

5.6 BIOLOGICAL RESOURCES

This section analyzes potential effects that the SES Solar Two, LLC (Solar Two or Applicant) Project and its ancillary systems (Project) may have on biological resources located within the Project Site. The existing biological resources within the Project area and within a 1-mile radius around the site are discussed in this section. Also, the potential effects to biological resources as a result of the Project are assessed. Figure 5.6-1, General Vicinity Map, displays the general topography of the Project area and vicinity.

5.6.1 Affected Environment

Solar Two proposes to develop a solar-powered electricity-generation facility situated approximately 14 miles west of El Centro in Imperial County, California. The Project Site is located on approximately 6,140 acres of public land administered by the Bureau of Land Management (BLM) and approximately 360 acres of private land that may be purchased or leased by Solar Two (Figure 5.6-1, General Vicinity Map). A total of approximately 6,049 acres would be included within the fenced site. The Project Site boundaries are the Union Pacific Railroad to the north, located just south of Evan Hewes Highway, Interstate-8 (I-8) to the south, to the east the easterly section line of Section 14 in Township 16 South, Range 11 East located 0.25 mile to the east of Dunaway Road, and to the west the westerly section line of Section 22 in Township 16 South, Range 10 East. North of the Project Site is the United States Gypsum Corporation (Plaster City) mining site. The main access to the site will be from Dunaway Road with a second northern access from Evan Hewes Highway just east of the San Diego Gas & Electric (SDG&E) transmission line. This transmission line traverses the site from the northwest to the southeast.

The Project's first phase will consist of up to 12,000 SunCatchers configured in 200 1.5-megawatt (MW) solar groups with 60 SunCatchers per group. Other than the Solar Two Project interconnection transmission line to be constructed by Solar Two to the SDG&E Imperial Valley Substation, no new transmission lines or off-site substations will be required for Phase I of the Project. Eventually, the Project will be expanded to include up to approximately 30,000 SunCatchers configured in 500 1.5-MW solar groups (Phase II). Phase II of the Project will require the construction of an additional transmission capacity from the Imperial Valley Substation to the grid. In accordance with the plan of development for the Solar Two Project, the Project will be connected to the SDG&E Imperial Valley Substation via an off-site 7.56-mile double-circuit 230-kilovolt transmission line. A 6-inch-diameter waterline will be constructed a distance of approximately 7.17 miles from the Imperial Irrigation District's Westside Main Canal to the Project Site. The waterline will be routed within or adjacent to Union Pacific Railroad's right-of-way, on federal and private lands, in the northeastern portion of the site (Figure 5.6-1, General Vicinity Map).

5.6.1.1 Survey Methods

A search of the California Natural Diversity Database (CNDDB) revealed several previously documented special-status species occurring within the Project vicinity. These species include plants such as brown turbans (*Malperia tenuis*), Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*), and flat-seeded spurge (*Chamaesyce platysperma*); and wildlife such as flat-tailed

horned lizard (*Phrynosoma mcalli*), burrowing owl (*Athene cunicularia*), Le Conte’s thrasher (*Toxostoma lecontei*), and American badger (*Taxidea taxus*). A complete list of special-status species with the potential to occur in the Project vicinity can be found in Table 5.6-1, Sensitive Species Potentially Occurring in the Vicinity of the Solar Two Project.

**Table 5.6-1
Sensitive Species Potentially Occurring in the Vicinity of the Solar Two Project**

Species	Sensitivity Status	Potential to Occur	Habitat	On-Site Status
Plants				
<i>Astragalus insularis</i> var. <i>harwoodii</i> Harwood’s milk-vetch	Federal – None State – None BLM – None CNPS List – 2.2	Moderate	Occurs in sand and gravelly desert dune areas. Annual herb that blooms January through May.	Suitable habitat occurs on-site; nearest documented location of this species is within the adjacent Kane Spring Northeast quad. Species not observed on-site during 2007 or 2008 surveys.
<i>Castela emoryi</i> Crucifixion thorn	Federal – None State – None BLM – None CNPS List – 2.3	Moderate	Occurs in Sonoran desert scrub, playas, and on gravelly soils; 90-670 meters. Deciduous shrub that blooms April through July.	Suitable habitat occurs on-site; nearest documented location occurs in the adjacent Coyote Wells and Yuha Basin quads. Species not observed on-site during 2007 or 2008 surveys.
<i>Chamaesyce platysperma</i> flat-seeded spurge	Federal – None State – None BLM – Sensitive CNPS List – 1B.2	Moderate	Occurs in desert dunes and Sonoran Desert scrub with sandy soil. Annual herb that blooms February through September.	Suitable habitat does occur on-site; nearest documented location of this species is within the adjacent Superstition Mountain quad in the 1980s. Not observed on-site during 2007 or 2008 surveys.
<i>Eucnide rupestris</i> annual rock nettle	Federal – None State – None BLM - None CNPS List – 2.2	Low	Occurs in Sonoran desert scrub on rock or talus substrate; 500-600 meters. Annual herb that blooms December through April.	Suitable substrate does not occur on-site; this species generally occurs at higher elevations than found on-site. Previously documented in the adjacent Coyote Wells, Mount Signal, and Painted Gorge quads.
<i>Ipomopsis effusa</i> Baja California ipomopsis	Federal – None State – None BLM – None CNPS List – 2.1	Moderate	Occurs in chaparral, Sonoran desert scrub (alluvial fan) in sandy substrate between 0 to 100 meters. Annual herb that blooms April through June.	Suitable habitat occurs on-site; species documented in the adjacent Yuha Basin quad. Not observed on-site during 2007 or 2008 surveys.

**Table 5.6-1
Sensitive Species Potentially Occurring in the Vicinity of the Solar Two Project**

Species	Sensitivity Status	Potential to Occur	Habitat	On-Site Status
<i>Ipomopsis tenuifolia</i> slender-leaved ipomopsis	Federal – None State – None BLM – None CNPS List – 2.3	Low	Occurs in chaparral, pinyon and juniper woodlands, and Sonoran desert scrub on rocky or gravelly soil between 100 and 1,200 meters. Perennial herb that blooms March through May.	Suitable habitat occurs on-site, but this species is normally found at a higher elevation. Species documented on the adjacent In-ko-pah Gorge quad. Not observed during 2007 or 2008 surveys.
<i>Lupinus excubitus</i> var. <i>medius</i> Mountain Springs bush lupine	Federal – None State – None BLM – Sensitive CNPS – 1B.3	Low	Occurs in pinyon and juniper woodland and Sonoran desert scrub between 425 and 1,370 meters. Shrub that blooms March through May	Suitable habitat occurs on-site, but this species is normally found at a higher elevation. Species documented on the adjacent Carrizo Mountain and In-ko-pah Gorge quads. Not observed during 2007 or 2008 surveys.
<i>Malperia tenuis</i> brown turbans	Federal – None State – None BLM – None CNPS List – 2.3	Moderate	Occurs in Sonoran Desert scrub with sandy soil. Annual herb that blooms March and April.	Suitable habitat does occur on-site; nearest documented locations of this species are within the Harper’s Well and Plaster City Northwest quads. Not observed during 2007 or 2008 surveys.
<i>Mentzelia hirsutissima</i> hairy stickleaf	Federal – None State – None BLM – None CNPS List – 2.3	Moderate	Occurs in rocky Sonoran desert scrub between 0 and 700 meters. Annual herb that blooms March through May.	Suitable habitat occurs on-site; species documented in adjacent Mount Signal quad. Not observed on-site during 2007 or 2008 surveys.
<i>Nemacaulis denudata</i> var. <i>gracilis</i> slender woolly-heads	Federal – None State – None BLM – None CNPS List – 2.2	Moderate	Occurs in coastal dunes, desert dunes, Sonoran desert scrub between 50 and 400 meters. Annual herb that blooms March through May.	Suitable habitat occurs on-site; species documented in adjacent Coyote Wells and Painted Gorge quads. Not observed on-site during 2007 or 2008 surveys.
<i>Xylorhiza orcuttii</i> Orcutt’s woody-aster	Federal – None State – None BLM – Sensitive CNPS List – 1B.3	Moderate	Occurs in Sonoran desert scrub between 20 and 365 meters. Perennial herb that blooms March through May.	Suitable habitat occurs on-site; species documented in the adjacent Carrizo Mountain quad. Not observed on-site during 2007 or 2008 surveys.

Table 5.6-1
Sensitive Species Potentially Occurring in the Vicinity of the Solar Two Project

Species	Sensitivity Status	Potential to Occur	Habitat	On-Site Status
Reptiles				
<i>Coleonyx switaki</i> barefoot banded gecko	Federal – None State – Threatened BLM – None	Low	Inhabits rocky, boulder-strewn desert foothills, where it spends most of its life deep in rock crevices and subterranean chambers.	No suitable habitat occurs on-site. Species has been documented in the adjacent Coyote Wells and Painted Gorge quads.
<i>Phrynosoma mcallii</i> flat-tailed horned lizard	Federal – None State – SSC BLM – Sensitive	High – On-site Present on-site and along T-line	Inhabits sparsely vegetated desert scrub areas with fine, wind-blown (aeolian) sand deposits and shifting sand substrate.	Suitable habitat and food source occurs on-site. Species has been observed on-site and along the transmission line during 2007 focused surveys. None detected during 2008 focused surveys.
Birds				
<i>Athene cunicularia</i> burrowing owl	Federal – None State – SSC BLM – Sensitive	High – On-site Present along T-line and off-site near the eastern Project boundary	Found in open grasslands and agricultural areas with suitable fossorial mammal burrows for nesting.	Several suitable burrows were detected on-site. Owls were observed along the transmission line and off-site near the eastern Project boundary during 2007 surveys. One owl was detected off-site near the eastern Project boundary during 2008 surveys.
<i>Eremophila alpestris</i> California horned lark	Federal – None State – SSC BLM – None	High – On-site Present throughout the site	Generally occurs in open scrub grasslands and agricultural fields.	Species observed in several locations throughout the Project Site during 2007 and 2008 surveys. Frequently observed in and around irrigated fields east of the Project Site.
<i>Falco mexicanus</i> prairie falcon	Federal – None State – SSC BLM – None	Moderate	Generally occurs in barren mountains, dry plains, and prairies.	No suitable nesting habitat occurs on-site; species documented in the adjacent Painted Gorge quad. Potential foraging habitat present on-site.
<i>Toxostoma lecontei</i> Le Conte's thrasher	Federal – None State – SSC BLM – None	High – On-site Present on-site	Desert flats with sparse bushes; preferred nest sites are in large shrubs along washes.	This species was observed on-site during 2007 surveys. Also documented in adjacent Coyote Wells and Painted Gorge quads.

Table 5.6-1
Sensitive Species Potentially Occurring in the Vicinity of the Solar Two Project

Species	Sensitivity Status	Potential to Occur	Habitat	On-Site Status
Mammals				
<i>Antrozous pallidus</i> pallid bat	Federal – None State – SSC BLM – Sensitive	Moderate	Most common in open, dry habitats with rocky areas for roosting. A year-long resident in most of the range.	Species documented in adjacent Carrizo Mountain quad. No suitable roosting sites observed on-site, but may use area for foraging.
<i>Nyctinomops femorosaccus</i> pocketed free-tailed bat	Federal – None State – SSC BLM – None	Moderate	Habitats used include pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis. Prefers rock crevices in cliffs as roosting sites.	Species documented in the adjacent Carrizo Mountain quad. No suitable roosting sites occur on-site, but may use area for foraging.
<i>Ovis canadensis nelsoni</i> desert bighorn sheep	Federal – Endangered State – Threatened BLM – Sensitive	Low	Habitats used include alpine dwarf-shrub, low sage, sagebrush, bitterbrush, pinyon-juniper, palm oasis, desert riparian, desert succulent shrub, desert scrub, sub-alpine conifer, perennial grassland, montane chaparral, and montane riparian.	Species documented in the adjacent In-ko-pah Gorge quad. Usually prefers higher elevations with rocky substrates.
<i>Taxidea taxus</i> American badger	Federal – None State – SSC BLM – None	Moderate	Grasslands, savannas, and mountain meadows near timberline are preferred, but also occur in desert scrub areas.	Species has been documented in the adjacent Coyote Wells, Mount Signal, Painted Gorge, and Seeley quads. Several potential burrows occur on-site, but species not observed during 2007 or 2008 surveys.

Source: URS Corporation, 2008.

Notes:

BLM = Bureau of Land Management
 CNPS = California Native Plant Society
 SSC = Species of Special Concern

In March 2007, URS biologists conducted a habitat assessment to characterize the vegetation at the Project Site, including off-site transmission line and waterline and associated buffer areas, to determine the suitability of the habitat for the flat-tailed horned lizard and burrowing owl. At that time, it was determined that California Department of Fish and Game (CDFG) protocol surveys for the flat-tailed horned lizard would be necessary throughout the Project Site and off-site transmission line and waterline. This determination was based on the occurrence of harvester ants (*Pogonomyrmex* spp.), an important forage species for horned lizards, present throughout the property, and the suitability of the soil and vegetation to support the species.

Beginning on 1 May 2007, and ending on 7 May 2008, URS biologists conducted CDFG and BLM protocol surveys for flat-tailed horned lizard. During the protocol surveys, 26-acre plots were evenly distributed throughout the entire site. Within these plots, 4 hectare survey plots were surveyed for the duration of 1 hour per plot (Figure 5.6-2, Flat-Tailed Horned Lizard Survey Plots). In this manner, the entire Project Site was sample-surveyed at a 38 percent rate of coverage. For the 2008 flat-tailed horned lizard surveys, BLM requested that the transect survey protocol be applied to the two off-site linear Project features (waterline and transmission line). During transect survey protocol surveys, four transects were surveyed on each side of the linear Project feature center-line. All horned lizard signs, including live and dead flat-tailed and desert horned lizards (*Phrynosoma platyrhinos*), scat, and tracks are mapped and recorded with handheld Global Positioning System (GPS) units. Photographs of horned lizards were taken and survey forms completed for each horned lizard sighting.

Special-status plant surveys were conducted in 2007 and 2008 during the months of March and May to maximize the probability of detection of blooming annuals. Special-status plant surveys were conducted either concurrently with vegetation habitat surveys, or as focused species surveys during appropriate blooming periods, throughout the Project Site and along the off-site transmission line and waterline.

