U.S. Army Corps of Engineers (USACE), but USACE concurrence has not yet been obtained. However, 128.8 acres of desert washes are considered State jurisdictional waters under California Department of Fish and Game (CDFG) jurisdiction. Impacts to plants and jurisdictional waters can be mitigated to below significance levels.

One DT, a Federal and State-listed threatened species, was found in the disturbance area in the 2009 surveys and two additional DT were observed in the buffer. The area is considered suitable habitat for DT but of low-quality. The Project's impact on low-quality DT habitat will be mitigated to below significance levels. However, DT home ranges are small in relation to the 7,030-acre disturbance area and Project implementation may increase the number of DT generations it takes for individuals to move across the valley floor from southwest to northeast and vice versa; these impacts to DT dispersal are not mitigable to below significance. Acquired land for habitat mitigation may provide opportunities for DT movement elsewhere to help minimize Project impacts to DT dispersal.

One Western burrowing owl (WBO), a CDFG State Species of Special Concern, was detected in the disturbance area, another individual was found in the survey buffer. WBO sign also was observed in association with 90 burrows. WBO impacts can and will be mitigated. No U.S. Fish and Wildlife Services (USFWS)-designated critical habitat for plant or wildlife species exists within the Project disturbance area. Each of the cumulative projects will be required to mitigate their own biological impacts. However, the stress on species whose habitats are shrinking due to development activities will continue. The numerous large project sites also will cumulatively affect wildlife dispersal.

The section first addresses the applicable laws, ordinances, regulations, and standards (LORS) related to biological resources. It then describes conditions in a large Biological Resources Study Area (BRSA) that

encompasses the proposed disturbance area (area inside and outside the facility fence line that will be disturbed by the Project), solar facility footprint (area inside the facility fence line, i.e., solar fields, power blocks, and ancillary equipment) office, and a survey buffer. It analyzes how construction and operation of the BSPP 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 provided as AFC Appendix F.

5.3.1 LORS Compliance

The BSPP will comply with applicable Federal, State, and local LORS throughout Project construction and operation. Potentially applicable LORS are summarized in Table 5.3-1 and discussed below.

Table 5.3-1 Summary of Applicable Biological Resources LORS

LORS	Applicability	Where Discussed In AFC
Federal		
Endangered Species Act of 1973 (ESA): 16 United States Code (USC) Section 1531 et seq., and implementing regulations, Title 50 Code of Federal Regulations (CFR) Section 17.1 et seq.	Designates and protects Federal threatened and endangered plants and animals and their critical habitat. Requires Federal agency consultation with the 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 703-712	Prohibits take of protected migratory birds.	Section 5.3.1
NEPA: 42 USC Section 4321 et seq., and implementing regulations, Title 40 CFR 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
Northern and Eastern Colorado Desert Coordinated (NECO) Management Plan	Protects and conserves natural resources while simultaneously balancing human uses of the California portion of the Sonoran Desert ecosystem.	Sections 5.3.1 and 5.7, Land Use
California Desert Conservation Area (CDCA) Plan	Under the Federal Land Policy and Management Act, BLM is required to develop Resource Management Plans. All activities proposed for public land must be consistent with the approved Resource Management Plan(s).	Sections 5.3.1 and 5.7, Land Use

Table 5.3-1 Summary of Applicable Biological Resources LORS

LORS	Applicability	Where Discussed In AFC
State		
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 (CESA) of 1984: Fish and Game Code 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
California Fish and Game Code (CFG) Fully Protected Species: Sections 3503, 3503.5, 3511: Fully protected birds Section 4700: Fully protected mammals Section 5050: Fully protected reptiles and amphibians Section 5515: Fully protected fishes	Prohibits the taking of listed plants and animals that are classified as “Fully Protected” in California.	Section 5.3.1
Native Plant Protection Act (NPPA) of 1977: CFGC Section 1900 et seq.	Provides specific protection measures for identified populations of State rare and endangered plants.	Section 5.3.1
Title 14 California Code of Regulations (CCR) Sections 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 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

Table 5.3-1 Summary of Applicable Biological Resources LORS

LORS	Applicability	Where Discussed In AFC
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 5.3.1.2
Local		
Riverside County General Plan (2003)	Provides land use designations, goals, and policies for the development and conservation of land within the unincorporated areas of Riverside County.	Sections 5.3.1. and 5.7, Land Use

5.3.1.1 Federal LORS

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

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

This 1973 law, administered by the 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 the 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 majority of the Project disturbance area 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. The USFWS maintains a list of designated migratory birds occurring in various regions of the United States.

Clean Water Act (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 has determined that the disturbance area does not support jurisdictional waters of the U.S. It is anticipated that 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 upon the Approved Jurisdictional Determination (JD) process per the March 30, 2007 U.S. Army Corps of Engineers JD 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]).

National Environmental Policy Act (42 USC Section 4321 et seq.)

The National Environmental Policy Act (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 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 (EA) or, where an action may significantly affect the quality of the human environment, an Environmental Impact Statement (EIS). 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 EIS for the proposed Project to satisfy NEPA, within the context of the CEC-BLM Memorandum of Understanding, which calls for a joint NEPA/CEQA process.

Northern and Eastern Colorado Desert Coordinated Management Plan (BLM 2002)

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 developments with the CDCA including NECO. The NECO Plan is a landscape-scale, multi-agency planning effort that protects and conserves natural resources while simultaneously balancing human uses of the California portion of the Sonoran Desert ecosystem. This plan was prepared under the regulations implementing the federal Land Policy and Management Act of 1976. The NECO Plan provides reserve management for the DT (*Gopherus agassizii*), integrated ecosystem management for special-status species and natural communities for all federal lands, and regional standards and guidelines for public land health for BLM lands.

The BSPP buffer occurs within a Multi-species Wildlife Habitat Management Area (WHMA), as designated by the NECO Plan. The Multi-species WHMA is complementary to existing restricted areas within the NECO planning area and Desert Wildlife Management Areas (DWMAs), which also cover other special-status species and habitats (e.g., DT and bighorn sheep). No restrictions are designated in the WHMA other than closure of some routes of travel. Management emphasis is placed on active management, specific species and habitats mitigation, and restoration from authorized allowable uses. The special situation of “fixed-point” rare plants is also addressed. Section 5.7, Land Use, of this document provides additional discussion of the requirements of the CDCA Plan/NECO Plan.

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. With the exception of one 40-acre, privately owned parcel, the entire Project site (including the transmission line route) 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.

5.3.1.2 State LORS

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

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.

California Endangered Species Act (CESA) (Fish and Game Code 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 the 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 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 questions, and 4) the applicant ensures suitable funding to implement the measures required by CDFG.

Because DT are present in areas associated with the BSPP, the proposed Project will obtain either a Section 2081 permit for DT, or a CDFG concurrence under CESA Section 2080.1 with the Federal take authorization issued by USFWS for DT under the Federal ESA (described above in Section 3.7.2). If only Federal take authorization is pursued, it is assumed with concurrence from CDFG that this process will substantially meet the requirements of CESA.

California Fish and Game Code 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.

California Fish and Game Code 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.

California Fish and Game Code Section 3511

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

California Fish and Game Codes Sections 4700, 5050, and 5515

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

Native Plant Protection Act (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 Sections 670.2 and 670.5

This Code lists plant and animal species designated as threatened and endangered in California. California SSC is a category applied by the 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.

California Fish and Game Code Section 1600 et seq.

Pursuant to these sections, CDFG regulates all changes to the natural flow, bed or bank, of any river, stream, or lake that support 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.

As the BSPP’s disturbance area contains “waters of the State,” the Project will submit a CFGC Section 1600 et seq. Lake and SAA notification to CDFG. The SAA review process is subsumed within the CEC’s review and approval process for the Application for Certification.

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 States, the Regional Water Quality Control Board (RWQCB) has primary authority for permit and enforcement activities under Porter-Cologne and the CWA. Under Porter-Cologne, 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. See also Section 5.17, Water Resources.

Porter-Cologne authorizes 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 RWQCB. RWQCB will then respond to the ROWD by issuing a WDR in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. RWQCB has a statutory obligation to prescribe WDRs except where 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

Riverside General Plan, Land Use and Multi-Purpose Open Space Elements (2003)

Riverside County requires actions to ensure that proposed development projects demonstrate a high degree of compatibility with any threatened or endangered species habitat they may affect. The administering agency is the Riverside County Planning Department. Section 5.7, Land Use of this document provides an analysis of the Riverside County General Plan.

5.3.1.4 Involved Agencies

The Federal, State, and local agencies involved in biological resource issues related to BSPP 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

Agency Contact	Phone/E-mail	Permit/Issue
Holly Roberts, Deputy Field Manager Bureau of Land Management Palm Springs South Coast Field Office 690 W. Garnet Ave., P.O. Box 581260 North Palm Springs, CA 92258-1260	(760) 251-4800 phone Holly_roberts@ca.blm.gov	Right-of-Way Permit and preparation of EIS per NEPA
Jim Bartel, Field Supervisor USFWS Carlsbad Office 6010 Hidden Valley Road, Suite 101 Carlsbad, CA 92011	(760) 431-9440 Jim_Bartel@fws.gov	Federal ESA, Section 7 Consultation
Chris Hayes, Program Manager CDFG Blythe Office P.O. Box 2160 Blythe, CA 92226	(760) 922-6508 CHayes@dfg.ca.gov	Section 2081 Take Permit
Stephan Arvender CDFG Blythe Office P.O. Box 2160 Blythe, CA 92226	(760) 922-6783 SArvender@dfg.ca.gov	Streambed Alteration Agreement, Section 1600
Dan Swenson, Senior Project Manager USACE Regulatory Division 915 Wilshire Blvd Los Angeles, CA 90017-3401	(213) 452-3414 dan.swenson@usace.army.mil	Concurrence that disturbance area does not include "waters of the U.S."

5.3.1.5 Required Permits and Permit Schedule

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

Table 5.3-3 Required Biological Resource Permits and Permitting Schedule

Permit/Approval	Schedule
Federal Endangered Species Act, Section 7 Consultation	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 right-of-way (ROW) Application to BLM from the Applicants. A Biological Assessment (BA) for the project's effect on DT will be prepared and submitted to BLM and USFWS to initiate formal consultation. It is anticipated that the Draft BA will be submitted by 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	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, DT is the only state-listed species detected on site. If CDFG agrees with the conditions of the Biological Opinion, CDFG will issue a concurrence letter within a few weeks of issuance of the Biological Opinion. If the project determines that pursuing the 2081 ITP is more appropriate, the Draft 2081 would be submitted by January 2010. Once the Final 2081 ITP is submitted, CDFG provides their determination to the CEC and 2081 ITP take authorization is included in the CEC Decision Document. A separate 2081 ITP will not be issued by CDFG.
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 BSPP is located about eight miles west of City of Blythe, and two miles north of the U.S. Interstate 10 (I-10) freeway in Riverside County, California (Figure 5.3-1). The Project is proposed on a contiguous area consisting of approximately 7,030 acres of undeveloped land administered by BLM.

5.3.2.2 Project Site Description

The Blythe Solar Power Project (BSPP) site is nearly completely vacant and undeveloped and is entirely owned by BLM. There are no existing structures that would need to be demolished. The site is mostly flat, with elevation ranging on USGS topographical maps from a high of about 670 feet above sea level at the southwestern limits of the site to a low of about 420 feet above sea level near the southeastern site boundary.

During WWII, the site was part of General George S. Patton Desert Training Center, officially the California-Arizona Maneuver Area (DTC-CAMA), a simulated theater of operations. The site area was heavily used by tanks and other military vehicles. Nearby Blythe Airport was used as a CAMA training field. The 46th Bomb Group, and later the 34th Bomb Group occupied nearby Blythe Airport, then known as Bishop Army Field, and flew training missions in a variety of military aircraft, including bombers. For more information, see Section 5.4 Cultural Resources.

The biological resources investigation was conducted within the 18,998 acre-BRSA. The BRSA includes the 7,027-acre disturbance area acreage plus an additional 11,971 acres of buffer areas around the site that are covered by the investigation in order to comply with regulatory requirements. The entire area

covered by the ROW application (9.405 acres) to BLM is within the BRSA. The disturbance area encompasses the entire area within the fence line of the plant site, as well as all additional proposed areas of disturbance outside of the fence (e.g., rerouted washes, etc.). The 5,952-acre facility footprint is within the disturbance area and includes only the BSPP facilities within the fence line (Figure 5.3-1). (Please note that sections of the AFC other than Biological Resources use rounded values of 7.030 acres, and 5,950 acres for the disturbance area and facility footprint, respectively.)

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 furbearing mammal (PFM); 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; CDFG 2009), California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants, and the Natural Resources Conservation Service Web Soil Survey. These resources along with the Special Animals list and range maps were consulted to determine historic occurrence of special-status plant and wildlife species and other natural resources within the BRSA (Figure 5.3-2). Additionally, the USFWS provided a letter on March 19, 2009, detailing special-status species that they require to be considered. The DT was the only species specifically mentioned in this letter.

The NECO Plan was consulted for maps of lands designated for Wildlife Management Areas, documentation of sensitive vegetation communities, and documentation of sensitive species, such as Coachella Valley milkvetch and DT. Several plant and wildlife special-status species with potential for occurrence on site are included in the NECO Plan.

Habitat conditions for special-status species were evaluated with respect to conditions in the BRSA, and surveys were initiated to determine presence/absence of species with the potential to occur on or near the BRSA. The following 28 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)

- Coachella Valley milkvetch (*Astragalus lentiginosus* var. *coachellae*) – ESA endangered, CNPS List 1B.2, BLM Sensitive, NECO Plan
- DT (*Gopherus agassizii*) – ESA and CESA threatened
- Gila woodpecker (*Melanerpes uropygialis*) – CESA endangered
- Gilded flicker (*Colaptes chrysoides*) – CESA endangered

- Swainson's hawk (*Buteo swainsoni*) – CESA threatened – however, migratory only on site (i.e., nonresident and nonbreeding)

CDFG Species of Special Concern, California Code of Regulations, BLM Sensitive or CNPS List 1A, 1B, or 2

- Angel trumpets (*Acleisanthes longiflora*) – CNPS List 2.3, NECO Plan
- Harwood's milkvetch (*Astragalus insularis* var. *harwoodii*) – CNPS List 2.2, NECO Plan
- Fairyduster (*Calliandra eriophylla*) – CNPS List 2.3, NECO Plan
- Alkali mariposa lily (*Calochortus striatus*) – CNPS List 1B.2, BLM Sensitive
- Crucifixion thorn (*Castela emoryi*) – CNPS List 2.3, NECO Plan
- Las Animas colubrine (*Colubrina californica*) – CNPS List 2.3, NECO Plan
- Glandular ditaxis (*Ditaxis claryana*) – CNPS List 2.2, NECO Plan
- California satintail (*Imperata brevifolia*) CNPS List 2.1
- Orocopia sage (*Salvia greatae*) – CNPS List 1B.3, NECO Plan
- Desert spikemoss (*Selaginella eremophila*) – CNPS List 2.2
- Coves' cassia (*Senna covesii*) – CNPS List 2.2, NECO Plan
- Dwarf germander (*Teucrium cubense* ssp. *depressum*) – CNPS List 2.2
- Jackass clover (*Wislizenia refracta* ssp. *refracta*) – CNPS List 2.2, NECO Plan
- Orcutt's woody-aster (*Xylorhiza orcuttii*) – CNPS List 1B, BLM Sensitive
- Ferruginous hawk (*Buteo regalis*) - CDFG WL, BLM Sensitive, NECO Plan - however, wintering only on site
- WBO (*Athene cunicularia hypugaea*; WBO) – CDFG SSC, BLM Sensitive, NECO Plan
- Crissal thrasher (*Toxostoma crissale*) – CDFG SSC, NECO Plan
- Loggerhead shrike (*Lanius ludovicianus*) – CDFG SSC
- Yellow warbler (*Dendroica petechia sonorana*) - CDFG SSC, NECO Plan – however, migratory only on site
- American badger (*Taxidea taxus*) – CDFG SSC
- Desert kit fox (*Vulpes macrotis arsipus*) – PFM (per. Calif. Code of Regulations)
- Nelson's bighorn sheep (*Ovis canadensis nelsoni*) – BLM Sensitive, NECO Plan
- Pallid bat (*Antrozous pallidus*) – CDFG SSC, BLM Sensitive, NECO Plan

5.3.2.4 Survey Protocols

During spring 2009, Project biologists completed the following survey types: vegetation mapping, focused rare plant surveys, JD, general wildlife surveys, protocol DT surveys, protocol WBO surveys, and avian point count surveys. Comprehensive biological resource survey methodologies were designed to meet all applicable CEC, BLM, USFWS, and CDFG requirements. This chapter details the specific methodologies and protocols utilized for biological resources surveys within the BRSA for the Project. The BRSA is a combination of the disturbance area, which includes the facility footprint, and survey buffers required by USFWS and CEC protocols (Figure 5.3-1).

Surveys for biological resources were conducted inside and outside the facility fence line that will be disturbed by the Project (the disturbance area) and the one-mile buffer around the disturbance area, as required by the CEC (the buffer), as shown in Figure 5.3-1.

Please note that because of uncertainties in the location of BSPP electrical transmission system, the Project's transmission line route has not been finalized (Figure 5.3-1). For this reason, this AFC section does not include evaluation of the existing biological resources or potential Project impacts of a transmission line route. When a final transmission route is selected, the required biological resources studies and surveys will be performed and submitted to the regulatory agencies and other stakeholders. This work will be performed and the information provided during the post-AFC submittal portions of the combined CEC/BLM BSPP review process.

CEC Survey Guidelines

Biological survey methodologies for the BSPP were formulated in conformance 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 in order 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 movement in the BSPP 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 USFWS or CDFG, respectively. In an effort to gain consensus regarding the survey methodologies to be employed, the Project team initiated discussions with USFWS, the BLM, CDFG, and 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, as 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 the appropriate staff from the above-mentioned agencies on February 20, 2009.

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 Kim Nicol of CDFG dated March 10, 2009. 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 certain 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. These were eliminated after discussions with USFWS as it was concluded that the usual rationale for these ZOI transects, i.e., the potential for a Federal action to affect offsite individuals of an endangered species and therefore necessitate consultation under Section 7 of the Federal Endangered Species Act was a moot point as consultation was already determined to be necessary. CEC buffer requirements would result in substantial offsite survey activity in any case.

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

Vegetation Communities

Vegetation mapping was conducted within the BRSA between February 11 and April 21, 2009. Vegetation communities were classified based on Holland. Sawyer and Keeler-Wolf and CDFG classifications were used to provide additional detail when needed, such as denoting special vegetation communities that are either known or believed to be of high priority for inventory in CNDDDB due to significance or rarity. Field biologists utilized 200-foot scale ortho-topo maps for both vegetation mapping and rare plant points or polygons. If rare plants were documented during vegetation mapping, these sites were revisited during additional rare plant surveys in order to accurately delineate species populations using Global Positioning System (GPS) equipment.

The minimum mapping unit 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, including riparian, was 1.0 acre. 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 surveyed by pedestrian transect within native habitat, but developed and agricultural vegetation were surveyed by a combination of walking transects and selecting key vantage points from existing dirt access roads.

State Waters Streambed Delineation

Project ecologists conducted field assessments and surveys for ten days (40 person-days) from March 18 through March 27, 2009 to formally delineate all jurisdictional “waters of the State” (jurisdictional waters) occurring within the disturbance area.¹ Jurisdictional wetland 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.

Rare Plant Surveys

Rare plant surveys were conducted within the BRSA between February 11 and April 21, 2009 by Project botanists. A list of potentially occurring sensitive plant species was compiled based on the following: information on species with known populations within/near the BRSA, results from previous survey efforts in the vicinity of the BSPP, a letter request sent to USFWS, CDFG, and BLM for Federal listed, State listed, and BLM sensitive species occurring within the BRSA, and the presence of suitable habitats for sensitive species. At the direction of BLM, cottontop cactus (*Echinocactus polycephalus*), hedgehog cactus (*Echinocereus* sp.), and any varieties of California barrel cactus (*Ferocactus cylindraceus*) were recorded and mapped when encountered on site.

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 site to support special-status wildlife species. General wildlife surveys were initiated in March 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 based on guidance from the BLM. Point counts were conducted for four consecutive weeks between April 12 and May 8, 2009. A total of 88 point count

¹ Through field surveys, topographical and hydrological investigation and analysis EDAW AECOM determined that the disturbance area does not support jurisdictional waters of the U.S. A formal determination and documentation of the absence of waters under USACE jurisdiction is currently being pursued through the USACE's Jurisdictional Determination process.

stations were established along eleven transect lines, placed in a configuration designed to sample all vegetation and substrate types represented on the site. Each transect line comprised eight 328-foot (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 deemed sufficient to avoid duplicate counts of individual birds in most circumstances.

Special-Status Wildlife Surveys

Focused protocol surveys were conducted in spring 2009 for the DT and WBO and are described below. Incidental sightings for all other special-status species were recorded during protocol surveys.

Desert Tortoise. The survey 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 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 were conducted. This modification to the DT survey protocol was agreed upon prior to survey initiation by USFWS, CDFG, BLM, and CEC, per an email communication dated March 10, 2009, from Kim Nicol of CDFG. To comply with the recommendations of the CEC Draft Guidelines, transects outside of and parallel to the disturbance area were surveyed for DT in the buffer at 3,960-foot (3/4-mile) and 5,280-foot (one-mile) intervals from and parallel to the edge of the disturbance area. These transects are more broadly focused than the DT protocol transects and are not a formal part of the tortoise survey. However they provide information on DT presence/absence and habitat suitability as well as other biological resources in the area surrounding the BRSA within the buffer zone. Presence/absence surveys for DT were completed between March 11 and June 4, 2009.

