

# TABLE OF CONTENTS

---

5.2	Biological Resources .....	5.2-1
5.2.1	Introduction.....	5.2-1
5.2.2	Laws, Ordinances, Regulations, and Standards .....	5.2-2
5.2.2.1	Federal .....	5.2-5
5.2.2.2	State .....	5.2-7
5.2.2.3	Local .....	5.2-10
5.2.3	Affected Environment.....	5.2-10
5.2.3.1	Regional Overview .....	5.2-11
5.2.4	Biological Resources Evaluation Methods .....	5.2-12
5.2.4.1	Vegetation Characterization Methods .....	5.2-12
5.2.4.2	Special-Status Species Assessment and Survey Methods ...	5.2-13
5.2.4.3	Special-Status Plant Protocol Survey Methods .....	5.2-13
5.2.4.4	Wetland and Other Waters Delineation Methods .....	5.2-40
5.2.5	Results of Biological Surveys .....	5.2-44
5.2.5.1	Vegetation Communities .....	5.2-44
5.2.5.2	Invasive Plant Species .....	5.2-48
5.2.5.3	Special-Status Plants.....	5.2-48
5.2.5.4	General Wildlife Species .....	5.2-49
5.2.5.5	Special Status Wildlife Species .....	5.2-50
5.2.6	Wetlands and Jurisdictional Waters .....	5.2-60
5.2.6.1	Waters of the U.S.....	5.2-60
5.2.6.2	Lakes and Streambeds .....	5.2-61
5.2.6.3	Waters of the State of California (WSC) .....	5.2-62
5.2.7	Environmental Analysis.....	5.2-64
5.2.7.1	Standards of Significance .....	5.2-64
5.2.7.2	Potential Impacts of Project Construction, Operation and Maintenances.....	5.2-65
5.2.8	Cumulative Effects.....	5.2-84
5.2.9	Mitigation Measures .....	5.2-85
5.2.9.1	Vegetation and Species-Specific Mitigation Measures .....	5.2-87
5.2.9.2	Waters of the U.S. / State.....	5.2-90
5.2.9.3	Wildlife Movement.....	5.2-90
5.2.9.4	General Mitigation Measures .....	5.2-90
5.2.9.5	Site Rehabilitation Plan .....	5.2-91
5.2.10	Involved Agencies and Agency Contacts .....	5.2-92
5.2.11	Permits and Required Permit Schedule.....	5.2-93
5.2.12	References .....	5.2-94

### Tables

Table 5.2-1	Summary of Laws, Ordinances, Regulations and Standards (LORS)
Table 5.2-2	Special Status Plant Species with Potential to Occur Within the Project Site
Table 5.2-3	California Desert Native Plants List
Table 5.2-4	Special Status Animals with the Potential to Occur within the BSA
Table 5.2-5	Vegetation Communities within the BSA
Table 5.2-6	Invasive Plant Species found within the BSA
Table 5.2-7	All Desert Tortoise and Desert Tortoise Signs Detected within the BSA
Table 5.2-8	Potential Waters of the United States (WUS) (acres)
Table 5.2-9	Potential Jurisdictional Waters of the State of California (WSC) (acres)
Table 5.2-10	Potential Jurisdictional Water of the United States (WUS) and Waters of the State of California (WSC) in the BSA
Table 5.2-11	Vegetation Impact Acreage for Rio Mesa SEGF
Table 5.2-12	Impacts to Special Status Species
Table 5.2-13	Impacts to Desert Tortoise Occupied Habitat on the Project Site.
Table 5.2-14	Temporary and Permanent Impacts to Jurisdictional Waters
Table 5.2-15	Agency Contacts
Table 5.2-16	Applicable Permits

### Figures

Figure 5.2-1	CNDDDB Data and Land Conservation Designations in the Project Vicinity
Figure 5.2-2	Vegetation Map
Figure 5.2-3	Rare Plant Sightings
Figure 5.2-4	Special Status Animal Species
Figure 5.2-5a	ACOE Informally Agreed Waters of the U.S. – Project Site
Figure 5.2-5b	ACOE Informally Agreed Waters of the U.S. – Generator Tie Line and Access Corridors
Figure 5.2-6a	CDFG Potential Waters of the State – Project Area
Figure 5.2-6b	CDFG Potential Waters of the State – Generator Tie Line and Access Corridors
Figure 5.2-7	Occupied Desert Tortoise Habitat
Figure 5.2-8	BLM Renewable Energy Applications in the Project Vicinity

### Appendices

Appendix 5.2A	Rio Mesa SEGF Biological Technical Report
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**5.2 BIOLOGICAL RESOURCES****5.2.1 Introduction**

This Application for Certification (AFC) for the Rio Mesa Solar Electric Generating Facility (Rio Mesa SEGF or Project) has been prepared in accordance with the California Energy Commission's (CEC) Power Plant Site Certification Regulations (CEC-140-2008-001-REV1, current as of July 2008). In addition, this AFC includes elements necessary for the United States (U.S.) Bureau of Land Management (BLM) to permit the Project through the National Environmental Policy Act (NEPA). The "Applicant" for purposes of this AFC comprises Rio Mesa Solar I, LLC, Rio Mesa Solar II, LLC, and Rio Mesa Solar III, LLC, owners of the three separate solar plants and certain shared facilities being proposed. These three Delaware limited liability companies will hold equal one-third shares in the ownership of shared facilities and will separately own their respective plants. They are wholly owned by Rio Mesa Solar Holdings, LLC (a Delaware limited liability company) which is in turn wholly owned by BrightSource Energy, Inc. (BrightSource) a Delaware corporation and the ultimate parent company. The Applicant will use BrightSource's solar thermal technology for the Rio Mesa SEGF.

The proposed project site is situated on the Palo Verde Mesa in Riverside County, California, 13 miles southwest of the City of Blythe, and is located partially on private land and partially on public land administered by BLM. The project will include three solar concentrating thermal power plants and a shared common area to include shared systems. The first plant, a 250-megawatt (MW) (nominal) facility known as Rio Mesa I, will be constructed at the south end of the project and owned by Rio Mesa Solar I, LLC. The second plant, another 250-megawatt (MW) (nominal) facility known as Rio Mesa II, will be located in the central portion of the project site and owned by Rio Mesa Solar II, LLC. Rio Mesa III, a third 250-megawatt (MW) (nominal) facility, will be constructed in the northern portion of the project site and owned by Rio Mesa Solar III, LLC. These three plants will be connected via a common overhead 220 kilovolt (kV) generator tie-line (gen-tie line) to the Southern California Edison (SCE) Colorado River Substation (CRS) approximately 9.7 miles to the north.

Each plant will utilize a solar power boiler (referred to as a solar receiver steam generator or SRSG), located on top of a dedicated concrete tower, and solar field based on proprietary heliostat mirror technology developed by BrightSource. The reflecting area of an individual heliostat (which includes two mirrors) is about 19 square meters (205 square feet [sq. ft.]). The heliostat (mirror) fields will focus solar energy onto the SRSG which converts the solar energy to superheated steam. In each plant, a Rankine cycle non-reheat steam turbine receiving this superheated will be directly connected to a rotating generator that generates and pushes the electricity onto the transmission system. Each plant will generate electricity using solar energy as its primary fuel source. However, auxiliary boilers will be used to operate in parallel with the solar field during partial load conditions and occasionally in the afternoon when power is needed after the solar energy has diminished to a level that no longer will support solar generation of electricity. These auxiliary boilers will also assist with daily start-up of the power generation equipment and night time preservation.

As referenced in this subsection, the project site includes all three solar plants, the common area, and the gen-tie line. The Biological Study Area (BSA) for the Project consists of the main project site where the three solar plants and common area are proposed (plus a 500-foot buffer), the gen-tie line along existing

transmission lines that extend to the proposed CRS (plus a 650-foot buffer), and access areas from State Route 78 via Bradshaw Trail and 34th Avenue (plus a 100-foot buffer).

The following subsection describes the environmental setting and the applicable laws, ordinances, regulations, and standards (LORS) related to Biological Resources. It provides an analysis of the Project impacts that could occur as a result of Project construction and operation. This subsection also presents protection and mitigation measures that will avoid or minimize adverse impacts, when required. A list of agency contacts and permits that will be required is included at the end of the subsection.

**5.2.2 Laws, Ordinances, Regulations, and Standards**

Project construction and operation activities will be performed in accordance with the LORS pertinent to biological resources. Table 5.2-1 lists all LORS applicable to the Project.

**Table 5.2-1  
Summary of Laws, Ordinances, Regulations and Standards (LORS)**

LORS	Requirements	AFC Section Demonstrating Conformance
<b>Federal</b>		
National Environmental Policy Act of 1969 (NEPA); 42 United States Code (USC) § 4321 <i>et seq.</i> , and implementing regulations, Title 40 Code of Federal Regulations (CFR) §§ 1500-1508	Determine if significant effects will occur to biological resources. Mitigation to reduce effects on biological resources to a less-than-significant level.	Section 5.2.2.1
Endangered Species Act (ESA) of 1973; 16 USC §§ 1531 <i>et seq.</i> ; 50 CFR Part 17	Protection and management of federally listed threatened or endangered plants and animals and their designated critical habitats (terrestrial and avian species). Full mitigation for effects on federally listed threatened or endangered species or their designated critical habitats will be required. A Section 7 ESA consultation will be required and conducted by the USFWS.	Section 5.2.2.1
Migratory Bird Treaty Act; 16 USC §§ 703-711; 16 USC § 666b	Analysis of effects on migratory birds. Project not expected to result in significant bird fatalities or the destruction of any active nests.	Section 5.2.2.1
Clean Water Act (CWA) of 1977: 33 USC §§ 1251-1376; 33 CFR § 330.5(a)(26).	Individual and Nationwide 404 permit from the USACE and CWA 401 water quality certification from the RWQCB required for compliance with CWA.	Section 5.2.2.1
California Desert Protection Act of 1994 (CDPA)	Established 69 wilderness areas and the Mojave National Preserve. CDPA lands were transferred to the National Park Service.	Section 5.2.2.1

**Table 5.2-1  
Summary of Laws, Ordinances, Regulations and Standards (LORS)**

LORS	Requirements	AFC Section Demonstrating Conformance
Federal Land Policy and Management Act of 1976 (FLPMA) 43 U.S.C. 1701 §. 102	Governs the way in which the public lands administered by the BLM are managed.	Section 5.2.2.1
California Desert Conservation Area (CDCA) Plan	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.	Section 5.2.2.1
Northern and Eastern Colorado Desert (NECO) Coordinated Management Plan	Requires that human use be balanced with the conservation of natural resources in this California portion of the Sonoran Desert and the conservation of natural resources. This plan acts as an amendment to the CDCA plan.	Section 5.2.2.1
Bald and Golden Eagle Protection Act (BGEPA) (16 USC 668)	Prohibits unpermitted taking or disturbing bald or golden eagles as defined by the BGEPA.	Section 5.2.2.1
Wild and Free-Roaming Horses and Burros Act (WFRHBA) of 1971 (16 USC §1331; 43 CFR §4700)	Prohibits the capture, branding, harassment, or killing of wild or free-roaming horses and burros, while recognizing them as important living cultural symbols.	Section 5.2.2.1
<b>State</b>		
Warren-Alquist State Energy Resources Conservation and Development Act, California Public Resources Code, §§ 25000, et seq.	Gives the California Energy Commission (CEC) licensing authority in lieu of state, regional, and local permits and requirements.	Section 5.2.2.2
California Environmental Quality Act (CEQA) of 1970: California Public Resources Code §§ 21000 <i>et seq.</i>	Disclosure of environmental effects. Effects on natural resources will be minimized or fully mitigated.	Section 5.2.2.2
California Endangered Species Act (CESA) of 1984; California Fish & Game Code §§ 2050-2098.	Consultation requirement; protects California's rare, threatened, and endangered species.	Section 5.2.2.2
Lake and Streambed Alteration Agreement (LSAA): California Fish & Game Code §§ 1600-1609.	LSAA for alteration of streambed channel.	Section 5.2.2.2
California Fish & Game Code §§ 3503, 3503.5, and 3513.	No taking of birds, nests, or eggs of birds. Nesting birds will not be disturbed and any substantial vegetation clearing will be limited to the non-breeding season.	Section 5.2.2.2