Incidental observations of all plant and wildlife species detected were recorded during all site visits. During all of the URS biological surveys, the property was surveyed on foot, and all areas were visible from the survey routes. Animals were identified using scat, tracks, burrows, vocalizations, or direct observations with the aid of binoculars. Biological resources were mapped in the field with the aid of handheld GPS units (5-meter accuracy) and plotted on a 1 inch = 200 feet rectified 2005 aerial photograph. Survey dates and personnel for Project surveys can be found in Table 5.6-2, Survey Dates and Personnel for the Solar Two Project. Photos of the site and detected resources were taken.

**Table 5.6-2
Survey Dates and Personnel for the Solar Two Project**

Date	Field Personnel	Survey Type
15 March 2007 and 16 March 2007	Cheryl Rustin, Ellen Howard, Shanti Abichandani, Theresa Miller	General survey, site assessment
19 March 2007 through 23 March 2007	Cheryl Rustin, Ellen Howard, Darren Burton, Theresa Miller, Rick Bailey, Dallas Pugh, Greg Hoisington, Ken McDonald	General survey, site assessment, rare plant survey
26 March 2007 through 28 March 2007	Cheryl Rustin, Shanti Abichandani, Greg Hoisington	General survey, site assessment
1 May 2007	Cheryl Rustin, Greg Hoisington, Shanti Abichandani, Theresa Miller, Ken McDonald	Focused flat-tailed horned lizard surveys, rare plant survey
2 May 2007	Cheryl Rustin, Shanti Abichandani, Theresa Miller, Dallas Pugh, Greg Hoisington, Ken McDonald	Focused flat-tailed horned lizard surveys, rare plant survey
3 May 2007	Cheryl Rustin, Dallas Pugh, Greg Hoisington, Ken McDonald	Focused flat-tailed horned lizard surveys, rare plant survey
4 May 2007	Cheryl Rustin, Dallas Pugh	Focused flat-tailed horned lizard surveys
7 May 2007 through 9 May 2007	Cheryl Rustin, Dallas Pugh	Focused flat-tailed horned lizard surveys
4 June 2007	Cheryl Rustin, Matt Wartian, Rick Bailey, Glen Kinoshita	Focused flat-tailed horned lizard surveys
5 June 2007	Cheryl Rustin, Matt Wartian, Rick Bailey, Glen Kinoshita, Ellen Howard	Focused flat-tailed horned lizard surveys
6 June 2007 and 7 June 2007	Cheryl Rustin, Matt Wartian, Rick Bailey, Glen Kinoshita, Ellen Howard, Theresa Miller, Shanti Abichandani, Ken McDonald	Focused flat-tailed horned lizard surveys
8 June 2007	Matt Wartian, Rick Bailey, Theresa Miller, Shanti Abichandani, Ken McDonald	Focused flat-tailed horned lizard surveys
12 June 2007	Matt Wartian, Rick Bailey, Cheryl Rustin, Ken McDonald	Focused flat-tailed horned lizard surveys
13 June 2007 and 14 June 2007	Matt Wartian, Rick Bailey, Cheryl Rustin, Ken McDonald, Glen Kinoshita	Focused flat-tailed horned lizard surveys
15 June 2007	Rick Bailey, Ken McDonald, Glen Kinoshita	Focused flat-tailed horned lizard surveys
9 July 2007 through 11 July 2007	Cheryl Rustin, Ellen Howard	Focused flat-tailed horned lizard surveys
13 February 2008	Glen Kinoshita, Seth Hopkins	Preliminary rare plant assessment for 2008 surveys.
11 March 2008 through 14 March 2008	Ken McDonald, Dallas Pugh, Ling He, Jessie Golding, Gilda Barboza, Shelly Vogel, Lech Naumovich, Michelle Balk	Rare plant survey
17 March 2008 through 21 March 2008	Ken McDonald, Dallas Pugh, Ling He, Jessie Golding, Gilda Barboza, Lech Naumovich, Sundeep Amin, Michelle Balk	Rare plant survey
5 May 2008 through 7 May 2008	Ken McDonald, Dallas Pugh, Greg Hoisington, Theresa Miller, Rick Bailey, Sundeep Amin, Brittany Benson, Erika Alfaro	Focused flat-tailed horned lizard surveys, rare plant survey

**Table 5.6-2
Survey Dates and Personnel for the Solar Two Project**

Date	Field Personnel	Survey Type
8 May 2008	Ken McDonald, Rick Bailey, Sundeep Amin, Erika Alfaro	Rare plant survey

Source: URS Corporation, 2008.

5.6.1.2 Existing Conditions

The approximately 6,500-acre Project Site is located in the Colorado Desert in gently rolling open terrain dominated by desert scrub vegetation. The Colorado Desert is the western portion of the larger Sonoran Desert that extends across the southwestern United States and into Mexico. The climate is very hot and dry in the summer months, and cool and moist in the winter. Perennial and intermittent rivers and streams are rare, and most water flow occurs as flood flows within defined washes and less defined flood-flow paths during rare major winter rain events. Habitats in this region of the Colorado Desert vary with the landscape and precipitation levels. The area to the east of the Project Site supports irrigated agricultural lands, to the south is I-8 and undeveloped Sonoran creosote bush scrub within Yuha Desert Management Area, to the west is undeveloped Sonoran creosote bush scrub, and to the north is the BLM off-road vehicle (ORV) Area. With the exception of the Plaster City plant just north of the Project, a maintained dirt access road along the transmission line, and several ORV trails, the Project Site is relatively undisturbed (Figure 5.6-3, Biological Resources).

Plant Communities

Vegetation on-site consists of a single vegetation community: Sonoran creosote bush scrub, as mapped according to the Holland Code (1986). Disturbed areas are mostly limited to dirt roads and ORV trails that traverse the Project Site. The creosote bush scrub is in a disturbed condition along the northern Project boundary within the 1-mile buffer areas assessed. Table 5.6-3, Vegetation Types Occurring within the Solar Two Project Boundary and Off-Site Transmission Line and Waterline, shows the estimated existing vegetation acreages for areas within the Project Site boundary, within the 500-foot buffer of the off-site transmission line and within the 500-foot buffer of the off-site waterline.

**Table 5.6-3
Vegetation Types Occurring within the Solar Two Project Boundary
and Off-Site Transmission Line and Waterline**

Vegetation Type	Project Boundary (acres)	Off-Site Transmission Line 500-foot buffer (acres)	Off-Site Waterline 500-foot buffer (acres)
Sonoran creosote bush scrub	6,146.1	997.4	254.1
Disturbed creosote bush scrub	0.2	0	92.2
Disturbed habitat	30.3	19.0	0.8
Developed	0	0.3	208.3
Totals	6,176.6	1,016.7	555.4

Source: URS Corporation, 2008.

Sonoran creosote bush scrub (Holland Code 33100) is a low-growing desert habitat dominated by creosote bush (*Larrea tridentata*), bursage (*Ambrosia dumosa*), brittlebrush (*Encelia farinosa*), and several species of cactus. Creosote bush is a drought-tolerant deciduous shrub frequently found on desert bajadas, alluvial fans, and on well-drained desert soils. This vegetation type is common throughout Southern California desert areas and is the basic creosote scrub of the Colorado Desert (Holland 1986). Other plant species observed within this habitat on-site include tamarisk (*Tamarix* sp.), ocotillo (*Fouquieria splendens*), silver cholla (*Opuntia echinocarpa*), and mesquite (*Prosopis* sp.). Shrub density ranged from moderate to low density (shrub spacing from several feet to tens of feet). Substrates on which this vegetation type was observed on-site include desert pavement, coarse sand, and sandy wash. Sparse stands of tamarisk and mesquite mixed with creosote scrub are primarily concentrated within several dry washes that transect the property. No other distinct vegetation communities occur along the off-site transmission line or waterline. A complete list of plant species observed on-site can be found in Appendix Y, Biological Resources Technical Report.

Wildlife Resources

The Project Site supports a diversity of common desert wildlife. Reptiles observed included common side-blotched lizard (*Uta stansburiana*), Colorado Desert sidewinder (*Crotalus cerastes*), zebra-tailed lizard (*Callisaurus draconoides*), desert iguana (*Dipsosaurus dorsalis*), Great Basin whiptail (*Cnemidophorus tigris tigris*), and desert horned lizard.

Bird species detected during surveys included common raven (*Corvus corax*), California horned lark (*Eremophila alpestris actia*; California Species of Special Concern [SSC]), black-tailed gnatcatcher (*Polioptila melanura*), and three raptor species: turkey vulture (*Cathartes aura*), American kestrel (*Falco sparverius*), and red-tailed hawk (*Buteo jamaicensis*). Burrowing owls were detected along the transmission line route and potential burrows were also detected on the Project Site.

Mammals observed or indirectly detected from scat, tracks, or burrows included black-tailed jackrabbit (*Lepus californicus*), kit fox (*Vulpes macrotis arsipus*), coyote (*Canis latrans*), and California ground squirrel (*Spermophilus beecheyi*); rodent tracks and burrows were commonly observed throughout the site. A complete list of wildlife species observed on-site can be found in Appendix Y, Biological Resources Technical Report.

Sensitive Habitats and Special-Status Species

Sensitive habitats are those that support sensitive plant or animal species, or unique vegetation communities considered rare within the region. No sensitive habitats are present within the Project study area. A search of the CNDDDB revealed several previously documented special-status species occurring within the Project vicinity. Figure 5.6-4, Special-Status Species Locations, illustrates the results of the CNDDDB search within a 10-mile radius of the Project boundary.

Special-Status Plants

No sensitive plant species were observed during 2007 or 2008 general and focused surveys. Due to the sparse vegetation and moderate level of disturbance displayed on the Project Site and along the off-site transmission line and waterline, only a low to moderate potential exists for special-status plant species to occur on-site. No federally or state-listed plant species were detected in the Project Site or vicinity in 2007 or 2008.

Special-Status Wildlife

A total of five special-status wildlife species were identified during biological surveys including the flat-tailed horned lizard, burrowing owl, loggerhead shrike (*Lanius ludovicianus*), Le Conte's thrasher, and California horned lark. The following species accounts are provided for the five sensitive wildlife species detected during the 2007 and/or 2008 general and focused surveys.

The United States Fish and Wildlife Service (USFWS) proposed the flat-tailed horned lizard for listing in 1993 as threatened under the Endangered Species Act of 1973, as amended. The USFWS withdrew the proposal for listing in June 2006 (USFWS 2006a). The BLM considers the flat-tailed horned lizard and burrowing owl sensitive. In addition, the CDFG have identified all five sensitive wildlife species observed on-site as SSC.

No federally listed wildlife species were detected in the Project Site or vicinity.

Flat-tailed horned lizard (*Phrynosoma mcallii*)

USFWS: None; BLM: Sensitive; CDFG: SSC

The flat-tailed horned lizard inhabits areas of fine sand in desert washes and flats in the desert areas of San Diego, Imperial, and Riverside counties in California, southwestern Arizona, and northern Baja California and Sonora in Mexico. This lizard typically occurs in flat sparse desert scrub habitats dominated by creosote bush and bursage on fine, sandy, alkaline soils. Turner and Medica (1982) found that over 97 percent of total food intake was composed of ants in specimens studied. Harvester ants (*Veromessor pergandei*, *Polonomyrex californicus*, and *P. magnacantha*) composed 75 percent, and pyramid ants (*Conomyrma insane*) composed 16 percent of the lizards' diet. Flat-tailed horned lizards are suffering habitat loss from development and ORV use. It is estimated that up to 90 percent of the lizards' original geographic range is subject to, or potentially subject to, some form of human disturbance (Turner and Medica 1982). Two flat-tailed horned lizards were detected along the eastern boundary, one within the Project Site and one outside, and four desert horned lizards were detected in the Project Site during 2007 surveys. Two deceased flat-tailed horned lizards were observed along the off-site transmission line in 2007. Two desert horned lizards were detected in the Project Site during 2008 focused surveys (Figure 5.6-3, Biological Resources). Based on the Project Site, 38 percent survey coverage, and an assumed 25 percent detection rate for protocol surveys, it is estimated that between 20 to 30 flat-tailed horned lizards may occupy the Project Site where suitable habitat is present. Active harvester ant mounds and horned lizard scat were observed throughout the site. Because the desert horned lizard also inhabits the area, it is impossible to determine which species of horned lizard produced the scat. The flat-tailed horned lizard has the potential to occur throughout the site and along the off-site transmission line and waterline.

Burrowing owl (*Athene cunicularia*)

USFWS: Bird of Conservation Concern; BLM: Sensitive; CDFG: SSC

The western burrowing owl is a small, ground-dwelling bird that inhabits grasslands, agricultural fields, and disturbed areas in the western half of the United States down into Baja California and central Mexico (Johnsgard 1988). Burrowing owls use rodent burrows throughout the year for shelter from weather and predators and for nesting during the breeding season, which typically occurs from early March through late September, with most nesting occurring between late March and June in the Imperial Valley (Patten et al. 2003). In Southern California, the most commonly used rodent burrow is that of the California ground squirrel, and nesting distribution is strongly correlated to local burrow distribution (Collins 1979). Burrowing owls form short-term pair bonds with male territoriality peaking during pair formation and declining after egg laying. Not all individuals capable of breeding do so every year. Burrowing owls have declined through much of their range because of habitat loss due to urbanization, agricultural conversion, and destruction of ground squirrel colonies (Remsen 1978). The incidental poisoning of burrowing owls and the destruction of their burrows during eradication programs aimed at rodent colonies have also been large factors in their decrease (Collins 1979; Remsen 1978; Zarn 1974). Burrowing owls are relatively tolerant of lower levels of human activity, but have been negatively affected by high levels of human-related disturbances such as shooting and the introduction of non-native predators (Zarn 1974). This species often nests and perches near roads where they are vulnerable to roadside shooting, being hit by cars, road maintenance operations, and general harassment (Remsen 1978).

The Imperial Valley is regarded as a population stronghold for the burrowing owl, and currently has the largest and most stable population of burrowing owls in the state of California. It is estimated that 70 to 80 percent of burrowing owls found in California reside in Imperial County (CDFG 2007a). Recent studies in the Imperial Valley estimated owl density of 8.3 pairs/square kilometer, with a majority of owls nesting in burrows along irrigation canals (Rosenberg and Haley 2004). The agricultural areas of the Imperial Valley provide important foraging areas for burrowing owl food sources including invertebrates from the orders Orthoptera, Araneida, Isopoda, Lepidoptera, and Solpugida, as well as several species of small rodents (York et al. 2002). Owl burrows with signs were documented in three on-site locations, one location along the transmission line, one location near the off-site waterline, and four at adjacent off-site locations. Two owls were detected on lands adjacent to the Project Site, and two burrowing owls were detected at one location along the off-site transmission line (Figure 5.6-3, Biological Resources).