Western Burrowing Owl. WBO surveys were performed according to the protocol established by the CBOC (1993) 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. As noted earlier in Section 2.2, the CEC requires a habitat evaluation within a one-mile buffer surrounding the disturbance area. In summary, 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 15 and June 14, 2009. All WBO observations and WBO sign were recorded on datasheets and mapped with GPS units.

5.3.2.5 Survey Results

The existing conditions presented in this chapter represent findings within the BRSA during the surveys. The following sections describe existing conditions present on site in spring 2009 for vegetation communities, jurisdictional areas, and special-status plant and wildlife species. Pertinent biological findings used for assessing impacts are reported separately for the disturbance area and buffer. Since survey efforts focused on the disturbance area with less intense coverage of the buffer, the remaining findings of existing conditions are reported for the entire BRSA to avoid misinterpretation of the data.

Vegetation Communities

Five vegetation communities and other cover types were identified within the BRSA during the surveys, including upland, riparian, and other cover types (Table 5.3-4; Figure 5.3-4). Vegetation communities are described in detail below and based on a classification system by R. Holland. When appropriate, vegetation classification by J.O. Sawyer and T. Keeler-Wolf are also considered. Community types according to CDFG are listed where applicable. Two of the vegetation communities are considered sensitive: desert dry wash woodland and unvegetated ephemeral dry wash. Desert dry wash woodland and unvegetated ephemeral dry wash are sensitive because they are also state waters under the

jurisdiction of CDFG. In addition, desert dry wash woodland is a special community type (e.g., high priority for inventory in the California Natural Diversity Database) per CDFG's Vegetation and Mapping Program.

Table 5.3-1 Vegetation Communities and Cover Types (Acres)

Vegetation Communities and Other Cover Types	Disturbance Area	Buffer (one-mile)	BRSA
<i>Riparian</i>			
Desert Dry Wash Woodland	120.5	532.1	652.7
Unvegetated Ephemeral Dry Wash	8.3	N/A ¹	8.3
<i>Subtotal Riparian</i>	<i>128.8</i>	<i>532.2</i>	<i>661.0</i>
<i>Upland</i>			
Sonoran Creosote Bush Scrub	6,897.0	10,036.6	16,933.7
<i>Subtotal Upland</i>	<i>6,897.0</i>	<i>10,036.6</i>	<i>16,933.7</i>
<i>Other Cover Types</i>			
Agricultural Land	0.8	1,227.3	1,228.1
Developed	0.0	175.3	175.3
<i>Subtotal Other Cover Types</i>	<i>0.8</i>	<i>1,402.6</i>	<i>1,403.4</i>
Total Acres	7,026.6	11,971.4	18,998.0
¹ 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 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.			

Desert Dry Wash Woodland. Desert dry wash woodland is designated by Holland as Code 62200. It also approximates the Sawyer and Keeler-Wolf's Catclaw Acacia Series 129. This vegetation community consists of open, drought deciduous, riparian scrub woodland and is made up of three primary components, wash dependent vegetation, vegetated ephemeral dry wash, and islands of Sonoran creosote bush scrub (e.g., riparian interfluves). Dominant and indicator plants of this community within the BRSA include ironwood (*Olneya tesota*), blue palo verde (*Parkinsonia florida*), cheesebush (*Hymenoclea salsola*), desert lavender (*Hyptis emoryi*), catclaw acacia (*Acacia gregii*), Emory's indigo bush (*Psoralethamnus emoryi*), smoke tree (*Psoralethamnus spinosus*), and sweetbush (*Bebbia juncea var. aspera*). Species of tamarisk (*Tamarix* spp.), which are invasive, are also interspersed throughout this community. Overall, the cover of wash dependent vegetation within the desert dry wash woodland is approximately 19 percent. The woodland occurs in and among dry washes that primarily traverse the western portion of the BRSA (Figure 5.3-4).

Approximately 120.5 acres of desert dry wash woodland occur within the disturbance area and 532.2 acres in the buffer, for a total of 652.7 acres within the BRSA.

Unvegetated Ephemeral Dry Wash. This community consists of unvegetated washes that are dominated by sandy substrate and little to no vegetation. Unvegetated ephemeral dry wash (which approximates nonvegetated channel, Holland Code 64200) occurs within the transition zone between the desert dry wash woodland, as the washes are transitioning to sheet flow as they drain to the east (Figure 5.3-4).

There were no dominant plant species observed in association with nonvegetated channel as these areas are primarily devoid of vegetation.

Approximately 8.3 acres of unvegetated ephemeral dry wash occur within the disturbance area (Figure 5.3-4). Corresponding unvegetated ephemeral dry wash were not mapped in the buffer, but is a component of the desert dry wash woodland. This is because the minimum mapping unit for riparian vegetation communities in the buffer was 1.0 acre, as opposed to 0.01 acre within the disturbance area.

Sonoran Creosote Bush Scrub. Sonoran creosote bush scrub is designated by Holland as Code 33100 and Sawyer and Keeler-Wolf as the Ocotillo Series 182. Within the BRSA, this community is characterized by sandy soils with a shallow clay pan on a broad gentle southeast trending slope. Dominant plants within the BRSA for this community include creosote bush (*Larrea tridentata*), burro-weed (*Ambrosia dumosa*), brittlebush (*Encelia farinosa*), cheesebush, and ocotillo (*Fouquieria splendens*). This is the most common plant community within the BRSA, dominating the alluvial soil deposits. This plant community intergrades into the desert dry wash woodland. Within the BRSA there are areas of desert pavement that are covered with rounded cobbles that range in size from one to three inches. Typically these areas are higher than the surrounding landscape by three to 15 feet. These areas are within the Sonoran creosote bush scrub, though the plant density is lower.

Within the utility corridor on the south side of the I-10, fine sand drifts are interspersed within this community type. In these areas, Emory's indigo bush occurs in stands and was more prevalent than in other portions of the Sonoran creosote bush scrub.

Past disturbance within this community includes military training and agricultural use. These disturbances occurred in the past and the Sonoran creosote bush scrub within the BRSA has been recovering through natural recruitment. As a result, two invasive plant species, Russian thistle, and Sahara mustard (*Brassica tournefortii*), can be found in disturbed areas throughout the BRSA, especially near roads, fallow, and active agricultural areas. Another exotic plant, Mediterranean grass (*Schismus* sp.), is prevalent throughout the Sonoran creosote bush scrub. Approximately 6,897.0 acres of Sonoran creosote bush scrub were mapped within the disturbance area and 10,036.6 acres in the buffer, for a total of 16,933.7 acres within the BRSA (Figure 5.3-4).

Agricultural Land. The majority of agriculture land is fallow and active agriculture in the buffer at the southern and eastern border of the BRSA. On the far eastern side of the disturbance area a small amount (0.8 acres) of agriculture overlaps the disturbance area (Figure 5.3-4). The disturbance area boundary was designed to abut the dirt road present on the east side of the disturbance area. Inspection of aerial imagery shows the road slightly west of the boundary. This overlap is likely due to two factors: 1) there are inherent inaccuracies in road layer data mapped without the benefit of precise field measurements; and 2) the desert is an unbound, changing environment and it is likely the dirt road and agriculture field gradually shifted west over time. This area will not be included in the disturbance area once Project planning surveys commence on the ground.

There is no associated Holland or Sawyer and Keeler-Wolf classification for this land cover type. It includes lands that are currently under cultivation and those that are abandoned (e.g., fallow). In the soils within abandoned agriculture areas native vegetation is growing back, Russian thistle (*Salsola tragus*), Saharan mustard, and other exotic plants were observed interspersed with the native vegetation and are indicative of past agricultural disturbance.

Approximately 0.8 acre of agricultural land occurs within the disturbance area and 1,227.3 acres occur in the buffer, for a total of 1,228.0 acres within the BRSA (Figure 5.3-4).

Developed Areas. Developed areas consist of roadways (I-10, deteriorating asphalt road, and dirt access roads), a large concrete military runway and cleared land around inholdings within the BRSA. No

developed areas were mapped within the disturbance area and 175.3 acres occur in the buffer, for a total of 175.3 acres within the BRSA (Figure 5.3-4).

State Jurisdictional Waters

All desert dry wash woodland and unvegetated ephemeral dry washes within the disturbance area were delineated as waters of the State (Figure 5.5-5). A detailed analysis of the waters of the State within the disturbance area is provided in the Jurisdictional Delineation Report included as an appendix to the Biological Resources Technical Report (Appendix F). Waters of the State were not delineated outside of the disturbance area. Desert dry wash woodland and unvegetated ephemeral dry wash are primarily located within the western portion of the disturbance area and extend up to approximately 15,000 feet in a northwest to southeast orientation until jurisdictional waters of the state abate/terminate into the landscape.

The total area of all waters of the State delineated within the disturbance area is approximately 128.8 acres (Table 5.3-5). Of these 128.8 acres of jurisdictional waters, 120.5 acres are composed of desert dry wash woodland and 8.3 acres are composed of unvegetated ephemeral dry wash. Of the 120.5 acres of desert dry wash woodland occurring within the disturbance area, 22.9 acres are composed of wash-dependent vegetation (absolute cover), 76.5 acres are composed of vegetated ephemeral dry wash, and 21.1 acres of riparian interfluves (Figure 5.3-5).

Table 5.3-5 Jurisdictional Waters of the U.S. and State Occurring within the Disturbance Area ^a

Type of Jurisdictional Waters	Type of Habitat (Holland 1986)	Type of Habitat (Cowardin et al. 1979)	Area of Aquatic Resource (ac)^b
<i>Jurisdictional Waters of the U.S.</i>			
None	N/A	N/A	0.00
<i>Total USACE Waters =</i>			<i>0.00</i>
Subtotal Jurisdictional Waters of the U.S.			0.00
<i>Jurisdictional Waters of the State</i>			
Xeric Riparian Extent	Desert Dry Wash Woodland (Holland Code 62200)	Palustrine; Forested, Broad-Leaved, Evergreen, Intermittently Flooded/Temporary, Well Drained/Fresh, Alkaline	120.5
Ephemeral Channel	Unvegetated Ephemeral Dry Wash (e.g., Nonvegetated Channel [Holland Code 64200])	Riverine; Unconsolidated Bottom, Sand, Intermittently Flooded, Temporary, Well Drained/Fresh, Alkaline	8.3
<i>Total CDFG Waters =</i>			<i>128.8</i>
Subtotal Jurisdictional Waters of the State			128.8
Grand Total Jurisdictional Waters			128.8
^a Based upon the total area of 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 this JDR (see above). The total area of federally regulated waters may change after the formal JD process.			
^b Acreage of the plant communities occurring within the survey area was determined by utilizing the Geographic Information System (GIS) program ArcGIS.			

Flora

This section discusses plant species detected within the BRSA or with potential to occur on site. In total, 129 plant species were detected in the BRSA during vegetation mapping and rare plant surveys (Appendix F). Of these, 14 special-status plant species have potential to occur within the BRSA (Table 5.3-6). Two of these species, Harwood's milkvetch and Las Animas colubrine, were observed within the BRSA (Figure 5.3-6). Harwood's milkvetch, a CNPS List 2.2 (rare, threatened, or endangered in California) species and NECO special-status species, was not detected in the disturbance area, but was detected in the buffer. Las Animas colubrine, a CNPS List 2.3 (rare, threatened, or endangered in California but more common elsewhere) species and NECO special-status species, was detected in the disturbance area and buffer. No other Federal listed, State-listed, or other State sensitive special-status plant species were observed within the BRSA. More detail on special-status species that occur or with the potential to occur within the BRSA is provided in Table 5.3-6.

Federal Listed Plant Species. No Federal listed plant species were detected within the BRSA during spring 2009. Based on a CNDDDB search, one Federal endangered species, the Coachella Valley milkvetch, has potential to occur within the BRSA (Table 5.3-6; Figure 5.3-2). Suitable habitat, within sandy soils, is present across the BRSA and the potential to occur in the disturbance area and buffer is high. Records from 2009 indicate this species occurs approximately thirty-one miles to the northwest of the BRSA. Project biologists visited a CNDDDB reference population near the Coachella Valley on April 17, 2009 to determine if the species was flowering during spring 2009 surveys. The species was flowering at the CNDDDB reference population indicating that if the species was present in the BRSA, it would have been detected by Project biologists during spring 2009. This provides confirmation that the species is not present within the BRSA.

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

Common Name Scientific Name	Sensitivity Status ¹	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Coachella Valley Milkvetch (<i>Astragalus lentiginosus</i> var. <i>coachellae</i>)	ESA: Endangered CNPS: List 1B.2 BLM: Sensitive	Sonoran Desert, in sandy areas growing at elevations of 0 to 1,150 feet.	Annual or perennial herb that flowers February – May	This species was not detected within the BRSA. Habitat for this species occurs within the sandy washes in the northeast and western portions of the BRSA. The nearest record of this species is 31 miles to the WNW of the BRSA (CDFG 2009). Most populations are restricted to the Coachella Valley, approximately 50 miles west of the BRSA. A field visit, during spring 2009, to the Coachella Valley, verified that this plant was flowering in April of 2009. Thus, if the species was present in the BRSA, it would have been detected flowering by Project biologists during spring 2009; however, this species was not detected within the BRSA.	High	High
Angel trumpets (<i>Acleisanthes longiflora</i>)	CNPS: List 2.3 NECO Plan	Dry places, generally on carbonate/limest one derived soils in mountainous areas 30 to 8,000 feet	Prostrate to ascending perennial stems less than three feet. Flowers produced during May.	This species was not detected within the BRSA. The closest record of this species in the Big Maria Mountains 15 miles east of the BRSA. The soils within the BRSA are not appropriate for this species.	Not Expected	Not Expected
Harwood's milkvetch (<i>Astragalus insularis</i> var. <i>harwoodii</i>)	CNPS: List 2.2 NECO Plan	Sonoran Desert, sandy to gravely areas 0 – 1,000 feet.	Annual that bloom January – May	This plant species was not detected in the disturbance area; however, five individuals were observed in the northeastern buffer.	High	Present

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

Common Name Scientific Name	Sensitivity Status ¹	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Fairyduster (<i>Calliandra eriophylla</i>)	CNPS: List 2.3, NECO Plan	Sonoran Desert, sandy washes, slopes and mesas typically found at \pm 5,000 feet.	Shrubs less than 1 foot in height; blooms March to April	This plant species was not detected within the BRSA. The BRSA is below the typical elevation range for this species. The nearest population occurs 16 miles to the west of the BRSA.	Not Expected	Moderate
Alkali mariposa lily (<i>Calochortus striatus</i>)	CNPS: List 1B.2 BLM Sensitive	Western Mojave Desert, Alkaline meadows, moist creosote-bush scrub found at 2,600 to 4,600 feet	The 2 inch stem has short lived basal leaves that are up to 8 inches in length. Plants bloom April to June	This plant species was not detected within the BRSA. The BRSA is below the typical elevation range for this species. The nearest population occurs 152 miles to the west northwest of the BRSA.	Not Expected	Not Expected
Crucifixion thorn (<i>Castela emoryi</i>)	CNPS: List 2.3, NECO Plan	Desert areas on dry, gravelly washes, slopes, plains \pm 2,150 feet.	Shrub less than 10 feet in height; blooms April to May	This plant species was not detected within the BRSA. The BRSA is below the typical elevation range for this species. The nearest population occurs 20 miles to the northwest of the BRSA.	Low	Low
Las Animas colubrine (<i>Colubrina californica</i>)	CNPS: List 2.3 NECO Plan	Sonoran creosote bush scrub less than 3,500 feet.	Plants are generally less than 3 feet blooms June to July	This species was observed in the western portion of the disturbance area and buffer in incised washes on the bajadas. Fifty seven plants were within the disturbance area and 117 plants were within the buffer. Specimens were observed in flower during April; an early blooming period for this species.	Present	Present

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

Common Name Scientific Name	Sensitivity Status ¹	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Glandular ditaxis (<i>Ditaxis claryana</i>)	CNPS List 2.2 NECO Plan	Sonoran Desert at elevations less than 350 feet; sandy soils in creosote bush scrub	Annual or perennial herb that blooms from December to May.	This plant species was not detected within the BRSA. The habitat preferences of this species, sandy soils at low elevations, are present in the BRSA. There are records of this species 30 miles to the west of the BRSA.	Moderate	Moderate
California satintail (<i>Imperata brevifolia</i>)	CNPS List 2.1	San Bernardino Mountains, Mojave Desert, in cultivation. Found up to 1,700 feet	Perennial grass found near wet springs, meadows, streamsides and flood plains. Flowering September to May.	This plant species was not detected within the BRSA. The habitat preferences of this species: near wet springs, meadows, stream sides and flood plains are not present in the BRSA. The closest records of this species are near the Colorado River 13 miles east of the BRSA.	Not Expected	Not Expected
Orocopia sage (<i>Salvia greatae</i>)	CNPS List 1B.3, NECO Plan	Southeast Sonoran Desert (Orocopia, Chocolate Mtns.) on alluvial slopes between 100 to 800 feet.	Shrubs are less than 3 feet in height with blooms from March to April.	This plant species was not detected within the BRSA. Habitat for this species is present within the western portion of the BRSA. This species has been recorded in the mountains 30 miles to the west of the BRSA at 2000 feet.	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 ¹	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Desert spikemoss (<i>Selaginella eremophila</i>)	CNPS List 2.2	Eastern Peninsular Ranges to the Sonoran Desert at elevations less than 3,000 feet. Shaded sites among rocks, in crevices and gravelly soils.	Dense mat forming non-flowering plant.	This plant species was not detected within the BRSA. The habitat is in shaded sites on gravel soils in crevices and among rocks. This species has been recorded at higher elevations 32 miles to the west.	Low	Low
Coves' cassia (<i>Senna covesii</i>)	CNPS List 2.2, NECO Plan	Dry, sandy desert washes, slopes of the Sonoran Desert between 1,600 to 2,000 feet.	Small perennial shrub to 2 feet tall blooming in April.	This plant species was not detected within the BRSA. This species occurs in desert washes and slopes. This species has been recorded in the Chuckwalla mountains at higher elevations 32 miles to the west of the BRSA.	Low	Low
Dwarf germander (<i>Teucrium cubense</i> ssp. <i>depressum</i>)	CNPS List 2.2	Sandy soils, washes and fields in the Sonoran Desert below 1,200 feet.	Annual plants up to 6 inches tall; blooms March to May.	This plant species was not detected within the BRSA. Habitat for this species is present within the BRSA. The closest record for this species is 8 miles east of the BRSA.	High	High

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

Common Name Scientific Name	Sensitivity Status ¹	General Habitat Description (CNPS 2007)	Plant Habit, Flowering Period	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Jackass clover (<i>Wislizenia refracta</i> ssp. <i>refracta</i>)	CNPS List 2.2 NECO Plan	Sandy washes, roadsides, alkaline flats in the Mojave Desert, and northern Sonoran Desert between 1,600 to 2,000 feet	Annual; flowers between April and November.	This plant species was not detected within the BRSA. Habitat for this species within the BRSA is different from where it was recorded near 0908008 Dry Lake, 27 miles WNW of the BRSA.	Moderate	Moderate
Orcutt's woody-aster (<i>Xylorhiza orcuttii</i>)	CNPS List 1B.2 BLM Sensitive	Arid canyons between 60 to 1000 feet.	Shrubs less than 5 feet in height; blooms March to April.	This plant species was not detected within the BRSA. One plant recorded north of the San Diego / Imperial County border in Indio (Riverside County). All records are located 80 miles west of the BRSA	Not Expected	Not Expected

¹ Sensitivity Status Key

ESA Endangered

CNPS California Native Plant Society Lists:

1B: Considered rare, threatened, or endangered in California and elsewhere.

2: Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere

Decimal notations: .1 - Seriously endangered in California, .2 – Fairly endangered in California, .3 – Not very endangered in California

BLM Special-Status Plants

NECO Northern and Eastern Colorado Desert Coordinated Management Plan special-status species

² Species Potential for Occurrence

Not Expected – Species not detected during Project surveys and not expected to occur

Low Potential – Species not detected during Project surveys, but has low potential to occur because suitable habitat present, but of marginal quality

Moderate Potential – Species not detected during Project surveys, but has moderate potential to occur because suitable habitat present

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

Present – Species detected during Project surveys

State-listed Plant Species. Based on regional databases, no State-listed plant species were determined to have potential to occur within the BRSA. Based onsite-specific habitat evaluations conducted by Project biologists and literature review, including a CNDDDB record search and a compiled list, it was determined that no State-listed plant species have been recorded near the BRSA or have potential to occur in the BRSA. No State-listed plant species were detected within the BRSA.

Other Special-Status Plant Species. Harwood's milkvetch, which is a CNPS List 2.2 species and a NECO special-status plant species, was not observed within the disturbance area; however, five individuals were recorded in the northeastern portion of the buffer (Table 5.3-6; Figure 5.3-6). Las Animas colubrine, a CNPS List 2.3 species and a NECO special-status plant species, was detected in the incised washes of the bajada that skirts the west side of the McCoy Mountains in the northwestern part of the disturbance area and buffer. Fifty-seven individuals were observed in flower within the disturbance area and 117 individuals were recorded in the western portion of the buffer. These individuals are displayed as point locations on Figure 5.3-6.

Two of the special-status plant species that were not detected in the BRSA, but have a high potential to occur within the BRSA. Coachella Valley milkvetch has been detected in sandy areas near Desert Center. This location is 31 miles away and has a high potential to occur because highly suitable habitat is present within the BRSA. Dwarf germander has a high potential to occur because the soil conditions and elevation were in range, and plants have been recorded eight miles east of the BRSA.