**Table 5.2-1  
Summary of Laws, Ordinances, Regulations and Standards (LORS)**

LORS	Requirements	AFC Section Demonstrating Conformance
California Fish & Game Code §§ 3511, 4700, 5050, 5515.	No taking of fish, reptiles, mammals, and birds listed as fully protected. Because no fully protected species will be taken, this Project will comply with these codes.	Section 5.2.2.2
California Code of Regulations (CCR) (Title 14, Sections 670.2 and 670.5).	These code sections include listings of plant and animal species designated as threatened or endangered.	Section 5.2.2.2
California Public Resources Code Section 25523(a): 20 CCR §§ 1752, 1752.5, 2300-2309, and Chapter 2, Subchapter 5, Article I, Appendix B, Part (i)	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.	Section 5.2.2.2
Native Plant Protection Act (NPPA) of 1977: California Fish & Game Code §§ 1900 <i>et seq.</i>	Protects native California rare and endangered plants.	Section 5.2.2.2
California Desert Native Plant Act 23 California Food and Agriculture (CFA) Code §§ 80001 to 80201	Provisions for legal harvesting of certain desert plant species for transplant purposes.	Section 5.2.2.2
Porter-Cologne Water Quality Control Act of 1969. California Water Code (CWC) § 13000 <i>et. seq.</i>	Regulates discharges of waste and fill material into waters of the state through the RWQCB.	Section 5.2.2.2
<b>Local</b>		
Riverside County General Plan (RCGP) (2003).	Identifies land use policies with a goal of protecting threatened or endangered species within Riverside County.	Section 5.2.2.3

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|---|--|
| AFC = Application for Certification           | EPA = United States Environmental Protection Agency  |
| BGEPA = Bald and Golden Eagle Protection Act  | LORS = Laws, ordinances, regulations, and standards  |
| BLM = Bureau of Land Management               | NECO = Northern and Eastern Colorado Desert          |
| CCR = California Code of Regulations          | NPPA = Native Plant Protection Act                   |
| CDFG = California Department of Fish and Game | RWQCB = Regional Water Quality Control Board         |
| CDCA = California Desert Conservation Area    | LSAA = Lake and Streambed Alteration Agreement       |
| CEQA = California Environmental Quality Act   | USC = United States Code                             |
| CESA = California Endangered Species Act      | USACE = United States Army Corps of Engineers        |
| CFR = Code of Federal Regulations             | USFWS = United States Fish and Wildlife Service      |
| CWA = Clean Water Act                         | WFRHBA = Wild and Free-Roaming Horses and Burros Act |
| CWC = California Water Code                   |  |

### *5.2.2.1 Federal*

The following paragraphs discuss the federal LORS applicable to the Project.

#### *National Environmental Policy Act of 1969: 42 United States Code (USC) §§4321 et seq., Title 40 Code of Federal Regulations (CFR) 1500-1508*

NEPA establishes a public, interdisciplinary framework for Federal agencies reviewing projects under their jurisdiction to consider environmental impacts. NEPA's basic policy is to assure that all branches of government give proper consideration to the environment prior to undertaking any major federal action that significantly affects the environment.

The BLM, as lead Federal agency for the Project, is responsible for preparation of an Environmental Impact Statement (EIS) in compliance with NEPA to evaluate the environmental impacts of the portions of the Rio Mesa SEGF on federal lands. The Rio Mesa Solar III plant and the Project gen-tie line are located on lands administered and managed by the BLM. NEPA compliance is required for these portions of the Project through preparation of a Draft and Final EIS. BLM is also responsible for Native American consultation, including government to government consultation.

#### *Endangered Species Act of 1973: 16 USC §§ 1531 et seq.; 50 CFR Parts 17 and 222*

The Endangered Species Act (ESA) protects threatened and endangered plants and animals and their determined critical habitats. The U.S. Fish and Wildlife Service (USFWS) is the federal agency responsible for administering this act, designating critical habitat, and determining if a change in listing status should occur with a particular species. The ESA authorizes USFWS to review a proposed federal action to assess potential impacts to listed species. Listed species are those that are endangered or threatened and have been listed in the Federal Register. The ESA prohibits the “take” of listed species. The ESA and implementing regulations define “take” to include mortality and other actions that may result in adverse impacts such as harassment, harm, or loss of critical habitat. Federal or private action that may result in a take of a listed species requires consultation with the USFWS pursuant to Section 7 or 10 of the ESA. USFWS may issue an incidental take permit after consultation and the issuance of a biological opinion USFWS will conduct a Section 7 consultation, in association with the NEPA process, for the Project. The USFWS may issue an incidental take permit after consultation and the issuance of a biological opinion.

#### *USFWS Desert Tortoise Recovery Plan and Critical Habitat Designation*

The project site is in the geographic area addressed by the Revised Desert Tortoise Recovery Plan (USFWS, 2011). The revised recovery plan updates the 1994 plan and describes an updated strategy for recovery and delisting of the desert tortoise. The 2011 Plan identifies recovery actions that will: develop, support, and build partnerships to facilitate recovery; protect existing populations and habitat; augment depleted populations through a strategic program; monitor progress toward recovery, conduct applied research and modeling in support of recovery efforts within a strategic framework, and, implement an adaptive management program. The project site is within the Colorado Desert Recovery Unit but is not

within Designated Critical Habitat (DCH) for the desert tortoise. The closest DCH for desert tortoise is five miles to the west.

***Migratory Bird Treaty Act: 16 USC §§ 703-711; 16 USC §666b***

The Migratory Bird Treaty Act (MBTA) prohibits the “take” of migratory birds and their active nests containing eggs or young unless permitted. This regulation can constrain construction activities that have the potential to affect nesting birds either through vegetation removal and land clearing. This regulation pertains to birds but the MBTA definition of “take” does not include harassment. The USFWS is responsible for administering this act.

***Clean Water Act, Section 404 of 1977: 33 USC §§ 1251-1376; 33 CFR § 330.5(a) (26)***

Section 404 of the Clean Water Act (CWA) requires the issuance of permits for the discharge of dredged or fill material into the navigable waters of the United States, including wetlands. Fill activities may be permitted by a Nationwide or Individual Permit. The Nationwide Permit (NWP) Program involves certain activities that have been preauthorized by the U.S. Army Corps of Engineers (USACE) because USACE has determined that such activities would have minimal individual and cumulative adverse effects on the aquatic environment. The Individual Permit program applies to projects that exceed the significance thresholds or do not meet the general permit conditions of the NWP program. Under Section 404 (b)(1) guidelines, permittees are allowed to discharge dredged or fill material into the aquatic system if there is no practicable alternative, as defined further in the guidelines, that will have fewer adverse impacts. Typically, USACE requires mitigation in the form of restoration of areas of temporary impacts, and restoration, creation, or acquisition of acreage for permanent impacts, generally at a 1:1 mitigation ratio to achieve no net loss of functions and values. The ratio can vary depending on the comparative functional values of the area being impacted and those of the replacement wetlands. Alternatively, in some cases in lieu fees can be paid into a mitigation banking fund.

***CWA, § 401, 33 USC § 1341 and 40 CFR § 121***

Section 401 of the CWA, 33 USC § 1341, and the implementing regulations 40 CFR § 121, requires a Water Quality Certification from the applicable Regional Water Quality Control Board (RWQCB) when a project will: (1) require a federal license or permit, and (2) result in a discharge to waters of the United States. Water Quality Certifications are required for projects that also require a CWA Section 404 permit; certifications typically include conditions.

***California Desert Conservation Area Plan; 16 USC §§ 661-666***

The California Desert Conservation Area (CDCA) is approximately 25 Million of acres of land in Southern California designated by Congress through the Federal Land Policy Management Act. BLM administers a plan for the CDCA, which was originally prepared in 1980 and last updated in 1999. The Plan considers multiple uses, including power plant siting and utility corridors. The Plan requires that proposed development projects are compatible with policies set forth in the plan. New power plant sites will be evaluated by BLM through an amendment process to the CDCA Plan.

***Northern and Eastern Colorado Desert Coordinated Management Plan***

The Northern and Eastern Colorado Desert (NECO) Coordinated Management Plan (BLM 2002) is a landscape-scale, multi-agency planning effort that protects and conserves natural resources while balancing human uses of the California portion of the Sonoran Desert ecosystem. It requires an ecosystem management approach to balancing human use and the conservation of biological resources. NECO established two Desert Wildlife Management Areas (DWMAs) encompassing approximately 1.75 million acres that are managed as Areas of Critical Environmental Concern (ACECs) for recovery of the desert tortoise; establish the Southern Mojave and Sonoran Wildlife Habitat Management Areas (WHMAs) for bighorn sheep totaling over one million acres and 13 multi-species WHMAs totaling over one half million acres. The NECO Plan acts as an amendment to the CDCA Plan of 1980. The BLM administers the NECO Plan. The project site is within the NECO Plan boundary, but not within a DWMA, ACEC, or WHMA. The Chuckwalla DWMA is approximately four miles west of the project site while the Mule Mountains ACEC is 0.8 miles west and southwest of the gen-tie line.

***Bald and Golden Eagle Protection Act: USC §§ 668-668c***

The Bald and Golden Eagle Protection Act (BGEPA) has been amended several times since its 1940 enactment. This Act prohibits non-permitted taking or disturbing any bald or golden eagle, as defined in USC §§ 668-668c.

***Wild and Free-Roaming Horses and Burros Act of 1971***

The Wild and Free-Roaming Horses and Burros Act (WFRHBA) of 1971, administered by the BLM, prohibits the capture, branding, harassment, or death of wild and free-roaming horses or burros and recognizes them as important living cultural symbols. Herd Areas (HAs) are those geographic areas where wild horses and/or burros were found at the passage of the Wild Horse and Burros Act in 1971. Herd Management Areas (HMAs) are those areas within HAs where the decision has been made, through Land Use Plans, to manage for populations of wild horses and/or burros.

The project site lies within the Chocolate-Mule Mountains HA but not the Chocolate-Mule Mountains Herd Management Area (HMA) which is approximately 10 miles south (BLM 2002).

***5.2.2.2 State***

The following paragraphs discuss the state LORS applicable to the Project.

***Warren Alquist Act, California Public Resources Code (PRC) §§ 25000, et seq.***

The California Public Resources Code (PRC) establishes the CEC as the decision-making authority over land use decisions and environmental determinations during the AFC process. This is in accordance with the Warren-Alquist Act, codified in §§ 25000 et seq. of the PRC. The CEC has exclusive jurisdiction over thermal power plant siting (50 MW or greater), including California Environmental Quality Act (CEQA) implementation. The Project will demonstrate conformity with state, regional, and local laws, including land use laws.

Under the Warren-Alquist Act, the CEC's licensing process is legally equivalent to CEQA and is guided by CEQA regulations.

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

The CEC will be the lead agency enforcing CEQA for the Project. Under California law, the CEC is responsible for reviewing the AFCs filed for projects, and also has the role of lead agency for the environmental review of these projects under CEQA (PRC, §§ 25500 et seq; PRC, §§21000 et seq.). The CEC conducts this review in accordance with the administrative adjudication provisions of the Administrative Procedure Act (5 United States Code, §§ 500 et. seq.) and its own regulations governing site certification proceedings (CCR, Title 20, §§ 1701 et seq.). These provisions require the staff to conduct an independent analysis of AFCs and prepare an independent assessment of a project's potential environmental impacts, feasible mitigation measures, and alternatives as part of this process.