Loggerhead shrike (*Lanius ludovicianus*)

USFWS: Bird of Conservation Concern; BLM: None; CDFG: SSC

The loggerhead shrike is a fairly common breeding resident of the Imperial Valley. During the breeding season (March through August), this species is frequently observed in desert scrub where it nests in thorny shrubs (Patten et al. 2003). It is known as the “butcher bird” for its habit of preying on large arthropods or small invertebrates, then skewering them on small twigs or barbed wire before consuming them (Unitt 2004). Populations of the loggerhead shrike have been in decline since the 1980s, partially due to increased urbanization and human disturbance in its habitat. Surveys for the San Diego Bird Atlas Project detected high numbers of nesting loggerhead shrike near the Project Site in Anza-Borrego Desert State Park (Unitt 2004).

One loggerhead shrike was observed on the Project Site during 2007 surveys. During 2008 surveys, an individual loggerhead shrike and a pair of loggerhead shrikes were detected on the Project Site (Figure 5.6-3, Biological Resources).

Le Conte's thrasher (*Toxostoma lecontei*)

USFWS: Bird of Conservation Concern; BLM: Sensitive; CDFG: SSC

Le Conte's thrasher was once a nesting resident of the Imperial Valley, but was presumably driven out of the area by large-scale urbanization and cultivation. This species is currently considered an uncommon post-breeding season (mid-March to mid-November) visitor of the Imperial Valley where it is observed in open creosote scrub, usually near sand dunes or sandy washes (Patten et al. 2003). This species is especially wary of humans and is susceptible to human disturbance (Remsen 1978). Breeding season for this species in most of its range extends from late January to June. One Le Conte's thrasher was detected in 2007 just west of the Project boundary within the 1-mile buffer area (Figure 5.6-3, Biological Resources).

California horned lark (*Eremophila alpestris actia*)

USFWS: None; BLM: None; CDFG: SSC

The California horned lark is a common breeding resident of the Imperial Valley where it can often be found in fallow agricultural areas, open desert, and alkaline flats with sparse, low-growing vegetation. This species can frequently be observed in the area with open soil including roadsides, plowed fields, and open desert. Horned larks are known to colonize areas graded for development, disappearing when construction begins. Nests are placed on the ground, and nesting generally occurs late January or February with fledging young observed as early as March (Patten et al. 2003). California horned larks were observed throughout the Project Site during the 2007 and 2008 surveys.

Wildlife Corridors

A wildlife corridor is defined as a linear landscape feature that allows animal movement between two patches of habitat or between occupied habitat and geographically discrete resources (e.g., water). To function effectively, a corridor must accomplish two basic functions. First, it must effectively link two or more large patches of habitat. The corridor must conduct animals through the landscape to areas of suitable habitat without excessive risk of directing them to unsuitable areas where risk of mortality may be very high. Second, the corridor must be suitable to the focal target species so that they will use the corridor frequently enough to achieve the desired demographic and genetic exchange between populations.

Animals have a natural aversion to situations or physical settings they perceive to be dangerous and will often shy away from situations in which they are exposed without cover or escape routes. The presence of disturbance outside of the animal's normal experience is also a situation that is often avoided by animals. Focal species are those species that naturally occur in low densities and that may be unwilling or unable to cross extensive areas of development or otherwise unfavorable habitat. In the Imperial Valley, potential focal species for wildlife movement assessment could include coyote, kit fox, and American badger.

Yuha Desert Management Area occurs south of I-8; however, the Project Site is surrounded on all sides by major roadways that would restrict the level of use of the site as a wildlife movement corridor. However, several culverts and railroad trestles connect on-site washes from south of

I-8 to north of Evan Hewes Highway and could function as access points for wildlife passing through the site. Coyote and kit fox have been observed on-site. From a regional context, wildlife have alternative routes available to access surrounding habitats without needing to use the Project Site itself as a movement route. The off-site transmission line is not constrained by development and is likely used as a local movement route by wildlife.

5.6.1.3 Jurisdictional Waters

Non-wetland Waters of the U.S. that would be under the jurisdiction of the United States Army Corps of Engineers (USACE) are delineated based on the presence of an ordinary high water mark (OHWM) as defined at 33 Code of Federal Regulations 328.3(e). The OHWM is defined therein as:

The term “ordinary high water mark” means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

California Fish & Game Code Section 1601(a) describes areas subject to state jurisdiction within the following text:

Except as provided in this section, general plans sufficient to indicate the nature of a project for construction by, or on behalf of, any state or local governmental agency or any public utility shall be submitted to the department if the project will (1) divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake designated by the department in which there is at any time an existing fish or wildlife resource or from which these resources derive benefit, (2) use material from the streambeds designated by the department, or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake designated by the department. ...

Section 1601(a) is based on Title 14 California Code of Regulations 720, which designates Waters of the State to be:

For the purpose of implementing Sections 1601 and 1603 of the Fish and Game Code which requires submission to the department of general plans sufficient to indicate the nature of a project for construction by or on behalf of any person, governmental agency, state or local, and any public utility, of any project which will divert, obstruct or change the natural flow or bed of any river, stream or lake designated by the department, or will use material from the streambeds designated by the department, all rivers, streams, lakes, and streambeds in the State of California, including all rivers, streams and streambeds which may have intermittent flows of water, are hereby designated for such purpose.

URS understands that these state regulations define CDFG's jurisdiction, for the purpose of administering Section 1600 of the Fish and Game Code, as within the bed, bank, and channel of a stream, including intermittent streams, which are equivalent to the areas within the OHWM of a stream. URS also understands that the CDFG routinely asserts jurisdiction on areas demonstrating a minimum of one of three parameters: (1) a dominance of hydrophytic vegetation, (2) hydric soils, or (3) wetland hydrology.

Methodology

Major washes on-site and along the off-site transmission line were evaluated to determine whether or not they would be considered under state or federal jurisdiction. Any washes that displayed an OHWM were mapped and their widths were measured.

Jurisdictional Delineation Results

A number of well-defined washes cross the Project Site and off-site transmission line. Several of these washes were created by runoff from off-site flows that are directed by culverts under I-8. Other smaller washes convey on-site runoff and eventually connect to the larger washes. Several areas of the site, including much of the northeastern corner, exhibit sheet-flow conditions in areas where well-defined natural channels do not occur. The majority of the runoff crossing the site flows from south and west, eventually reaching the railroad tracks along the northern Project boundary. Washes that reach the railroad tracks then flow under existing trestles or follow along the railroad berm towards the east. The majority of the larger washes on-site have been degraded by extensive ORV usage.

None of the washes that occur on-site or along the off-site transmission line connect to USACE-defined navigable waters. Therefore, none of the washes associated with the Project would be considered under federal jurisdiction. Several washes do, however, display defined bed and banks and may be considered Waters of the State under Section 1600 of the California Fish and Game Code. Because most of the public land on which the Project Site occurs is administered by the BLM, it is at BLM's discretion as to whether or not a 1602 agreement would be required for this Project. Any state jurisdictional washes that occur within the privately owned parcels on-site would require 1602 agreement before any disturbance. A map illustrating the potential Waters of the State within the Project boundary and along the off-site transmission line and waterline can be found on Figure 5.6-5, Potential Waters of the State.

5.6.2 Environmental Consequences

Potential and expected direct and indirect effects to biological resources are discussed below. Significant effects are those that would involve the loss of a special-status plant or wildlife species, or degradation of their habitat. The Project would have significant effects to vegetation and wildlife if it would:

- cause a fish or wildlife population to drop below self-sustaining levels, California Environmental Quality Act (CEQA) Guidelines, Section 15065(a),
- threaten to eliminate a plant or animal community, CEQA Guidelines, Section 15065(a),

- substantially affect, reduce the number, or restrict the range of unique, rare, or endangered species of animal, plant, or the habitat of the species, CEQA Guidelines, Section 15065(a), Appendix G(c), Appendix I (II.4.b) and (II.5.b),
- substantially diminish or reduce habitat for fish, wildlife, or plants CEQA Guidelines, Section 15065(a), Appendix G(t),
- interfere substantially with the movement of resident or migratory fish or wildlife species, CEQA Guidelines, Appendix G(d),
- change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects), CEQA Guidelines, Appendix I (II.4.1) and (II.5.a),
- introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species, CEQA Guidelines, Appendix I (II.4.c) and (II.5.c),
- deteriorate existing fish or wildlife habitat, CEQA Guidelines, Appendix I (II.5.d), or
- conflict with any regional Habitat Conservation Plans.

The above criteria are used to evaluate the Project's effects on plant communities and wildlife. The potential effects associated with Project construction and operations are discussed below.

5.6.2.1 Solar Two Project Site

After mitigation, the Project would not result in significant effects on special-status biological resources because it would not substantially affect, reduce the number of, or restrict the range of unique, rare, or endangered species of animal or plant, or the habitat of these species.

The Project would not result in significant effects to biological resources because it would not:

- cause a fish or wildlife population to drop below self-sustaining levels,
- threaten to eliminate a plant or animal community,
- substantially diminish or reduce habitat for fish, wildlife, or plants,
- interfere substantially with the movement of resident or migratory fish or wildlife species,
- change the diversity of species, or number of any species of plants (including trees, shrubs, grass crops, and aquatic plants) or animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects),
- introduce new species of plants or animals into an area, or act as a barrier to the normal replenishment of existing species,
- deteriorate existing fish or wildlife habitat, or
- conflict with any regional Habitat Conservation Plan.

Significant and less-than-significant effects associated with Project construction and operations are discussed further below.

*Site Preparation and Construction Effects***Project Site**

The Project will be designed to minimize ground disturbances and resulting environmental effects wherever practicable. The number of roadways will be kept to a minimum, paved roadways will be specifically located to provide main routes for quick access to the site for construction, maintenance, and operations. In addition, access from the main paved roads to the individual SunCatchers will be on unpaved solar field access routes between alternate rows of SunCatchers. Culverts will be installed in a limited number of locations, as necessary, for crossing of natural washes. Site layout for the Project will be based on avoiding major washes and minimizing surface-disturbing activities. Additionally, sensitive habitat areas will be avoided wherever possible.

Brush trimming will occur along roads and around each group of SunCatchers. This task will consist of manually trimming the existing brush to 3 feet in height along the center of a 150-foot area between every other row of SunCatchers. After brush has been trimmed, blading for roadways and foundations will be utilized between alternating rows to provide access to individual SunCatchers. Blading will occur to remove localized rises or depressions to provide for proper alignment and operation of the individual SunCatchers.

The site layout will maintain pre-development drainage patterns. The paved roadways will have a low flow unpaved swale or roadway dip, as needed, to convey runoff to existing washes. Both paved and unpaved roads will utilize low flow culverts where necessary. Localized channel grading will occur on a limited basis to improve channel function, and to control flow direction away from site buildings and roadways. In addition, a channel will be constructed along the northeastern portion of the site to direct potential 100-year flooding away from the Main Services Complex building site. It is unknown at this time how many culverts will be necessary or where they will be utilized. This information will be provided by Solar Two once an engineered layout is finalized.

Project construction will occur in two phases beginning in the northeastern corner of the site and moving south and west. Phase I development includes portions of land located west of the SDG&E transmission corridor, the construction of the site access road to Dunaway Road, the construction of the 3.40-mile off-site waterline, and the construction of the 7.56-mile off-site transmission line. A Project construction staging area is also planned to be constructed east of Dunaway Road across from the site access roadway entrance to the Main Services Complex. Phase II includes the expansion of the Project to portions of land located both west and east of the SDG&E transmission corridor, and installation of a second circuit onto the off-site transmission line constructed in Phase I. Construction for both phases will occur in steps with the construction of Phase I consisting of 12,000 SunCatchers, including associated site preparation, and continuing on to Phase II which will result in 30,000 SunCatchers. It is expected that site construction will require approximately 40 months for full buildout. A summary of construction effects can be found in Table 5.6-4, Construction Effects for the Solar Two Project Site.

**Table 5.6-4
Construction Effects for the Solar Two Project Site**

Vegetation Type	Solar Two Project Site (acres)	Off-Site Transmission Line (acres)	Off-Site Waterline (acres)
Sonoran creosote bush scrub	6,032.8	92.7	4.2
Disturbed creosote bush scrub	0.2	0	0.2
Disturbed habitat	30.1	0.1	0.1
Developed	0	0	5.8
Totals	6,063.1	92.8	10.3

Source: URS Corporation, 2008.

Approximately 6,032.8 acres of creosote bush scrub and 0.2 acre of disturbed creosote bush scrub will be affected by Project construction (Figure 5.6-6, Biological Effects). Effects to 30.1 acres of disturbed habitat are also anticipated. Although the vegetation within the immediate vicinity of the SunCatcher will be regularly trimmed and much of the vegetation between rows of SunCatchers will be allowed to regenerate naturally, these narrow (approximately 74 feet wide) strips of habitat are expected to have minimal residual biological value associated with them. Only common species with small area requirements (e.g., house finch [*Carpodacus mexicanus*], lizards, and snakes) are expected to continue to utilize these strips of vegetation. An illustration of construction disturbance occurring in association with the SunCatchers is provided on Figure 5.6-7, 1.5-MW Solar Group Construction Disturbance Plan. On this figure the white strips between the groups of SunCatchers represent the approximately 74-foot-wide strips of retained vegetation.

Off-Site Transmission Line

An approximately 10.35-mile-long off-site transmission line will be constructed from the Project Site to the SDG&E Imperial Valley Substation. The new line will parallel the existing SDG&E transmission corridor. Approximately 50 feet on either side of the transmission line will be affected by construction, including the installation of 85 to 100 new transmission towers and associated access roads. The on-site portion will have access from on-site roadways that will be constructed for Project Site circulations. Most of the off-site portion will be accessible from the existing access road for the 500-kV line. Construction of the transmission line will occur during Phase I and will require approximately 3 months to complete. Transmission line construction will occur concurrently with construction activities at the Project Site. Approximately 92.7 acres of Sonoran creosote bush scrub and 0.1 acre of disturbed habitat will be affected by construction of the off-site transmission line (Figure 5.6-6, Biological Effects).