Cactus Species. Pre-initiation of field surveys, the BLM requested that cottontop cactus (*Echinocactus polycephalus*), hedgehog cactus (*Echinocereus* sp.), and any varieties of California barrel cactus (*Ferocactus cylindraceus*) be mapped for future salvage when construction begins. A total of 7 species in the Cactaceae family were observed within the BRSA. Of these species, two species are within the genres requested by the BLM, California barrel cactus (*Ferocactus cylindraceus* var. *cylindraceus*) and clustered barrel cactus (*Echinocactus polycephalus* var. *polycephalus*) were observed. These species of cactus are not special status; therefore, impacts to these are not required to be analyzed. Refer to Appendix F for specific data on the number of individuals observed and their locations.

Fauna

This section discusses wildlife species detected within the BRSA or with potential to occur on site. In total, 97 wildlife species were detected during general reconnaissance and protocol wildlife surveys (Appendix F). Of these, seven special-status wildlife species were observed within the BRSA (Table 5.3-7; Figures 5.3-7 through 5.3-9), including:

- Desert tortoise
- Western burrowing owl
- Loggerhead shrike
- Yellow warbler
- Ferruginous hawk
- American badger
- Desert kit fox
- Nelson's bighorn sheep

An additional special-status species (Swainson's hawk) has a high potential to occur, one special-status species has a moderate potential to occur (pallid bat), and three special-status species have a low potential to occur (Gila woodpecker, gilded flicker, and crissal thrasher) (Table 5.3-7). A discussion of non-special-status wildlife species is provided below, followed by detailed discussions of each special-status species detected within the BRSA.

Table 5.3-7 Special-Status Wildlife Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status ¹	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Reptiles					
Desert tortoise <i>(Gopherus agassizii)</i>	ESA: Threatened CESA: Threatened	Various desert scrubs and desert washes up to about 5,000 feet, but not including playas.	Three adult DTs were observed within the BRSA, one within the southwest corner of the disturbance area,, one adult DT in the buffer approximately 600 feet to the west of the disturbance area, and another adult in the buffer approximately 4,000 feet to the SW of the disturbance area. Thirty-eight DT scat were observed in the disturbance area, all on the western side. A total of 80 DT burrows were observed mostly on the western side of the BRSA. A total of 4 active burrow and 29 definitely DT burrows were in the disturbance area. A total of 151 pallets were observed, mostly on the western side of the BRSA. A total of 3 active pallets and 16 definitely DT pallets were in the disturbance area. The closest documented DT observation based on CNDDDB occurs approximately 0.2 mile from the BRSA (CDFG 2009c).	Present	Present
Birds					
Gila woodpecker <i>(Melanerpes uropygialis)</i>	CESA: Endangered	Requires live tree-size cactus or dead trees (Winkler et al. 1995).	This species was not detected within the BRSA. Suitable nesting habitat for this species is not present within the BRSA. Nearest occupied habitat is near Blythe on the Colorado River. If present, these highly conspicuous species would have likely been detected during point count surveys.	Low	Low
Gilded flicker <i>(Colaptes chrysoides)</i>	CESA: Endangered	Found in habitats with giant cactus, Joshua trees (<i>Yucca brevifolia</i>), and riparian groves in desert lowlands and foothills (AOU 1995).	This species was not detected within the BRSA. Within California now confined to a small area of Joshua tree woodland in the eastern Mojave Desert (Cima Dome). If present, these highly conspicuous species would have likely been detected during point count surveys.	Low	Low

Table 5.3-7 Special-Status Wildlife Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status ¹	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Swainson's hawk <i>(Buteo swainsoni)</i>	CESA: Threatened	Nesting habitat consists of open habitats with trees, either isolated, scattered or in windrows.	This species was not detected within the BRSA. Migrants more frequently occur near western edge of desert such as Borrego and Morongo valleys, as reflected in annual data from the various regional hawk-watch reports. No suitable breeding habitat exists on site.	High (non-breeding)	High (non-breeding)
Ferruginous hawk <i>(Buteo regalis)</i>	CDFG: Watch List (wintering)	Open country, primarily plains, prairies, badlands, sagebrush, shrubland, desert.	On April 6, 2009 an individual was seen southeast of the disturbance area in the buffer. The species is known to winter in the Colorado River Valley annually. They are most often seen in agricultural fields around Blythe, but occasionally in the open desert as well. There is no breeding habitat on site.	High (non-breeding)	Present (non-breeding)
Western burrowing owl <i>(Athene cunicularia hypugaea)</i>	CDFG: Species of Special Concern Priority 2	Found mainly in grassland and open scrub from the seashore to foothills. Also found in deserts and scrublands.	Two WBOs were observed during 2009 surveys: one was an individual flying from a burrow in the western-central part of the disturbance area, the other was an individual flying (no burrow identified) in the buffer on the western side of the BRSA (Figure 5.3-8). No breeding was documented during surveys. The entire BRSA is considered suitable WBO foraging and nesting habitat. 1,019 potentially suitable burrows were mapped in the disturbance area and 492-foot (150-meter) survey buffer; of these, 90 burrows with various levels of WBO sign were detected.	Present	Present
Crissal thrasher <i>(Toxostoma crissale)</i>	CDFG: Species of Special Concern, Priority 3	Occurs in dense riparian and mesquite scrub, microphyll woodland, and riparian washes with a dense understory of shrubs	This species was not detected within the BRSA. Although Shuford and Gardali mention examples of occupied areas between the Salton Sea and the Colorado River, no suitable habitat is present on site.	Low	Low

Table 5.3-7 Special-Status Wildlife Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status ¹	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Loggerhead shrike <i>(Lanius ludovicianus)</i>	CDFG: Species of Special Concern, Priority 2	Occurs in semiopen country with utility posts, wires, and trees to perch on.	This species was detected in both the disturbance area and buffer. Suitable habitat occurs throughout the BRSA (Figure 5.3-9). Although declining over most of the range in California and elsewhere and now absent over large areas, this species is still common in the California deserts.	Present	Present
Yellow warbler <i>(Dendroica petechia sonorana)</i>	CDFG: Species of Special Concern	Found along mature riparian woodlands that consist of cottonwood, willow, alder, and ash trees.	Two male yellow warblers were observed within the disturbance area during 2009 surveys. Since the subspecies of yellow warbler are nearly indistinguishable in the field, it is not known if these were Sonoran yellow warblers or some other subspecies. These individuals were migrants. There is no breeding habitat for this species on site.	Present (non-breeding)	Present (non-breeding)
Mammals					
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.	This species was detected in both the disturbance area and buffer. Eleven badger dens and over 80 animal burrows showing evidence of predation by badgers were observed within the disturbance area during spring 2009 (Figure 5.3-9). Suitable badger habitat occurs throughout the BRSA in undeveloped areas.	Present	Present
Desert kit fox <i>(Vulpes macrotis arsipus)</i>	Calif. Code of Regulations: PFM	Suitable habitat for this fossorial mammal consists of arid open areas, shrub grassland, and desert ecosystems.	This species was detected in both the disturbance area and buffer. Desert kit fox burrows, complexes and scat were observed throughout the BRSA during spring 2009 surveys. The desert kit fox population size within the BRSA, particularly on the eastern side, is substantial. Suitable prey base and habitat to support this species occurs throughout much of the undeveloped portions of the BRSA.	Present	Present

Table 5.3-7 Special-Status Wildlife Species Relevant to the Proposed Project Potentially Occurring in the BRSA

Common Name Scientific Name	Sensitivity Status ¹	Habitat Requirements	Survey Results and Discussion	Potential for Occurrence within the Disturbance Area ²	Potential for Occurrence within the Buffer ²
Nelson's bighorn sheep (<i>Ovis canadensis nelsoni</i>)	BLM: Sensitive	Mountain slopes with sparse growth of trees above the desert floor in California.	Nelson's bighorn sheep scat and tracks were observed within the disturbance area during 2009 surveys, indicating that the species uses the site for dispersal and seasonal movement. Nelson's bighorn sheep is known within the region. While the species is generally associated with mountainous areas, desert floor areas are important for dispersal and seasonal movement.	Present	High
Pallid bat (<i>Antrozous pallidus</i>)	CDFG: Species of Special Concern	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. Bats of unidentified species were observed foraging on site during spring 2009. Roosting habitat for pallid bats is present in tree cavities in desert dry wash woodlands in the southeastern portion of the site. The closest documented occurrence in the CNDDDB is from 1992 approximately 30 miles to the southwest of the BRSA near Corn Springs.	Moderate	Moderate

¹ Sensitivity Status Key

Federal Endangered Species Act (ESA)
State California Department of Fish and Game (CDFG)
California Endangered Species Act (CESA)
BLM Sensitive
NECO Northern and Eastern Colorado Desert Coordinated Management Plan special-status species

² Species Potential for Occurrence

Not Expected – Species not detected during Project surveys and not expected to occur

Low Potential – Species not detected during Project surveys, but has low potential to occur because suitable habitat present, but of marginal quality

Moderate Potential – Species not detected during Project surveys, but has moderate potential to occur because suitable habitat present

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

Present – Species detected during Project surveys

Nineteen species of reptiles were observed within the BRSA during spring 2009 surveys. Reptile species most commonly observed on site include the zebra-tailed lizard (*Callisaurus draconoides*), side-blotched lizard (*Uta stansburiana*), desert iguana (*Dipsosaurus dorsalis*), western whiptail (*Cnemidophorus tigris*), and desert horned lizard (*Phrynosoma platyrhinos*). These species were relatively common throughout the habitat types observed within the BRSA. Also frequently observed on site were the long-tailed brush lizard (*Urosaurus graciosus*), desert spiny lizard (*Sceloporus magister*), long-nosed leopard lizard (*Gambelia wislizenii*), desert patch-nosed snake (*Salvadora hexalepis hexalepis*), sidewinder (*Crotalus cerastes*), western shovel-nosed snake (*Chionactis accipitalis*), and western banded gecko (*Coleonyx variegates*). One special-status reptile species was observed on site, the Federal and State threatened DT. A more detailed discussion of this species is provided below.

Overall, 15 species of resident breeding birds were recorded within the BRSA at the Blythe site. Thirteen resident species were detected within Sonoran creosote bush scrub (Figure 5.3-4). The most common species observed were horned lark (*Eremophila alpestris*), loggerhead shrike (*Lanius ludovicianus*), ash-throated flycatcher (*Myiarchus cinerascens*), black-throated sparrow (*Amphispiza bilineata*), and lesser nighthawk (*Chordeiles acutipennis*). Ten resident species were detected in habitat comprised of Sonoran creosote bush scrub and desert dry wash woodland. The most common species observed were black-tailed gnatcatcher (*Poliophtila melanura*), ash-throated flycatcher, and verdin (*Auriparus flaviceps*). It should be noted that most of the ash-throated flycatchers recorded in Sonoran creosote bush scrub were in the vicinity of desert dry wash woodland; they were not recorded in areas of Sonoran creosote bush scrub more distant from desert dry wash woodland. Fourteen species of non-resident birds were identified within or flying over the point count circles during surveys. Of these, tree swallow (*Tachycineta bicolor*) and barn swallow (*Hirundo rustica*) accounted for over 50 percent of the observations. No raptor species (birds of prey) were recorded during surveys within the 382-ft radius point count circles during point count surveys; however, several raptor species were recorded incidentally during the point count surveys, including a ferruginous hawk (*Buteo regalis*), a non-listed special-status species that was located southeast of the site in the buffer. Refer to the Biological Resources Technical Report in Appendix F for more detail on the point count surveys.

Seventeen mammal species were detected within the BRSA during spring 2009 surveys. Numerous round-tailed ground squirrel (*Spermophilus tereticaudus*), white-tailed antelope squirrel (*Ammospermophilus leucurus*) and desert kangaroo rat (*Dipodomys deserti*) burrows are present across the disturbance area. Less commonly observed were Merriam's kangaroo rat (*Dipodomys merriami*) tracks and burrows, and burrows likely used by the little pocket mouse (*Perognathus longimembris*). Several *Chaetodipus* pocket mouse species are likely present based on burrows and tracks. Desert woodrat (*Neotoma lepida*) nests were numerous and were observed mainly at the base of trees in the dry desert washes. Desert cottontail (*Sylvilagus audubonii*) and black-tailed jackrabbit (*Lepus californicus*) were often observed, as were pellets within bushes that indicate use by these species. Mule deer (*Odocoileus hemionus*) tracks and scat were sometimes (but rarely) observed within the desert dry wash areas. Nelson's bighorn sheep (*Ovis canadensis nelsoni*) scat and tracks were observed on the western portion of the disturbance area.

Large mammalian predator activity was documented across the BRSA during spring 2009. Predator digs, in round-tailed ground squirrel burrows, kit fox burrows and desert kangaroo rat complexes were numerous. The majority of predator activity in the BRSA appears to be by American badgers (*Taxidea taxus*) and desert kit foxes (*Vulpes macrotis arsipus*). Both badger dens and many mammal burrows with badger claw marks (where badgers were foraging for mammal prey) were present. Coyote (*Canis latrans*) activity was also noted, but more commonly observed on the eastern portion of the BRSA. Bobcat (*Lynx rufus*) scat was sometimes observed in several of the desert dry wash areas. Mountain lion (*Felis concolor*) likely uses the BRSA but no definitive sign for this species was observed.

Federal Listed Wildlife Species - Desert Tortoise. One adult DT was observed within the southwest corner of the disturbance area and two additional adult DTs were observed in the buffer on the west side of the BRSA. The single adult male DT observed within the southwest corner of the disturbance

area on April 13, 2009 was seen walking on desert pavement towards the east. No active burrow was noted to be associated with this tortoise during this observation. During botanical surveys on March 26, 2009, an adult DT was observed within a caliche burrow (a cavity eroded or excavated into a hard calcium carbonate [caliche] soils) about 600 feet to the west of the disturbance area in the buffer. On June 4, 2009, a single adult male tortoise was observed in the buffer southwest of the disturbance area. This DT was observed both inside and outside of his caliche burrow. During habitat assessments in spring 2009, it was determined that the disturbance area and the majority of the buffer contains suitable habitat for DT, with the exception of agricultural and developed land. All DT sign is displayed in Figure 5.3-7.

USFWS guidelines cannot be applied to calculate DT density at BSPP due to the low number of DT found in the BRSA. The USFWS model requires a minimum of 20 individual DT to be observed during surveys. The fact that only three DT were observed in the BRSA and the USFWS model is not applicable indicates that DTs are present at low density in the BRSA. DT densities have shown declining trends at the Chuckwalla Bench (approximately 30 - 40 miles southwest of Blythe). For comparison, adult DT densities at the Chuckwalla Bench in 1992 were estimated between 22 and 49 individuals per square kilometer. BSPP covers approximately 28 square kilometers.

A total of 80 DT burrows were recorded in the BRSA. There were 52 DT burrows recorded within the disturbance area. Of these 52, four were active (Class 1) and 18 were definitely DT (Class 1, 2 and 3). There were 28 DT burrows recorded in the buffer. Of these 28, four were active and 12 were definitely DT. A total of 151 pallets or shallow depressions constructed under low shrubs were observed within the BRSA. There were 118 pallets recorded within the disturbance area. Of these 118, three were active and 16 were definitely DT pallets. There were 33 pallets observed in the buffer. Of these 33, only four pallets were recorded as definitely DT. A total of 49 observations of DT scat (both fresh and old) were made within the BRSA. Of these 49, 38 DT scat were within the disturbance area and 11 DT scat were within the buffer. Twenty observations of relatively fresh scat (Class 1, 2 and 3) were observed within the disturbance area and eight observations of fresh scat were made within the buffer.

DT carcasses (relatively intact) and bone fragments were observed within the BRSA. Figure 5.3-7 displays carcasses separate from bone fragments and reflects that DT remains are more intact in the western portion of the BRSA. The remains to the east are scattered and disarticulated bone fragments. In many cases these remains may have been washed down drainages from the western side of the BRSA to the east. Of the 398 observations of DT remains in the BRSA, 24 were classified as carcasses and 280 were classified as bone fragments (60 of these were mineralized) in the disturbance area. There were eight classified as carcasses and 86 were classified as bone fragments (16 of these were mineralized) in the buffer. The mineralized bone fragments are still considered modern by paleontological standards (i.e., within the past 100 years) and a few were likely fossilized bone fragments (pleistocene). The presence of only carcasses in areas may indicate recent die-offs of DT. This is unlikely to be the case for BSPP because of the observations of recent DT scat and active burrows on the western side of the disturbance area (and also within the buffer) suggesting that there are may be more live DTs using this area than were observed.

While only one DT was observed on within the disturbance area, the presence of DT scat and active burrows suggests that other DTs live and/or forage within the western side of the disturbance area. Habitat quality within the disturbance area is moderate on the western portion and lower quality on the eastern side. Habitat quality for DT in the buffer on the western portion of the BRSA is better closer to the mountain areas or near large drainages (which are also usually associated with the mountainous areas). The desert dry wash woodlands and the drainages that flow from the west from the mountains onto the western areas of the buffer and disturbance area provide areas of moderate quality with higher productivity for forage for DT as compared to the eastern portion. The lower quality eastern portion of the disturbance area and buffer is generally drier. During surveys annual cover dried up earlier in the season than in the west. The lack of DT sign in the eastern side of the BRSA (other than disarticulated

and scattered bone fragments that likely have washed down from carcasses on the western side of the BRSA) suggest that DTs do not occupy the eastern side of the BRSA.

State-listed Wildlife Species - Desert Tortoise, Swainson's Hawk, Gila Woodpecker, and Gilded Flicker. The only State (and Federal) listed species observed on site was the DT during spring 2009 surveys. The Swainson's hawk was not detected on site and no suitable breeding habitat occurs on or near the site for this species. Migrant Swainson's hawks have the potential to be in the area. Additionally, the Gila woodpecker and gilded flicker have potential to occur in the BRSA however neither of these species were detected on site. The Gila woodpecker and gilded flicker have a low potential to occur on site as residents due to the low suitability and poor quality of habitat present and distance from known populations. These species are discussed in Table 5.3-7 but are not addressed further in the text

Non-listed Special-Status Wildlife Species - In addition to the Federal and State-listed species discussed above, seven non-listed special-status wildlife species were detected on site including the WBO, loggerhead shrike, yellow warbler (however, migrating only on site), ferruginous hawk (however, wintering only on site), desert kit fox, Nelson's bighorn sheep, and American badger. These species are discussed in detail below. Two non-listed special-status species, the crissal thrasher and pallid bat, have potential to occur within the BRSA but were not detected during spring 2009 surveys. These species along with yellow warbler and ferruginous hawk are discussed in Table 5.3-7 but are not addressed further in the text.

Western Burrowing Owl. WBO is designated as a SSC (Priority 2 Bird Species of Special Concern) by CDFG due to rapid habitat loss and degradation from urbanization. One WBO was detected in the western-central area of the disturbance area and another individual was observed in the buffer on the western edge of the BRSA. Figure 5.3-8 displays the locations of WBOs observed, active burrows (i.e., occupied by WBO), and other locations where sign or potential sign were observed during surveys. Suitable WBO habitat consists of annual and perennial grasslands, deserts, and scrublands, characterized by low-growing vegetation. The first WBO was observed at a burrow during DT and WBO Phase II surveys on March 18, 2009, in the western-central area of the disturbance area (Figure 5.3-8). This active burrow had abundant and recent WBO sign and was located adjacent to another burrow with sign, but no WBOs were observed there subsequently during Phase III surveys. Because WBO breeding can be initiated as early as February, particularly in desert populations, it is unknown whether this WBO attempted to nest at this location in 2009 prior to initiation of focused Phase III surveys. On March 12, a second WBO was observed within the buffer near the western edge of the BRSA during vegetation surveys (Figure 5.3-8); this portion of the BRSA was outside the WBO Phase II and III survey area. No WBO were documented within the disturbance area (Figure 5.3-8) or 492-foot (150-meter) buffer during Phase III surveys, although signs of previous WBO use were present throughout these areas.

One active WBO burrow was detected within the disturbance area. A total of 90 burrows with various levels of WBO sign were detected in the BRSA during the Phase II and Phase III surveys. Within the entire BRSA, burrows with signs of previous use by WBO are present at a relatively low density, but are regularly distributed across the BRSA except for the far western portion. The far western portion of the disturbance area, at the base of the adjacent mountains, is characterized by steep, rocky canyons, desert wash, and hard desert pavement and cobble terrace substrate, and contains few burrows suitable for nesting WBOs. This is probably due to the relative difficulty for fossorial mammals to excavate burrows in such a hard substrate. Despite the sparseness of suitable burrows in the western portion of the disturbance area, three suitable burrows in the southwestern portion of the 492-foot (150-meter) buffer, located within 100 feet of each other on the side of a steep, rocky canyon, had signs of heavy use by WBOs prior to the 2009 breeding season.

Loggerhead Shrike. The loggerhead shrike is an SSC. One nest was located in the southwest section of the disturbance area. Two other nests were located in the buffer, one just north of the project footprint and the other along the northeast edge of the buffer in McCoy wash. Suitable habitat for

loggerhead shrike occurs throughout the BRSA, and it was the most common species recorded on the avian point counts. The species was found at low densities in the Sonoran creosote bush scrub and desert dry wash woodland.