The CEC considers the Staff Assessment(s), along with the environmental analysis provided by the Applicant, as well as input from interested local, regional, State, and Federal agencies, intervenors, and interested Native American tribes, in developing its final decision on whether to issue a license for a proposed project. The CEC has a certified regulatory program under CEQA that exempts the agency from having to draft an Environmental Impact Report (EIR) and, instead, requires a Final Staff Assessment (FSA), evidentiary hearings, and a decision based on the hearing record, which includes the Staff's and other parties' assessments.

*California Endangered Species Act of 1984: California Fish and Game Code (CFG) §§ 2050-2098*

The California Legislature passed the California Endangered Species Act (CESA) in 1984, declaring: "it is the policy of the state to conserve, protect, restore, and enhance any endangered species or any threatened species and its habitat." The CESA was modeled on the federal ESA. The CESA contains similar, but not identical, definitions of endangered species, threatened species, and take.

Under the CESA, an "endangered species" means "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range, due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease," and threatened when it "is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by the CESA"(Fish and Game Code of California, §2062 and 2067).

The term "Take" is defined in the CESA as to "hunt, pursue, catch, capture, or kill, or attempt" to do any of these activities. Unlike the federal law, a "take" under CESA does not include harm or harassment. Plants are listed as endangered, threatened, or rare pursuant to §1904 (Native Plant Protection Act of 1977) and §2074.2 and §2075.5 (California Endangered Species Act of 1984) of the Fish and Game Code.

Species that meet the definitions of "endangered" or "threatened" must be formally added to a list of endangered or threatened species to receive protection under CESA. Candidate species are those that are under review for addition to the list of endangered or threatened species, and receive the same protection as if they were already listed once they are formally noticed as being under review.

Projects that have the potential to take wildlife species listed by the state as threatened or endangered should obtain an Incidental Take Permit pursuant to the requirements of California Fish and Game Code § 2081. For species that are jointly listed under federal ESA and CESA, projects must obtain either a Consistency Determination or an Incidental Take Permit.

In the case of a thermal power plant within the Commission’s jurisdiction, the Commission “stands in the shoes” of CDFG and the Commission’s certified regulatory program addresses the substantive requirements of CESA and the § 2081 permitting process (meaning the Commission’s license includes the conditions that would otherwise be a part of a 2081 permit).

***Lake and Streambed Alteration Agreement: CFGC §§ 1600-1609***

Sections 1600-1609 of the California Fish and Game Code require 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. The Lake and Streambed Alteration Agreement (LSAA) is an agreement, not a permit. The LSAA process includes, among other things, notification provisions and an arbitration process to facilitate the agreement process. The LSAA includes conditions and mitigation measures that will minimize impacts to aquatic and riparian resources from proposed actions. In the case of a thermal power plant within the Commission’s jurisdiction, the Commission “stands in the shoes” of CDFG and the Commission’s certified regulatory program subsumes the LSAA process.

***CFGC §§ 3503, 3503.5, and 3513***

This California Fish and Game Code section prohibits the taking and possessing of bird eggs and nests. The administering agency for this section is the CDFG.

***CFGC §§ 3511, 4700, 5050, and 5515***

These California Fish and Game Code sections prohibit the taking of birds, mammals, reptiles, and fish listed as fully protected. Fully protected species cannot be taken or possessed, except under specific permit requirements. The administering agency for these sections is the CDFG.

***Title 14 California Code of Regulations §§ 670.2 and 670.5***

These sections include listings of plant and animal species designated threatened or endangered. The administering agency for the above sections is the CDFG.

***Native Plant Protection Act of 1977: CFGC § 1900 et seq.***

The Native Plant Protection Act (NPPA) directs CDFG to carry out the legislature’s intent to “preserve, protect and enhance rare and endangered plants in the state.” The NPPA gives California Fish and Game Commission the power to designate native plants as “endangered” or “threatened.”

*California Desert Native Plant Act: 23 California Food and Agriculture Code §§ 80001 to 80201*

The California Desert Native Plant Act under the Department of Food & Agriculture (CDFA) Code directs county sheriffs or agriculture commissioners to provide permits and collect fees for the legal harvesting of certain desert plant species for transplant purposes. Provisions of this Act will allow for uncommon cactus species to be salvaged and donated to a botanical garden, or native plant restoration nursery for study and propagation, or offered as salvage to the local cactus societies and interested public.

*Porter-Cologne Water Quality Control Act of 1969*

The Porter-Cologne Water Quality Control Act regulates discharges of waste and fill material into waters of the state through the RWQCBs. Through this act, water quality standards and implementation procedures are developed and enforced. The SWRCB is authorized by this authority to develop guidelines for surface water and ground water management programs.

**5.2.2.3 Local**

The following paragraphs discuss the local LORS applicable to the Project.

*Riverside County General Plan*

The Riverside County General Plan (RCGP) was originally adopted in 2003 (County of Riverside 2003). An update was prepared in 2008. This subsection draws primarily upon the most current, 2008 update. The RCGP sets forth County land use policies and guidance to promote and protect the public health, safety, and general welfare through the orderly regulation of land uses throughout the unincorporated areas of Riverside County. The Land Use and Multipurpose Open Space Elements of the RCGP contain specific policies to preserve the character and function of open space that benefits biological resources. It also contains specific policies and goals for protecting areas of sensitive plant, soils and wildlife habitat and for assuring compatibility between natural areas and development.

The RCGP is augmented by more detailed Area Plans covering the County's territory. Area Plans provide a clear and more focused opportunity to enhance community identity within the County and stimulate quality of life at the community level. The Project is within the planning area for the Palo Verde Valley Area Plan. The Palo Verde Valley Area Plan provides customized direction specifically for this easternmost reach of the County.

**5.2.3 Affected Environment**

The project site is located on the Palo Verde Mesa, primarily on land owned by the Metropolitan Water District of Southern California. A portion of the project site and the gen-tie line are located on lands administered by the BLM, all within Riverside County. The project site is approximately two miles west of the town of Palo Verde, California (closest town) and State Route 78. The site is currently mostly undeveloped and is surrounded primarily by undeveloped land to the north, south, and west with agricultural lands located to the east. The project site is comprised primarily of creosote desert scrub with areas of desert wash scrub within the on-site washes. Portions of the site are disturbed due to existing infrastructure (transmission lines, pipelines, past military training activities, etc.). The gen-tie line passes

through BLM lands and other private lands and is mainly comprised of desert scrub habitat and disturbed lands associated with existing infrastructure. The project site has several utility lines with maintenance roads running through it and has been subject to disturbance from illegal off-road vehicle use, dumping of trash, and historic use for military training during World War II including tank training.

### 5.2.3.1 Regional Overview

The project site is located in the Colorado Desert in gently rolling open terrain dominated by desert scrub vegetation. The Colorado Desert is a part of the larger Sonoran Desert, which extends across the southwest U.S. 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 major winter and summer monsoon rain events. Habitats in the Colorado Desert region of the Sonoran Desert vary with the landscape and precipitation levels.

While no DCH, special management areas, wilderness study areas, or ACEC are located within the project site or gen-tie line corridor, the Mule Mountains ACEC is 0.8 miles northwest and west, the Palo Verde Mountains Wilderness is 3 miles south, the Chuckwalla Valley Dune Thicket ACEC is four miles northwest, the Chuckwalla DWMA is four miles west, the Palen/McCoy Wilderness is seven miles northwest, the Little Chuckwalla Mountains Wilderness is nine miles west, the Big Maria Mountains Wilderness is 16 miles northeast, and the Palen Dry Lake ACEC is 18 miles northwest of the project site (see Figure 5.2-1). Desert tortoise DCH is located approximately five miles west of the project site.

Vegetation in the project area is composed of nine native vegetation alliances. The primary vegetation types are Colorado Desert creosote bush scrub, creosote bush/white burr sage scrub, and blue palo verde/ironwood woodland. Disturbed areas are associated with unpaved roads and trails, maintenance areas for existing transmission line poles, and rights-of-way (ROWs) along underground pipeline routes.

Invasive Asian mustard (*Brassica tournefortii*) and Mediterranean grasses (*Schismus arabicus* and *S. barbatus*) are scattered throughout the project site, while Asian mustard is particularly widespread in the northern section of the site along the gen-tie line.

The BSA supports a variety of common and endemic plants. Five CDFG (State)-ranked- species, (one also being a BLM sensitive species), were found within the BSA: ribbed crypthanta (*Crypthanta costata*), Harwood's milk-vetch (*Astragalus insularis* var. *harwoodii*), desert unicorn plant (*Proboscidea althaeifolia*), Harwood's eriastrum (*Eriastrum harwoodii*), and Utah vine milkweed (*Funastrum utahense*).

Special status animal species observed directly or by sign include the desert tortoise (*Gopherus agassizii*), Mojave fringe-toed lizard (*Uma scoparia*), American badger (*Taxidea taxus*), Nelson's bighorn sheep (*Ovis Canadensis nelsoni*), California leaf-nosed bat (*Macrotus californicus*), burrowing owl (*Athene cunicularia*), golden eagle (*Aquila chrysaetos*), Swainson's hawk (*Buteo swainsoni*), prairie falcon (*Falco mexicanus*), northern harrier, (*Circus cyaneus*), American white pelican (*Pelecanus erythrorhynchos*), loggerhead shrike (*Lanius ludovicianus*), Le Conte's thrasher (*Toxostoma lecontei*), Crissal thrasher (*Toxostoma crissale*), Gila woodpecker (*Melanerpes uropygialis*), Lucy's warbler (*Oreothlypis luciae*) and Vaux's swift (*Chaetura vauxi*).

The BSA contains well-defined, ephemeral washes, which range from 1 to over 100 feet in width, with smaller, broad alluvial fan/plains intertwined with high topographic variation. These on-site drainage patterns follow the gradient from the mountains west of the project site towards lower elevations east and southeast across the project site, and ultimately flow to Hodges Drain (the man-made channel at the western edge of the agricultural area east of the site that collects water from the Palo Verde Mesa washes), the Palo Verde Outfall (the waterway created by the Palo Verde Dam north of Blythe that runs through Blythe and Palo Verde), and into the Colorado River south of the Cibola National Wildlife Refuge.

The active flow channels are devoid of vegetation and typically have a sandy, gravel substrate, although some washes also contained cobble and scattered larger rocks. Throughout the study area the majority of the washes are associated with blue palo verde / ironwood woodland.

Seasonal surface water flow events occur on site in most years. The majority of ephemeral washes within the project site frequently flow intermittently through a bed or channel having banks that support desert riparian vegetation. No lakes occur on site.

Generally, the project site is unrestricted for wildlife movement with uniform habitat composition throughout the area. The primary constraints to wildlife movement are agricultural fields and associated roads and canals situated to the east of the Project and the Mule and Palo Verde Mountains to the west and southwest.

#### **5.2.4 Biological Resources Evaluation Methods**

The following sections provide an overview of the biological resources evaluation methods that were used in conducting the biological resources assessment for this AFC. Surveys were performed on all portions of the BSA where Right-of-Entry (ROE) was granted. Mapping of vegetation and Waters of the United States (WUS) and Waters of the State of California (WSC) on lands with no ROE was achieved through aerial image interpretation and extrapolation from adjacent areas mapped in the field.

##### ***5.2.4.1 Vegetation Characterization Methods***

For the task of vegetation mapping, biologists mapped the vegetation within the BSA. Initial desktop mapping was conducted using desktop Geographic Information Systems (GIS) and high-resolution aerial photography (VTN 2011). Once the desktop exercise was completed, a team of four URS biologists field-verified the extent and types of vegetation during follow-up surveys of the project site and buffer areas. The vegetation mapping was verified through on-site foot surveys and confirmed again during the special status botany transect surveys. The results of the surveys were analyzed and summarized using maps and acreages of vegetation.