Access to the off-site transmission line and support structures will be available from the existing utility maintenance roadways. Short roadways will be established from the existing easement corridor to the new structures adjacent to the existing transmission line. These roadways will be of similar design and construction to the existing short access roadways established for access to the existing transmission structures.

Off-Site Waterline

A 3.40-mile-long off-site waterline is proposed to deliver water from Imperial Irrigation District's Westside Main Canal to the Project Site. Water will be conveyed to the site via a new pump station and waterline from the canal along Union Pacific Railroad's right-of-way. Much of the waterline area has been disturbed by extensive ORV usage. The waterline will be installed before Phase I of Project construction. Approximately 12 feet on either side of the 6-inch-diameter waterline will be affected by construction activities, including an access road. Approximately 4.2 acres of Sonoran creosote bush scrub, 0.2 acre of disturbed creosote scrub, 0.1 acre of disturbed habitat, and 5.8 acres of developed land will be affected off-site by waterline construction (Figure 5.6-6, Biological Effects).

Operations and Maintenance Effects

Potential effects to biological resources as a result of Project operations and maintenance include noise and collision hazards. These potential effects are discussed further below.

Noise

Operational noise from the Project would generate a greater level of noise than currently exists in the Project Site and vicinity. Only a nominal amount of habitat outside of the Project Site would experience noise levels within in the 60 A-weighted-decibel (dBA) equivalent sound level (L_{eq}) contour. The wildlife species observed in the Project vicinity are species that are often found in disturbed or developed areas; they are expected to adapt to the new noise levels that are less than the typical noise effect threshold of 60 dBA L_{eq} hourly. Therefore, the potential effects to wildlife from noise are considered less than significant. Mitigation measures for construction noise levels as they relate to wildlife effects are included as Best Management Practices (BMPs) in Section 5.6.4, Mitigation Measures.

Collision Hazards

The receivers that are associated with the reflector bays may be used as perching sites for songbirds and raptors, but are not expected to present a substantial collision hazard. The 7.56-mile extension of the transmission line outside of the Project Site will not pose a collision hazard due to low use by sensitive species deemed most at risk for collision with transmission lines.

Effects to Special-Status Species

Flat-Tailed Horned Lizard

Potential effects to the flat-tail horned lizard and its habitat will occur as a result of the Project. Flat-tailed horned lizards have been detected at two locations along the eastern boundary, one within the Project Site and the other outside of the Project Site, and two locations along the off-site transmission line. Mortality due to roadkill, site grading, and loss of suitable forage habitat are the most likely effects to flat-tail horned lizards. Clearance surveys will be conducted before each phase of construction to minimize mortality of individual horned lizards. Areas not directly used for construction of the SunCatcher clusters will be avoided. In addition, proper BMP measures will be implemented to minimize potential effects to flat-tailed horned lizard.

Potential effects to flat-tailed horned lizards caused by construction of the off-site transmission line include habitat disturbance caused from installation of towers, construction, use of access routes to the tower sites, and maintenance activities. Potential long-term effects include a permanent maintenance road, enhanced vegetation along the road edge and between tower sites, and reduced vegetation cover under the towers (Flat-Tailed Horned Lizard Working Group 1997). Because the transmission line will be placed along the existing maintenance road, effects to horned lizards will be minimized.

Potential effects to flat-tailed horned lizards caused by the waterline construction include habitat disturbance from trenching, stockpiling of fill, refilling the trench, and moving vehicles along the corridor during construction and maintenance (Flat-Tailed Horned Lizard Working Group 1997). The off-site waterline is proposed to be constructed in an area that has been previously disturbed by ORV use and residential development. The potential for flat-tailed horned lizard mortality from vehicle usage along access roads would also be expected.

Burrowing Owl

Effects to burrowing owls and their habitat are possible as a result of the Project. Several apparently active owl burrows were observed on-site and two individual owls were observed along the off-site transmission line route. Thirty days before the start of initial ground disturbance activities, a preconstruction survey for burrowing owls will be completed. If any owls are encountered, measures will be taken to minimize effects to them. Initial disturbance of the site will also occur outside the burrowing owl breeding season (1 February through 31 August) to ensure that no breeding birds, eggs, or chicks are harmed by construction activities.

Other Special-Status Species

Disturbance to the Le Conte's thrasher, loggerhead shrike, and California horned lark are possible as a result of the Project. These species were detected at the Project Site. Site-clearing activities will be conducted during the non-breeding season (July through January) within limited areas that would constitute only a very small portion of a bird territory or home range. Potential effects to these sensitive bird species would be adverse, but less than significant.

Effects to Other Species

Currently, the Project Site supports appropriate breeding habitat for several bird species that were detected on-site. Estimates of carrying capacity for each individual species were made based on the perceived relative abundance on-site and on literature values for home range and breeding territory (Table 5.6-5, Estimated Carrying Capacity for Birds Potentially Breeding at the Approximately 6,500-Acre Solar Two Project Site) (Poole 2005). Bird species that have adapted to living under disturbed conditions and in close proximity to development, such as house finch and mourning dove (*Zenaida macroura*), may continue to nest on-site within narrow strips of retained vegetation or on built structures. However, species that require more expansive areas of habitat to establish nesting territories are not expected to use the Project Site during the breeding season. Bird species, such as red-tailed hawk or American kestrel, that may utilize existing or proposed transmission line structures as nesting sites and portions of the site that may continue to support prey species (e.g., insects, rodents and snakes).

Other common species on-site with specific habitat requirements (e.g., California horned lark and lesser nighthawk) may have a substantial reduction in site carrying capacity with implementation of the Project.

**Table 5.6-5
Estimated Carrying Capacity for Birds
Potentially Breeding at the Approximately 6,500-Acre Solar Two Project Site**

Common Name	Scientific Name	Relative Abundance On-Site	Home Range/Territory Size (acres)	Carrying Capacity (pairs)
American kestrel	<i>Falco sparverius</i>	Common	142.0	5
Black-tailed gnatcatcher	<i>Poliophtila melanura</i>	Common	22.5	5
Burrowing owl (SSC, BLM-Sensitive)	<i>Athene cunicularia</i>	Rare	46.4	5
California horned lark (SSC)	<i>Eremophila alpestris</i>	Abundant	4	1,600
House finch	<i>Carpodacus mexicanus</i>	Common	4	1,600
Lesser nighthawk	<i>Chordeiles acutipennis</i>	Abundant	1.0	500
Loggerhead shrike (SSC)	<i>Lanius ludovicianus</i>	Rare	21	5
Mourning dove	<i>Zenaida macroura</i>	Common	3.2	2,000
Northern mockingbird	<i>Mimus polyglottos</i>	Common	3.1	40
Red-tailed hawk	<i>Buteo jamaicensis</i>	Uncommon	575.8	3
Verdin	<i>Auriparus flaviceps</i>	Uncommon	19.8	6
Western kingbird	<i>Tyrannus verticalis</i>	Common	37.1	3
White-winged dove	<i>Zenaida asiatica</i>	Common	80.4	20

Source: URS Corporation, 2008.

Notes:

BLM = Bureau of Land Management

SSC = Species of Special Concern

5.6.2.2 Effects to Wildlife Movement

The larger washes and associated culverts on-site are expected to remain relatively undisturbed during Project construction and operation, allowing for continued wildlife movement through the site.

5.6.2.3 Construction Staging and Administration Areas

The proposed construction staging and construction administration areas will result in 100 acres of effects to Sonoran creosote bush scrub on the eastern side of Dunaway Road. Effects associated with staging and administration areas are expected to be the same as those discussed for the rest of the Project and are included in on-site Project effects.

5.6.3 Cumulative Effects

The purpose of the cumulative effects discussion for the Project is to:

- identify past, present, and reasonably foreseeable actions within the Project vicinity that could affect the same resource(s) as Project,
- determine if effects of the Project and the other actions would overlap in time or geographic extent,
- determine if the effects of the Project would interact with, or intensify the effects of other actions,
- determine if this Application for Certification (AFC) overlaps another existing or planned AFC, and
- identify any potentially significant cumulative effects.

Cumulative effects on biological resources as a result of past, present, and reasonably foreseeable future actions, in combination with the Project, would mainly result from loss of habitat and habitat disturbance and degradation. BLM, in consultation with the USFWS and CDFG, has identified areas of biological concern and has designated Desert Wildlife Management Areas and Areas of Critical Environmental Concern to avoid significant cumulative impacts to biological resources. The Project is outside these areas; therefore, it would not contribute to a cumulative significant impact.

5.6.4 Mitigation Measures

Mitigation measures are identified and described in this section for the species-specific effects previously identified in this section. In addition, several general mitigation measures and BMPs are also provided that address means to mitigate potential indirect effects that could affect the biological resources of the site.

5.6.4.1 Species-Specific Mitigation Measures

Flat-Tailed Horned Lizard

BIO-1

The following mitigation measures are recommended to reduce or eliminate effects to flat-tailed horned lizards during Project construction. The Project will implement one or more of the suggested courses of action listed below to minimize potential affects to flat-tailed horned lizards.

- Clearance surveys for flat-tailed horned lizards will be conducted before each phase of Project construction.
- Any flat-tailed horned lizards observed within the construction area will be relocated to suitable habitat outside the development effect footprint.

- Populations of flat-tailed horned lizards will be monitored pre- and post-construction using methods described in the “*Robust Pradel Mark-Recapture Protocol for Monitoring Flat-Tailed Horned Lizards on Sentinel Plots*” (USFWS 2006b) as recommended by the BLM.

Burrowing Owl

BIO-2

The following mitigation measures are recommended to reduce or eliminate effects to burrowing owl during Project construction. The Project will implement one or more of the suggested courses of action listed below to minimize potential affects to burrowing owls.

- Where practicable, ground-disturbing activities will occur outside the burrowing owl breeding season (1 February through 30 August).
- Clearance surveys for burrowing owls will be conducted before each phase of Project construction.
- Burrowing owl burrows within 250 feet of the construction area will be surveyed; any resident owls will be passively removed and unoccupied burrows will be collapsed by following the procedures outlined in the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (California Burrowing Owl Consortium 1993) before construction activities.

Raptor Nest Sites and Migratory Bird Treaty Act

BIO-3

The following mitigation measures are recommended to reduce or eliminate effects to raptors and migratory birds during Project construction. The Project will implement the suggested courses of action listed below to minimize affects to nesting raptors and migratory birds.

- Where practicable, ground-disturbing activities will be conducted outside the bird nesting season (February through July).
- Clearance surveys for nesting birds will be conducted before each phase of Project construction if the activity must be conducted during the bird breeding season.

5.6.4.2 General Mitigation Measures

Construction Monitoring, Vegetation Clearing

BIO-4

Provide mitigation construction monitoring by a qualified biologist. The biologist will be given authority to execute the functions listed below.

- Off-site mitigation for the permanent loss of suitable flat-tail horned lizard and burrowing owl habitat will be provided per agreement with the BLM and California Energy Commission (CEC).

- After Project completion, a seed mix of dominant plant species will be distributed within any extensive temporarily disturbed areas.
- Erosion and sedimentation control will be implemented during Project construction to retain sediment on-site and to prevent violations of water quality standards.
- Diversion ditches and/or berms will be constructed as necessary to divert runoff from off-site areas around the construction site.

5.6.5 Compliance with LORS

Laws, ordinances, regulations, and standards (LORS) that are applicable or potentially applicable for biological resources associated with the Project are discussed below. Project construction and operation will adhere to the LORS pertinent to biological resources.

5.6.5.1 Federal

Endangered Species Act of 1973: 16 United States Code Section 1531 et seq.; 50 Code of Federal Regulations Parts 17 and 222

The Endangered Species Act provides for the protection of threatened or endangered plants and animals and their determined critical habitats. The USFWS is the agency responsible for administering this act, designating critical habitat, and determining if a species should have a change in listing status. The Project will include full mitigation for effects to federally listed threatened or endangered species or their designated critical habitats and, therefore, would not violate the Endangered Species Act. Section 7 consultation in association with the National Environmental Policy Act of 1969 (NEPA) process would be conducted.

National Environmental Policy Act of 1969: 42 United States Code Section 4321 et seq.

NEPA requires an evaluation of the environmental effects of projects taking place on federal lands or receiving federal funding. BLM is the administering agency for the above authority. Evaluation determined that significant effects would occur to biological resources, and that the mitigation would reduce effects to biological resources to a less-than-significant level.

Migratory Bird Treaty Act: 16 United States Code Sections 703-711; 50 Code of Federal Regulations Subchapter B

The Migratory Bird Treaty Act protects most native birds, their eggs, and their nests, and prohibits taking that is not in accordance with federal regulations. The USFWS is responsible for administering this act. Since the Project is not expected to result in the deaths of birds or the destruction of any active nests, the Project will not violate the Migratory Bird Treaty Act.

Fish and Wildlife Coordination Act: 48 Stat. 401, amended; 16 United States Code Section 661 et seq.

The Fish and Wildlife Coordination Act requires all federal agencies to coordinate with the USFWS to preserve fish and wildlife when implementing federal actions. The USFWS is responsible for administering this act. Since the USFWS will be coordinating with the BLM and other federal agencies during the permitting phase, the Project will be in compliance with this law.

Clean Water Act of 1977: 33 United States Code Sections 1251-1376; 30 Code of Federal Regulations Section 330.5(a)(26)

The CWA protects wetlands, regulates discharges of pollutants, sets water quality standards for individual pollutants, and provides a framework for permitted pollutant discharge from a point source. The administering agencies for the CWA are the Environmental Protection Agency, USACE, and Regional Water Quality Control Board. Permit processes for the Project will be conducted to comply with the CWA if the drainages associated with the Project are deemed by the USACE to be jurisdictional Waters of the U.S.

5.6.5.2 State

California Endangered Species Act of 1984: California Fish and Game Code Sections 2050-2098

The California Endangered Species Act provides for the protection and management of plant and animal species listed as threatened or endangered, or designated as candidates for such listing. This act requires consultation between the CDFG and other state agencies to ensure that projects do not jeopardize the continued existence of threatened or endangered species or habitats essential for the continued survival of any threatened or endangered species. The administering agency for this act is the CDFG. No species listed under this act would be affected by this Project; thus, the Project will be in compliance with this act.