American Badger. The American badger, an SSC, is a resident of level, open areas in grasslands, agricultural areas, and open shrub habitats. American badger dens and mammal burrows showing evidence of predation by American badger were observed throughout the disturbance area and this activity is higher on the western portion of the BRSA (Figure 5.3-9). Prey species for American badgers are present and prevalent (round-tailed ground squirrels, kangaroo rats, mice, etc. and observations of badger digging into kit fox burrows and complexes were made). Most of the BRSA, with the exception of agricultural and developed land, is suitable for this species. Eleven badger dens and over 80 burrows showing evidence of predation by badgers were observed (Figure 5.3-9).

Without focused surveys for badgers it is difficult to determine the population size and dynamics as badger dens and evidence of foraging were observed incidentally during other general wildlife survey and focused surveys for other species. However, based on the distribution of burrows and burrows showing evidence of recent predation by badgers (claw marks) it can be concluded that this species is using the western portion of the disturbance area more heavily than the eastern portion. What is interesting to note is that the western areas actually had less small mammal activity than the eastern areas. Coyote activity was noted more commonly in the eastern areas than badger activity. It could be that water is a limiting factor for badgers as presumably water is more available and for a longer period in the western portions of the BRSA. Also, the few occurrences of badger activity noted in the east were in the vicinity of McCoy Wash, where water is likely more available than within the central portion of the disturbance area.

Desert Kit Fox. The desert subspecies of kit fox is a PFM. Suitable habitat for this fossorial mammal consists of arid open areas, shrub grassland, and desert ecosystems. Active desert kit fox burrows and complexes were found scattered throughout the BRSA during spring 2009. A total of 163 burrows and 25 burrow complexes were recorded within the BRSA (Figure 5.3-9).

Nelson's Bighorn Sheep. The Nelson's bighorn sheep is a BLM sensitive species. The closest documented occurrence in the CNDDDB is approximately 25 miles northwest of the BRSA. While bighorn sheep sign was observed, focused surveys for this species were not conducted and this sign was noted incidentally during wildlife and botanical surveys. To quantify the use of this site by this species, focused surveys would need to be conducted.

Critical Habitat

The BRSA does not include any designated critical habitat for special-status plant or wildlife species.

Wildlife Movement

The site of the proposed Project 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 (foraging for food or water, defending territories, searching for mates, breeding areas, or cover).

Regionally, the proposed Project is located to the east of the McCoy Wilderness (McCoy Mountains) and immediately west of the Colorado River within the NECO planning area of the California Desert Conservation Area (CDCA). The purpose of the NECO Plan and the other concurrent management plans is to provide a regional approach to managing desert ecosystems. The NECO planning area consists of a series of desert wildlife management areas (DWMAs) for the Federal endangered DT and wildlife habitat management areas (WHMAs). The BRSA is also in proximity to several other similar

management areas. The intention of these areas is to protect habitats assumed to be suitable for many species and therefore preserve biodiversity. The westernmost portion of the buffer is part of the Bighorn WHMA (Figure 5.3-10).

In general, several species are likely to use habitat on the disturbance area, especially the ephemeral desert washes and associated wash-dependent vegetation communities, 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 would likely be concentrated in the wash areas because these areas may provide greater foraging opportunities.

The BSPP is located in an area that could support local dispersal opportunities and provide habitat connectivity for special-status species, including DT, Nelson's bighorn sheep. DT and Nelson's bighorn sheep may move from the southwest to northeast or vice versa for population dispersal. While DT densities on the valley floor may be lower than in the adjacent mountain ranges, movement between local populations through intermountain valleys is important for long-term population viability. DT home range varies with locality, year, resource availability, and social interactions. Male DT home range (0.04 to 0.31 square mile) is estimated to be twice the size of females. DTs utilize multiple dens throughout individual home ranges and appear to migrate to steeper, rockier slopes in the winter. DT dispersal distances have been documented at 4.1 miles. DT has been observed in both the disturbance area and buffer (Figure 5.3-7). The intermountain areas of desert (valley floor) where the BSPP occurs could potentially serve as a seasonal and dispersal movement corridor for Nelson's bighorn sheep, a CDFG fully protected and BLM Sensitive species. Populations of bighorn sheep within individual mountain ranges are often small, and there is typically considerable movement between mountain ranges; these intermountain movements are particularly important to long-term population viability. Bighorn sheep were documented moving through the disturbance area during 2009 field surveys (Figure 5.3-9).

5.3.3 Environmental Impacts

This section addresses BSPP-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 in nature. 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 would include direct losses to native habitats, potential jurisdictional waters, wetlands, 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 impacted in a manner that is not direct. Indirect impacts may occur later in time or at a place that is farther removed than direct impacts, in distance, from the BSPP, 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. All direct impacts in the disturbance area are considered permanent.

- Temporary: Any impacts 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 typically would be considered a long-term temporary impact if vegetation is allowed to reestablish overtime. However, because of the very slow natural recovery in arid ecosystems (such as those present on the disturbance area and vicinity) and the altered surface hydrology for the planned rerouted wash, 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 BSPP 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 Federal 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 jurisdictional areas not subject to regulation under Section 404 of the CWA 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 elements as they are used in the biological resources investigation discussion below.

The biological resources investigation uses a number of definitions for the area(s) of interest. As noted earlier, the Biological Resources Study Area includes the disturbance area acreage plus additional surrounding buffer areas around the site that are covered by the investigation in order to comply with regulatory requirements. The Project transmission line that will interconnect the Project with the regional grid is not included in this AFC because the route has not yet been finalized, as discussed earlier. The facility footprint encompasses the entire area within the fence line of the facility footprint, and also will include the transmission line when the route is finalized.

As noted earlier, the BRSA encompasses a total of 18,998 acres, which includes the disturbance area (7,027 acres) and one-mile buffer (11,971 acres). The 5,952-acre facility footprint is included within the disturbance area.

Solar Array, Access Roads, and Maintenance Facilities

Two of the solar fields associated with the BSPP would occupy approximately 1,600 acres each, while the other two will occupy 1,200 acres each. As noted above, the total area occupied by disturbance area (solar fields, office and maintenance buildings, laydown area, drainage channels, bioremediation area, and leach fields) is approximately 7,027 acres. It is assumed that the entire 7,027-acre disturbance area would be directly and permanently impacted by the BSPP.

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 perimeter fence of the project. 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 material described in greater detail in the Hydrology Report included as part of Appendix J..

The proposed drainage modifications to the disturbance area seek to replicate as nearly as possible the existing flow patterns for the drainages as they exit the site. For this reason, five channels have been proposed adjacent to, through, or across the site: a north, southeast, central, south and west channel (see Figure 5.3-11). These channels would intercept flows prior to their entry to the site and convey them in re-aligned channels to approximately the same locations where they exit the site under existing conditions. Outlets for each channel would end in diffusers.

The following portions of the drainage channels would be located outside of the facility's security fence: the entire north channel, including the end diffuser; the entire south channel; and the portions of the west channel located west of the northwest power unit (Unit 2) and southwest power unit (Unit 3). The portions of the drainage channels that would be located inside of the security fence include: the entire central channel, except for a small portion immediately before the junction with the north channel; the entire southeast channel; and portions of the west channel traversing Unit 3, south of the southeast power unit (Unit 4), and the area between Unit 3 and Unit 4.

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 defined in Section 5.3.2.5. All potential jurisdictional waters, including desert dry wash woodland and unvegetated ephemeral dry wash, are considered sensitive vegetation communities. In addition, desert dry wash woodland is a special community type (e.g., high priority for inventory in the CNDDDB) per CDFG Vegetation and Mapping Program.

Direct Impacts. Permanent direct impacts to both non-sensitive and sensitive vegetation communities within the disturbance area would occur as a result of construction activities. The permanent direct

impacts would be a result of grading and installation of the solar facility which would result in the permanent removal of vegetation within the disturbance area. Table 5.3-8 identifies the vegetation communities and other cover types within the disturbance area that will be directly and permanently impacted. The majority of these communities and other cover types are non-sensitive. Direct, permanent impacts to 6,897.0 acres of non-sensitive vegetation communities and cover types would not be considered significant. As mentioned above, both desert dry wash woodland and unvegetated ephemeral dry wash are considered potential jurisdictional State waters and are therefore considered sensitive vegetation communities. Direct permanent impacts would occur to 120.5 acres of desert dry wash woodland and 8.3 acres of unvegetated ephemeral dry wash for a total of 128.8 acres. The permanent removal of these sensitive vegetation communities (128.8 acres) would be considered a significant impact if left unmitigated.

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

Vegetation Communities and Other Cover Types	Total Permanent Impact Acreage
<i>Riparian (Potential Waters of the State)</i>	
Desert Dry Wash Woodland	120.5
Unvegetated Ephemeral Dry Wash	8.3
Subtotal Riparian	128.8
<i>Upland</i>	
Sonoran Creosote Bush Scrub	6,897.0
Subtotal Upland	6,897.0
<i>Other</i>	
Agricultural Land ¹	0.8
Developed	0.0
Subtotal Other Cover Types	0.8
Total Acres	7,026.6
¹ The disturbance area boundary was designed to abut the dirt road present on the east side of the disturbance area; however, inspection of aerial imagery shows the road slightly west of the boundary. This overlap is likely due to inherent inaccuracies in road layer data mapped without the benefit of precise field measurements or perhaps due to the dirt road and agriculture field gradually shifting over time in an unbound environment. This area will not be included in the disturbance area once on the ground Project planning surveys commence.	

Indirect Impacts. Potential temporary and permanent, indirect impacts to the vegetation communities surrounding the disturbance area would occur as a result of Project construction. Grading activities that have potential to create air-borne dust, sedimentation, and erosion, and can lead to the eventual death of buried vegetation. The potential spread of exotic species into the surrounding vegetation communities would be considered a permanent, indirect impact. Exotic species are opportunistic and could occupy disturbed soils within the disturbance area and spread into adjacent vegetation communities. Additionally, wildfires (caused by construction or downed transmission lines) are rare but do occur and exotic species often frequent burned areas following a wildfire. Once introduced, these exotic species often out-compete natives for resources resulting in a reduction in growth, future

dispersal, and recruitment of native species and the eventual degradation of the vegetation community. As described previously, existing desert washes within the facility would be rerouted through and around the footprint. This can result in offsite vegetation receiving lower or higher volumes and rates of water than current conditions. This in turn may lead to the desiccation of some vegetation communities and edema (excess water) in other vegetation communities. In addition, higher flow rates may result in erosion and root exposure leading to the eventual death of vegetation. These impacts would be considered significant if left unmitigated where desert dry wash woodland and unvegetated ephemeral dry wash are adjacent to the disturbance area.

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-15 and resource-specific measures BIO-16 and BIO-17.

Jurisdictional Waters

Direct Impacts. As discussed in Section 5.3.1.1, the Project team has determined that the disturbance area does not support jurisdictional waters of the U.S. It is anticipated that 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 upon the Approved JD process, which is in process. The potential waters of the State that traverse the disturbance area (approximately 128.8 acres) would be directly and permanently impacted 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 120.5 acres of desert dry wash woodland and 8.3 acres of unvegetated ephemeral dry wash for a total of 128.8 jurisdictional acres. The permanent removal of these jurisdictional waters would be considered a significant impact if left unmitigated.

Indirect Impacts. Potential temporary and permanent, indirect impacts to the jurisdictional waters surrounding the disturbance area would occur as a result of Project construction. Potential temporary, indirect impacts would occur as a result of grading activities creating air-borne dust and potentially offsite erosion and sedimentation. The potential permanent, indirect impacts to the jurisdictional waters surrounding the disturbance area would result from the alteration of drainage patterns on site. The potential permanent, indirect impacts to the jurisdictional waters surrounding the disturbance area would result from the alteration of drainage patterns on site. As described previously, existing desert washes within the facility would be rerouted through and around the disturbance area. This can result in offsite jurisdictional waters receiving lower or higher volumes and rates of water than current conditions. These impacts would be considered significant if left unmitigated where jurisdictional desert dry wash woodland and unvegetated ephemeral dry wash are adjacent to the disturbance area.

Significance After Mitigation. Potential construction-related direct and indirect 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 and implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4 including general measures BIO-1 through BIO-15 and resource-specific measures BIO-16 and BIO-17.

Flora

Direct Impacts. The proposed Project would result in direct impacts to special-status plant species. Direct impacts to plants can include crushing of adult plants, bulbs, or seeds. Direct impacts specific to special-status plant species are discussed below.

Indirect Impacts. Potential permanent, indirect impacts to special-status plant species are likely to arise from construction of the proposed Project, as discussed below.

Federal and State-Listed Plant Species

Direct Impacts. No Federal or State-listed plants were detected within the BRSA; therefore, no direct impacts to listed plant species would result from Project construction.

Indirect Impacts. No Federal or State-listed plants were detected within the BRSA; therefore, no indirect impacts to listed plant species would result from Project construction.

Other Special-Status Plant Species

Direct Impacts. Permanent direct impacts to non-listed special-status species documented within the disturbance area would occur as a result of construction activities. Based on spring 2009 surveys, no Harwood's milkvetch (CNPS List 2.2) individuals were detected in the 7,027-acre disturbance area (Figure 5.3-6); thus, this species would not be directly impacted by Project construction. Fifty-seven Las Animas colubrine (CNPS List 2.3) individuals were detected within the disturbance area (Figure 5.3-6) and are expected to be permanently and directly impacted through removal during Project construction. Impacts to Las Animas colubrine in the form of permanent removal would be considered a significant impact if left unmitigated. No direct temporary impacts to non-listed special-status species are expected as a result of Project construction.

Indirect Impacts. There is the potential for both temporary and permanent indirect impacts to non-listed special-status plant species occurring in the area surrounding the disturbance area as a result of Project-related construction activities, if left unmitigated. Five Harwood's milkvetch individuals were recorded in the northeastern portion of the buffer. In addition, 117 Las Animas colubrine individuals were detected in the buffer area within and adjacent to the washes located in the northwestern part of the BRSA.

Potential temporary, indirect impacts to non-listed special-status plant species would arise from unmitigated runoff and sedimentation, erosion, fugitive dust, and unauthorized access outside of the disturbance area by construction workers. Runoff, sedimentation, and erosion can adversely impact plant populations by damaging individuals or by altering site conditions sufficiently to favor other species (native and exotic nonnatives) that would competitively displace the special-status species. Construction-generated fugitive dust can adversely affect plants by reducing the rates of metabolic processes such as photosynthesis and respiration.

Potential permanent, indirect impacts to non-listed special-status plant species are also likely to arise from population fragmentation and introduction of nonnative exotic species. Due to low densities in rare plant populations, they are susceptible to and are likely to become easily fragmented by the placement of Project facilities which can impact pollinator activity and, as a result, gene flow. In addition, the introduction and establishment of exotic species within, or adjacent to, special-status plant populations can adversely affect native species by reducing growth in addition to dispersal and recruitment. Exotic species are opportunistic and often occupy disturbed soils such as those created in transmission line corridors and areas of exposed bare ground resulting from ground disturbing activities within the disturbance area. Wildfires caused by construction or downed transmission lines are rare but may occur. Exotics often frequent areas adjacent to and within burn areas following a wildfire. These potential permanent indirect impacts would be considered a significant impact if left unmitigated.

Significance After Mitigation. Potential construction-related direct and indirect impacts to special-status plant species occurring within the BRSA (i.e., Harwood's milkvetch and Las Animas colubrine) 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-15 and resource-specific measures BIO-18 and BIO-19.

Wildlife Species

Direct Impacts. The BSPP 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 BSPP would potentially result in permanent and temporary indirect impacts to special-status wildlife species. Permanent, indirect impacts to special-status wildlife species resulting from the proposed Project would 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 noise, lighting, exotic plant and wildlife invasion, dust/air pollution, predators, parasites, pesticides, fuel modification, and other factors; and 3) alteration of hydrology, runoff, and sedimentation, which may cause differential senescence and death of plant species used by special-status wildlife species.

If left unmitigated, temporary, indirect impacts would result from dust accumulation on surrounding vegetation, increased ambient noise levels adjacent to construction areas, and the rare chance of wildfires (caused by construction or downed transmission lines) would potentially lead to temporary, indirect impacts to special-status wildlife 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 unnatural lighting would 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 would result in downstream habitat loss for some species, would be reduced to less than significant by implementation of the SWPPP and DESCP, which will include flood management procedures.

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

Federally Listed Wildlife Species – Desert Tortoise

Direct Impacts. Direct impacts would occur to suitable DT habitat that is present on the entire disturbance area as a result of construction grading and vegetation removal in the disturbance area. A single adult male DT that was observed on the west side of the disturbance area would be directly impacted. No active burrow was noted to be associated with this DT during this observation; however, there are six active burrows within the western portion of the disturbance area. These DT burrows and foraging habitat for the single male DT would be directly impacted by construction activities.

Direct permanent impacts to 7,027 acres of DT habitat would potentially occur as a result of construction of Project facilities. Temporary direct impacts to the DT would result from an increase in vehicle traffic during development of the disturbance area prior to the establishment of the DT exclusionary fencing. Since DT is a Federal listed species any removal of active burrows and occupied foraging habitat would be considered significant. In order to limit direct mortality to individual DT the disturbance area would be fenced and preconstruction DT clearance would occur.

Indirect Impact. Indirect impacts to DT would occur from increased common raven (*Corvus corax*) presence associated with the construction of new elevated perching sites (e.g., new transmission line towers, perimeter fencing). Development and new elevated perching sites as a result of Project

construction could increase the probability that young ravens remain in the area and could increase raven numbers which, in turn, could result in increased predation on DT in the vicinity of the disturbance area. Common ravens were rarely observed within the BRSA during surveys in 2009 and there will be no standing water on site which lowers the potential for common raven occurrence. Indirect impacts would also result from invasive plants that out-compete native plants and reduce foraging habitat for DT. Potential deposition of sediment loads during heavy rain events and flooding downstream of the site, which would impact existing DT burrows outside of the survey area. Additionally, increased road used to the construction site may increase the potential of vehicles crushing DT.

Significance After Mitigation. Since DT is a federally listed species, any adverse impact would be considered significant. The Project is not unique in the potential impacts (both direct and indirect) that are possible. Other large scale projects within the valley floor with similar conditions will also have similar effects. 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, including general measures, BIO-1 through BIO-15, and resource-specific measures BIO-20 through BIO-37.

State-listed Wildlife Species - Desert Tortoise

See above for discussion of impacts to the Federal and State-listed DT. The DT is the only State-listed species known on site.

Other Special-Status Wildlife Species

Direct Impacts. Direct impacts to other non-listed, special-status wildlife species would result from the construction of Project facilities and development of the disturbance area on site. Project construction would result in the crushing of occupied burrows and destruction of nests; collisions with construction and maintenance vehicles; and loss of habitat. Direct impacts specific to non-listed special-status wildlife species are discussed below.

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 array, 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.

Temporary, indirect impacts are likely to arise from construction-generated fugitive dust accumulation on surrounding vegetation resulting in destruction, and/or avoidance of habitat. Nighttime lighting during the construction phase would also disrupt species movement and/or cause increased predation rates. Indirect impacts from potential deposition of sediment loads during heavy rain events and flooding downstream of the site would impact existing habitat for non-listed special-status wildlife outside of the survey area. However, these impacts would be minimized by Project design (i.e., rerouting the desert wash and connecting to an offsite channel, and grading and compacting the entire footprint of the solar array, 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.

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

Western Burrowing Owl

Direct Impacts. Based on spring 2009 data, construction grading and vegetation removal in the disturbance area would permanently impact WBO by removing one active WBO burrow and habitat for one individual WBO. No WBO breeding in 2009 was documented during surveys. Most of the disturbance area contains suitable WBO habitat with the exception of the far western portion. The far western portion is characterized by steep, rocky canyons, desert wash, and hard desert pavement and cobble terrace substrate, and contains few burrows suitable for nesting WBOs. Most burrows with WBO sign had relatively small amounts of degraded sign, indicating that either: 1) owls only used them for a brief period of time before vacating, or 2) previous use may have been more extended or regular but much of the original sign has disappeared. It is possible that the BRSA may be used more during migration or other seasonal movements, or during winter. Temporary direct impacts to WBO would also result from an increase in vehicle traffic while the Project is under construction and, consequently, an increase in vehicular strikes of WBOs.

The loss of occupied WBO breeding or wintering habitat is considered a significant impact if left unmitigated. Specifically, based on the CBOC mitigation guidelines and definition of impacts, 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 in general above (see Other Special-Status Wildlife Species). Indirect impacts could result from increased common raven and raptor predation on WBO associated with the addition of new elevated perching sites, including the transmission structures, perimeter fencing, and transmission lines, as discussed previously for DT. Additionally, temporarily ponded water from construction (e.g., dust suppression during construction) and garbage from increase human presence might attract common ravens. These indirect impacts would potentially impact WBO and offsite WBO breeding habitat or burrows and adjacent foraging habitat. These indirect impacts would be considered significant if left unmitigated.

Significance After Mitigation. Potential construction-related direct and indirect 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 among BIO-1 through BIO-15, and resource-specific measures BIO-20 and BIO-38 through BIO-44.

Loggerhead Shrike

Direct Impacts. Suitable loggerhead shrike habitat present throughout the footprint would be directly impacted by construction of the disturbance area. The species was found at low densities predominately in the Sonoran creosote bush scrub and in transitional areas comprised of both Sonoran creosote bush scrub and desert dry wash woodland. One nest was located in the southwest section of the disturbance area.

The loss of occupied breeding habitat is considered to be a significant impact if left unmitigated since this habitat is declining in availability in the region.

Indirect Impacts. Indirect impacts of Project construction on loggerhead shrike are discussed above (see discussion under Other Special-Status Wildlife Species). These indirect impacts would potentially impact offsite loggerhead shrike breeding habitat or burrows and adjacent foraging habitat. These indirect impacts would be considered significant if left unmitigated.