Vegetation communities were mapped according to the second edition of *A Manual California Vegetation* (Sawyer et. al 2009). Vegetation communities were identified according to the percent cover of dominant plant species observed. Vegetation communities are groupings of ecologically distinctive plant assemblages based on dominant species observed, where individual dominant species are present at approximately 20 percent or higher cover. Community classifications were based on dominant species comprising approximately 50 percent or more of the total cover within the mapped unit relative to the list

of dominant species for a given vegetation community (i.e., grasslands must have at least approximately 50 percent cover with dominant grass species to be mapped as grassland). In cases where dominant species did not comprise more than 50 percent of the total cover, then subdominant or co-dominant species having between approximately 10 percent and 20 percent cover were also used to characterize the mapped unit. Percent cover was visually estimated.

The minimum mapping unit for vegetation communities associated with the jurisdictional waters delineation was 0.1 acre, which is equivalent to a polygon approximately 66 feet per side. For more linear features, the minimum mapping width was approximately 20 feet and the length of the linear polygon was approximately 200 feet. The minimum mapping unit for upland areas is estimate to be about 0.25 acre. Maps used for field surveys were generally at a scale of one inch = 200 feet or larger.

#### *5.2.4.2 Special-Status Species Assessment and Survey Methods*

The following sections describe the assessment and survey methods that were used regarding special-status species. Special status species locations detected during protocol surveys and incidentally detected were mapped with the aid of GPS units accurate to within 10 to 15 feet (3-5 meters), and directly on field maps. Species locations were imported to GIS and plotted on aerial photographs. Species locations were reviewed and edited for accuracy, as necessary, to account for GPS error or redundant locations (i.e., GPS location of the same tortoise burrow identified on different survey days).

Many agencies and non-governmental organizations maintain lists of species that provide information for land management planning and conservation efforts. As used in this AFC, the term “special-status” species does not mean species listed as threatened, endangered or candidate species under the federal ESA or CESA. Instead, the term “special-status” species is a more expansive term, employed by many agencies for the purposes described in this document. The term special-status has no relationship to the legal status of any particular species. The term “special-status” as applied to plants and wildlife, in this document, is described below.

#### *5.2.4.3 Special-Status Plant Protocol Survey Methods*

Special status plant species are defined as those species that are protected under the provisions of the ESA, CESA, NPPA, and by CDFG. Special-status species are also defined as those species listed as rare or sensitive by the BLM and in the County of Riverside. Databases from sources including the USFWS and California Natural Diversity Database (CNDDDB; 2011) were queried to provide the recent and historical distribution of special status plant species in the project area, and serve as a guideline for focused biological survey planning.

The potential for the occurrence of special-status species within the BSA was assessed by researching the special-status plant species with potential to be found within the project site, compiling information on their conservation status, distribution, blooming time, habitat characteristics, and known presence in the project region, including nearest known locations. Several known special-status plant occurrences were also searched for in the field and viewed to evaluate the potential for special-status species occurrence and to familiarize the surveyors with characteristics necessary for the correct identification of the species. The assessment was conducted as follows:

A plant was considered to be of special status if it met one or more of the following criteria:

- Federally- or state-listed, as rare, threatened or endangered (USFWS, 1996b; CDFG, 2011a); or
- Special Status Plant as defined by the CNDDDB (CDFG, 2011c); or
- Designated by the BLM as a sensitive plant by field offices in the California Desert District (BLM 2010 a through e).

A species was determined to have potential to occur within the project site if it's known or expected geographic range included the BSA, and if its known or expected habitat was found within or near the project site.

A preliminary list of potentially occurring special-status plants was compiled from multiple field offices in the California Desert District (BLM 2010a through e), and by conducting nine United States Geological Survey (USGS) quadrangle map searches of the CNDDDB RareFind3 database (CDFG 2011) and the CNPS On-line Inventory (CNPS 2011). The Project is primarily located within the Roosevelt Mine 7.5' USGS quadrangle (USGS 1983e). The Roosevelt Mine, McCoy Spring (USGS, 1983c), McCoy Peak (USGS 1983b), McCoy Wash (USGS 1975a), Hopkins Well (USGS 1983a), Ripley (USGS, 1975c), Wiley Well (USGS 1971b), Thumb Peak (USGS 1971a), and Palo Verde (USGS 1983d) 7.5' USGS quadrangles were included in the nine-quadrangle search. The preliminary list was revised after reviewing habitat and distribution information from the following primary sources:

- The Jepson Desert Manual; Vascular Plant of Southeastern California (Baldwin et al. 2002);
- CNPS Inventory of Rare and Endangered Plants (on-line edition) (CNPS 2011); and
- CalFlora: What Grows Here on-line database (CalFlora 2011).

### *Reconnaissance Surveys and Reference Population Site Visits*

A reconnaissance survey was conducted on January 12 and 13, 2011. The BSA was accessed by vehicle and on foot from existing roads. Habitat conditions within the BSA were assessed, and a preliminary classification of the vegetation types was developed. Information obtained during the literature review and reconnaissance field visit was used to create Table 5.2-2, which summarizes information on special-status plants with potential to occur within the BSA.

**Table 5.2-2  
Special Status Plant Species with Potential to Occur Within the Project Site**

Family	SPECIES		Growth Habit	SENSITIVITY STATUS			Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
	Common Name	Scientific Name		Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank				
Asclepiadaceae	Utah vine milkweed	<i>Funastrum utahense</i> ( <i>Cynanchum utahense</i> )	Perennial Herb/Vine	None	S3.2	Was 4.2	Sonoran and Mojavean desert scrub. Creosote bush scrub, dry, sandy, gravelly, areas. Blooms April-June.	High	Observed on site.	CYUT
Asteraceae	Bitter hymenoxys	<i>Hymenoxys odorata</i>	Annual Forb/Herb	None	S2	2	Sonoran desert scrub, riparian scrub (sandy); blooms February-November	Moderate	Suitable habitat present onsite. Known adjacent occurrences.	HYOD
Boraginaceae	Ribbed cryptantha, Ashen Forget me not	<i>Cryptantha costata</i>	Annual Forb/Herb	None	S3.3	4.3	Mojavean and Sonoran desert scrub, Creosote Bush Scrub, Desert Dunes (sandy); blooms February-May	Moderate	Observed on site	CRCO15
Boraginaceae	Winged cryptantha, Rough stemmed Forget me not	<i>Cryptantha holoptera</i>	Annual Perennial Forb/Herb	None	S3?	4.3	Mojavean and Sonoran desert scrub, Creosote Bush Scrub, Joshua Tree Woodland; blooms March-April	Moderate	Suitable habitat present onsite.	CRHO3

**Table 5.2-2  
Special Status Plant Species with Potential to Occur Within the Project Site**

Family	SPECIES		Growth Habit	SENSITIVITY STATUS			Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
	Common Name	Scientific Name		Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank				
Cactaceae	Saguaro	<i>Carnegiea gigantea</i>	Perennial Tree	None	S1.2	2.2	Sonoran desert scrub (rocky); blooms May-June	Low - Moderate	Suitable habitat present onsite. Historical reference for known location adjacent to project area.	CAGI10
Cactaceae	Munz's cholla	<i>Cylindropuntia munzii</i>	Perennial Shrub	BLM Sensitive	S1.3	1B.3	Sonoran desert scrub (sandy or gravelly); blooms May	Low - Moderate	Suitable habitat present onsite.	CYMU12
Cactaceae	Wiggin's cholla	<i>Cylindropuntia echinocarpa (Opuntia wigginsii)</i>	Perennial Shrub	None	S1.?	3.3	Sonoran desert scrub (sandy); blooms March	High	Suitable habitat, present onsite. Known adjacent occurrences.	CYEC3
Cactaceae	Foxtail Cactus	<i>Escobaria alversonii (Coryphantha alversonii)</i>	Perennial Stem Succulent	None	S3.2	4.3	Sandy or rocky, usually granitic. Mojavean desert scrub, Sonoran desert scrub. Blooms April-June	Moderate	Suitable habitat present onsite. Historical reference for known location in vicinity to project area.	ESAL2
Euphorbiaceae	Abrams' sandmat, Abrams' prostrate spurge	<i>Chamaesyce abramsiana</i>	Annual Forb/Herb	None	S1.2	2.2	Mojavean and Sonoran desert scrub Creosote Bush Scrub; blooms September-November	Moderate	Suitable habitat present onsite. Know adjacent occurrence	CHAB2

**Table 5.2-2  
Special Status Plant Species with Potential to Occur Within the Project Site**

Family	SPECIES		Growth Habit	SENSITIVITY STATUS			Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
	Common Name	Scientific Name		Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank				
Euphorbiaceae	California silverbush	<i>Agrythamnia californica</i> ( <i>Ditaxis serrata</i> var. <i>californica</i> )	Annual Perennial Subshrub Shrub Forb/Herb	None	S2	3.2	Sonoran desert scrub, Creosote Bush Scrub; blooms March-December	Moderate	Suitable habitat present onsite	ARCA19
Fabaceae	Harwood's milk-vetch	<i>Astragalus insularis</i> var. <i>harwoodii</i>	Annual Forb/Herb	None	S2.2?	2.2	Desert dunes (sandy or gravelly); blooms January-May.	High	Observed on site	ASINH
Fabaceae	Borrego milkvetch, Borrego milk vetch	<i>Astragalus lentiginosus</i> var. <i>borreganus</i>	Annual Perennial Forb/Herb	None	S3.3	4.3	Mojavean and Sonoran desert scrub, Creosote Bush Scrub (sandy); blooms February-May	Moderate	Suitable habitat present onsite.	ASLEB
Fabaceae	Pink fairy-duster	<i>Calliandra eriophylla</i>	Perennial Subshrub Shrub	None	S2S3	2.3	Sonoran desert scrub (sandy or rocky); blooms January-March.	Moderate	Suitable habitat present onsite. Known adjacent occurrences.	CAER
Lamiaceae	Dwarf germander	<i>Teucrium cubense</i> ssp. <i>depressum</i>	Annual Perennial Forb/Herb	None	S2	2.2	Sandy soils, washes, fields; blooms March-May.	Moderate	Suitable habitat present onsite. Known adjacent occurrences.	TECUD2
Loasaceae	Darlington's blazing star	<i>Mentzelia oreophila</i> ( <i>Mentzelia puberula</i> )	Biennial Perennial Forb/Herb Subshrub	None	S2	2.2	Mojavean and Sonoran desert scrub (rocky or sandy); blooms March-May.	Moderate	Suitable habitat present onsite. Known adjacent occurrences.	MEOR3

**Table 5.2-2  
Special Status Plant Species with Potential to Occur Within the Project Site**

Family	SPECIES		Growth Habit	SENSITIVITY STATUS			Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
	Common Name	Scientific Name		Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank				
Loasceae	Spinyhair blazing star	<i>Mentzelia tricuspis</i>	Annual Herb	None	S1?	2.1	Mojavean desert scrub, Creosote Bush Scrub, sandy, gravelly, slopes and washes. Blooms March-May.	Low	Moderate habitat. No known occurrences adjacent or close to site.	METR2
Nyctaginaceae	Desert sand verbena	<i>Abronia villosa var. aurita</i>	Annual Herb	BLM Sensitive	S2	1B.1	Sandy Chaparral, Coastal scrub, Desert dunes. Blooms January-September	Low-Moderate	Suitable habitat present. No known adjacent occurrences.	ABVIA
Nyctaginaceae	Angel trumpets	<i>Acleisanthes longiflora</i>	Perennial Herb	None	S1	2.3	Sonoran desert scrub (carbonate), Creosote Bush Scrub, Blooms May	Low-Moderate	One known occurrence in Maria Mountains.	ACOL2
Onagraceae	Sand evening primrose	<i>Camissonia arenaria</i>	Annual Perennial Forb/Herb	None	S2	2.2	Sonoran desert scrub (sandy or rocky); blooms March-May	Moderate	Suitable habitat present onsite.	CAAR20
Pedaliaceae	Desert unicorn plant, desert devil's claw	<i>Proboscidea althaeifolia</i>	Perennial Forb/Herb	None	S3.3	4.3	Sonoran desert scrub, Creosote Bush Scrub (sandy; blooms May-August	Moderate	Observed on site	PRAL4