California Fish and Game Code Sections 1600-1609

Sections 1600-1609 of the Fish and Game Code requires any person who proposes a Project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use materials from a streambed to notify the CDFG before beginning the Project. Such a change requires a Streambed Alteration Agreement with the CDFG per Section 1602, and review in accordance with CEQA (Public Resources Code, §21000 et seq.). Solar Two will obtain a Streambed Alteration Agreement (if required by BLM for federal lands or if streambeds on private property will be modified) before work beginning on the Project; thus, the Project will be in compliance with this regulation.

California Fish and Game Code Section 3503/3505.5

This code section prohibits the taking and possessing of bird eggs and nests. The administering agency for this section is the CDFG. Because nesting birds will not be disturbed and any substantial vegetation clearing will be limited to the bird non-breeding season, the Project will be in compliance with this regulation.

California Fish and Game Code Sections 3511, 4700, 5050, and 5515

These code sections prohibit the taking of birds, mammals, reptiles, and fish listed as fully protected. The administering agency for these is the CDFG. Because construction and maintenance of the Solar Two Project will not affect any fully protected species, the Project will be in compliance with this regulation.

California Environmental Quality Act of 1970, Public Resources Code Section 21000 et seq.

CEQA provides for protection of the environment in the state of California. The administering agency for the above authority with regards to this Project is the CEC. Because effects to natural resources on this Project will be minimized or fully mitigated, the Project is in compliance with CEQA.

California Public Resources Code Section 25523(a): 20 California Code of Regulations Sections 1752, 1752.5, 2300-2309, and Chapter 2, Subchapter 5, Article I, Appendix B, Part (j)

These code sections require the CEC to protect environmental quality. The administering agency for the above sections is the CEC with comment by the CDFG. Because effects to rare or endangered species at the Project Site will be fully mitigated, the Project will be in compliance with these code sections.

5.6.5.3 Local

Currently, the BLM has approved and is implementing two habitat management plans that have jurisdiction over the Project vicinity. These plans include the California Desert Conservation Area Plan (BLM 1980, as amended), and the Flat-Tailed Horned Lizard Rangeland Management Strategy (Flat-Tailed Horned Lizard Working Group 1997). The Project is consistent with both of these BLM planning documents.

In addition to the above habitat management plans, Imperial County also has a General Plan and a Land Use Ordinance (Title 9) to provide comprehensive land-use regulations for all unincorporated areas of Imperial County. These regulations promote and protect the public health, safety, and general welfare through the orderly regulation of land uses throughout the unincorporated areas of Imperial County. The Project will follow the LORS described in these plans. Table 5.6-6, Summary of LORS – Biological Resources, lists all applicable LORS.

**Table 5.6-6
Summary of LORS – Biological Resources**

Applicable Law	Administering Agency	Requirements/Compliance
Federal Jurisdiction		
Endangered Species Act of 1973; 16 USC 1531 <i>et seq.</i> ; 50 CFR Parts 17 and 222.	USFWS	Protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats (terrestrial and avian species).
National Environmental Policy Act of 1969 (NEPA); 42 USC 4321 <i>et seq.</i>	USFWS	Consultation Requirement: Section 7 Endangered Species Act consultation with USFWS.
Migratory Bird Treaty Act; 16 USC 703-711; 50 CFR Subchapter B; Migratory Birds (Fish and Game Code, Section 3513).	USFWS; CDFG	Analysis of effects to migratory birds.
CWA of 1977: 33 USC Section 1251 – 1376; 30 CFR Section 330.5(a)(26).	Environmental Protection Agency, USACE, and RWQCB	Nationwide 404 permit from the USACE and CWA 401 water quality certification from the RWQCB for compliance with CWA.
Fish and Wildlife Coordination Act; 16 USC 661-666.	USFWS	Conservation of fish and wildlife and protection of wetlands.
State Jurisdiction		
California Endangered Species Act of 1984; California Fish and Game Code 2050-2098.	CDFG	Consultation requirement; protects California's rare, threatened, and endangered species.
California Fish and Game Code 3511, 4700, 5050, 5515.	CDFG	No taking of fish, reptiles, mammals, and birds listed as fully protected.
California Fish and Game Code 3503, 3503.5.	CDFG	No taking of birds, nests, or eggs of birds.
CCR (Title 14, Sections 670.2 and 670.5).	CDFG	Lists the plants and animals that are classified as rare, threatened, or endangered in California.
CEQA: California Public Resources Code 21000 <i>et seq.</i>	California Energy Commission	Disclosure of environmental effects.
California Fish and Game Code 1600-1609.	CDFG	Lake/Streambed Alteration Agreement for alteration of streambed channel.
Local Jurisdiction		
California Desert Conservation Area Plan	BLM	Requires that proposed development projects are compatible with policies set forth in the plan, which provide for the protection, enhancement, and sustainability of fish and wildlife species, wildlife corridors, riparian and wetland habitats, and native vegetation resources.
Flat-Tailed Horned Lizard Rangewide Management Strategy	BLM	Provides guidelines and management strategies for the protection of the flat-tailed horned lizard and its habitat.

**Table 5.6-6
Summary of LORS – Biological Resources**

Applicable Law	Administering Agency	Requirements/Compliance
Imperial County General Plan	Imperial County Department of Planning and Building	Requires that proposed development projects are compatible with policies set forth in the Conservation and Open Space Element, which provide for the protection, maintenance, and use of the County’s natural resources with particular emphasis on scarce resources, and to prevent wasteful exploitation, destruction, and neglect of the state’s natural resources.
Imperial County Land Use Ordinance (Title 9)	Imperial County Department of Planning and Building	Provides comprehensive land use regulations for all unincorporated areas of Imperial County to promote and protect the public health, safety, and general welfare through the orderly regulation of land uses throughout the unincorporated areas of the County.

Source: URS Corporation, 2008.

Notes:

- BLM = Bureau of Land Management
- CCR = California Code of Regulations
- CDFG = California Department of Fish and Game
- CFR = Code of Federal Regulations
- CWA = Clean Water Act
- LORS = laws, ordinances, regulations, and standards
- RWQCB = Regional Water Quality Control Board
- USC = United States Code
- USACE = United States Army Corps of Engineers
- USFWS = United States Fish and Wildlife Service

5.6.5.4 Agencies and Agency Contacts

Agencies with jurisdiction to issue applicable permit and/or enforce LORS related to biological resources are shown in Table 5.6-7, Agency Contact List for LORS.

**Table 5.6-7
Agency Contact List for LORS**

	Agency	Contact	Address	Telephone
1	United States Fish and Wildlife Service	Peggy Bartels Wildlife Biologist	United States Fish and Wildlife Service – Carlsbad Office 6010 Hidden Valley Road Carlsbad, CA 92011	760-431-9440
2	California Department of Fish and Game	Curt Taucher Regional Manager	California Department of Fish and Game – Inland Desert Regional 3602 Inland Empire Boulevard Ontario, CA 91764	562-596-4212
3	Bureau of Land Management	Daniel Steward Resources Branch Chief	El Centro Bureau of Land Management 1661 South 4 th Street El Centro, CA 92243	760-337-4400

Source: URS Corporation, 2008.

Note:

LORS = laws, ordinances, regulations, and standards

5.6.5.5 Permits Required and Permitting Schedule

The permits required for this Project are listed in Table 5.6-8, Applicable Permits.

**Table 5.6-8
Applicable Permits**

Responsible Agency	Permit/Approval	Schedule
USFWS Endangered Species Act of 1973 and implementing regulations, Title 16 USC §1531 <i>et seq.</i> , Title 50 CFR §17.1 <i>et seq.</i>	Through the Section 7 process, issues biological opinion with conditions or approval after review of Project effects and mitigation measures.	No Section 7 permit is required because no federally listed species will be affected by the Project. Implement BIO-3 measure.
USFWS Migratory Bird Treaty Act (MBTA) 16 USC §§703-711.	Prohibits the take of migratory birds, as specified at 50 CFR Part 10. Will avoid take of active nests.	Implement BIO-1 and BIO-2 measures.
CDFG Fish and Game Fully Protected Species Includes: §3511: Fully Protected Birds; §4700: Fully CDFG Protected Mammals; §5050: Fully Protected Reptiles and Amphibians; §5515: Fully Protected Fishes.	Issues guidance after Project effect assessment (CEQA) review. Note: no legal means exists whereby take of California Fully Protected species may be authorized by CDFG.	Implement BIO-4 measure.
CDFG California Endangered Species Act of 1984, Fish and Game Code, §2050 through §2098.	Issues guidance after Project effect assessment (CEQA) review.	No federally listed species will be affected by the Project.

**Table 5.6-8
Applicable Permits**

Responsible Agency	Permit/Approval	Schedule
CDFG Fish & Game Code 1602.	Streambed Alteration Agreement.	Execute an agreement after California Energy Commission certification and before construction on private property or if required by the Bureau of Land Management.

Source: URS Corporation, 2008.

Notes:

CDFG = California Department of Fish and Game
 CEQA = California Environmental Quality Act of 1970
 CFR = Code of Federal Regulations
 USC = United States Code
 USFWS = United States Fish and Wildlife Service

5.6.6 References

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Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET			Revision No.	0	Date
Technical Area:		Biological Resources			Project: Solar Two Project			Technical Staff:	
Project Manager:					Docket:			Technical Senior:	
SITING REGULATIONS		INFORMATION			AFC SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS		
Appendix B (g) (1)		<p>...provide a discussion of the existing site conditions, the expected direct, indirect and cumulative impacts due to the construction, operation and maintenance of the project, the measures proposed to mitigate adverse environmental impacts of the project, the effectiveness of the proposed measures, and any monitoring plans proposed to verify the effectiveness of the mitigation.</p>			<p>Section 5.6.1.2 Section 5.6.2.1 Section 5.6.2.2 Section 5.6.2.3 Section 5.6.3 Section 5.6.4 Figure 5.6-1 through Figure 5.6-3 Table 5.6-1 Table 5.6-3 Table 5.6-4 Table 5.6-5</p>				
Appendix B (g) (13) (A)		<p>A regional overview and discussion of terrestrial and aquatic biological resources, with particular attention to sensitive biological resources within ten (10) miles of the project. Include a map at a scale of 1:100,000 (or other suitable scale) showing sensitive biological resource location(s) in relation to the project site and related facilities and any boundaries of a local Habitat Conservation Plan or similar open space land use plan or designation. Sensitive biological resources include the following: species listed under state or federal Endangered Species Acts;</p>			<p>Section 5.6.1.2 Figure 5.6-3 Table 5.6-1 Table 5.6-3 Table 5.6-5</p>				
Appendix B (g) (13) (A) (i)		<p>resources defined in sections 1702(q) and (v) of Title 20 of the California Code of Regulations;</p>			<p>Section 5.6.1.2 Table 5.6-1</p>				
Appendix B (g) (13) (A) (ii)		<p>species identified as state Fully Protected;</p>			<p>Section 5.6.1.2 Table 5.6-1 Table 5.6-5</p>				
Appendix B (g) (13) (A) (iii)					<p>Section 5.6.1.2</p>				

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET			Revision No.	0	Date
Technical Area:		Biological Resources			Project: Solar Two Project			Technical Staff:	
Project Manager:					Docket:			Technical Senior:	
SITING REGULATIONS		INFORMATION			AFC SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS		
Appendix B (g) (13) (A) (iv)	species covered by Migratory Bird Treaty Act;				Section 5.6.5.1 Table 5.6-1 Table 5.6-5				
Appendix B (g) (13) (A) (v)	species and habitats identified by local, state, and federal agencies as needing protection, including but not limited to those identified by the California Natural Diversity Database, or where applicable, in Local Coastal Programs or in relevant decisions of the California Coastal Commission; and				Section 5.6.1.2 Table 5.6-1 Table 5.6-5				
Appendix B (g) (13) (A) (vi)	fish and wildlife species that have commercial and/or recreational value.				N/A				
Appendix B (g) (13) (B)	Include a list of the species actually observed and those with a potential to occur within 1 mile of the project site and 1,000 feet from the outer edge of linear facility corridors. Maps or aerial photographs shall include the following: Detailed maps at a scale of 1:6,000 or color aerial photographs taken at a recommended scale of 1 inch equals 500 feet (1:6,000) with a 30 percent overlap that show the proposed project site and related facilities, biological resources including, but not limited to, those found during project-related field surveys and in records from the California Natural Diversity Database, and the associated areas where biological surveys were conducted. Label the biological resources and survey areas as well as the project facilities;				Appendix Y, Biological Resources Technical Report				
Appendix B (g) (13) (B) (i)					Figure 5.6-4				

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET			Revision No.	0	Date
Technical Area:		Biological Resources			Project: Solar Two Project			Technical Staff:	
Project Manager:		Docket:						Technical Senior:	
SITING REGULATIONS		INFORMATION			AFC SECTION NUMBER			ADEQUATE YES OR NO	
Appendix B (g) (13) (B) (ii)		<p>A depiction of the extent of the thermal plume at the surface of the water if cooling water is proposed to be discharged to a water source. Provide the location for the intake and discharge structures on an aerial photograph(s) or detailed maps. Water sources include, but are not limited to, waterways, lakes, impoundments, oceans, bays, rivers, and estuaries; and</p>			N/A				
Appendix B (g) (13) (B) (iii)		<p>An aerial photo or wetlands delineation maps at a scale of (1:2,400) showing any potential jurisdictional and non-jurisdictional wetlands delineated out to 250 feet from the edge of disturbance if wetlands occur within 250 feet of the project site and/or related facilities that would be included with the US Army Corps of Engineers Section 404 Permit application. For projects proposed to be located within the coastal zone, also provide aerial photographs or maps as described above that identify wetlands as defined by the Coastal Act.</p>			Figure 5.6-5				
Appendix B (g) (13) (C)		<p>A discussion of the biological resources at the proposed project site and related facilities. Related facilities include, but are not limited to, laydown and parking areas, gas and water supply pipelines, transmission lines, and roads. The discussion shall address the distribution of vegetation community types, denning or nesting sites, population concentrations, migration corridors, breeding habitats, and other appropriate biological resources including the following:</p>			<p>Section 5.6.1.2 Figure 5.6-1 through Figure 5.6-3 Table 5.6-1 Table 5.6-3 Table 5.6-4 Table 5.6-5</p>				