Significance After Mitigation. The potential loss of an active nest (direct impact) is considered significant; however, this impact would be reduced to less than significant through implementation of

the avoidance, minimization, and mitigation measures as described in Section 5.3.4, including general measures among BIO-1 through BIO-15 and resource-specific measures BIO-45 and BIO-46.

American Badger

Direct Impacts. Direct permanent impacts would occur to 7,027 acres of occupied American badger habitat as a result of construction of the disturbance area. Eleven American badger dens would be impacted by Project facilities. American badger predation and den activity occurs predominately on the western portion of the disturbance area; however, the entire disturbance area has suitable foraging and dispersal habitat for this species.

Temporary direct impacts to American badger would also result from an increase in vehicle traffic while the Project is under construction and, consequently, an increase potential for vehicular strikes of this species.

The permanent loss of occupied American badger burrows and adjacent foraging habitat is considered a significant impact if left unmitigated since regionally this habitat is limited in availability.

Indirect Impacts. Indirect impacts of Project construction on American badger are discussed above (see discussion under Other Special-Status Wildlife Species). These indirect impacts would potentially impact offsite American badger breeding habitat or burrows and adjacent foraging habitat. These indirect impacts would be considered significant if left unmitigated.

Significance After Mitigation. Potential construction-related direct and indirect impacts to American badger 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 among BIO-1 through BIO-15 and resource-specific measures BIO-47.

Desert Kit Fox

Direct Impacts. Direct permanent impacts would occur to 7,027 acres of occupied desert kit fox habitat as a result of construction of the disturbance area. Desert kit foxes are one of the three main mammalian predators observed and signs of predation by this species is evident on small mammal (dug out burrows) are evident throughout the BRSA. Similarly, desert kit fox burrows and complexes are distributed throughout the entire disturbance area and were noted within the buffer areas. A total of 163 desert kit fox burrows and 25 burrow complexes were recorded within the BRSA, most all of which were recorded in the disturbance area.

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 increase potential for vehicular strikes of this species. The permanent loss of occupied desert kit fox burrows and adjacent foraging habitat is considered a significant impact if left unmitigated since regionally this habitat is limited in availability.

Indirect Impacts. Indirect impacts of Project construction on desert kit fox are discussed above (see discussion under Other Special-Status Wildlife Species). These indirect impacts would potentially impact offsite desert kit fox breeding habitat or burrows and adjacent foraging habitat. These indirect impacts would be considered significant if left unmitigated.

Significance After Mitigation. Potential construction-related direct and indirect impacts to 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 general measures among BIO-1 through BIO-15 and resource-specific measures BIO-48.

Nelson's Bighorn Sheep

Direct Impacts. Nelson's bighorn sheep scat and tracks were observed within the disturbance area and suitable habitat for local movement would be directly and permanently impacted by construction of the disturbance area. Although this area is likely to be useful for local movement, construction is not expected to adversely impact movement and/or population dispersal because similar desert habitat outside of the project perimeter would likely provide adequate movement opportunities for foraging and dispersal. Thus, direct impacts to this species are not considered to be significant.

Indirect Impacts. Indirect impacts of Project construction on Nelsons' bighorn sheep are discussed above (see discussion under Other Special-Status Wildlife Species). These indirect impacts would potentially impact offsite Nelsons' bighorn sheep breeding habitat and adjacent foraging habitat. These indirect impacts would be considered significant if left unmitigated.

Significance After Mitigation. Potential construction-related indirect impacts to Nelson's bighorn sheep 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 among BIO-1 through BIO-15.

Migratory Birds

Direct Impacts. The Project would result in direct construction-related impacts on bird populations on site in the form of habitat destruction, and potentially death, injury, or harassment of nesting birds, their eggs and their young. "Take" under the MBTA is generally interpreted as the direct death or injury of birds from collisions with vehicles and other machinery. This most frequently occurs during the vegetation clearing stage of construction and involves eggs, nestlings, and recently fledged young that cannot safely avoid equipment. Other direct impacts on bird populations using the site are the same as those identified above for listed and non-listed special-status species. Direct construction related impacts to migratory birds would be considered significant if left unmitigated.

Indirect Impacts. Indirect impacts on migratory birds would include increased common raven and raptor predation associated with the addition of new elevated perching sites, including the tower structures, the transmission lines, perimeter fencing and support structures, and ponded water that are likely to attract common ravens, as discussed previously for DT. Temporary, indirect impacts are likely to arise from construction-generated fugitive dust accumulation on surrounding vegetation; construction-related erosion, runoff, and sedimentation into plant communities resulting in destruction and/or avoidance of migratory bird habitat. Additionally, construction related noise is likely to cause migratory bird nest abandonment in areas adjacent to construction in the disturbance area. Indirect impacts from these construction-related activities would be temporary, as these impacts would end with cessation of Project construction.

These indirect impacts would potentially impact breeding habitat and would be considered significant if left unmitigated.

Significance After Mitigation. Potential construction-related direct and indirect impacts to migratory birds 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 among BIO-1 through BIO-15 and resource-specific measures BIO-45 and BIO-46.

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 5,952-acre facility footprint. The fence would represent a permanent barrier and prevent movement across the site by most terrestrial wildlife species. The five rerouted channels located between and around the solar fields will be fenced from the solar fields, but will remain open at the ends thereby leaving a 150-foot wide corridor for species to use. However, because of the increased human presence and very slow natural recovery in arid ecosystems, this corridor may provide limited use for terrestrial wildlife. Habitat connectivity would be reduced because the large project footprint would contribute to fragmentation of a large and contiguous desert 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 BSPP are considered common in California. Regional habitat connectivity would be reduced by implementation of the proposed Project. The five channels will provide an opportunity for species to move through and around the site, but some species may avoid the channels within the disturbance area in response to human presence which could potentially force them to go completely around the site. However, much of the land surrounding the site is expected to remain as natural desert plant communities for the foreseeable future, which would allow 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 Project area include DT, Nelson's bighorn sheep, desert kit fox, and American badger. Of these, only DT dispersal would be adversely impacted outside of the perimeter fence. Although movement across the disturbance area would be limited to the rerouted channels, there is habitat outside of the disturbance area that would facilitate movement around the Project for other species, with the exception of DT. Movement by Nelson's bighorn sheep, 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 adversely impact movement and/or population dispersal by either species because similar desert habitat outside of the project perimeter would likely provide adequate movement opportunities for foraging and dispersal.

The proposed Project would adversely impact local movement, and reduce habitat connectivity, of the state and Federal listed DT. Although DT is not a migratory species, opportunities for local movements within their home ranges and juvenile dispersal are important for maintaining viable populations. Impacts on DT in the context of impacting local population dispersal would be adverse because it is a resident species that generally only moves within its home range with the exception of juvenile dispersal. Areas suitable for DT, but that are low density or occasionally not occupied can be important for DT, as this species is likely distributed in metapopulations. Metapopulations are groups within a population that are typically confined to specific regions as a result of resource availability. If a metapopulation becomes fragmented it may no longer be sustainable because individuals are not exchanged between metapopulations. The mountains on the western side of the BRSA within the buffer and just outside the buffer probably have significantly more DTs present than observed within the disturbance area. DTs are likely present more frequently in the montane areas within this region due to the Sonoran climatic influence. The development of intervening valleys could preclude the natural dispersal of DTs between these montane populations. DT home ranges are small (25 - 200 acres) in relation to the 7,027-acre disturbance area and construction of the disturbance area may increase the number of DT generations it takes for individuals to disperse across the valley floor from southwest to northeast of the BRSA and vice versa. Adverse impacts to a species protected under the ESA and CESA would be considered significant if left unmitigated.

Indirect Impacts. The BSPP would potentially result in permanent indirect impacts to wildlife movement and population connectivity. Potential indirect impacts of the proposed Project and associated edge effects include but are not limited to altered behavior due to environmental stressors, changes in daily activity patterns, reductions in population reproductive capacity, and local population extinctions due to compromised population genetics over time or an inability to recolonize isolated patches of habitat. These impacts vary depending on the population structure, size of the home range, migrations, and dispersal movements of the species being considered as well as the species' behavioral response to artificial light, noise, degraded surrounding habitat and other anthropogenic influences.

Construction of the BSPP would have permanent indirect effects on wildlife movement. Wildlife movement would be altered due to edge effects associated with development. Individually, species respond behaviorally to the edge itself (the "ecotonal effect") or to the indirect habitat changes associated with edges (the "matrix effect,"). Behavioral avoidance of manmade structures and associated edges can decrease wildlife movement and deter connectivity. In addition, the BSPP would indirectly impact wildlife movement through species avoidance in response to human presence. All of these factors can contribute significantly to local species extinctions if left unmitigated.

Conceptual models of edge effects found different intraspecific reactions could be well predicted by how resources are concentrated between preferred and non-preferred habitat resulting in increases or decreases in abundance depending on the required resource allocation. While there is a wealth of studies documenting the effects of urban edges on wildlife species, there is a lack of previous studies identifying how edges impact wildlife movement of particular species when no anthropogenic subsidies are expected, as is the case for the BSPP. Edge effects similar to those that would be associated with the proposed Project have not been studied for the species addressed above as they relate to wildlife movement. Additional research is needed to understand the extent of the impacts for edge effects as a result of solar projects.

Significance After Mitigation. Potential construction-related direct and indirect impacts to wildlife movement and dispersal would be reduced to less than significant for all species, with the exception of DT dispersal, through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.4, including general measures among BIO-1 through BIO-15 and resource-specific measures BIO-49 and BIO-52. Operation

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

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. No vegetation will occur within the disturbance area following construction. Therefore, operation of the Project would not result in temporary or permanent direct impacts to either non-sensitive or sensitive vegetation communities.

Indirect Impacts. Operation of the Project may result in permanent indirect impacts to non-sensitive and sensitive vegetation communities surrounding the disturbance area. Permanent, indirect impacts to sensitive vegetation communities may include edge effects and increased exposure to exotic plants. Erosion and stormwater contaminant runoff may degrade adjacent sensitive vegetation communities. Exotic plant species are opportunistic and often occupy disturbed soils such as those within the transmission line corridors and areas of exposed bare ground that may occur within the disturbance area. Wildfires caused by downed transmission lines are rare but may occur. Exotics often frequent

areas adjacent to and within burn areas following a wildfire. Once introduced, these exotic plant species often out-compete natives for resources resulting in a reduction in growth, future dispersal, and recruitment of native species and the eventual degradation of the vegetation community. The impacts from exotic plant species would be considered significant where desert dry wash woodland and unvegetated ephemeral dry wash occurs adjacent to the disturbance area.

Significance After Mitigation. Potential operation-related 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 among BIO-53, BIO-55, BIO-56, and BIO-58.

Jurisdictional Waters

Direct Impacts. Operation of the Project would not result in temporary or permanent, direct impacts to jurisdictional waters as they will not occur within the disturbance area following construction.

Indirect Impacts. Project operation may result in permanent indirect impacts to jurisdictional waters of the State. Erosion and stormwater contaminant runoff may degrade adjacent jurisdictional waters of the State. These impacts would be considered significant where desert dry wash woodland and unvegetated ephemeral dry wash occurs adjacent to the disturbance area, if left unmitigated.

Significance After Mitigation. Potential operation-related indirect 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 general measures among BIO-55 and BIO-56.

Flora

Direct Impacts. Operation of the Project would not result in temporary or permanent, direct impacts to non-listed, special-status plant species as they will not occur within the disturbance area following construction.

Indirect Impacts. Operation of the Project may result in permanent indirect impacts to non-listed, special-status plant species. Erosion and stormwater contaminant runoff may degrade adjacent habitat for non-listed, special-status plant species. Exotic plant species are opportunistic and often occupy disturbed soils such as those within the transmission line corridors and areas of exposed bare ground that may occur within the disturbance area. Exotic plant species often out-compete natives for resources resulting in a reduction in growth, future dispersal, and recruitment of native species. These impacts would be considered significant if left unmitigated where non-listed, special-status plant species occur adjacent to the disturbance area.

Significance After Mitigation. Potential operation-related indirect impacts to special-status plant species occurring within the buffer (i.e., Harwood's milkvetch and Las Animas colubrine) 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 among BIO-53, BIO-55, and BIO-58

Wildlife Species

Direct Impacts. Direct impacts to wildlife species would occur from mortality of individuals by crushing or vehicle collisions during operation and maintenance activities of the BSPP.

Indirect Impacts. Operation of the Project may result in permanent, indirect impacts to special-status wildlife species, which includes edge effects, where Project facilities would lead to increased lighting and exotic plant and wildlife invasion. Operation of Project facilities would not lead to increased noise

greater than 60 dBA outside the disturbance area as shown in Figure 5.8-1. Nighttime lighting could disrupt species movement and/or cause increased predation rates. Wildfires caused by downed transmission lines are rare but may occur and damage adjacent habitat.

Significance After Mitigation. Potential operation-related direct and indirect impacts to special-status wildlife species occurring or assumed to occur within the buffer (i.e., DT, WBO, loggerhead shrike, American badger, and desert kit fox) would be reduced to less than significant through implementation of the avoidance, minimization, and mitigation measures described in Section 5.3.44 including general measures among BIO-53 through BIO-58 and BIO-60

Wildlife Movement

Direct Impacts. Operation of the Project would not result in any additional direct impacts to wildlife movement already described in Section 5.3.4.

Indirect Impacts. Operation of the Project would not result in any additional indirect impacts to wildlife movement as described in Section 5.3.4.

Significance After Mitigation. Operation does not result in any additional significant impacts to wildlife movement, thus no avoidance, minimization, and mitigation measures are necessary.

5.3.3.4 Cumulative Impacts

This section addresses the potential additive impacts of implementing the BSPP in combination with other past, present, and reasonably foreseeable projects in proximity to the BSPP. The BSPP involves the development of land that is currently owned by the BLM and functions as open space. Impacts to biological resources have the potential to occur primarily in native habitat.

Almost all of the projects identified in Section 5.1 are solar power or transmission line projects on Federal lands managed by the BLM. ROWs for the cumulative multiple solar power projects identified in Section 5.1 would encompass up to approximately 100,000 acres of desert lands along the I-10 corridor, between 2010 and roughly 2014, based on currently available data, although the acreage actually used by the facilities would be much smaller (perhaps 20,000 acres in total). It also should be noted that this acreage total assumes that all the projects that have been proposed will in fact be constructed, which is considered highly unlikely. Refer to Section 5.1, Environmental Introduction, for detailed information on projects considered for this cumulative analysis. The development of 20,000 acres would unavoidably impact biological resources currently found on the various project sites and would cumulatively reduce the available habitat for special-status species such as DT and WBO. Only one (PSPP) of the 14 projects slightly overlaps with DT critical habitat found predominately to the south of I-10. The other 13 projects do not overlap with DT critical habitat (Figure 5.1-1).

Table 5.3-9 displays the potential cumulative loss of habitat for each special-status species. The large acreage assumed to be developed in each of the various projects would impact wildlife movement corridors and fragment species populations despite mitigation (i.e., the permanent protection of offsite habitat for these species). Since most of the projects are in the valleys and along the I-10 corridor, this could potentially reduce habitat connectivity and impair gene flow among species populations.

Through the project-specific environmental review process, these various projects would individually be required to mitigate their own impacts through measures such as providing suitable habitat at an agency agreed-upon ratio for the affected species to compensate for the habitat loss. Acquired mitigation lands should be planned with consideration of providing connectivity between areas of open space and between NECO-designated WHMAs and DWMAs. The BSPP will fully mitigate impacts to biological resources with the exception of DT dispersal. Therefore the cumulative contribution of the Project would be less than considerable. The rerouted washes will replicate as nearly as possible the

flow regimes under current conditions and allow for wildlife to move through the Project disturbance area. Considering other proposed development in this valley floor (Figure 5.1-1), the rerouted drainages will help maintain connectivity between adjacent habitat areas, specifically between mountain ranges to the southwest and northeast of the BSPP.

Table 5.3-9 Potential Cumulative Impacts to Biological Resources^a

Resource Name	Number of Projects ^b	Total ROW Acres of Potential Suitable Habitat		Total ROW Acres of Potential Suitable Habitat to be Developed	
		Occupied	Unoccupied	Occupied	Unoccupied
Vegetation					
Desert Dry Wash Woodland	2	7,724	N/A	150	N/A
Plants					
Harwood's Milkvetch	1	0	14,095	0	1,911
Wildlife					
Desert Tortoise	9	37,904	49,478	29,115	8,292
Western Burrowing Owl	4	34,820	29,669	30,900	1,797
Desert Kit Fox	1	25,000	0	25,000	0
Loggerhead Shrike	1	4,640	0	1,800	0
^a Acreages depicted in this table represent a gross-level preliminary analysis of proposed projects based on preliminary project information in most cases; as a result, these acreages are subject to change and should be used as a guideline only. ^b Proposed Project not included.					

5.3.4 Avoidance, Minimization and Mitigation Measures

5.3.4.1 General Avoidance and Minimization Measures during Construction

The following is a list of general impact avoidance and minimization measures that would apply to Project construction activities. These measures are standard practices designed to prevent environmental degradation, and the Project applicant will 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:

- BIO-1** The Project proponent will designate a BLM-, USFWS- and CDFG-approved Designated Biologist(s). The construction contractor(s)/crew(s) shall be informed about the biological constraints of the Project. All construction personnel who work in the BRSAs shall attend a contractor education program, developed and presented by a Designated Biologist prior to

the commencement of construction activity. The 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 who issue approvals for the Project.

- BIO-2** The Designated Biologist shall be responsible for overseeing monitoring and compliance with protective measures for the biological resources. A Section 10(a)(1)(A) permit would be necessary for the monitoring or handling of Federal 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 also be present to verify compliance with all conservation measures. The Designated Biologist would submit reports that document compliance with these measures to BLM, USFWS and CDFG upon request or, at a minimum, included in the end-of-the-year report. In addition, Designated Biologist would perform the following duties:
- a. The Designated Biologist shall conduct pre-construction surveys for listed species within 30 days prior to commencement of construction activities in the disturbance area.
 - b. The Designated Biologist shall be on site during all vegetation clearing and grubbing and weekly during Project construction in upland and riparian habitat to be impacted.
 - c. 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 DESC (equivalent to a SWPPP but covering both construction and operation phases) is provided as Appendix F to the AFC. The DESC 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.
 - d. Each employee shall participate in a training/awareness program that shall be presented by the Designated Biologist, prior to working on the BSPP.
 - e. Proper implementation of protective measures developed in coordination with USFWS to avoid all impacts to all encountered sensitive species as well as other nesting birds shall be verified.
 - f. The resident engineer shall be immediately notified to halt work, if necessary, and coordinate with USFWS and CDFG to ensure the proper implementation of species and habitat protection measures. The Designated Biologist shall report any breach of the conservation measures within 24 hours of its occurrence.
- BIO-3** The anticipated impact zones, including staging areas, equipment access, and disposal or temporary placement of spoils, shall be delineated with stakes and flagging prior to construction to avoid natural resources where possible. No construction-related activities will occur outside of the designated impact area (i.e., disturbance area).
- BIO-4** 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 U.S. Staging areas shall be located within permanent impact areas or previously disturbed sites within the Project footprint.

- BIO-5** 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 the construction zone, the route shall be clearly marked (i.e., flagged and/or staked) prior to the onset of construction.
- BIO-6** The solar units shall be graded generally following the existing contours of the site in order to minimize the amount of ground disturbance.
- BIO-7** Spoils shall be stockpiled in disturbed areas presently lacking native vegetation. Stockpile areas shall be marked to define the limits where stockpiling can occur.
- BIO-8** Spoils, trash, or any debris shall be removed off site to an approved disposal facility. 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-9** Workers shall be prohibited from bringing pets and firearms to the site.
- BIO-10** 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 also be used to reduce the extent of illumination into adjoining areas.
- BIO-11** Best Management Practices (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 Project inspector 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 two days of discovery.
- BIO-12** Fueling of equipment shall take place within existing paved roads and not within 300 feet or adjacent to drainages or native desert habitats. Contractor equipment shall be checked for leaks prior to operation and repaired as necessary.
- BIO-13** Wildfires shall be prevented 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 may need to carry water and shovels or fire extinguishers in the field or high fire risk installations (e.g. electric lines) may need to 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-14** The introduction of exotic plant species shall be avoided and controlled wherever possible, and may be achieved through physical or chemical removal and prevention. Preventing exotic plants from entering the site via vehicular sources shall include measures such as implementing Trackclean or other method of vehicle cleaning for vehicles coming and going from the site. Earth-moving equipment will be cleaned prior to transport to the project site. Weed-free rice straw or other certified weed-free straw shall be used for erosion control. Weed populations introduced into the site during construction shall be eliminated by chemical and/or mechanical means approved by CEC, BLM, CDFG, USFWS, and

California Invasive Plant Council (Cal-IPC). These measures collectively form the Weed Management Plan for the BSPP.

- BIO-15** In addition to the avoidance and minimization measures outlined in this chapter, the Project proponent shall implement any measures required by the CEC, BLM, USFWS and CDFG as a condition of Project certification, such as measures set forth in the USFWS BO and/or CDFG 2081 ITP.

5.3.4.2 Resource-specific Avoidance, Minimization, and Mitigation Measures

Resource-specific impact avoidance, minimization, and mitigation measures for the Project impacts that were determined to be potentially significant are discussed below. Incorporation of these measures shall reduce potentially significant measures to below a level of significance except for potential impacts to wildlife corridors. Incorporation of these measures shall reduce potentially significant impacts to wildlife corridors, but potentially permanent impacts shall still be significant.