**Table 5.2-2  
Special Status Plant Species with Potential to Occur Within the Project Site**

Family	SPECIES		Growth Habit	SENSITIVITY STATUS			Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
	Common Name	Scientific Name		Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank				
Poaceae	California satintail	<i>Imperata brevifolia</i>	Perennial Rhizomatous Herb	None	S2.1	2.1	Mesic. Chaparral, Coastal scrub, Mojavean desert scrub. Meadows and seeps often alkali. Riparian scrub. Blooms September-May.	Low	Habitat on site has low to no occurrences of mesic areas.	IMBR2
Polemoniaceae	Harwood's eriastrum	<i>Eriastrum harwoodii</i>	Perennial Forb/Herb	BLM Sensitive	S2	1B.2	Desert dunes; blooms March-June	Moderate	Observed on site	ERHA
Rhamnaceae	Las Animas columbrina	<i>Colubrina californica</i>	Perennial Deciduous Shrub	None	S3.3	2.3	Sonoran desert scrub, Creosote Bush Scrub. Blooms April-June	Moderate	Suitable habitat present onsite. Recorded occurrences in vicinity.	COBA18
Rhamnaceae	Spiny crucillo, bitter snakewood, spiny abrojo	<i>Condalia globosa var. pubescens</i>	Perennial Tree Shrub	None	S3.2	4.2	Creosote Bush Scrub (sandy); blooms May-August	Moderate	Suitable habitat present onsite.	COGLP
Simaroubaceae	Emory's crucifixion thorn	<i>Castela emoryi</i>	Perennial Shrub Tree	None	S2S3	2.3	Dry, rocky desert washes, slopes and plains; blooms June-July.	Moderate	Suitable habitat present onsite.	CAEM4

**Table 5.2-2  
Special Status Plant Species with Potential to Occur Within the Project Site**

Family	SPECIES		Growth Habit	SENSITIVITY STATUS			Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
	Common Name	Scientific Name		Federal /BLM	State Rank (CNDDB)	California Rare Plant Rank				
Themidaceae	Small-flowered androstephium	<i>Androstephium breviflorum</i>	Perennial bulbiferous (corn) herb	None	S2S3	2.2	Desert dunes, Mojavean desert scrub (bajadas). Blooms March-April	Low-Moderate	Suitable habitat onsite	ANBR4

**Status:**

- FE = Federal Endangered
- FT = Federal Threatened
- FC = Federal Candidate
- FSC = Federal Species of Concern
- SE = State Endangered
- ST = State Threatened
- SSC = State Species of Special Concern
- SFP = State Fully Protected
- CRPR = California Rare Plant Rank

**State Rank:**

- S1 = Critically Imperiled—Critically imperiled in the state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
- S2 = Imperiled—Imperiled in the state because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
- S3 = Vulnerable—Vulnerable in the state due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
- S4 = Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.
- S5 = Secure—Common, widespread, and abundant in the state.
- .1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
- .2 = Fairly endangered in California (20-80% occurrences threatened)
- .3 = Not very endangered in California (<20% of occurrences threatened)

Ranks with a range of values: e.g., S2S3 means the rank is somewhere between S2 and S3. Adding a “?” to the rank: e.g., S2.2?, represents more certainty than S2S3, but less certainty than S2.2.

**California Rare Plant Rank**

- List 1A = Plants Presumed Extinct in California
  - List 1B = Plants Rare, Threatened or Endangered in California and Elsewhere
  - List 2 = Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
  - List 3 = Plants About Which We Need More Information, A Review List
  - List 4 = Plants of Limited Distribution, A Watch List
- State Rank and CRPR is followed by threat code (e.g. State Rank S2.2 or CRPR 1B.2)

Information on flowering time, status, habitat preferences, geographic distribution, elevation range, and known locations in the BSA was researched prior to the initiation of the field protocol surveys conducted in March, April, and May 2011.

Based on habitat conditions and vegetation observed within the BSA during reconnaissance surveys, known ranges, and habitat preferences of potentially occurring special-status plants determined from the literature review, a sub-group of species from Table 5.2-2 was selected that was deemed most likely to occur in the BSA. These species include: Utah vine milkweed, Harwood's milk-vetch, Harwood's eriastrum, as well as species listed under the California Desert Native Plant Act that the CEC requested be mapped and censused, including but not limited to ocotillo or candlewood (*Fouquieria splendens*), mesquite, palo verde, catclaw acacia, desert-holly (*Atriplex hymenelytra*), desert ironwood; and all species of Cactaceae, including but not limited to California barrel cactus (*Ferocactus cylindraceus*) and Wiggin's cholla (*Cylindropuntia echinocarpa* [*Opuntia wigginsii*]). Special focus was directed to learning the habitat preferences and field identification features of these species, including characters that could be used in a dry year.

In preparation for the field surveys, specimens for potentially occurring special-status plants were observed at the San Diego Natural History Museum herbarium on March 2, 2011. Additionally, several reference populations were searched for on March 7, 22, and 28, 2011. The reference sites visited and descriptions of what species were searched for are summarized below (CDFG 2011).

- Harwood's milk-vetch (State Rank S2.2?). This species was searched for at CNDDDB occurrences 14, 15, 19, 20, 49, 44, 94, and 95 but was not found at the time of the visit. Occurrences 94 and 95 are located northwest of the Project near Interstate 10 (I-10), occurrence 49 is located north of the Project near I-10, and occurrences 19, 20, 14, and 15 are located along the proposed gen-tie line north of the Project. Many plants were previously reported here as recently as April 2010; however, the species may not have been detectable in these areas, possibly due to the lack of rain in January 2011, human disturbance, or other undetermined environmental factors.
- Harwood's eriastrum (BLM Sensitive, State Rank S2). This species was searched for at CNDDDB occurrences 24, 27, 28, and 30, but was not found. All occurrences are located north of the Project near I-10. Many plants were previously reported here as recent as April 2010; however, the species may not have been detectable possibly due to the lack of rain in January 2011, human disturbance, or by other undetermined environmental factors.
- Dwarf germander (*Teucrium cubense* ssp. *depressum*; State Rank S2). This species was searched for at CNDDDB occurrence 4, but was not found. The occurrence is located northwest of the Project near I-10. The last time this plant was observed was in March 1979, which is the likely reason why it was not detected during the reference site visit.

Because these reference populations did not have the target special-status plants present, local experts were consulted to find other populations to visit. A population of Harwood's milk-vetch was identified along the south side of Hobson Way, north of I-10, between Keim Road and State Route 78. This population was searched for and viewed on March 28 and April 25, 2011. In addition, when a special-status plant was observed on site, such as in the case of ribbed cryptantha (State Rank S3.3) and

Harwood's eriastrum, all surveyors confirmed and documented the populations on the same day or following day.

### *Special-Status Plant Protocol Survey Methods*

Protocol-level surveys for special-status plants were floristic in nature and followed, to the degree feasible, the USFWS's *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed Plants* (USFWS, 1996a). Surveys conducted for this Project also followed, to the degree feasible, the recommendations of the botanical survey guidelines of the CDFG (CDFG 2009), those of the CNPS (CNPS 2001), and the BLM (BLM 2010). The goal of the protocol-level special-status plant surveys was to census, map, photograph, and record habitat data for every special-status plant encountered. For those plants species listed exclusively in the California Desert Native Plant Act (see Table 5.2-3), e.g., mesquite or catclaw acacia, and mapped at the request of the CEC, only a census and mapping occurred. Protocol-level surveys were conducted throughout the BSA. Special-status plant surveys were conducted in the field at the time of year when species were both evident and identifiable. Usually, this occurred when the plants were flowering or fruiting. Visits were spaced throughout the growing season to accurately determine what plants exist on site.

Multiple visits to the same site were conducted (i.e., during early and late spring, and a future late-season survey for flowering plants) to capture the floristic diversity at a level necessary to determine if special-status plants were present. The timing and number of visits were determined by geographic location, the natural communities present, and the weather patterns of the year in which the surveys were conducted.

**Table 5.2-3  
California Desert Native Plants List**

Family	Common Name	Scientific Name	Growth Habit	CFA Code	CRPR	Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
<b>California Food and Agriculture (CFA) Code § 80072 Species List</b>									
Burseraceae	Elephant Tree	<i>Bursera microphylla</i>	Perennial Tree, Shrub	80072	2.3	Blooms Early Summer	Low	Not observed on site during initial review. Localized populations not mapped on site or within vicinity of the site.	BUMI
Cactaceae	California Barrel Cactus	<i>Ferocactus cylindraceus</i> ( <i>Ferocactus acanthoides</i> )	Perennial Shrub	80072		Sonoran desert scrub, Creosote Bush Scrub Blooms April-May	High	Observed on site during initial review.	FECY
Crassulaceae	Panamint liveforever	<i>Dudleya saxosa</i> , <i>Dudleya saxosa ssp. saxosa</i> (1B.3)	Perennial Forb/Herb	80072	1B.3	Blooms April-June	Moderate	Rocky desert slopes present on site	DUSA
Pinaceae	Bristlecone Pine	<i>Pinus longaeva</i>	Perennial Tree	80072	4.3	Unknown	Low	Localized populations not mapped on site. Not observed on site during initial review	PILO
Arecaceae	California Fan Palm	<i>Washingtonia filifera</i>	Perennial Tree	80072		Blooms June	Low	Localized populations not mapped on site. Not observed on site during initial review.	WAFI
Agavaceae	Century Plants, Yuccas, Nolinias	<i>All Species</i>	Perennial Shrub, Tree	80073		Sonoran desert scrub, Creosote Bush Scrub	Moderate	Not observed on site during initial review.	

**Table 5.2-3  
California Desert Native Plants List**

Family	Common Name	Scientific Name	Growth Habit	CFA Code	CRPR	Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
CFA § 80073 Species List									
Cactaceae		<i>All Species</i>	Perennial Shrub, Tree	80073		Sonoran desert scrub, Creosote Bush Scrub	High	Observed on site: <i>Cylindropuntia echinocarpa</i> <i>Cylindropuntia ramosissima</i> <i>Ferocactus cylindraceus</i> <i>Mammillaria tetrancistra</i> <i>Mammillaria grahamii</i> <i>Opuntia basilaris</i> <i>Echinocactus polycephalus</i>	CYEC CYRA FECY MATE MAGR OPBA ECPO
Fouquieriaceae	Ocotillo, candlewood	<i>Fouquieria splendens</i>	Perennial Shrub	80073		Sonoran desert scrub, Creosote Bush Scrub Blooms March-July	High	Observed on site	FOSP2
Fabaceae	Mesquite	<i>Prosopis sp.</i> <i>All Species</i>	Perennial Tree, Shrub	80073		Sonoran desert scrub, Creosote Bush Scrub Blooms April-Sept	High	Observed on site	PRGL
Fabaceae	Palo Verde	<i>Parkinsonia sp./ All Species</i>	Perennial Tree, Shrub	80073		Sonoran desert scrub, Blooms April-May	High	Observed on site	PAFL

**Table 5.2-3  
California Desert Native Plants List**

Family	Common Name	Scientific Name	Growth Habit	CFA Code	CRPR	Habitat Associations	Potential To Occur On Project Site	Status Onsite	Plant Species Code
Fabaceae	Catclaw Acacia	<i>Acacia greggii</i>	Perennial Shrub	80073		Sonoran desert scrub, Creosote Bush Scrub Blooms April-June	High	Observed on site	ACGR
Chenopodiaceae	Desert-Holly	<i>Atriplex hymenelytra</i>	Perennial Shrub	80073		Sonoran desert scrub, Creosote Bush Scrub Blooms Jan-April	High	Observed on site	ATHY
Fabaceae	Desert Ironwood	<i>Olneya tesota</i>	including both dead and live desert ironwood	80073		Sonoran desert scrub, Blooms April-May	High	Observed on site	OLTE

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The dates on which focused botanical surveys were conducted is presented in the Rio Mesa SEGF Biological Technical Report (BTR) (Appendix 5.2A). All surveyors conducting botanical surveys possessed the following qualifications:

- experience conducting floristic field surveys;
- knowledge of plant taxonomy and plant community ecology and classification;
- familiarity with the plants of the area, including special status and locally significant plants;
- familiarity with the appropriate state and federal statutes related to plants and plant collecting; and
- experience with analyzing impacts of a project on native plants and communities.