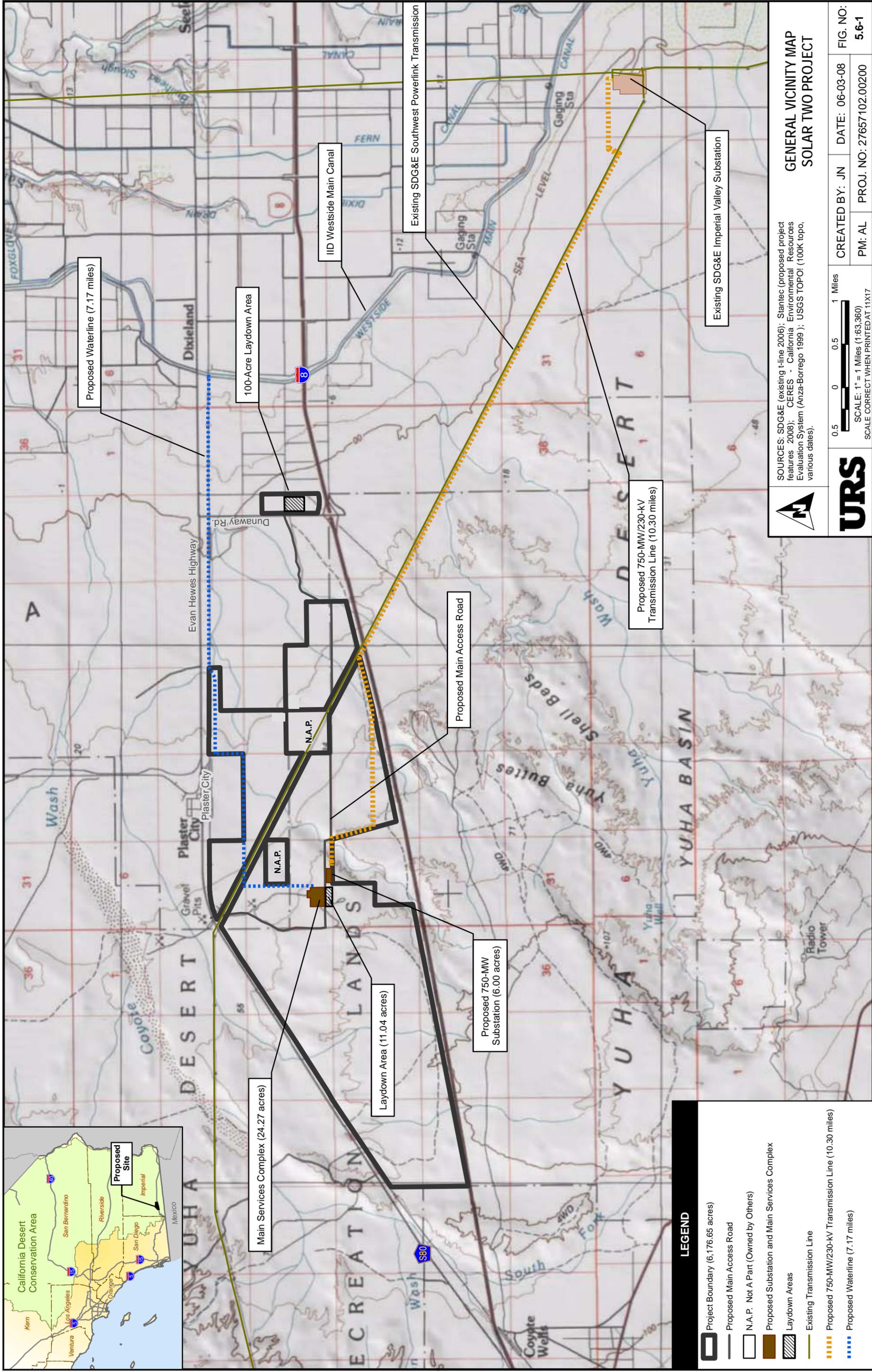
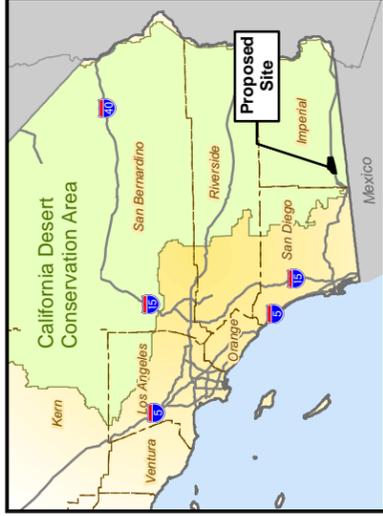
Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET		Revision No.	0	Date	
Technical Area:		Biological Resources		Project: Solar Two Project		Technical Staff:			
Project Manager:				Docket:		Technical Senior:			
SITING REGULATIONS		INFORMATION		AFC SECTION NUMBER		ADEQUATE YES OR NO		INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS	
Appendix B (g) (13) (C) (i)		A list of all the species actually observed;		Appendix Y, Biological Resources Technical Report					
Appendix B (g) (13) (C) (ii)		A list of sensitive species and habitats with a potential to occur (as defined in (A) above); and		Appendix Y, Biological Resources Technical Report					
Appendix B (g) (13) (C) (iii)		If cooling water is taken directly from or discharged to a surface water feature source, include a description of the intake structure, screens, water volume, intake velocity hydraulic zone field of influence, and the thermal plume dispersion area as depicted in response to B(ii) above. Describe the thermal plume size and dispersion under high and low tides, and in response to local currents and seasonal changes. Provide a discussion of the aquatic habitats, biological resources, and critical life stages found in these affected waters. For repower projects that anticipate no change in cooling water flow, this information shall be provided in the form of the most recent federal Clean Water Act 316(a) and (b) studies of entrainment and impingement impacts that has been completed within the last five (5) years. For new projects or repower projects proposing to use once-through cooling and anticipating an increase in cooling water flow, provide a complete impingement and entrainment analysis per guidance in (D)(ii), below.		N/A					

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET			Revision No.	0	Date
Technical Area:		Biological Resources			Project: Solar Two Project			Technical Staff:	
Project Manager:		Docket:						Technical Senior:	
SITING REGULATIONS		INFORMATION			AFC SECTION NUMBER		ADEQUATE YES OR NO		INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (D)		<p>A description and results of all field studies and seasonal surveys used to provide biological baseline information about the project site and associated facilities. Include copies of the California Natural Diversity Database records and field survey forms completed by the applicant's biologist(s). Identify the date(s) the surveys were completed, methods used to complete the surveys, and the name(s) and qualifications of the biologists conducting the surveys. Include:</p>			<p>Table 5.6-2 Section 5.6.1.1 Section 5.6.1.2 Appendix Y, Biological Resources Technical Report</p>				
Appendix B (g) (13) (D) (i)		<p>Current biological resources surveys conducted using appropriate field survey protocols during the appropriate season(s). State and federal agencies with jurisdiction shall be consulted for field survey protocol guidance prior to surveys if a protocol exists;</p>			<p>Section 5.6.1.1</p>				

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET			Revision No.	0	Date		
Technical Area:		Biological Resources			Project: Solar Two Project			Technical Staff:			
Project Manager:		Docket:						Technical Senior:			
SITING REGULATIONS		INFORMATION			AFC SECTION NUMBER			ADEQUATE YES OR NO			
Appendix B (g) (13) (D) (ii)		<p>If cooling water is proposed to be taken directly from or discharged to a surface water feature source, seasonal aquatic resource studies and surveys shall be conducted. Aquatic resource survey data shall include, but is not limited to, fish trawls, ichthyoplankton and benthic sampling, and related temperature and water quality samples. For new projects or repower projects anticipating a change in cooling water flows, sampling protocols shall be provided to the Energy Commission staff for review and concurrence prior to the start of sampling. For repower projects not anticipating a change in cooling water flows, this information shall be provided in the form of the most recent federal Clean Water Act 316(b) impingement and entrainment impact study completed within five (5) years of the AFC filing date; and</p>			N/A					INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS	
Appendix B (g) (13) (D) (iii)		<p>If the project or any related facilities could impact a jurisdictional or non-jurisdictional wetland, provide completed Army Corps of Engineers wetland delineation forms and/or determination of wetland status pursuant to Coastal Act requirements, name(s) and qualifications of biologist(s) completing the delineation, the results of the delineation and a table showing wetland acreage amounts to be impacted.</p>			Figure 5.6-5						
Appendix B (g) (13) (E)		<p>Impacts discussion of the following:</p>									

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET			Revision No.	0	Date
Technical Area:		Biological Resources			Project: Solar Two Project			Technical Staff:	
Project Manager:		Docket:						Technical Senior:	
SITING REGULATIONS		INFORMATION			AFC SECTION NUMBER			ADEQUATE YES OR NO	
Appendix B (g) (13) (E) (i)		all impacts (direct, indirect, and cumulative) to biological resources from project site preparation, construction activities, plant operation, maintenance, and closure. Discussion shall also address sensitive species habitat impacts from cooling tower drift and air emissions;			Section 5.6.2 Section 5.6.2.1 Section 5.6.2.2 Section 5.6.2.3 Section 5.6.3 Table 5.6-3				
Appendix B (g) (13) (E) (ii)		facilities that propose to take water directly from, and/or discharge water to surface water features, daytime and nighttime impacts from the intake and discharge of water during operation, water velocity at the intake screen, the intake field of influence, impingement, entrainment, and thermal discharge. Provide a discussion of the extent of the thermal plume, effluent chemicals, oxygen saturation, intake pump operations, and the volume and rate of cooling water flow at the intake and discharge location; and			N/A				
Appendix B (g) (13) (E) (iii)		Methods to control biofouling and chemical concentrations, and temperatures that are currently being discharged or will be discharged to receiving waters.			N/A				
Appendix B (g) (13) (F)		A discussion of all feasible mitigation measures including, but not limited to the following:			Section 5.6.4				
Appendix B (g) (13) (F) (i)		All measures proposed to avoid and/or reduce adverse impacts to biological resources;			Section 5.6.4.1				
Appendix B (g) (13) (F) (ii)		All off-site habitat mitigation and habitat improvement or compensation, and an identification of contacts for compensation habitat and management;			Section 5.6.4.1				

Adequacy Issue:		Adequate	Inadequate	DATA ADEQUACY WORKSHEET			Revision No.	0	Date
Technical Area:		Biological Resources		Project: Solar Two Project			Technical Staff:		
Project Manager:		Docket:					Technical Senior:		
SITING REGULATIONS		INFORMATION		AFC SECTION NUMBER			ADEQUATE YES OR NO		
Appendix B (i) (1) (A)		Tables which identify laws, regulations, ordinances, standards, adopted local, regional, state, and federal land use plans, leases, and permits applicable to the proposed project, and a discussion of the applicability of, and conformance with each. The table or matrix shall explicitly reference pages in the application wherein conformance, with each law or standard during both construction and operation of the facility is discussed; and		Section 5.6.5 Table 5.6-6					
Appendix B (i) (1) (B)		Tables which identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies which would have permit approval or enforcement authority, but for the exclusive authority of the commission to certify sites and related facilities.		Table 5.6-6					
Appendix B (i) (2)		The name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for Commission staff.		Table 5.6-7					
Appendix B (i) (3)		A schedule indicating when permits outside the authority of the commission will be obtained and the steps the applicant has taken or plans to take to obtain such permits.		Table 5.6-8					



LEGEND

- Project Boundary (6,176.65 acres)
- Proposed Main Access Road
- N.A.P. Not A Part (Owned by Others)
- Proposed Substation and Main Services Complex
- Laydown Areas
- Existing Transmission Line
- Proposed 750-MW/230-kV Transmission Line (10.30 miles)
- Proposed Waterline (7.17 miles)

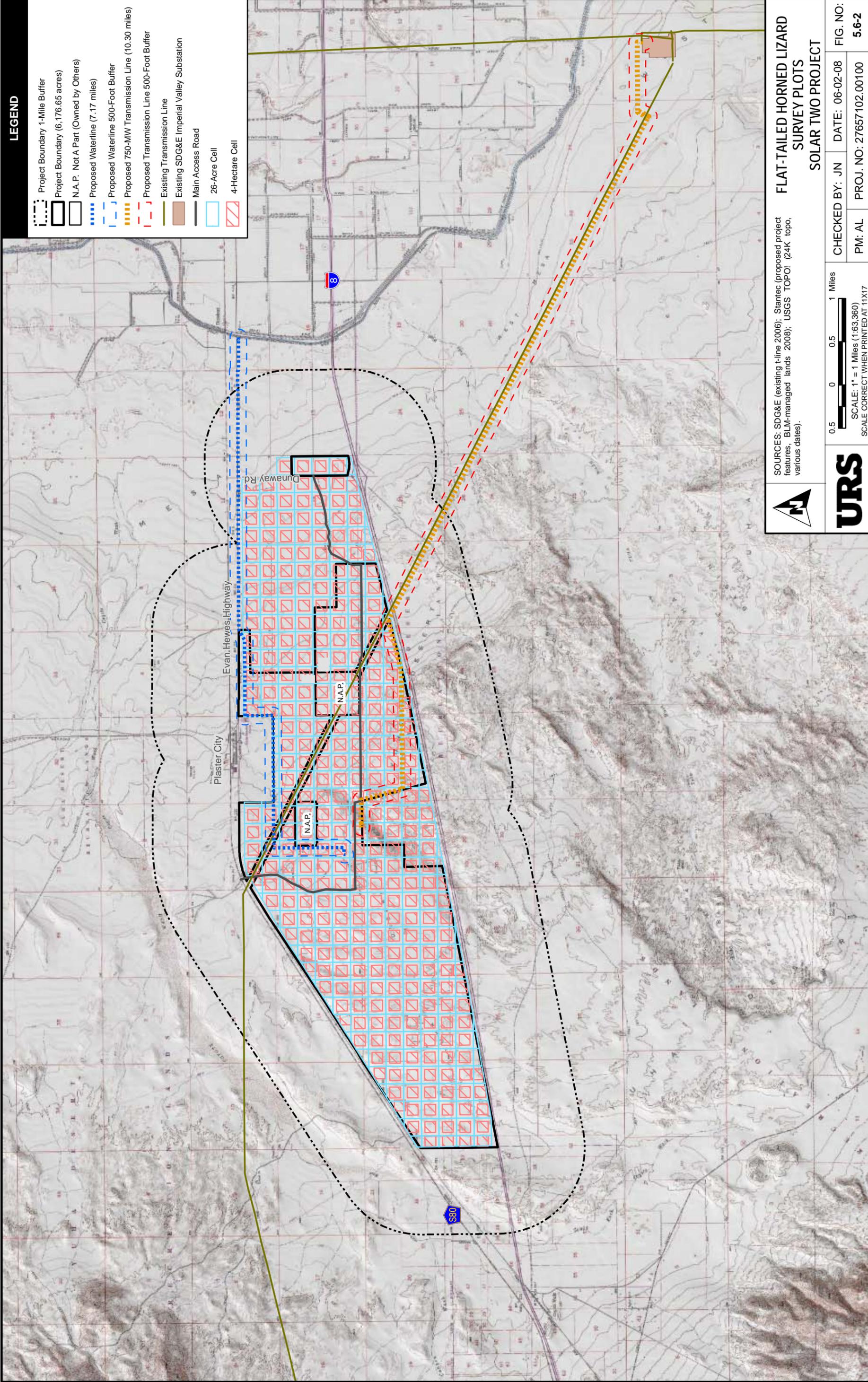
GENERAL VICINITY MAP
SOLAR TWO PROJECT

SOURCES: SDG&E (existing t-line 2006); Stantec (proposed project features 2008); CERES - California Environmental Resources Evaluation System (Anza-Borrego 1999); USGS TOPOI (100K topo, various dates).