Vegetation Communities. No mitigation is required to compensate for nonsensitive vegetation that shall be directly impacted by the Project as no significant impact occurs (see below for mitigation required to compensate for impacts to the vegetation communities that are considered waters of the State or suitable habitat for listed species).

Sensitive Vegetation Communities. Impacts to desert dry wash woodland and unvegetated ephemeral dry wash (both waters of the State) shall be permanently and temporarily impacted by Project-related activities; therefore impacts are considered significant and mitigation is required. See below (waters of the State) for mitigation required to compensate for impacts to sensitive vegetation communities as both are waters of the State.

Waters of the State

- BIO-16** Impacts State to waters shall require the following permit: (1) CDFG, California Fish and Game Code, Section 1602 agreement for alteration of a streambed. Mitigation for unavoidable permanent impacts to jurisdictional waters within the disturbance area could be mitigated via a combination of 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 (that results in a net increase in jurisdictional habitat acreage), enhancement, or creation-restoration combined with enhancement; Project compliance with State policy, i.e., California Wetlands Conservation Policy (EO W-59-93), provides for “no overall net loss” of jurisdictional areas and achieving a “long-term net gain in the quantity, quality, and permanence of [jurisdictional areas] acreage and values in California.” Project-specific mitigation ratios shall be developed in consultation with CDFG and in consideration of the NECO mitigation requirements for desert dry wash woodland.

- BIO-17** The development of a conceptual mitigation, maintenance, and monitoring plan shall be required for the mitigation, which is a requirement of CFGC Section 1600 et seq. if jurisdictional waters (including aquatic habitat) of the State are impacted as a result of the proposed Project. 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 shall the mitigation effort fall short of the success criteria. Any riparian 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. Alternatively, the mitigation obligations may also be satisfied by participating in a

fee-based mitigation program through a mitigation bank. This plan shall be developed in consultation with CEC and CDFG and subject to their approval.

Special-Status Plants

- BIO-18** In the buffer, measures shall be taken to avoid and minimize impacts to Harwood's milkvetch to the greatest extent possible. This includes avoiding unnecessary or unauthorized trespass by workers and equipment, staging and storage of equipment and materials, refueling activities, and littering or dumping debris in areas known to contain Harwood's milkvetch that are not within the designated construction footprint.
- BIO-19** A Designated Biologist shall collect seed from Las Animas colubrine individuals identified within the disturbance area at the appropriate time during the spring before construction begins. The seed shall be grown in one-gallon containers by qualified individuals and incorporated into the planting palette for mitigation on site (including vegetation of the rerouted washes) or redistributed within 500 feet of the population in appropriate habitat to the north of the disturbance area. In addition, as a conservation measure, it is expected that the Project will provide an herbarium specimen to the San Diego Natural History Museum for long-term documentation. In the buffer, areas containing previously identified Las Animas colubrine individuals shall be flagged for avoidance and further impacts shall be minimized through avoidance of unnecessary or unauthorized trespass by workers and equipment in the Project buffer; and prohibiting staging and storage of equipment and materials, refueling activities, and littering or dumping debris in areas known to contain Las Animas colubrine outside the disturbance area.

Special-Status Wildlife

- BIO-20** Mitigation requirements for the Project's permanent impacts to habitats occupied, or presumed occupied, by special-status wildlife species (DT and WBO) shall be mitigated at a ratio or other appropriate mitigation to be determined by the Wildlife Agencies. Mitigation for permanent impacts to these species is generally provided by acquiring and conserving in-kind habitat of equal value than the habitat impacted. Mitigation lands in the vicinity of the disturbance area shall be prioritized in order to provide protection for displaced wildlife and to maintain land connectivity in the area. It is expected that mitigation for WBO will be coincident with mitigation for DT.

Additional discussion of the mitigation required for DT, WBO, American badger, and desert kit fox is presented below.

Desert Tortoise

Avoidance, minimization, and mitigation measures for the DT shall include the following:

- BIO-21** Prior to the onset of construction, the entire disturbance area shall be enclosed with a permanent DT-proof fence to keep DT in habitat adjacent to the site from entering the site during construction and operations phases. The fencing type shall be one- by two-inch vertical mesh galvanized fence material, extending at least two feet above the ground and buried at least one foot. Where burial is impossible, the mesh shall be bent at a right angle toward the outside of the fence and covered with dirt, rocks, or gravel to prevent the DT from digging under the fence. DT-proof gates shall be established at all site entry points. Any utility corridors and tower locations shall be temporarily fenced to prevent DT entry during construction. Temporary fencing shall follow guidelines for permanent fencing and supporting stakes shall be sufficiently spaced to maintain fence integrity. All fence construction shall be monitored by Designated Biologist to verify that no DTs are harmed.

It is assumed the central channel inflow and outflow points shall be fenced until construction is completed. Following installation, the fencing shall be inspected monthly and during all major rainfall events. Damage to the fencing shall be repaired immediately.

- BIO-22** A clearance for any DTs that may be on disturbance area shall be conducted in all areas with shrub cover. A minimum of two clearance passes shall be completed after DT-proof fencing is installed and these shall coincide with heightened DT activity, from late March through May and during October. This shall maximize the probability of finding all DT. It is anticipated that no or very few DT will be found. Any DT found shall be moved by A Designated Biologist to a location outside of the DT-proof fencing but within the plant site (e.g., the newly rerouted desert wash) using techniques approved by Agency Representatives. Translocation shall only occur when daily ground temperatures do not exceed 107 degree Fahrenheit (i.e., early spring or fall), so that DT can safely find refuge in potentially unfamiliar areas without the added constraints of lethal temperatures. No DT shall be moved between mid-April and early October, unless ambient temperatures are favorable. If the schedule of construction requires that clearance surveys continue past the safe time to move DT (i.e., past early April), then continued searches for DT shall include temporarily affixing found DT with transmitters for ease of re-finding them and moving them during autumn when ambient temperatures are favorable. Once the site is deemed free of DTs after two consecutive clearance passes, then heavy equipment shall be allowed to enter the sites to perform construction activities.
- BIO-23** DT shall be monitored during construction activity to avoid direct impacts to individuals, or all DT shall be sought and fenced out of construction zones. 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 These DT shall be temporarily monitored to ensure that being moved does not impact their survival.
- BIO-24** Following site clearance, a report shall be prepared by the Designated Biologist (to document the clearance surveys, the capture and release locations of all DT found, individual DT data, and other relevant data. This report shall be submitted to Agency Representatives.
- BIO-25** A Designated Biologist shall be appointed to oversee compliance with the protection measures for the DT and other species. The Designated Biologist shall be on site during fencing activities. The Designated Biologist shall have the right to halt all activities that are in violation of the DT protection measures. Work shall 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 by the Designated Biologist. The Designated Biologist shall have in their possession a copy of all the compliance measures while work is being conducted on site.
- BIO-26** The proponent shall submit the names and statement of qualifications of all proposed Designated Biologists to CEC, BLM, USFWS, and CDFG, 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 is approved by the aforementioned agencies. Only Designated Biologists shall be allowed to handle and relocate DT when necessary. Biological Monitors shall ensure compliance with the protection measures but shall not be allowed to survey for or handle DT. Workers shall notify the Designated Biologist of all DT observations.
- BIO-27** The Designated Biologist shall be responsible for awareness trainings, surveys, compliance monitoring, and reporting related to DT.

- BIO-28** Proposed channels that reroute the washes through and around the site shall be made as natural, as feasible, with earthen bottoms in order that they may facilitate DT movement around and/or through the site. Scour protection (i.e., riprap) shall be added to the channel sides and bottoms in stress areas such as curves and slope transitions (Refer to AFC Section 5.17 Water Resources). Fencing shall line the channel that passes through the site to ensure DT do not enter the facility
- BIO-29** Personnel shall utilize established roadways (paved or unpaved) in traveling to and from the survey area and also shall utilize 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 the disturbance area and along off-highway access roads to the site.
- BIO-30** To the greatest extent feasible, parking and storage shall occur within the DT exclusion fencing. Anytime a vehicle or construction equipment is parked in unfenced DT 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.
- BIO-31** 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 within 24 hours. Hazardous spills shall be immediately cleaned up and the contaminated soil shall be properly disposed of at a licensed facility.
- BIO-32** Intentional killing or collection of the DT in the survey area and surrounding areas shall be prohibited. The Designated Biologist shall be notified of any such occurrences immediately and Agency Representatives shall be notified of any such occurrences within 24 hours.
- BIO-33** For emergency response situations, the Designated Biologist shall notify the agency representatives immediately. As a part of this response, the agency representatives may require additional measures to protect the DT. During any responses related to human health, fire, hazardous waste, or repairs requiring off-road vehicle and equipment use, the agency representatives may also require measures to recover damaged habitat.
- BIO-34** Water shall be applied to the construction right-of-way, dirt roads, trenches, spoil piles, and other areas where ground disturbance has taken place to minimize dust emissions and topsoil erosion. 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, and other wildlife to the site.
- BIO-35** Upon locating a dead or injured DT, the Designated Biologist shall make initial notification to the Agency Representatives within 24 hours of its finding. The notification must be made by telephone and writing to the nearest USFWS Field Offices. The report shall include the date and time of the finding or incident (if known), location of the carcass, a photograph, cause of death (if known), and other pertinent information. DT fatally injured as a result of Project-related activities shall be submitted for necropsy as outlined in *Salvaging Injured, Recently Dead, Ill, and Dying Wild, Free-Roaming Desert Tortoises*. DT with fewer major injuries shall be transported to a nearby qualified veterinarian for treatment at the expense of the proponent. If an injured DT recovers, the agency representatives shall be contacted for final disposition of the DT.

- BIO-36** During construction activities, monthly and final compliance reports shall be provided by the Designated Biologist to CDFG and other applicable resource agencies documenting the effectiveness and practicality of the protection measures that are in place and making recommendations for modifying the measures to enhance species protection, as needed. The report shall also 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-37** In addition to the measures discussed above, the Project proponent shall compensate for impacts to DT habitat in the disturbance area during construction activities. This shall be accomplished either by land acquisition acceptable to USFWS, CDFG, and CEC or an assessed financial contribution calculated based on the final construction footprint. Direct permanent impacts to 7,027 acres of potential DT habitat shall be mitigated at a ratio to be determined by the Wildlife Agencies. Habitat conservation generally consists of the offsite purchase of in-kind habitat of equal value to that impacted. Funding for the long-term management of mitigation land shall also be required. The offsite location of the mitigation land and a management program shall be negotiated between the resource agencies (including the CEC) and the Project applicant.
- Western Burrowing Owl.* Avoidance, minimization, and mitigation of impacts to WBO shall consist of the following:
- BIO-38** 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 consist of walking parallel transects and noting any fresh WBO sign or presence of WBOs (may be combined with DT preconstruction surveys). Pre-construction surveys shall be conducted throughout the Project disturbance area and within 492 foot-buffer surrounding the disturbance area. The results of the preconstruction survey shall be provided to CDFG.
- BIO-39** It is recommended that pre-construction surveys begin during the non-breeding season (September 1 through January 31) regardless of the construction start date to identify WBO that may breed on site during the breeding season. If during preconstruction surveys 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 by installing one-way doors in burrow entrances. One-way doors shall be left in place 48 hours to insure owls have left the burrow before excavation. One alternate natural or artificial burrow shall be provided for each burrow that shall 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-40** 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 and are capable of independent survival).

- BIO-41** A Designated Biologist shall be on-site during all construction activities in potential WBO habitat.
- BIO-42** The WBO shall be covered as part of the Worker Environmental Awareness Program element of the CEC-required BRMIMP.
- BIO-43** 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 also shall be covered in the ongoing compliance reporting required by the CEC.
- BIO-44** The CBOC's mitigation guidelines used by CDFG recommend that mitigation for impacts to WBOs shall 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 supplemented at a 2:1 replacement ratio of enhanced natural, unoccupied burrows or artificial burrows, as per guidelines from the CBOC (1993) and CDFG Memorandum (1995). 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 shall 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;
 - c. Replacement of occupied habitat with suitable unoccupied habitat: 19.5 acres per pair or single bird.

One individual WBO was documented to occur within the disturbance area and therefore the anticipated mitigation is to be 9.75 to 19.5 acres of suitable habitat at a location approved by CDFG. Destruction of occupied and/or active burrows shall be supplemented at a 2:1 replacement ratio of enhanced natural, unoccupied burrows or artificial burrows, as per guidelines from the CBOC (1993) and CDFG Memorandum (1995). Most typically the 2 burrows required (e.g., 1 active burrow impacted) shall be enhanced or created on the land set aside as preservation for this species. Funding for the long-term management of the land preserved shall also be provided (on a per-acre-of-impact basis).

Habitat mitigation acreage shall be coincident with DT mitigation site acreage.

Other Special-Status Wildlife Species

- BIO-45** 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 breeding season (roughly February through June for most species in the desert), A Designated Biologist shall be retained 30 days prior to vegetation clearance within a 300 foot buffer of (including

areas outside the disturbance area) the permanent and temporary impact areas to monitor on a weekly basis the protected native birds on the site for nesting activity. The last survey shall be conducted no more than three 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-46** If nesting birds, including but not limited to special-status species and those species protected by the MBTA, are detected in these areas, 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-47** American badger dens present in the disturbance area shall have a one-way trap door installed to passively exclude the badger from the den. American badgers are known to use several dens in a wide area, frequently moving between dens. Therefore, all potential badger dens shall be fitted with the one-way trap doors to encourage badgers to move off site. After 48 hours post-installation, the den shall be excavated and collapsed, following the same protocol as with WBO burrows. These dens shall be collapsed prior to construction of the DT fence, to allow badgers the opportunity to move off site without impediment. Alternatively, A Designated Biologist shall trap and remove badgers from occupied dens and move them off site into appropriate habitat.
- BIO-48** 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 as with WBO burrows. 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.

Habitat-based mitigation or other appropriate mitigation as discussed previously for DT and WBO shall provide mitigation for impacts to non-listed special-status species that inhabit overlapping suitable habitat.

Wildlife Movement

The following are recommendations regarding possible compensatory mitigation of impacts to wildlife corridors to reduce impacts for the region and contribute to the general knowledge of wildlife movement. Despite this reduction in impacts, potential direct and indirect impacts to DT wildlife corridors would not be mitigated below a level of significance.

Measures that may reduce the extent of impact in the region include the following:

- BIO-49** Prioritize and acquire land within the vicinity of the disturbance area that maintains connectivity to adjacent open spaces and provides corridors between open spaces for wildlife species impacted.
- BIO-50** Restore degraded habitat within the vicinity of the disturbance area that may have formerly served as wildlife corridor for impacted species and would provide ecological value for overall connectivity. Areas for implementation of these measures shall be prioritized based on proximity to the BSPP and impacted populations. Areas for implementation of these measures shall also consider quality of habitat and likelihood of use by species impacted.

BIO-51 Restore disrupted connectivity within the vicinity of the disturbance area that may have formerly served as wildlife corridor for impacted species by creating wildlife crossings under or over current barriers such as local roads and highways. Areas for implementation of these measures shall be prioritized based on proximity to the BSPP and impacted populations. Areas for implementation of these measures shall also consider quality of surrounding habitat and likelihood of use by species impacted.

BIO-52 Measures may be taken to contribute to the general knowledge of wildlife movement, edge effects, and the role of dispersal in metapopulation dynamics. Measures may include but are not limited to contributing financing for research on species specific movement through telemetry studies and population gene flow as it relates to species dispersal in the region as well as specific studies on edge effects. Measures to contribute to the general knowledge shall require approval by State and Federal wildlife agencies.

5.3.4.3 Operation

General impact avoidance and minimization measures that shall apply to Project operation are presented below.

BIO-53 All vehicles passing or turning around shall do so within the planned impact area.

BIO-54 Best Management Practices (BMPs) shall be employed to prevent raven occurrence on site. BMPs shall include, but are not limited to the following:

- a. potential use of perch-deterrent devices and locations of their installation;
- b. measures that might reduce raven presence and nesting activities (e.g., removing food items, garbage. note that there shall be no standing water on site);
- c. remedial actions that shall be employed (e.g., nest removal) if raven predation of DT is detected.

BIO-55 Fueling of equipment shall take place within existing paved roads and not within 300 feet or adjacent to drainages or native desert habitats. Maintenance equipment shall be checked for leaks prior to operation and repaired as necessary.

BIO-56 A SWPPP and a DESCP will be prepared to comply with RWQCB and CEC requirements; a preliminary construction SWPPP/DESCP provided as Appendix L to the AFC. 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 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 - 57 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 are proposed to be installed within sensitive habitat. Light glare shields may also be used to reduce the illumination into adjoining areas.

- BIO-58** During Project operation, the facility footprint shall be maintained free from nonnative invasive species. This can be accomplished through physical or chemical removal and prevention. Application of an approved herbicide (not toxic to wildlife) shall be applied or directly supervised by a state licensed applicator following the label instructions including application rates and protective equipment. Herbicide shall be applied only when wind speeds are less than 5 miles per hour.
- BIO-59** Decommissioning of the facility shall include the removal of all improvements and restoration of the facility footprint 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. Funding for such restoration, whether it is needed at the anticipated facility closure date or it is needed earlier in time due to untimely closure (i.e., bankruptcy), shall be pursued once a comprehensive decommissioning plan is established.
- BIO-60** To minimize the likelihood for vehicle strikes of DTs, a speed limit of 15 miles per hour shall be established for travel along off-highway access roads to the site. Access road shall be posted with DT awareness signs. DT-proof gates that roll open and close behind vehicles shall be installed at the entrance of the perimeter fence.

5.3.5 References

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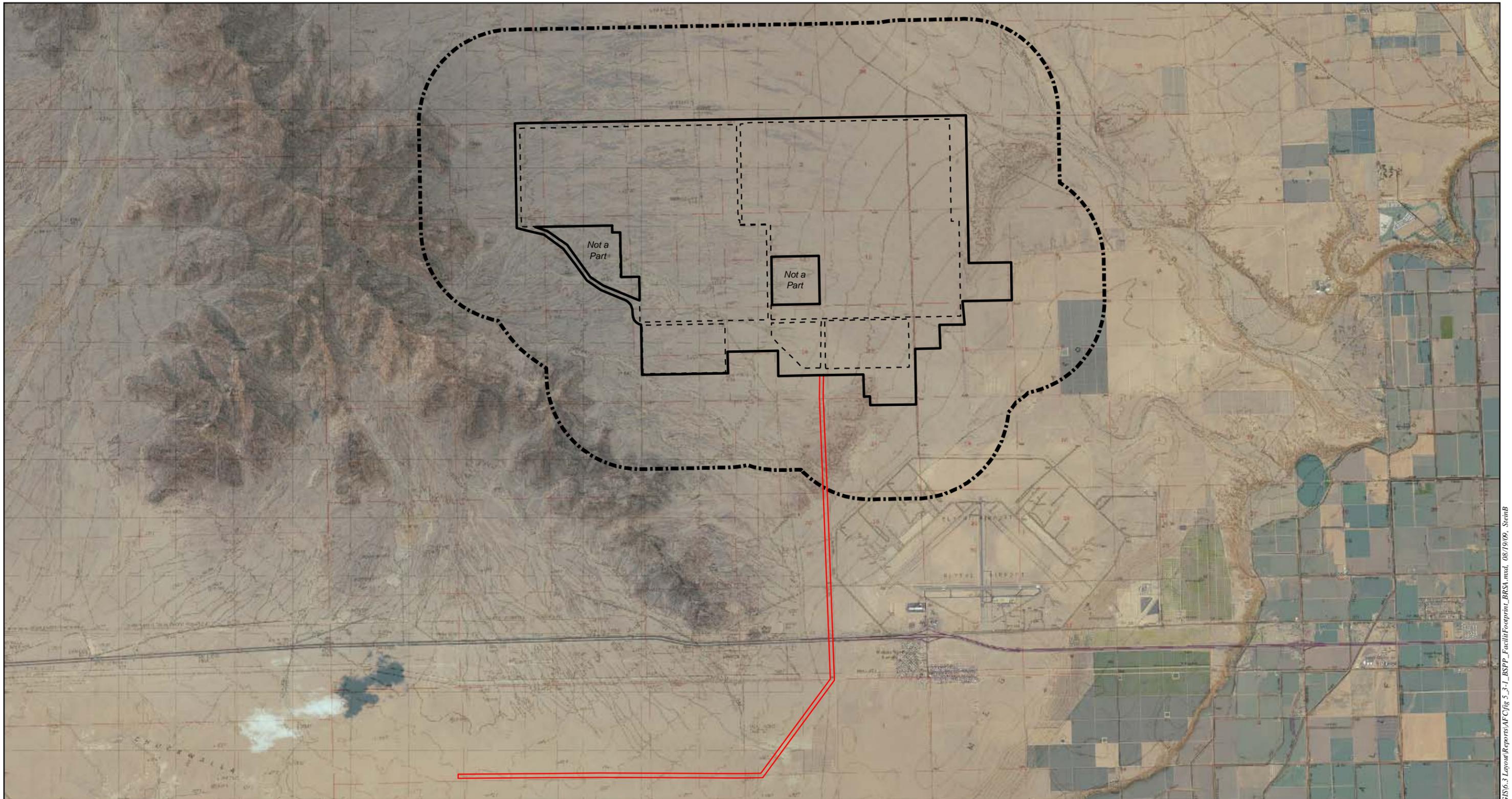
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Legend	
	Disturbance Area
	Facility Footprint
	Possible Transmission Line Route
	Biological Resource Survey Area (BRSA)