Five teams of two surveyors walked transects spaced at 30-meter intervals or smaller, depending on vegetation density. This narrow spacing was selected to permit detection of small, cryptically colored special-status plants, which were expected to be scarce and patchily distributed. Survey team leaders carried paper maps, detailing the survey grid. For most survey sections, the transect lines were oriented in a north-south direction, approximately perpendicular to the drainage features. The survey sections shown on the maps

corresponded to images in files on the GPS units that were used to navigate and take data in the field. GPS units used during the survey were a Garmin 60CSx, Rino530, or similar model having a 3-5 meter accuracy.

Surveyors searched for special-status plants by scanning the ground 15 meters to either side of their meandering transect line while also frequently turning to look behind them to search for special-status plants tucked into the bases of shrubs (as many cacti were). Survey team members stayed more or less together while walking each transect. Each time a living special-status plant was encountered a census per unit area was taken of the individual or the population, the special-status plant was then mapped with the GPS unit, mapped by hand on the high-resolution aerial map (VTN 2011), photographed, and habitat data was recorded on CNDDDB field survey forms (Appendix 5.2A) or in the field notes of the survey team leader. Habitat data included: scientific name, number of individuals, phenology (vegetative, in bud, in flower, old flowers, in fruit), substrate, vegetation type, associated species, and disturbance condition.

Voucher specimens were collected to provide verifiable documentation of species' presence and identification, as well as to provide a public record of conditions. This information is vital to all conservation efforts. Collection of the voucher specimens was conducted in a manner that was consistent with conservation ethics, and in accordance with applicable state and federal permit requirements (e.g. incidental take permit, scientific collection permit). Voucher collections of special-status species (or suspected special-status species) were only made when such actions would not jeopardize the continued existence of the population or species. Voucher specimens were deposited with an indexed regional herbarium no later than 60 days after the collections were made. All relevant permit names and permit numbers were recorded on the specimen labels.

### *Special-Status Plant Survey Limitations*

Special-status plant surveys were conducted during a slightly below normal dry year. The recorded rainfall from December 2010 through February 2011 (IDcide 2010, 2011) was close to that normally observed for Blythe, California (Wunderground 2011), except during January when no rainfall was recorded. Recorded monthly rainfall amounts were 0.56, 0.00, and 0.93 inches, respectively, in comparison to normally observed monthly rainfall levels of 0.41, 0.49, and 0.44 inches, respectively (Western Regional Climate Center, Blythe 1948-2010 average). Recorded average monthly temperature values were 56.7, 55.3, and 54.3 degrees Fahrenheit (°F), respectively, in comparison to normally observed monthly temperature values of 52.9, 53.5, and 58.2 °F, respectively.

Annual special-status plants, such as those listed on Table 5.2-2 in particular, may not have been observable possibly due to the lack of rain in January 2011, human disturbance, or other undetermined environmental conditions, so their absence cannot be concluded. None of these species is listed as endangered or threatened under the ESA. The potential for the occurrence of other special-status plant species will be assessed by qualified botanists conducting protocol-level special-status plant surveys during the future late-season monsoon season surveys. For those special-status species that have been detected within the project site and those that have a high potential to occur on the project site, surveys will be conducted for these species prior to construction and during the growing season to accurately determine if these special-status plants exist within the project site.

*Special-Status Animal Protocol Survey Methods*

Special-status species are defined as those species that are protected under the provisions of the ESA, CESA, MBTA, BGPA or considered sensitive by the BLM (S) or CDFG (Species of Special Concern [SSC] and Fully Protected [FP] Species). Databases from sources including the USFWS and CNDDDB (CDFG 2011) were queried to provide the recent and historical distribution of special-status species in the project area, and serve as a guideline for focused biological survey planning. A list of special-status animal species that URS identified as having the potential to occur within the boundaries of the project site is provided in Table 5.2-4.

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**Table 5.2-4  
Special Status Animals with the Potential to Occur within the BSA**

Species		Status		Habitat Associations	Potential To Occur Onsite	Status Onsite
Common Name	Scientific Name	Federal	State			
<b>Reptiles</b>						
Desert tortoise	<i>Gopherus agassizii</i>	Federal Threatened (FT)	State Threatened (ST)	River washes, rocky hillsides, and flat desert having sandy or gravelly soil with creosote bush, burro bush, saltbush, Joshua tree, Mojave yucca, cacti, other shrubs, grasses, and wildflowers.	Moderate	Present
Gila monster	<i>Heloderma suspectum</i>	Bureau of Land Management (BLM): Sensitive (S)	California Department of Fish and Game State (CDFG): Species of Special Concern (SSC)	Found in desert scrubland and oak woodland, seeking shelter under rocks and in burrows.	Low-Moderate	Not present
Mojave fringe-toed lizard	<i>Uma scoparia</i>	BLM: S	CDFG: SSC	Areas of aeolian sands including dunes, flats with sandy hummocks, washes and banks of rivers.	High potential along gen-tie line	Present
<b>Birds</b>						
American white pelican	<i>Pelecanus erythrorhynchos</i>	None	CDFG: SSC	Occurs in marshes, lakes, bays.	Low	Detected as flyover
Arizona Bell's vireo	<i>Vireo bellii arizonae</i>	BLM: S	State Endangered (SE)	Occurs in dense riparian vegetation, associated with the Colorado River corridor.	Low	Not present

**Table 5.2-4  
Special Status Animals with the Potential to Occur within the BSA**

Species		Status		Habitat Associations	Potential To Occur Onsite	Status Onsite
Common Name	Scientific Name	Federal	State			
Burrowing owl	<i>Athene cunicularia</i>	BLM: S United States Fish and Wildlife Service (USFWS): Birds of Conservation Concern (BCC)	CDFG: SSC	Found in open grasslands and agricultural areas with suitable fossorial mammal burrows for nesting.	Moderate-High	Present, Known to occur in adjacent agricultural lands.
Cooper's hawk	<i>Accipiter cooperii</i>	None	CDFG Watch List (WL)	Forest, open woodland, or habitat edges,	Low-Moderate	Present
Crissal thrasher	<i>Toxostoma crissale</i>	None	CDFG: SSC	Occurs in dense riparian and mesquite scrub, microphyll woodland, and riparian washes with a dense understory of shrubs	Moderate	Present
Gila woodpecker	<i>Melanerpes uropygialis</i>	BLM: S USFWS: BCC	SE	Requires live tree-size cactus or dead trees (Winkler et al. 1995).	Moderate	Present
Golden eagle	<i>Aquila chrysaetos</i>	BLM: S USFWS: BCC Bald and Golden Eagle Protection Act (BGEPA)	CDFG: Fully Protected (FP), WL	Desert scrub near cliff nest sites.	Moderate	Present, two transient individuals detected in early March. Focused active nest survey was negative.
Harris hawk	<i>Parabuteo unicinctus</i>	None	CDFG: WL	Semiarid regions in scrub with mesquite, cacti, and yucca.	Moderate-High	Detected off-site

**Table 5.2-4  
Special Status Animals with the Potential to Occur within the BSA**

Species		Status		Habitat Associations	Potential To Occur Onsite	Status Onsite
Common Name	Scientific Name	Federal	State			
Horned lark	<i>Eremophila alpestris</i>	None	CDFG: WL	Desert residents associated with nearby agricultural fields.	Moderate	Present
Le Conte's thrasher	<i>Toxostoma lecontei</i>	BLM: S USFWS: BCC	CDFG: SSC	Desert washes where large shrubs occur for nesting.	Moderate	Present
Loggerhead shrike	<i>Lanius ludovicianus</i>	USFWS: BCC	CDFG: SSC	Desert, farmland; nests in cholla and thorny bushes	Moderate-High	Present
Lucy's warbler	<i>Oreothlypis luciae</i>	USFWS: BCC	CDFG: SSC	Occurs in mesquite scrub or riparian vegetation associated with desert washes.	Moderate-High	Present
Northern harrier	<i>Circus cyaneus</i>	None	CDFG: SSC	Occurs in marsh or open grassland and is associated with nearby agricultural fields.	Low- Moderate	Present
Peregrine falcon	<i>Falco peregrinus</i>	USFWS: BCC	CDFG: FP	Found in desert scrub near cliff nest sites. Occur in wide variety of habitats including open country, along rivers, coast, and in cities.	Moderate- High	Detected off-site
Prairie falcon	<i>Falco mexicanus</i>	USFWS: BCC	CDFG: WL	Found in desert scrub near cliff nest sites. Associated with mountains, prairie, and grassland.	High	Present
Rufous-crowned sparrow	<i>Aimophila ruficeps</i>	None	CDFG: WL	Occurs in rocky outcrops, near dry uplands or open oak woodlands.	Moderate	Present
Vaux's swift	<i>Chaetura vauxi</i>	None	CDFG: SSC	Forest and woodland, usually near lakes, rivers.	Moderate	Present
Vermilion flycatcher	<i>Pyrocephalus rubinus</i>	None	CDFG: SSC	Found in dry desert scrub, savanna, near wooded streams.	Moderate	Not present

**Table 5.2-4  
Special Status Animals with the Potential to Occur within the BSA**

Species		Status		Habitat Associations	Potential To Occur Onsite	Status Onsite
Common Name	Scientific Name	Federal	State			
Western yellow-billed cuckoo	<i>Coccyzus americanus occidentalis</i>	Federal Species of Concern (FSC), BLM: S	SE	Associated with farmlands, willows, thickets.	Low	Not present
Yellow-breasted chat	<i>Icteria virens</i>	None	CDFG: SSC	Found in dense brush often along streams and on hillsides.	Low	Not present
Yellow-headed blackbird	<i>Xanthocephalus xanthocephalus</i>	None	CDFG: SSC	Associated with agricultural fields with freshwater marshes.	Low	Detected off site
Yuma clapper rail	<i>Rallus longirostris yumanensis</i>	FE	ST	Found in fresh-water marshes.	Low	Not present
<b>Mammals</b>						
American badger	<i>Taxidea taxus</i>	None	CDFG: SSC	Grasslands, savannas, and mountain meadows near timberline are preferred, but also occur in desert scrub areas.	Moderate	Present
Arizona myotis	<i>Myotis occultus</i>	None	CDFG: SSC	Typically found near buildings, mines, and beneath bridges; colonial.	Moderate	Undetermined
California leaf-nosed bat	<i>Macrotus californicus</i>	BLM: S	CDFG: SSC	Found in caves or mines; colonial.	Moderate	Known to roost in mines near project
Cave myotis	<i>Myotis velifer</i>	BLM: S	CDFG: SSC	Found most often in caves, mines, near buildings; colonial.	Moderate	Known to roost in mines near project
Colorado River cotton rat	<i>Sigmodon arizonae plenus</i>	None	CDFG: SSC	Found near river or on immediate flood plain; avoid arid desert regions	Low	Undetermined