URS

0.5 0 0.5 1 Miles
SCALE: 1" = 1 Miles (1:63,360)
SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: JN	DATE: 06-03-08	FIG. NO: 5.6-1
PM: AL	PROJ. NO: 27657102.00200	



LEGEND

-  Project Boundary 1-Mile Buffer
-  Project Boundary (6,176.65 acres)
-  N.A.P. Not A Part (Owned by Others)
-  Proposed Waterline (7.17 miles)
-  Proposed Waterline 500-Foot Buffer
-  Proposed 750-MW Transmission Line (10.30 miles)
-  Proposed Transmission Line 500-Foot Buffer
-  Existing Transmission Line
-  Existing SDG&E Imperial Valley Substation
-  Main Access Road
-  26-Acre Cell
-  4-Hectare Cell

SOURCES: SDG&E (existing t-line 2006); Stantec (proposed project features, BLM-managed lands 2008); USGS TOPOI (24K topo, various dates).

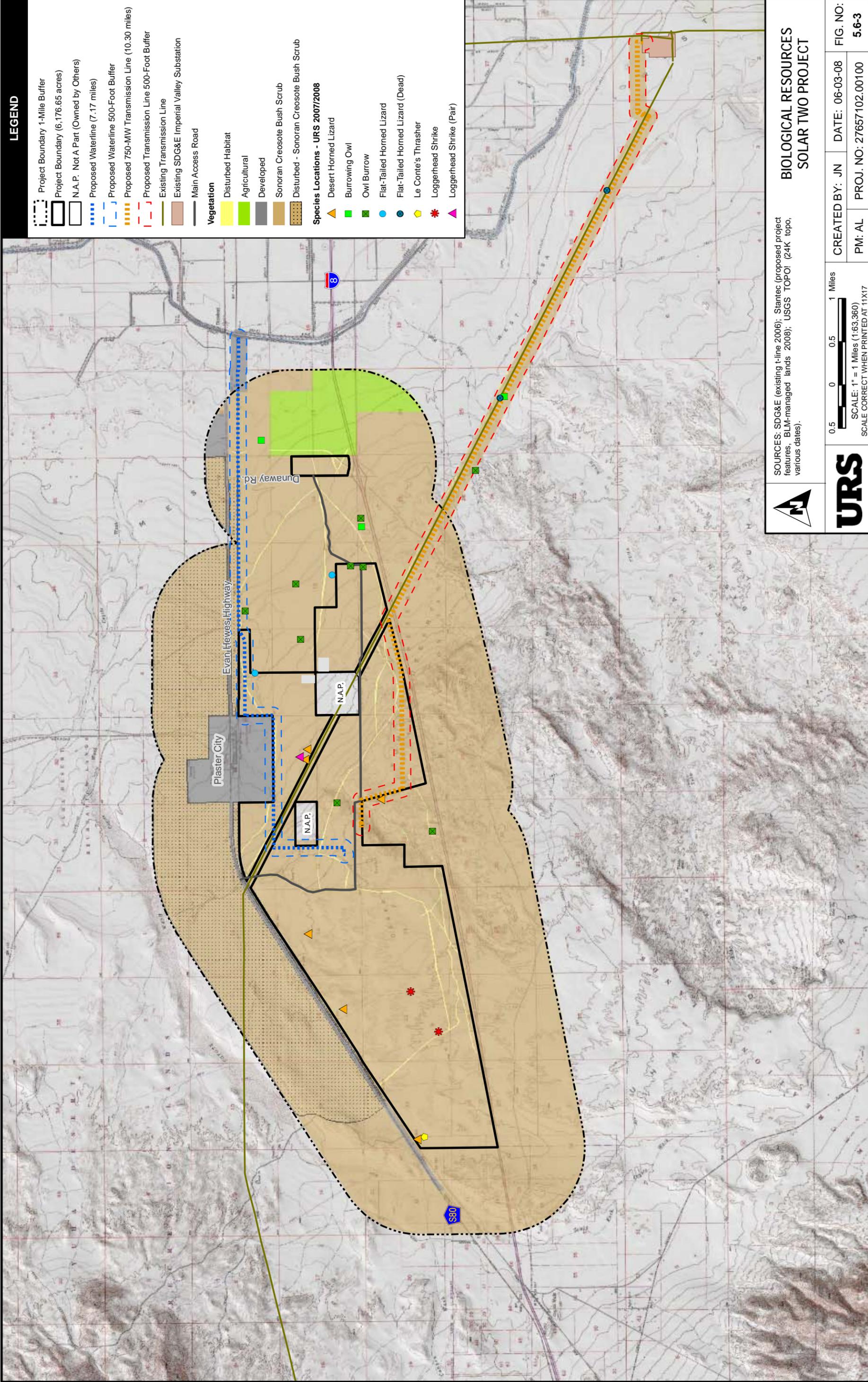


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**FLAT-TAILED HORNED LIZARD
 SURVEY PLOTS**
SOLAR TWO PROJECT

CHECKED BY: JN	DATE: 06-02-08	FIG. NO:
PM: AL	PROJ. NO: 27657102.00100	5.6-2



LEGEND

- Project Boundary 1-Mile Buffer
 - Project Boundary (6,176.65 acres)
 - N.A.P. Not A Part (Owned by Others)
 - Proposed Waterline (7.17 miles)
 - Proposed Waterline 500-Foot Buffer
 - Proposed 750-MW Transmission Line (10.30 miles)
 - Proposed Transmission Line 500-Foot Buffer
 - Existing Transmission Line
 - Existing SDG&E Imperial Valley Substation
 - Main Access Road
- Vegetation**
- Disturbed Habitat
 - Agricultural
 - Developed
 - Sonoran Creosote Bush Scrub
 - Disturbed - Sonoran Creosote Bush Scrub
- Species Locations - URS 2007/2008**
- Desert Horned Lizard
 - Burrowing Owl
 - Owl Burrow
 - Flat-Tailed Horned Lizard
 - Flat-Tailed Horned Lizard (Dead)
 - Le Conte's Thrasher
 - Loggerhead Shrike
 - Loggerhead Shrike (Pair)

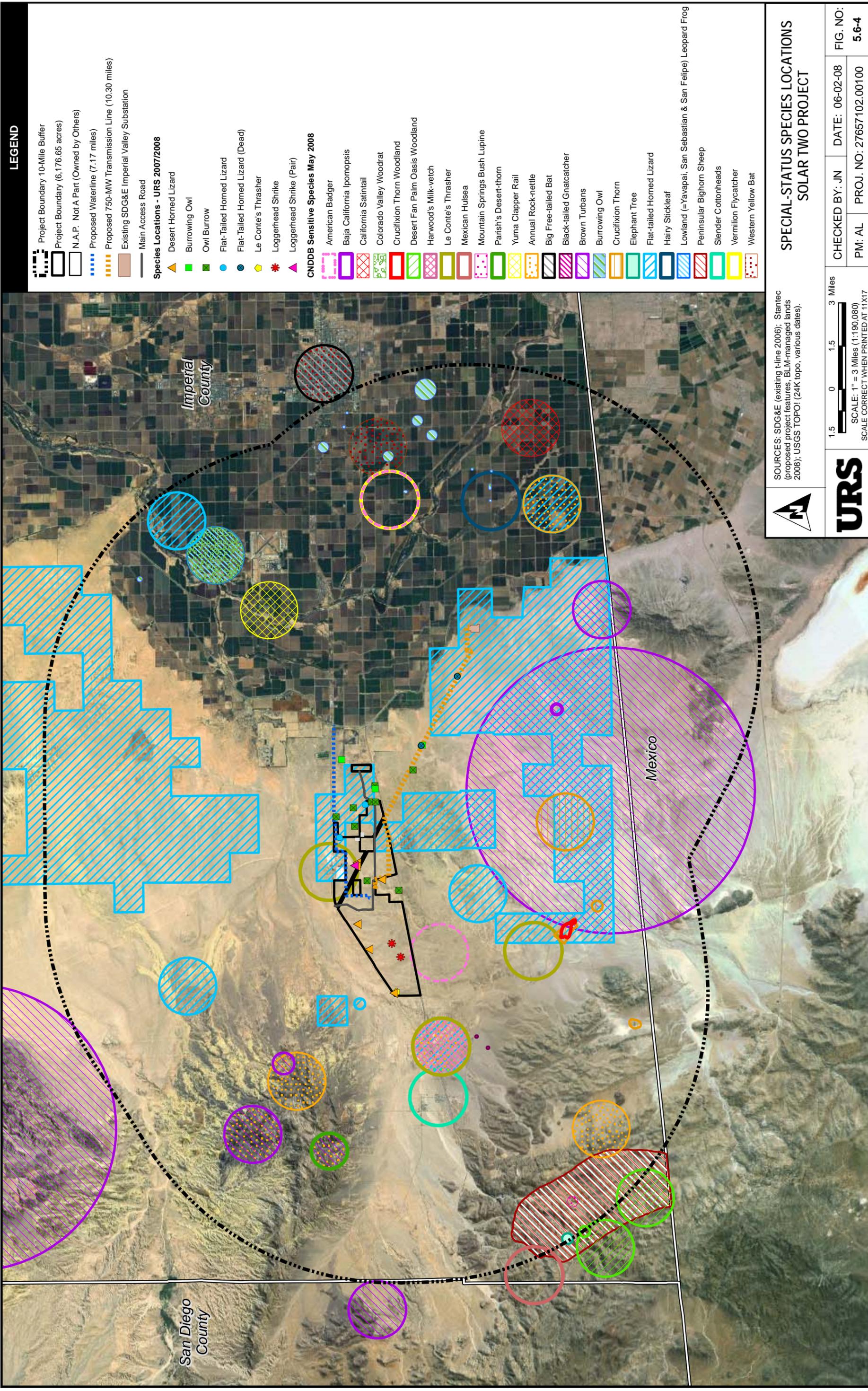
SOURCES: SDG&E (existing t-line 2006); Stantec (proposed project features, BLM-managed lands 2008); USGS TOPOI (24K topo, various dates).



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 SCALE: 1" = 1 Miles (1:63,360)
 SCALE CORRECT WHEN PRINTED AT 11X17

**BIOLOGICAL RESOURCES
 SOLAR TWO PROJECT**

CREATED BY: JN	DATE: 06-03-08	FIG. NO:
PM: AL	PROJ. NO: 27657102.00100	5.6-3



LEGEND

- Project Boundary 10-Mile Buffer
- Project Boundary (6,176.65 acres)
- N.A.P. Not A Part (Owned by Others)
- Proposed Waterline (7.17 miles)
- Proposed 750-MW Transmission Line (10.30 miles)
- Existing SDG&E Imperial Valley Substation
- Main Access Road

Species Locations - URS 2007/2008

- Desert Horned Lizard
- Burrowing Owl
- Owl Burrow
- Flat-Tailed Horned Lizard
- Flat-Tailed Horned Lizard (Dead)
- Le Conte's Thrasher
- Loggerhead Shrike
- Loggerhead Shrike (Pair)

CNDDB Sensitive Species May 2008

- American Badger
- Beja California Ipomopsis
- California Satintail
- Colorado Valley Woodrat
- Crucifixion Thorn Woodland
- Desert Fan Palm Oasis Woodland
- Harwood's Milk-vetch
- Le Conte's Thrasher
- Mexican Hulsea
- Mountain Springs Bush Lupine
- Parish's Desert-thorn
- Yuma Clapper Rail
- Annual Rock-nettle
- Big Free-tailed Bat
- Black-tailed Gnatcatcher
- Brown Turbans
- Burrowing Owl
- Crucifixion Thorn
- Elephant Tree
- Flat-tailed Horned Lizard
- Hairy Stickleaf
- Lowland (=Yavapai, San Sebastian & San Felipe) Leopard Frog
- Peninsular Bighorn Sheep
- Slender Cottonheads
- Vermilion Flycatcher
- Western Yellow Bat

SOURCES: SDG&E (existing t-line 2006); Stantec (proposed project features, BLM-managed lands 2008); USGS TOPOI (24K topo, various dates).