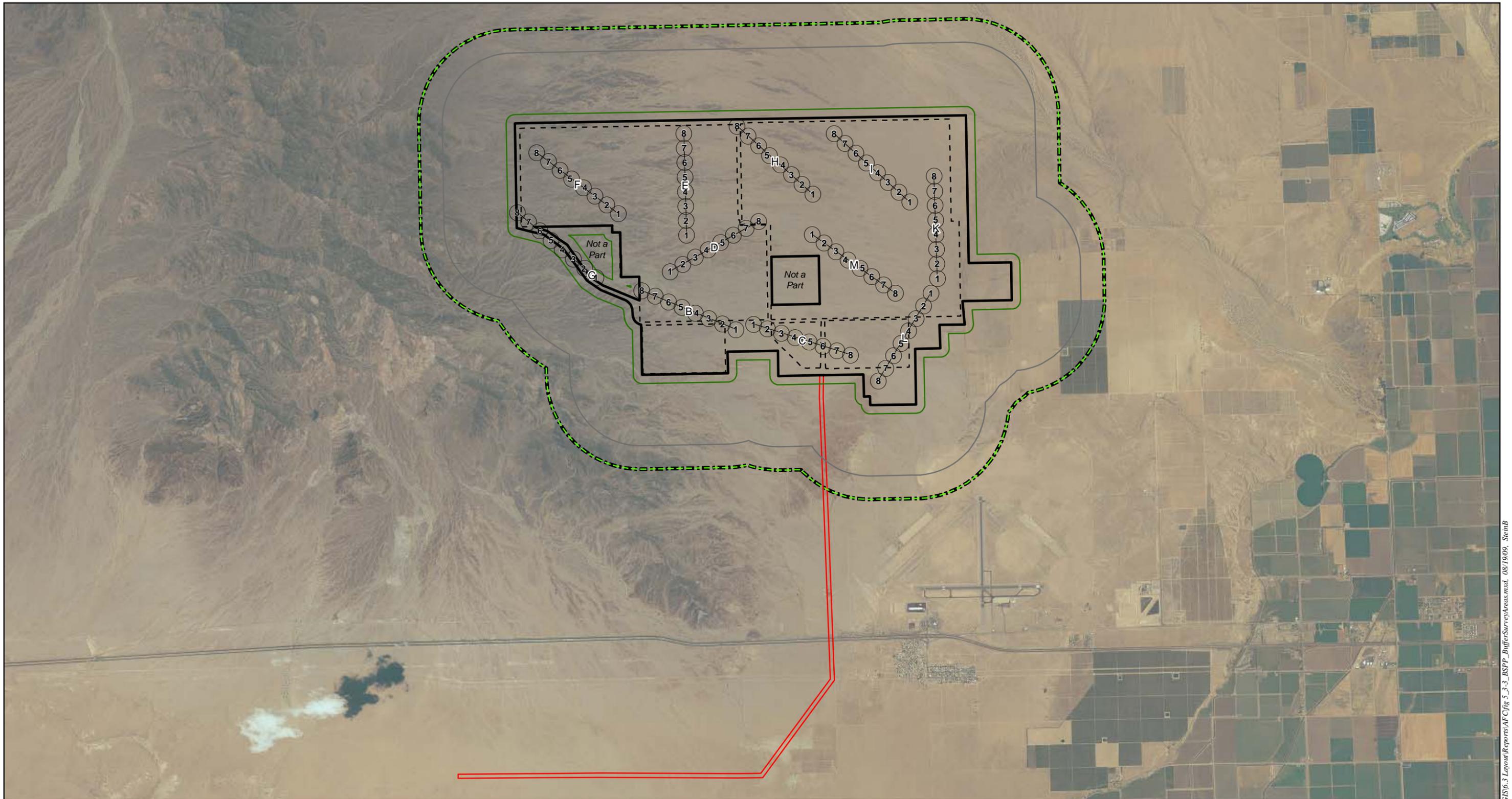
Source: NAIP 2005; AECOM 2009



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

Date: August 2009



Legend

- Disturbance Area
- Facility Footprint
- Possible Transmission Line Route
- Biological Resource Survey Area (BRSA)

Desert Tortoise and CEC Buffer Transects

- 1-mile Transect¹
- 0.75-mile Transect¹

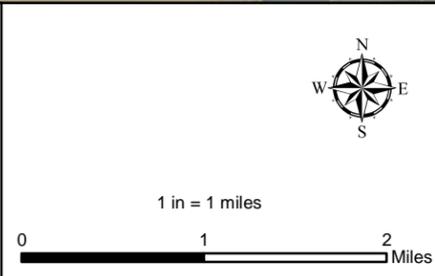
Burrowing Owl Survey Buffer

- CBOC 492-foot

Transect Identifier

- Transect Identifier
- Point Count Location Identifier and Buffer (Radius 328 feet)

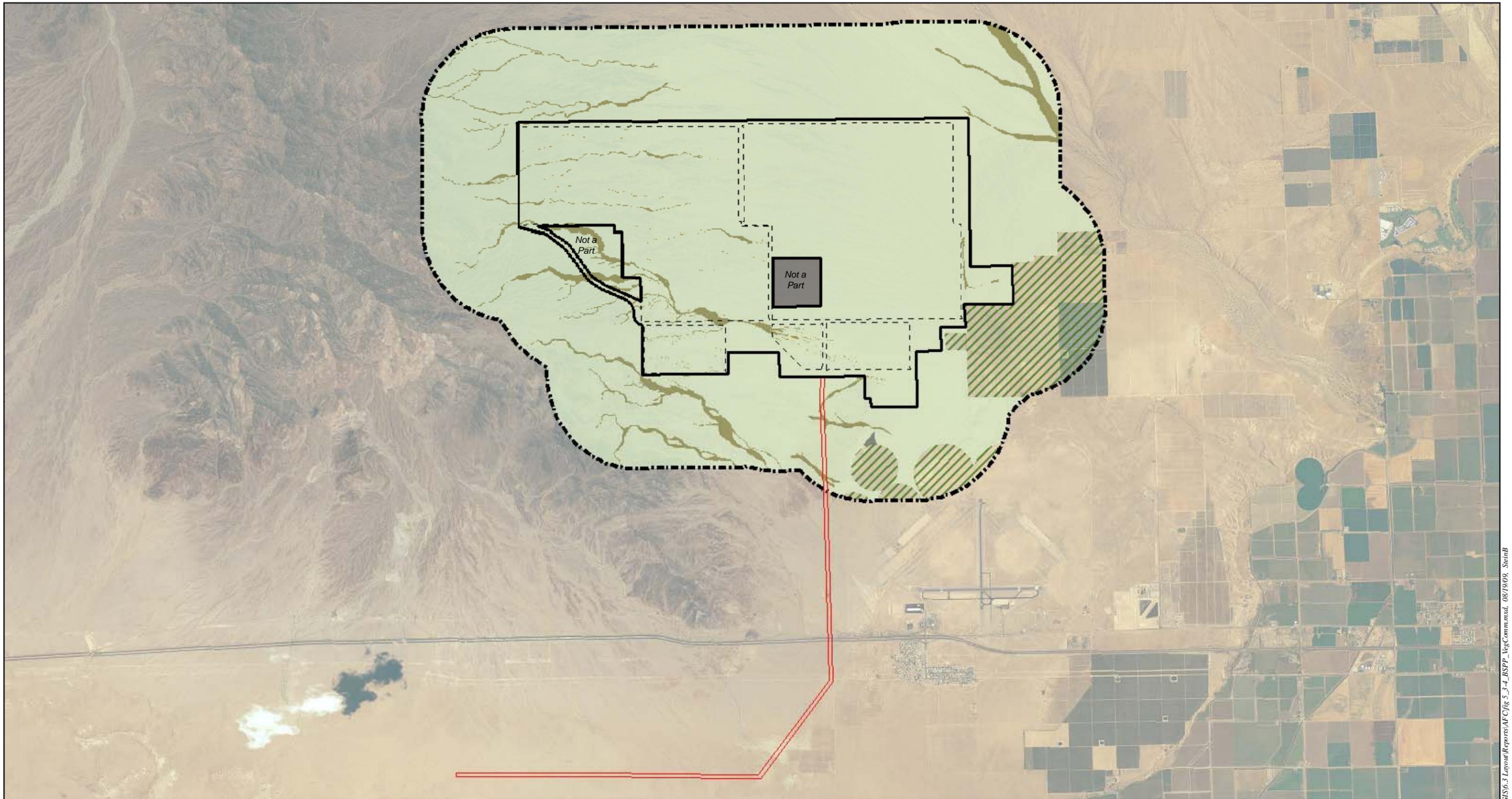
¹Note:
The 1-mile and 3/4-mile CEC Buffer Transects on the southern side are greater than these distances from the disturbance area due to changes in project design.



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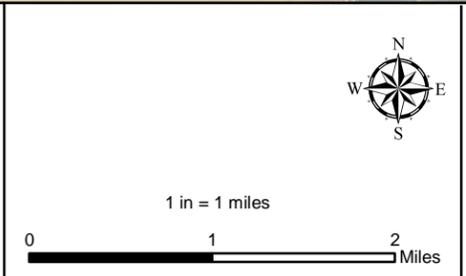
**Figure 5.3-3
Biological Resource
Survey Areas**

Date: August 2009



- Legend**
- Facility Footprint
 - Disturbance Area
 - Possible Transmission Line Route
 - Biological Resource Survey Area (BRSA)

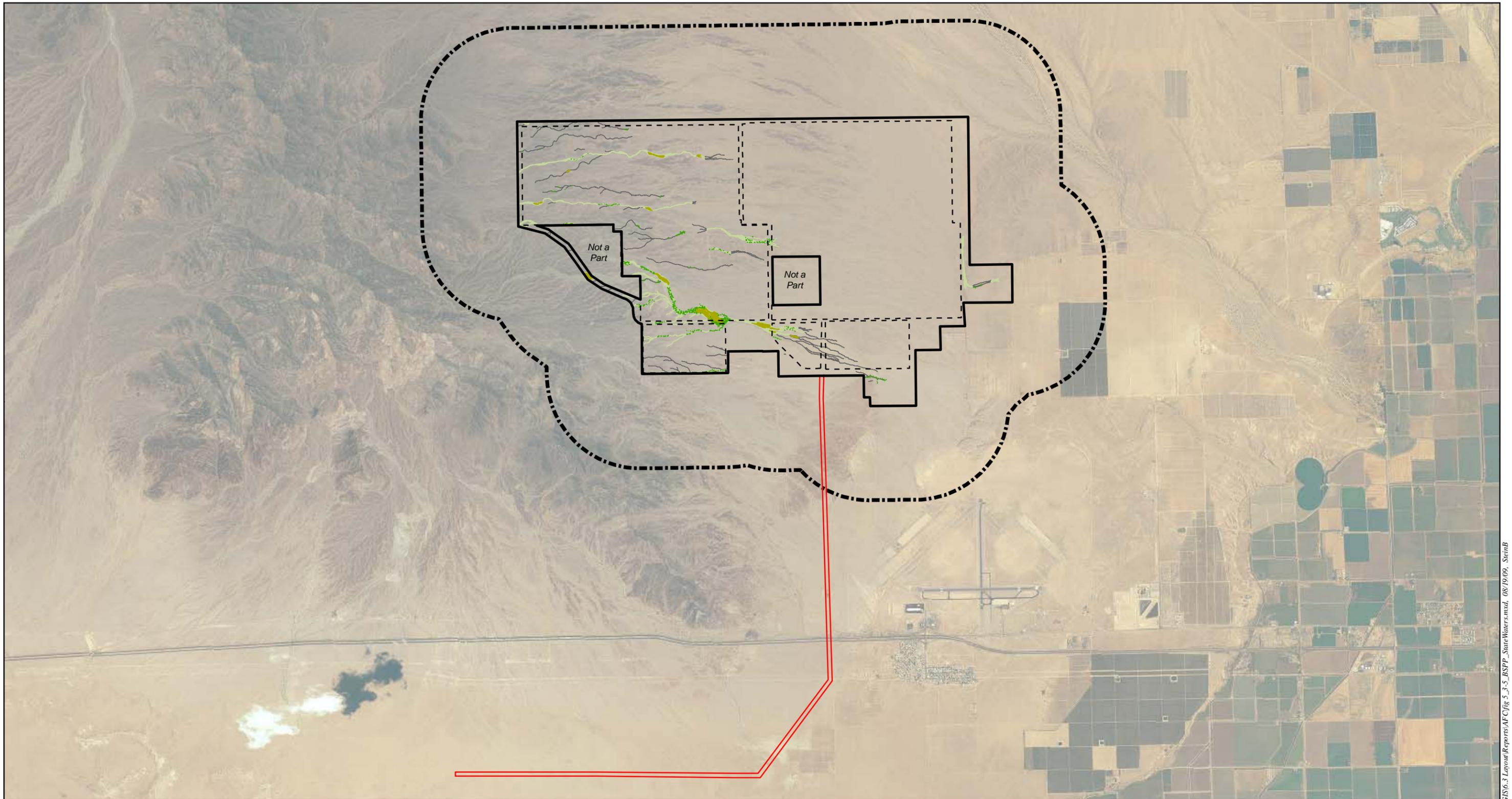
- Vegetation Communities**
- Riparian**
- Desert Dry Wash Woodland
 - Unvegetated Ephemeral Dry Wash
- Upland**
- Sonoran Creosote Bush Scrub
- Other**
- Agriculture (Active and Fallow)
 - Developed



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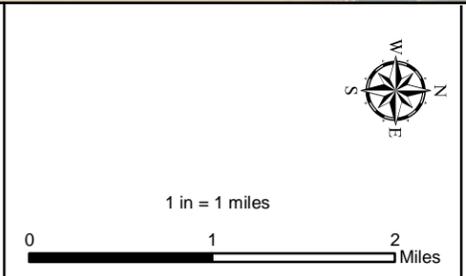
**Figure 5.3-4
Vegetation Communities**

Date: August 2009



- Legend**
- Disturbance Area
 - Facility Footprint
 - Possible Transmission Line Route
 - Biological Resource Survey Area (BRSA)
- Source: NAIP 2005; AECOM 2009; EDAW 2009

- State Waters**
- Desert Dry Wash Woodland**
- Wash Dependant Vegetation
 - Riparian Interfluvium
 - Vegetated Ephemeral Dry Wash
 - Unvegetated Ephemeral Dry Wash

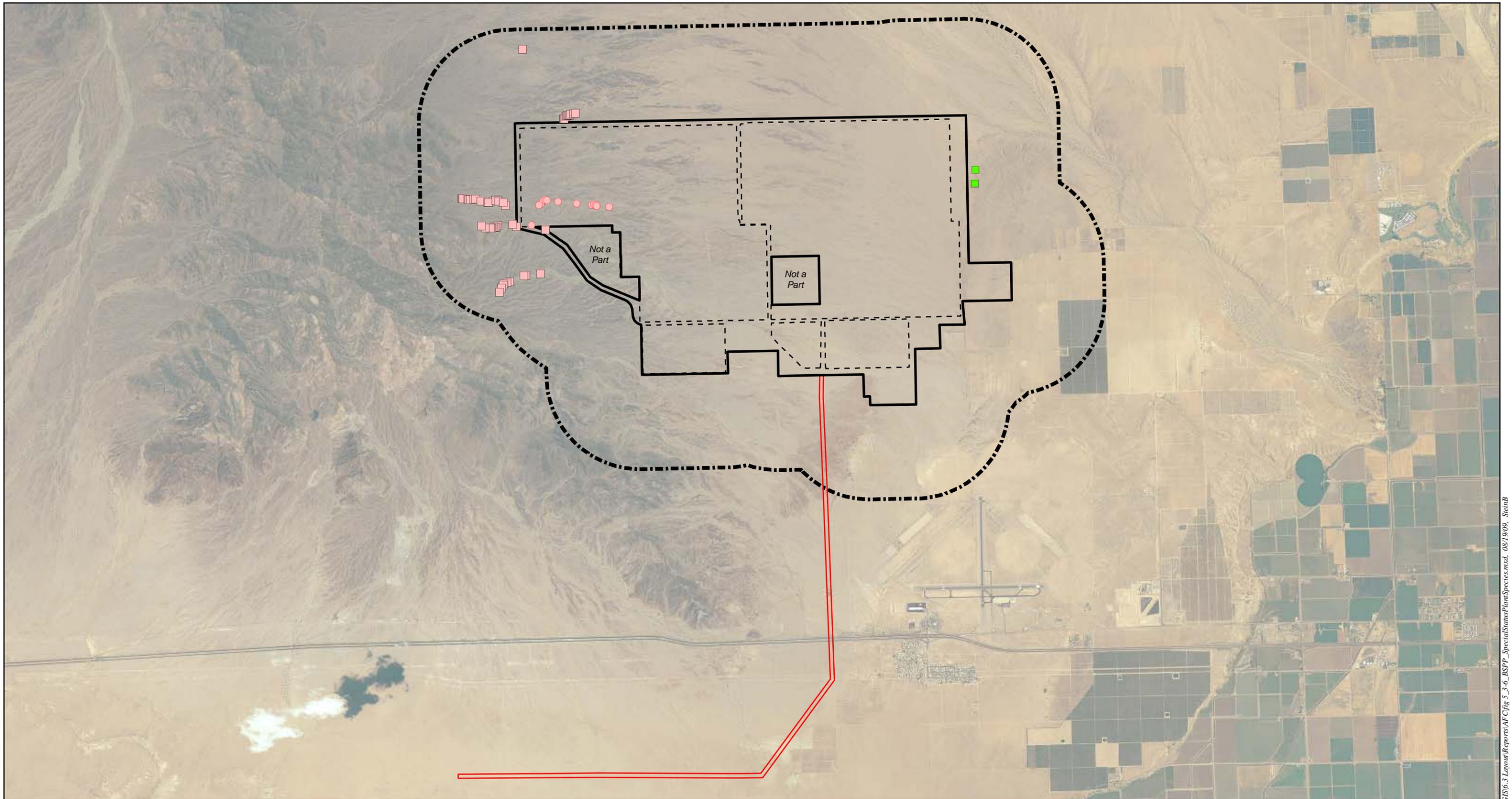


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**Figure 5.3-5
State Waters**




Date: August 2009



Legend

- Disturbance Area
- Facility Footprint
- Possible Transmission Line Route
- Biological Resource Survey Area (BRSA)

Source: NAIP 2005; AECOM 2009; EDAW 2009

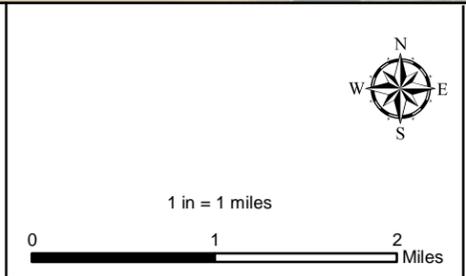
Special Status Plant Species

Within Disturbance Area

- Las Animas Colubrine (57 individuals)
- Las Animas Colubrine (117 individuals)

Within Buffer

- Harwood's Milk-vetch (5 individuals)
- Las Animas Colubrine (117 individuals)



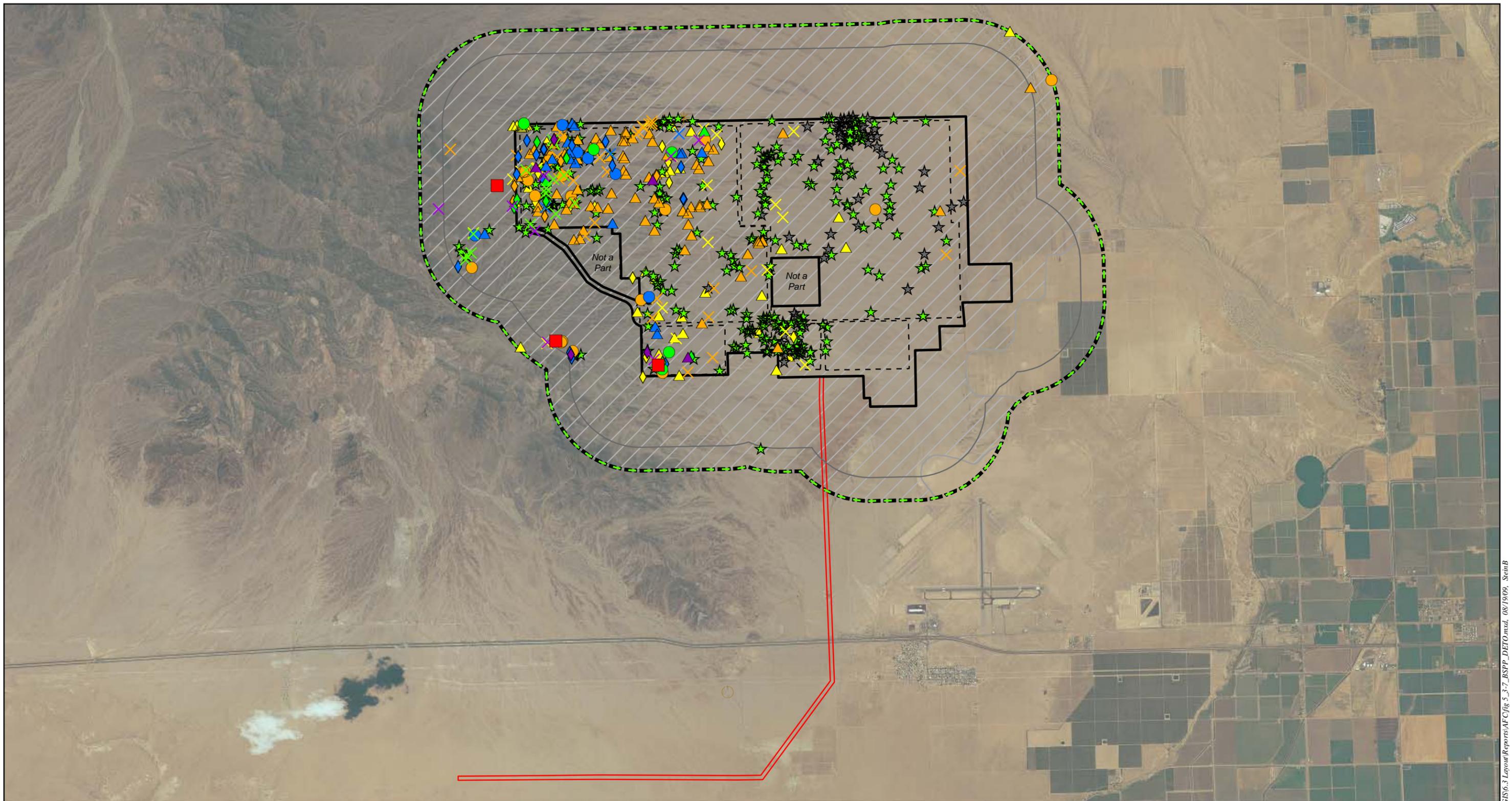
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**Figure 5.3-6
Special Status Plant Species**