**Table 5.2-4  
Special Status Animals with the Potential to Occur within the BSA**

Species		Status		Habitat Associations	Potential To Occur Onsite	Status Onsite
Common Name	Scientific Name	Federal	State			
Nelson's bighorn sheep	<i>Ovis Canadensis nelsoni</i>	BLM: S	None	Dry, relatively barren desert mountain ranges.	Moderate	Sign present
Pallid San Diego pocket mouse	<i>Chaetodipus fallax pallidus</i>	None	CDFG: SSC	Found in arid, open, sandy areas.	Moderate	Undetermined
Spotted bat	<i>Euderma maculata</i>	BLM: S	CDFG: SSC	Found in arid regions, sometimes in caves; roost in rock crevices.	Moderate	Undetermined
Townsend's big-eared bat	<i>Corynorhinus townsendii</i>	BLM: S	CDFG: SSC	Uses caves, buildings, and mines to roost; may roost singly for part of year.	Moderate	Undetermined
Yuma myotis	<i>Myotis yumanensis</i>	BLM: S	None	Found in mines, caves, and tunnels, occasionally buildings; colonial.	Moderate	Undetermined
Western mastiff bat	<i>Eumops perotis</i>	BLM: S	CDFG: SSC	Roosts on buildings, cliff crevices, trees, tunnels; emerges at late dusk.	Moderate	Undetermined

BCC = Birds of Conservation Concern  
 BGEPA = Bald and Golden Eagle Protection Act  
 BLM = Bureau of Land Management  
 CDFG = California Department of Fish and Game  
 FE = Federal Endangered  
 FP = Fully Protected  
 FSC = Federal Species of Concern  
 FT = Federal Threatened

MBTA = Migratory Bird Treaty Act  
 SE = State Endangered  
 SSC = Species of Special Concern  
 ST = State Threatened  
 USFWS = United States Fish and Wildlife Service  
 WL = Watch List

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Qualified biologists conducted surveys for the various special-status species potentially present within the BSA boundary. Biologists were qualified by demonstrating previous survey experience for the species being surveyed, or by holding specific permits for the species being surveyed. Biologists who did not have previous experience with the surveyed species were under the direct supervision of an experienced or approved biologist. Species-specific protocols were followed for wildlife species.

The following species required focused surveys that were conducted independently of other species surveys: desert tortoise, burrowing owl, Mojave fringe-toed lizard and Couch's spadefoot toad (*Scaphiopus couchii*). Documentation of desert kit fox, American badger, raptors, general wildlife, bats and any artificial or temporary water catchments that could serve as breeding pools for Couch's spadefoot toad (which were surveyed later after summer rains) occurred during other survey efforts throughout the field season due to the common nature of the species, or because no standard, focused survey protocols have been defined for these species.

Aerial photography was used in the field at an appropriate scale to designate the BSA, plan for access, and to help map species locations as necessary. Special-status species were identified during surveys by direct visual observation, aural detection, or by the observation of sign, including scat, track, feathers, middens, etc. Species were identified with the aid of 8x42 or similar power binoculars, as necessary. If possible, digital photographs of special status species were taken for documentation purposes and were reviewed by other biologists.

### **Desert Tortoise Surveys**

Focused surveys for desert tortoise (FT, ST) were conducted according to the USFWS 2010 pre-project field survey protocol for potential desert tortoise habitats (USFWS 2010). Survey guidelines require 100 percent coverage of all suitable habitat using 10-meter-wide (30-foot-wide) belt transects. Surveys were conducted over the entire BSA and in the Zone of Influence (ZOI) consisting of 10-meter transects 200, 400, and 600 meter from the project site boundary. Surveys began in late April 2011, which is within the window of time that desert tortoises are most active. To facilitate the planning and execution of the surveys, the site was broken down into cells such that a team of qualified biologists was able to survey the cell within one day (approximately 7.5 transect miles per biologist). Breaking up the site into cells also allowed for the random sampling of the site to avoid potential temporal or human variances, and allowed later reference to specific survey areas in the database, if needed. Surveys continued for the entire site, whether live tortoises were encountered or not. Desert tortoises and desert tortoise signs (including tortoise burrows, tortoise scat, carcasses, tracks, and egg shell fragments) observed during the focused survey were recorded on datasheets and GPS units. Sample presence/absence and live tortoise encounter datasheets are provided in Appendix 5.2A. Photographs were also collected to document the biological resources surrounding the location where the tortoise was detected.

Data on the observed quality of the habitat was collected, including macro-habitat features such as soil types, substrate composition and friability, vegetation community, density, geomorphology (e.g., hills, alluvial fan, bajada, wash), and micro-habitat features that included slope, aspect, forage species, and level and types of disturbance. The data was analyzed and summarized for inclusion in the BTR. The number of live desert tortoise observed during the surveys was used to estimate the number of desert tortoise potentially occurring within the project site. Table 4 of the 2010 *USFWS Desert Tortoise Pre-Project Survey Protocol* provides the formula to be used for the estimate. At no time during the surveys

were desert tortoises handled or harassed by biologists conducting these surveys. Although incidental observations of other species were documented, desert tortoise surveys were not conducted concurrently with other survey efforts.

#### **Mojave Fringed-toed Lizard Surveys**

Focused surveys for Mojave fringe-toed lizard (SSC, BLM: S) were conducted on approximately 567 acres of the proposed gen-tie line route and substation at the northwestern end of the BSA, including the northern substation location, and on approximately 2.5 acres on the western slope of the mountain on the west side of the Project. These areas were determined to contain windblown sand during an initial habitat assessment. Although formal protocols do not currently exist for Mojave fringe-toed lizard, 100 percent coverage surveys similar to desert tortoise presence or absence surveys were utilized. These surveys consisted of 10-meter-wide (30-foot-wide) belt transects through all potential habitat, as well as a buffer of habitat determined to be non-suitable during a previous habitat assessment, as described above. Mojave fringe-toed lizard surveys were conducted in June 2011. Incidental observations of other wildlife species observed were documented during this survey effort.

#### **Couch's Spadefoot Toad Surveys**

Focused surveys for Couch's spadefoot toad (SSC) were conducted after summer rains in all areas determined during other surveys to be potential breeding pools. The areas observed to have ponding water were monitored at night for at least 20 minutes in order to aurally determine if Couch's spadefoot toads were breeding and/or calling in the area. The same pools were checked the following day for eggs, tadpoles, toadlets, and toads.

Rechecks of ponding areas were conducted approximately eight days after the initial storm events that resulted in the pools forming in order to determine if the pools remained inundated for the amount of time necessary for Couch's spadefoot toads to complete their aquatic lifecycle (transition from eggs to tadpoles to toadlets). The pools that were still inundated were again monitored for calling/breeding and checked for signs of eggs, tadpoles and/or toadlets.

#### **Western Burrowing Owl Surveys**

Focused breeding season (February 1 and August 31) surveys for the western burrowing owl (CA-SSC) were conducted in all suitable habitat on site according to the 1993 California Burrowing Owl Consortium survey protocol. Suitable habitat was determined to exist within the entire project site; therefore, the entire site was surveyed. The first round of surveys occurred in May and June 2011 and consisted of pedestrian surveys spaced wide enough (30 meters) to allow for 100 percent visual coverage of the BSA to locate burrows and other burrowing owl signs. All potential burrowing owl burrows were identified on datasheets and marked with a GPS unit for the second round of surveys to determine population density of owls.

The second round of surveys occurred in June 2011 and consisted of four separate days of surveys during which the burrows were observed for burrowing owl activity. These surveys were conducted in the afternoon, from two hours before sunset to one hour after sunset. Burrows were observed using binoculars or a spotting scope from as many different vantage points as necessary to provide visual coverage of the

burrows. Surveys were conducted during weather that was conducive to observing owls outside their burrows. Surveyors maintained a minimum distance of 50 meters (approximately 160 feet) from burrows.

All observations of owl activity and burrows were mapped to determine potential impacts to the species. Although incidental observations of sign were documented, burrowing owl surveys were conducted independently of other survey efforts.

### **Golden Eagle Surveys**

URS conducted research on the results of all previous golden eagle (BCC, FP) surveys within 10 miles of the project site, gen-tie line corridor and alternative substation locations. URS completed helicopter surveys in areas where the presence or absence of golden eagle was unknown. An initial helicopter survey occurred in mid-March to identify golden eagle nests, with a second helicopter survey in early May to determine occupation of the identified nests by golden eagles. Any incidental observations of other wildlife species were also documented during this survey effort.

### **Migratory Bird Counts**

Migratory bird point count surveys were performed according to the protocol established by the BLM (2009) for solar facilities. According to the protocol, one point count transect was to be performed per square mile of project site, for a total of 16 transects (13 on the Project and 3 on the potential mitigation lands to the east of the Project). Transects were concentrated on areas with high potential for bird activities (e.g., washes, high vegetation areas). Each transect had eight point count locations, a minimum of 250 meters apart, where two biologists recorded all birds that were observed during a 10 minute duration within a 100-meter radius. The first round of surveys began on April 4, 2011 and consisted of four separate days of surveys. Four weeks of point counts were performed (with one week between the first and second week in which no point counts were performed because of unexploded ordnance issues). The surveys began at or after sunrise and were completed within approximately four hours.

### **Baseline Raven Population**

Ravens (*Corvus corax*) are known to prey upon juvenile desert tortoise and are also known to be subsidized in remote desert environments by human development. URS documented ravens in the BSA to provide a baseline estimate for comparison once the Project has been implemented. The raven population was assessed based on visual observations during point count, burrowing owl and desert tortoise surveys. This information was then used to provide a baseline estimate of raven use of the site prior to Project implementation. Future population estimates will be obtained at a later date to compare the impact of the Project on raven populations in the Project vicinity.

### **Kit Fox and Badger Surveys**

Kit fox (no status) and American badger (SSC) use of the site was determined by the observation of kit fox and badger individuals and burrows on site. Burrows of these species were searched for during the desert tortoise survey and burrowing owl burrow search. Any burrows that might potentially contain kit fox or American badger were marked and the information was used to determine the potential impact of the Project on kit fox and/or American badger.

**Bat Surveys**

Surveys for bat species were conducted during the general wildlife survey and in conjunction with other wildlife surveys occurring on site. In general, bat species were searched for in areas where they are most likely to occur, such as in caves and cracks in canyons, entrances to mines and large boulder fields, other mountainous areas, and forested areas (e.g. mesquite riparian forest) for tree-roosting species. Bats observed flying over the proposed project site (usually at dusk during the Phase Three burrowing owl surveys) were documented. The species of these bats was not determined based on these visual encounters.

Biologist Patricia Brown has accumulated approximately 30 years of bat data within the vicinity of the Project. These data will be used to identify the species of bats that utilize the project site along with locations and densities of potential roosts on and/or near the Project.

***5.2.4.4 Wetland and Other Waters Delineation Methods***

The following sections describe the methods used to delineate wetlands and Other Waters located in the BSA.

***Waters of the United States (WUS)***

Under Section 404 of the CWA, WUS were evaluated based on the presence of an ordinary high-water mark (OHWM) or the boundaries of adjacent wetlands defining their limits, as provided at 33 CFR 328.3 and 328.4. The USACE regulates the discharge of dredged and fill materials into WUS. Jurisdictional WUS include waters used for interstate commerce, interstate waters and wetlands, and intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, and wetlands adjacent to any WUS where the use or construction could affect interstate commerce (33 CFR § 328.3(a)(3)). An ephemeral wash that is not relatively permanent will be considered a WUS when there is a “significant nexus” between the tributary and a traditionally navigable waterway (TNW; EPA, Guidance 2007). Certain WUS are considered “special aquatic sites” because they are generally recognized as having particular ecological value. Such sites include sanctuaries and refuges, mudflats, wetlands, vegetated shallows, coral reefs, and riffle and pool complexes. Special aquatic sites are defined by the United States Environmental Protection Agency and may be afforded additional consideration in the permit process for a project.