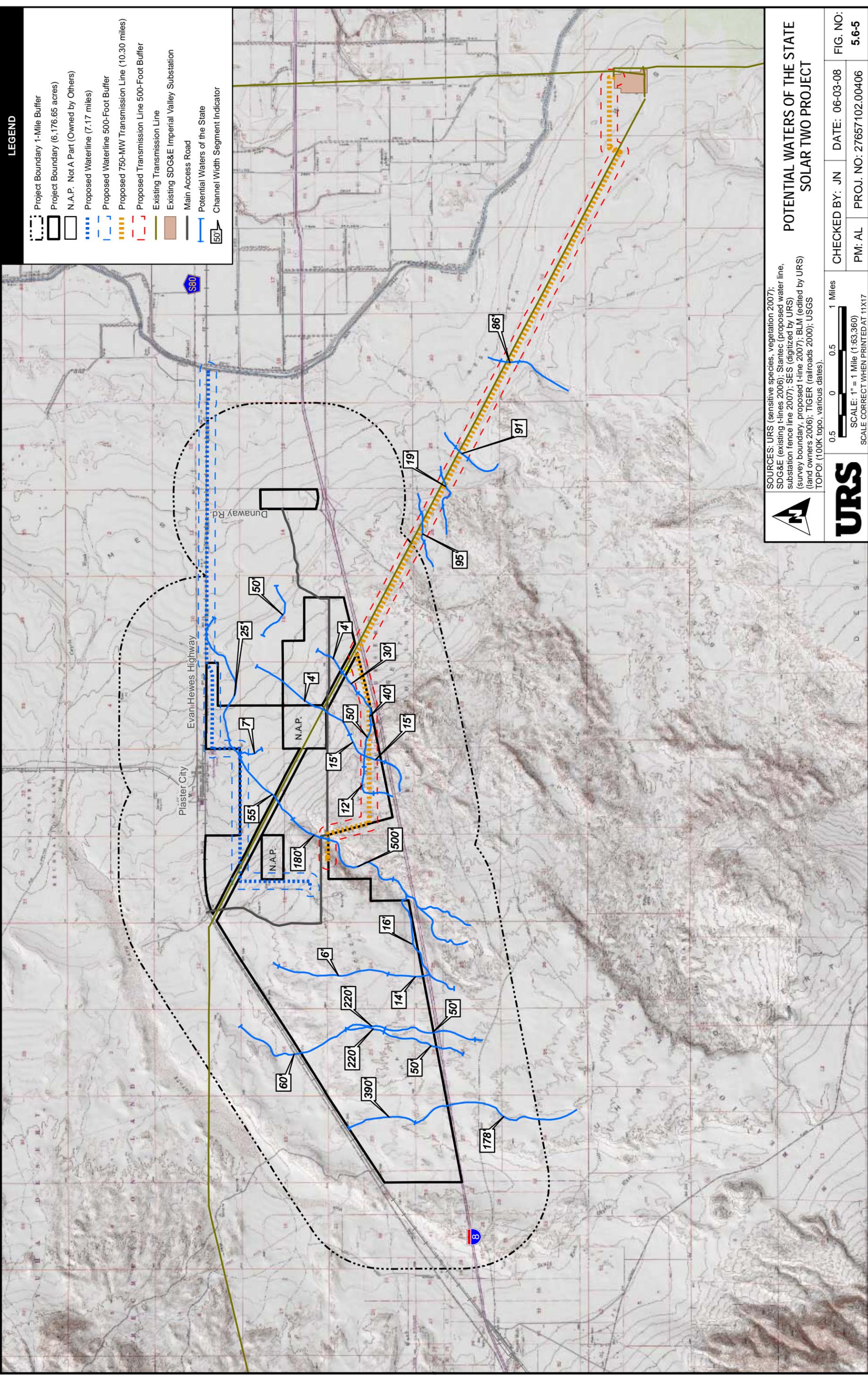


1.5 0 1.5 3 Miles
 SCALE: 1" = 3 Miles (1:190,080)
 SCALE CORRECT WHEN PRINTED AT 11X17



**SPECIAL-STATUS SPECIES LOCATIONS
 SOLAR TWO PROJECT**

CHECKED BY: JN	DATE: 06-02-08	FIG. NO:
PM: AL	PROJ. NO: 27657102.00100	5.6-4



LEGEND

- Project Boundary 1-Mile Buffer
- Project Boundary (6,176.65 acres)
- N.A.P. Not A Part (Owned by Others)
- Proposed Waterline (7.17 miles)
- Proposed Waterline 500-Foot Buffer
- Proposed 750-MW Transmission Line (10.30 miles)
- Proposed Transmission Line 500-Foot Buffer
- Existing Transmission Line
- Existing SDG&E Imperial Valley Substation
- Main Access Road
- Potential Waters of the State
- Channel Width Segment Indicator

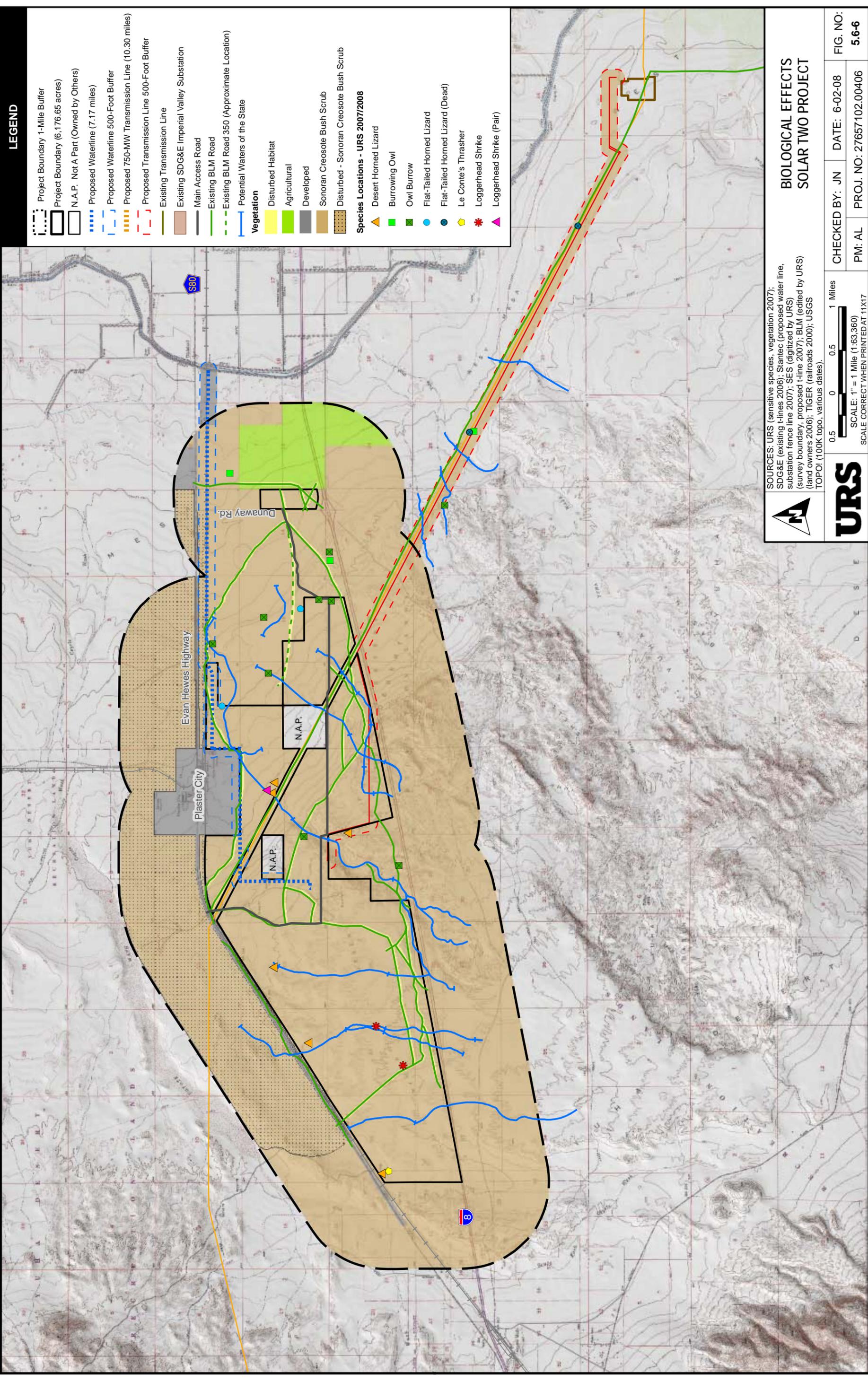
**POTENTIAL WATERS OF THE STATE
SOLAR TWO PROJECT**

SOURCES: URS (sensitive species, vegetation 2007); SDG&E (existing t-lines 2006); Stantec (proposed water line, substation fence line 2007); SES (digitized by URS) (survey boundary, proposed t-line 2007); BLM (edited by URS) (land owners 2006); TIGER (railroads 2000); USGS TOPOI (100K topo, various dates).

URS

CHECKED BY: JN DATE: 06-03-08 FIG. NO: 5.6-5
 PM: AL PROJ. NO: 27657102.00406

0.5 0 0.5 1 Miles
 SCALE: 1" = 1 Mile (1:63,360)
 SCALE CORRECT WHEN PRINTED AT 11X17



LEGEND

- Project Boundary 1-Mile Buffer
 - Project Boundary (6,176.65 acres)
 - N.A.P. Not A Part (Owned by Others)
 - Proposed Waterline (7.17 miles)
 - Proposed Waterline 500-Foot Buffer
 - Proposed 750-MW Transmission Line (10.30 miles)
 - Proposed Transmission Line 500-Foot Buffer
 - Existing Transmission Line
 - Existing SDG&E Imperial Valley Substation
 - Main Access Road
 - Existing BLM Road
 - Existing BLM Road 350 (Approximate Location)
 - Potential Waters of the State
- Vegetation**
- Disturbed Habitat
 - Agricultural
 - Developed
 - Sonoran Creosote Bush Scrub
 - Disturbed - Sonoran Creosote Bush Scrub
- Species Locations - URS 2007/2008**
- Desert Horned Lizard
 - Burrowing Owl
 - Owl Burrow
 - Flat-Tailed Horned Lizard
 - Flat-Tailed Horned Lizard (Dead)
 - Le Conte's Thrasher
 - Loggerhead Shrike
 - Loggerhead Shrike (Pair)

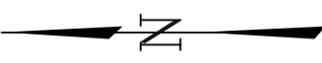
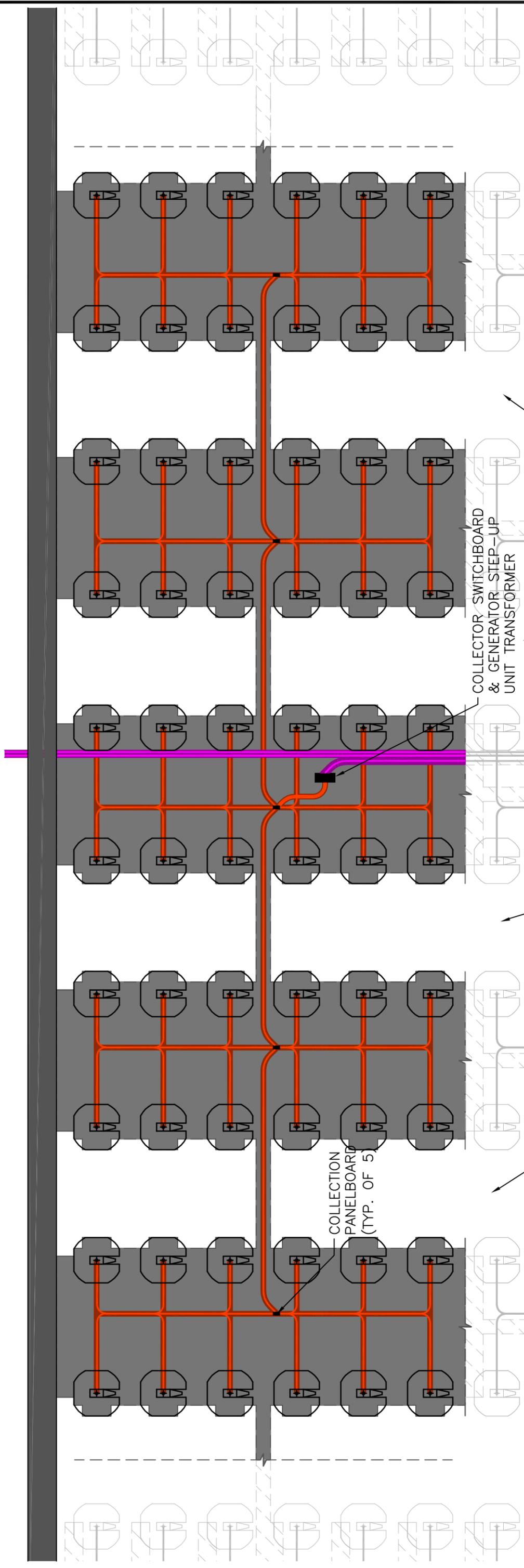
SOURCES: URS (sensitive species, vegetation 2007); SDG&E (existing t-lines 2006); Stantec (proposed water line, substation fence line 2007); SES (digitized by URS) (survey boundary, proposed t-line 2007); BLM (edited by URS) (land owners 2006); TIGER (railroads 2000); USGS TOPOI (100K topo, various dates).



0.5 0 0.5 1 Miles
 SCALE: 1" = 1 Mile (1:63,360)
 SCALE CORRECT WHEN PRINTED AT 11X17

**BIOLOGICAL EFFECTS
 SOLAR TWO PROJECT**

CHECKED BY: JN	DATE: 6-02-08	FIG. NO:
PM: AL	PROJ. NO: 27657102.00406	5.6-6



LEGEND

- UNPAVED ACCESS ROUTE
- PAVED ROADWAYS
- SUNCATCHER UNIT
- 600-V COLLECTOR CABLE WITH 4 FOOT BUFFER
- 34.5-KV CABLE WITH 12 FOOT BUFFER

HABITAT OCCURRING BETWEEN SOLAR GROUPS WOULD REMAIN INTACT

COLLECTOR SWITCHBOARD & GENERATOR STEP-UP UNIT TRANSFORMER

COLLECTION PANELBOARD (TYP. OF 5)

NOTES

1. THIS IS A REPRESENTATION OF A 1.5-MW SOLAR GROUP. THE 1.5-MW SOLAR GROUPS WILL BE ARRANGED TO FIT THE CONTOURS OF THE SITE.
2. ONE 1.5-MW SOLAR GROUP IS COMPRISED OF SIXTY (60) SUNCATCHER UNITS CONNECTED INTO FIVE (5) TWELVE-UNIT GROUPS CONNECTED TO A 600-V, 400-A COLLECTION PANELBOARD.

PRELIMINARY

P1	07/30/07 ISSUED FOR PRELIMINARY REVIEW	PH	
P2	02/27/08 RELOCATED ACCESS ROUTE	PH	
P3	04/16/08 RELOCATED ACCESS ROUTE	PH	
NO.	DATE	BY	APP.

STANTEC CONSULTING INC.
 9400 S.W. BARNES ROAD
 STE. 200
 PORTLAND, OREGON, 97225
 503.297.1631
 STANTEC.COM

DRN:STC/GSP	DES. STC/PH	CHK. STC/	DATE 07/30/07
SCALE	1"=80'-0"	APP.	DATE

**1.5-MW SOLAR GROUP CONSTRUCTION
DISTURBANCE PLAN
SOLAR TWO PROJECT**

STANTEC

CREATED BY: STANTEC DATE: 06-02-08 FIG. NO: 5.6-7
 PM: AL PROJ. NO: 27657102