Solar Millennium

AECOM

Date: August 2009



Legend

- Disturbance Area
- Facility Footprint
- Possible Transmission Line Route
- Biological Resource Survey Area (BRSA)
- Tortoise Suitable Habitat

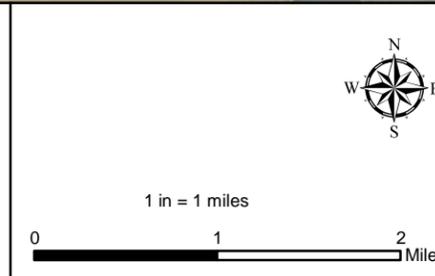
Source: NAIP 2005; AECOM 2009; EDAW 2009

Desert Tortoise and CEC Buffer Transects

- 1-mile Transect
- 0.75-mile Transect

Desert Tortoise Observations

- Tortoise
- Bone Fragments - Class 5
- Bone Fragments - Class 5, Mineralized
- Burrow - Class 1
- Burrow - Class 2
- Burrow - Class 3
- Burrow - Class 4
- Burrow - Class 5
- Carcass - Class 2
- Carcass - Class 3
- Carcass - Class 4
- Pallet - Class 1
- Pallet - Class 2
- Pallet - Class 3
- Pallet - Class 4
- Pallet - Class 5
- Scat - Class 1
- Scat - Class 2
- Scat - Class 3
- Scat - Class 4
- Scat - Class 5
- Drinking Depression
- Tracks



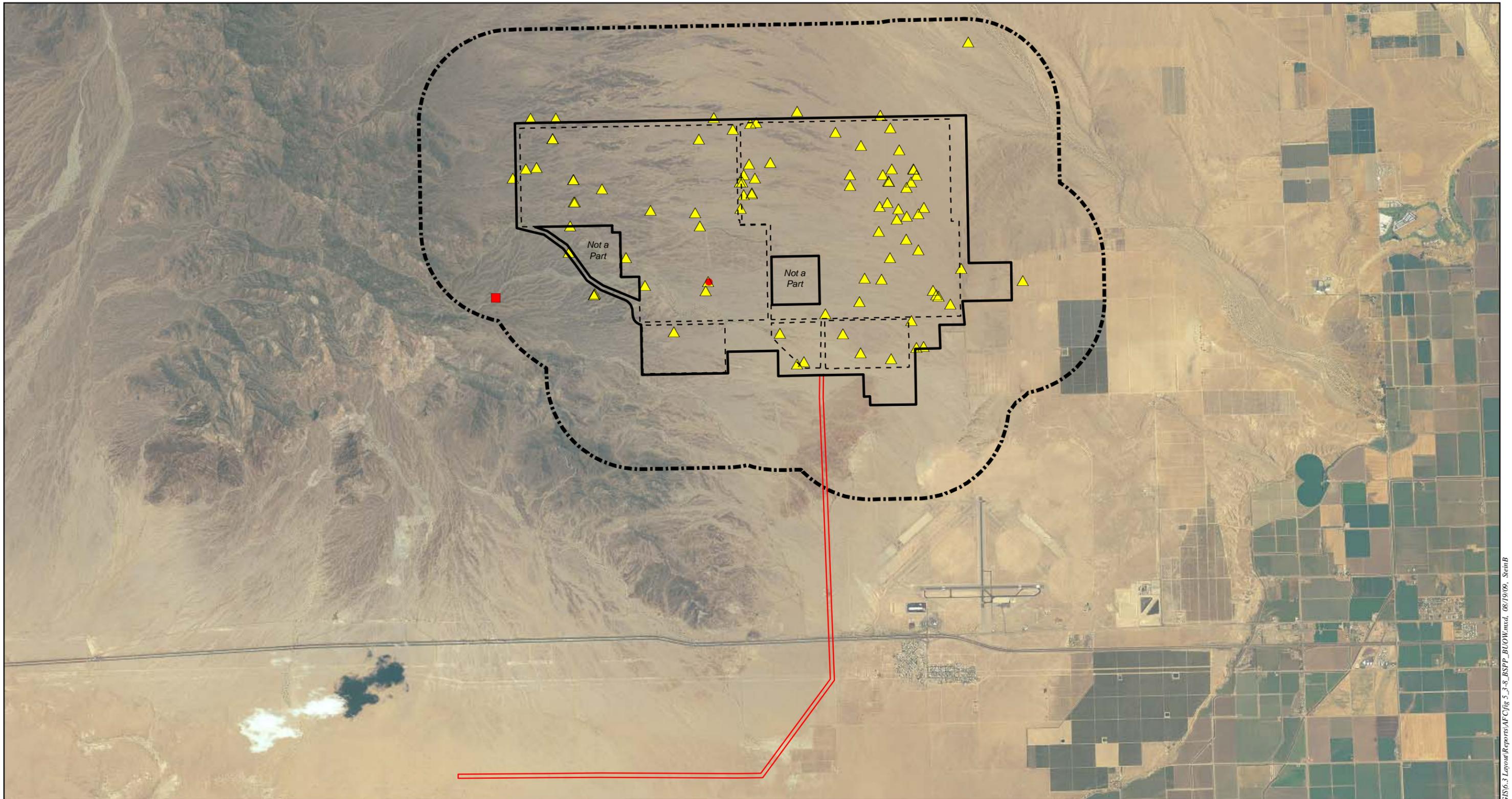
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**Figure 5.3-7
Desert Tortoise Observations**

Solar Millennium

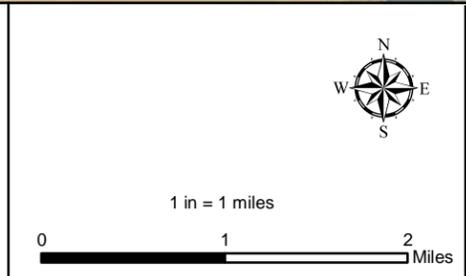
AECOM

Date: August 2009



- Legend**
- Disturbance Area
 - Facility Footprint
 - Possible Transmission Line Route
 - Biological Resource Survey Area (BRSA)
- Source: NAIP 2005; EDAW 2009; AECOM 2009;

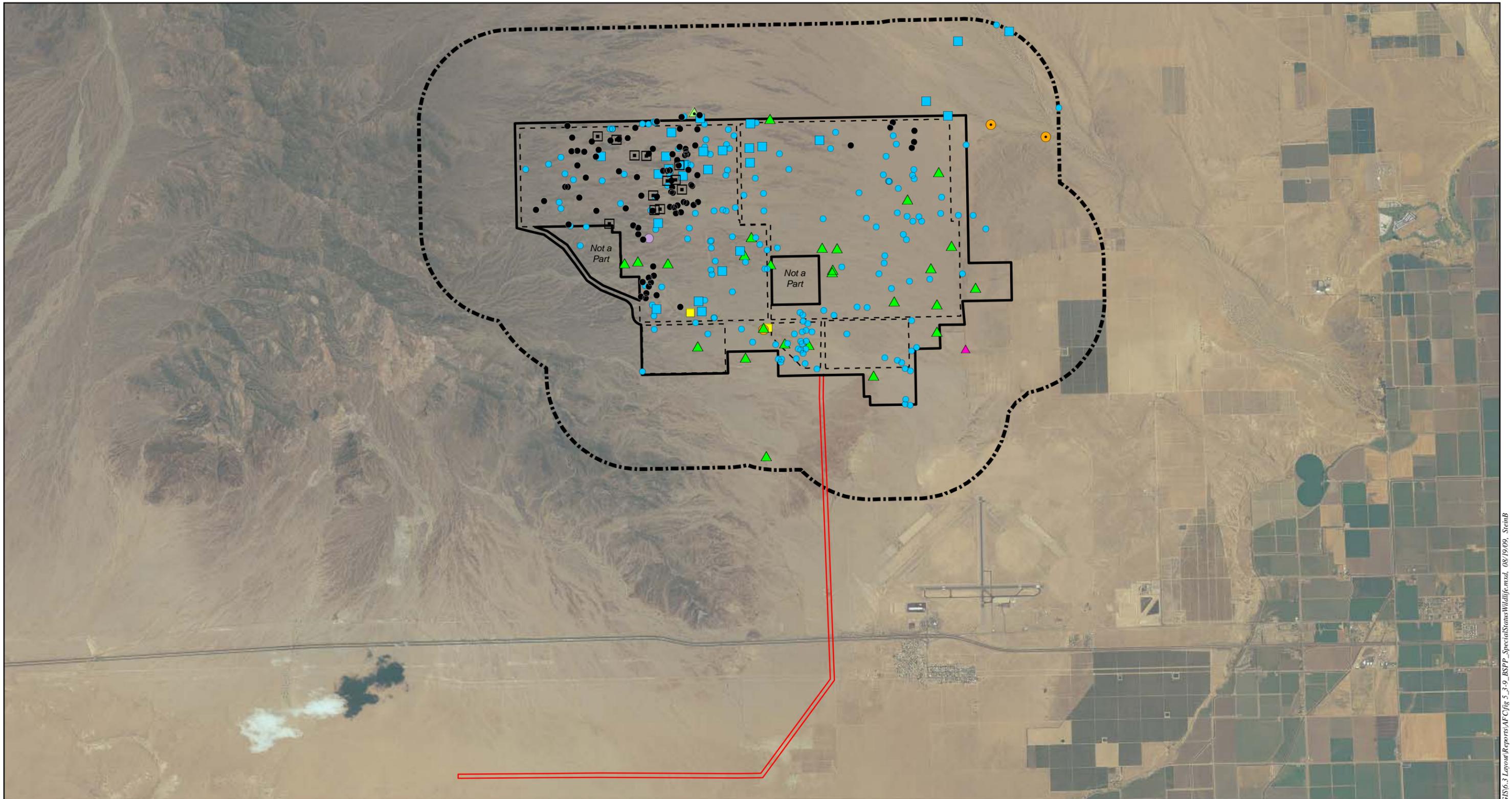
- Western Burrowing Owl Observations**
- Western Burrowing Owl and Active Burrow
 - Western Burrowing Owl
 - Burrow with Sign



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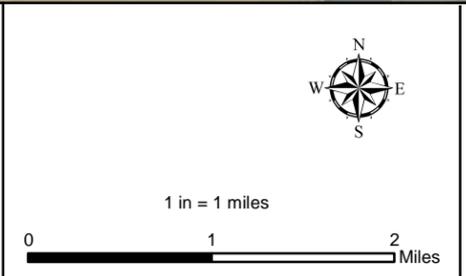
**Figure 5.3-8
Burrowing Owl Observations**

Date: August 2009



Legend	
	Disturbance Area
	Facility Footprint
	Possible Transmission Line Route
	Biological Resource Survey Area (BRSA)

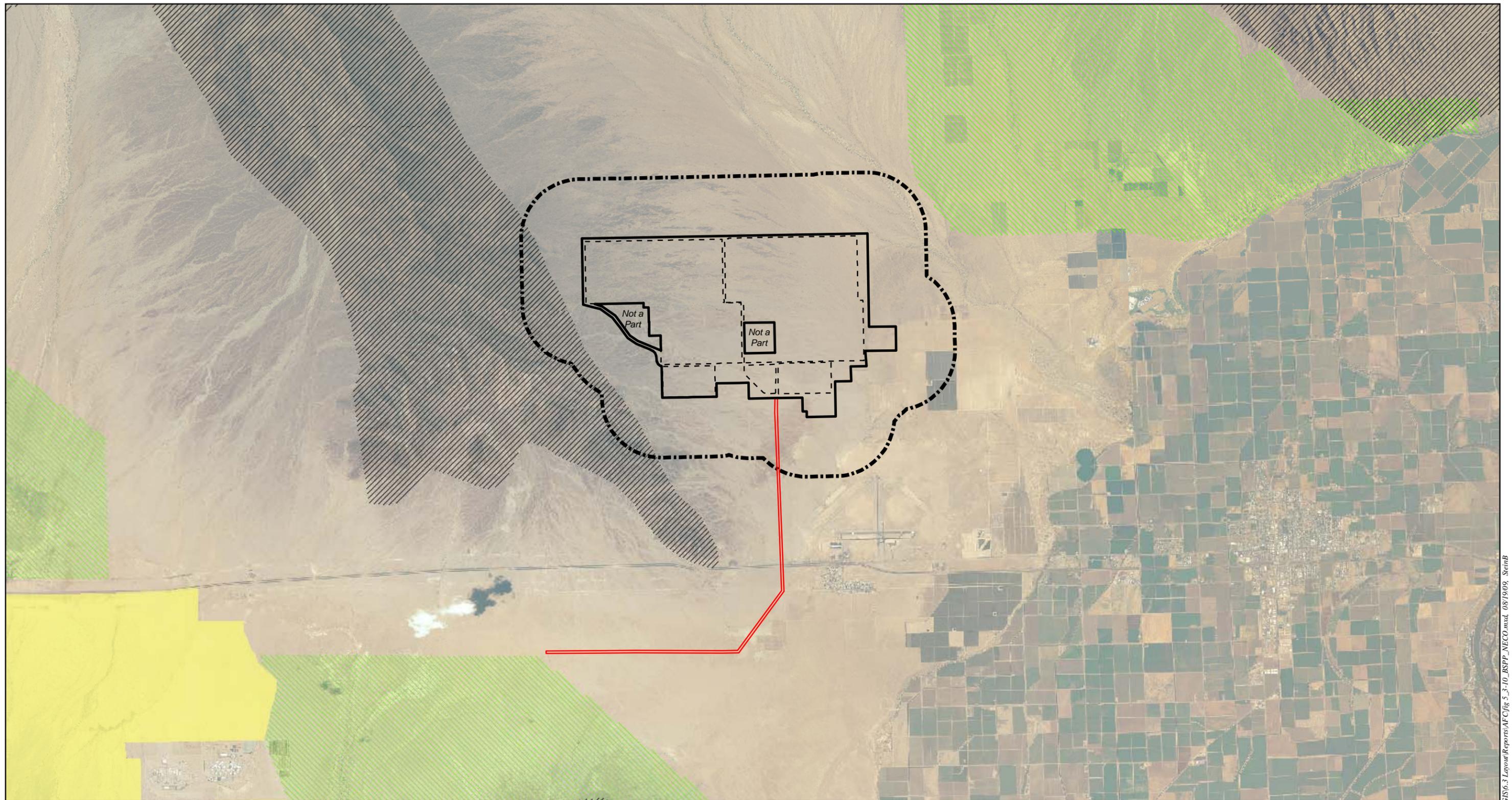
Special Status Wildlife Species Observations	
	American Badger Den
	American Badger Predation Burrow
	Ferruginous Hawk
	Kit Fox Burrow
	Kit Fox Burrow Complex
	Loggerhead Shrike
	Loggerhead Shrike Nest
	Nelson's Bighorn Sheep Scat
	Nest Cavity - Unidentified Woodpecker Species
	Yellow Warbler



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

Date: August 2009



Legend

- Disturbance Area
- Facility Footprint
- Possible Transmission Line Route
- Biological Resource Survey Area (BRSA)

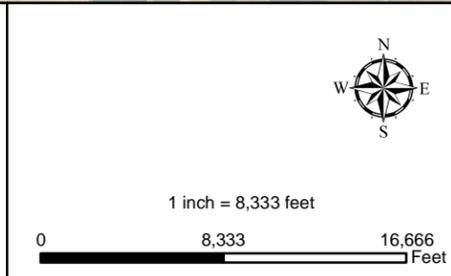
Desert Wildlife Management Area (NECO)

- Chuckwalla

Wildlife Habitat Management Area (NECO)

- Nelson's Bighorn Sheep
- Multiple Species

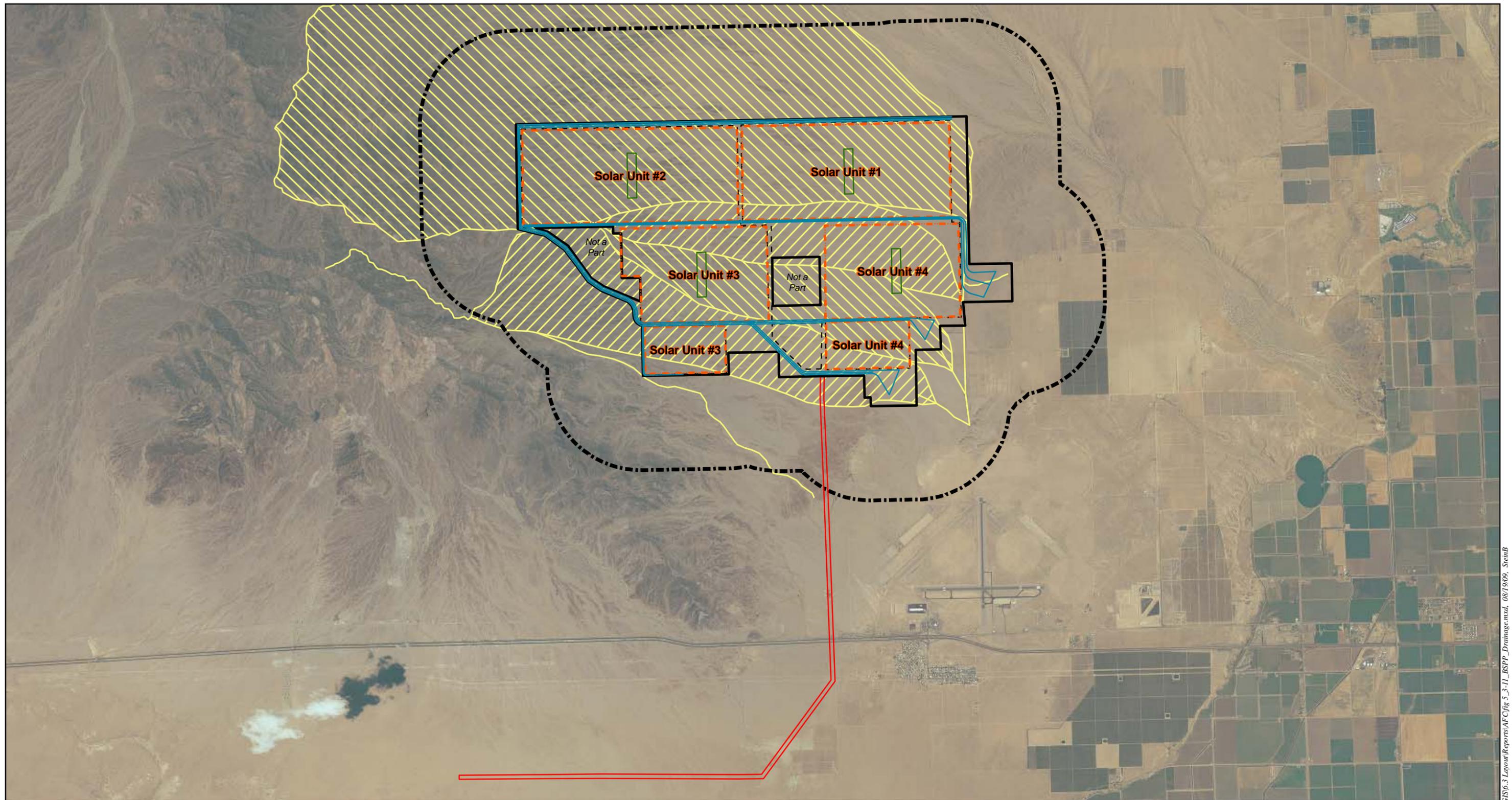
Source: NAIP 2005; NECO; AECOM 2009;



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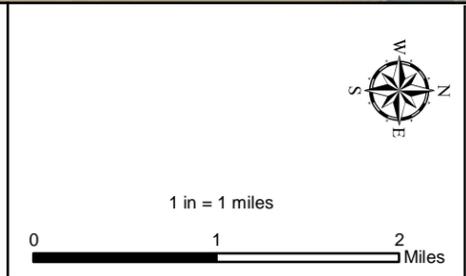
**Figure 5.3-10
Proposed Project Relative to the Northern
and Eastern Colorado Desert Coordinated
Management Plan (NECO)**

Date: August 2009



- Legend**
- Disturbance Area
 - Facility Footprint
 - Possible Transmission Line Route
 - Biological Resource Survey Area (BRSA)

- Facilities Layout**
- Solar Unit
 - Location of Power Block
 - Existing Flow Paths
 - Rerouted Drainage



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

Solar Millennium

AECOM

Date: August 2009