The proposed delineation of potential WUS is based on the definitions of “waters,” “wetlands,” and OHWMs (USACE 1987, 2006). Indicators of OHWM include: waterline mark on bank, water staining, shelving or cut banks, exposed roots, sediment deposits, presence of litter and debris, and changes in substrate and/or vegetation. The project site was evaluated for the presence of WUS using standard methods described in the *Field Guide for Wetland Delineation: 1987 Corps of Engineers Manual* (USACE 1987), *Interim Regional Supplement to the ACOE of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2006), *Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest* (USACE 2010b), *Coordination on Jurisdictional Determinations under Clean Water Act Section 404 in Light of the SWANCC and Rapanos Supreme Court Decisions* (USACE 2007a), and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (USACE 2008b). The jurisdictional status of

all waters delineated was evaluated by assessing the surface connectivity of these areas with downstream traditionally navigable WUS (i.e., the Colorado River) and a search for previous jurisdictional delineations and Section 404 permit applications in the area of the project site.

### *Wetland and Other WUS Delineation Methods*

Areas considered and assessed as jurisdictional WUS were based on wetland delineation practices designed to comply with the Supreme Court's decision in *Rapanos v. United States*, 547 U.S. 715 (2006) (USACE 1987, 2008a, and 2008b). The methodology used to determine what is proposed jurisdictional and what is proposed non-jurisdictional involved the two criteria identified below.

1. OHWM: Areas with higher density vegetation, but lacking in any of the OHWM characteristics were eliminated as proposed jurisdictional, whereas proposed jurisdictional washes exhibited conditions indicative of OHWMs being present.
2. Connectivity: Ephemeral washes that were not ultimately connected to the Colorado River, a TNW, were eliminated as proposed jurisdictional. Downstream connectivity to a TNW was determined and confirmed using topographic maps, current aerial photography, and field reconnaissance.

The field review and desktop mapping focused on gathering information relative to areas of high-density vegetation and other wash indicators (e.g., well-defined bed and bank, presence of an OHWM, connectivity to TNW, USGS topographic map "blue lines", and apparent hydrologically related changes in substrate and vegetation) to evaluate their jurisdictional status. The reviewed areas are represented by drainage identification letters (A through I) and sections (gen-tie line and access corridors). Potential WUS at the project site were identified by URS personnel through review of existing documentation and were verified during the field investigation. During the field investigation, URS personnel gathered information on the physical parameters such as topographic demarcation, soil characteristics, vegetation cover, and connectivity of drainages to the Colorado River. Aerial photographs at a scale of one inch = 200 feet (VTN 2011), the Thumb Peak, Palo Verde, Ripley, and Roosevelt Mine USGS 7.5-Minute Quadrangle Maps, and the USFWS's Wetland Mapper (National Wetlands Inventory [NWI] 2011) were used to identify potential wetland and water resources in the project area. A site reconnaissance survey and preliminary assessment of water features were conducted from April 18 through April 22, 2011. The preliminary data review and site reconnaissance survey identified numerous west-to-east-trending ephemeral washes throughout the project site, including five large ephemeral washes trending west-to-east and south. Given the size of the study area and the myriad of features present, the characterization and mapping of these drainages was accomplished through a combination of field surveys and desktop mapping using high resolution aerial photographs. Prior to field surveys, this proposed methodology was discussed with USACE regulatory staff from the Los Angeles District (Pers. Comm. Jim Mace, 2011).

The total survey area delineated was approximately 11,381 acres, and included the BSA. Ten drainages were pre-chosen, using high-resolution aerial photographs, as representative of typical ephemeral washes found throughout the site. These 10 drainages were chosen based on size, flow direction, connectivity, flow patterns, vegetation composition, topography, and USGS "blue lines". Pedestrian surveys were conducted along the 10 drainages and included points representing locations of the middle of the drainage channel, OHWMs, locations of low and high banks, and the outer extent of vegetation typically associated

with each drainage. Data were recorded using a Trimble® Geo-XT GPS. General characteristics of the wash, including average channel width, evidence of flow, and general vegetation, were noted. Field data was incorporated into a GIS for subsequent analysis and mapping. Data points collected along transect lines were plotted on recent aerial photographs having one-foot to two-foot resolution, and drainage features within the survey area were manually digitized in to the GIS using the nearest reference location data to aid in the mapping. The area extending one mile from the site boundaries was qualitatively evaluated for the presence of wetlands and other waters and for possible indirect effects to waters adjacent to the project site.

URS biologists reported no observable surface water in the BSA at the time of the investigation, but they documented evidence of past recent surface water flows, including visible shelves and edges in washes, OHWMs, litter and debris, and vegetation disturbance. Other evidence observed was the heavy braiding of washes throughout the project site. URS biologists determined surface waters flowed southeast to Hodges Drain and connected to the Palo Verde Outfall which flows in to the Colorado River, which is identified as a WUS and TNW.

### *Lakes and Streambeds*

Areas subject to requirements of § 1600 of the California Fish and Game Code, Streambed Alteration Agreement, were evaluated by URS. § 1602(a) describes areas potentially subject to a LSAA:

*1602 (a) An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, unless all of the following occur...*

Section 1602(a) is based on Title 14 CCR 720:

*For the purpose of implementing §§ 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.*

Streams, including creeks and rivers, are defined at Title 14 CCR 1.72 as:

*A stream is a body of water that flows at least periodically or intermittently through a bed or channel having banks, this includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation.*

Lakes are defined at Title 14 CCR 1.56 as:

*Lakes: Includes natural lakes or man-made reservoirs.*

Additionally, potential beneficial uses, like wildlife corridors and nesting habitat that may occur on site were evaluated.

### **Porter-Cologne Water Quality Control Act**

In addition to CDFG regulatory authority, the RWQCB also regulates impacts to WUS and WSC under CWA § 401 and the Porter-Cologne Water Quality Control Act, respectively. Although water quality issues related to impacts to waterways are normally addressed during a CWA § 401 Water Quality Certification, should a channel be determined by the USACE as not a WUS, Porter-Cologne Water Quality Control Act compliance would be addressed under a National Pollution Discharge Elimination System Storm Water Construction General Permit, State General Waste Discharge Order, or waste discharge requirements, depending upon the level of impact and the properties of the drainage.

### ***Waters of the State***

The CDFG requires activities that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake, or their tributaries, or use materials from a streambed, to submit an application for an LSAA to the CDFG. As noted above, in the case of a thermal powerplant within the Commission's jurisdiction, the Commission "stands in the shoes" of CDFG and the Commission's certified regulatory program subsumes the LSAA process.

CDFG generally interprets the jurisdictional limits of state jurisdictional waters to include any one of the criteria identified below.

1. At minimum, intermittent and seasonal flow through a well-defined bed or channel with banks and also supports fish or other aquatic life.
2. A watercourse having a surface or subsurface flow regime that supports or has previously supported riparian vegetation.
3. Hydrogeomorphically distinct top-of-embankment to top-of-embankment limits (i.e., well-defined bed and bank).
4. Outer ground cover and canopy extent of typical riparian associated vegetation beyond the top-of-bank that would be sustained by surface and/or subsurface waters of the watercourse.

The CDFG routinely asserts jurisdiction on areas that may be adjacent to a stream with an OHWM that demonstrate: a dominance of hydrophytic vegetation, hydric soils, or wetland hydrology. Therefore, URS has evaluated such conditions as potentially meeting the requirements of Fish and Game Code §1600, et seq.

The methodology used to determine potential WSC followed those that were used to determine WUS. Additional attention was paid to the outer extent of riparian vegetation associated with each drainage in order to map the extent of potential coverage by § 1600 et seq, beyond the well-defined bed and bank.

**5.2.5 Results of Biological Surveys**

The following sections provide a summary of the results of the biological surveys conducted in the BSA.

**5.2.5.1 Vegetation Communities**

Nine native vegetation alliances, as defined in the document titled *A Manual of California Vegetation, Second Edition* (Sawyer et al. 2009), were observed in the BSA (Table 5.2-5, Figure 5.2-2). The primary vegetation types are Colorado Desert creosote bush scrub, creosote bush/white burr sage scrub, and blue palo verde/ironwood woodland. Disturbed areas are associated with unpaved roads and trails, maintenance areas for existing transmission line poles, and ROWs along underground pipeline routes. A complete list of all plants detected during the early and late spring 2011 surveys is provided in Appendix 5.2A. Table 5.2-5 shows the estimated acreages of existing vegetation communities for areas within the Project BSA.

**Table 5.2-5  
Vegetation Communities within the BSA**

Plant Community	Total (acres)
Creosote Bush Scrub	2,814.3
Creosote/White Burr Sage Scrub	3,905.1
Creosote Bush/White Burr Sage Scrub with Big Galleta Grass Association	923.1
Creosote Bush/White Burr Sage Scrub with Ocotillo Association	68.6
Blue Palo Verde / Ironwood Woodland	2,237.8
Brittle Bush/Ferocactus Scrub	220.4
Desert Dunes	789.2
Bush Seepweed Scrub	7.5
Bush Seepweed Scrub/Mesquite Bosque	110.3
Open Channel/Developed	0.8
Agriculture	85.7
Ruderal	44.2
No ROE, Vegetation not mapped in Gen-tie-Line	70.0
<b>Total</b>	<b>11,277.0</b>

ROE = Right-of-Entry

***Creosote Bush Scrub***

Creosote bush scrub is a common desert community dominated by creosote bush. The shrub canopy is open to slightly intermittent. A diverse annual herb layer may flower in late March and April with sufficient winter rains. Other common plant species in this habitat can include Shockley's goldenhead (*Acamptopappus shockleyi*), rayless goldenhead (*Acamptopappus sphaerocephalus*), white burr sage, burrobush, brittlebush species, Nevada ephedra, and water jacket (*Lycium andersonii*). This plant community is typically found on alluvial fans, bajadas, and major or minor washes. The elevation range for this community is typically 75 to 1,000 meters. This vegetation type makes up 2,814.3 acres of the BSA, including the 500-foot buffer.

***Creosote Bush/White Burr Sage Scrub***

Creosote bush/white burr sage scrub is a community dominated by creosote bush (*Larrea tridentata*) and white burr sage (*Ambrosia dumosa*). Shrubs are typically widely spaced with bare ground between them. A diverse annual herb layer may flower in late March and April with sufficient winter rains. Other common plant species in this habitat can include desert senna (*Senna armata*), Nevada ephedra (*Ephedra nevadensis*), burrobush (*Hymenoclea salsola*), brittlebush (*Encelia* spp.), ratany (*Krameria* spp.), and various cactus species (e.g., *Cylindropuntia* spp.). This plant community is typically found on well-drained secondary soils with very low water-holding capacity on slopes, fans, and valleys. The elevation range for this community is typically at 75 to 1,200 meters. This vegetation type makes up the majority of the acreage within the BSA (i.e., 3,905.1 acres), which includes the 500-foot buffer.

***Creosote Bush-White Burr Sage Scrub with Big Galleta Grass Association***

Creosote bush-white burr sage scrub with big galleta grass association is a vegetation community dominated by creosote bush, white burr sage, and accompanied by big galleta grass (*Pleuraphis rigida*) that has at least 1% cover that is State Ranked S3 or higher (CDFG 2010). Shrubs make up low cover with intermittent seasonal annuals. This plant community is typically found on sandy fans or lower bajadas and occasionally at the edges of sand sheets and dunes. Cryptogammic crust is often found in this association, implying no recent disturbance. The elevation range for this community is typically 75 to 1,200 meters. This vegetation type makes up 923.1 acres of the BSA, including the 500-foot buffer.

***Creosote Bush-White Burr Sage Scrub with Ocotillo Association***

Creosote bush-white burr sage scrub with ocotillo association is a community dominated by creosote bush, white burr sage, and ocotillo (*Fouquieria splendens*). Shrubs are typically widely spaced with bare ground between them. A diverse annual herb layer may flower in late March and April with sufficient winter rains. Other common plant species in this habitat include desert senna, Nevada ephedra, brittlebush species, ratany species, and various cactus species. This plant community is typically found on well-drained secondary soils with very low water-holding capacity on slopes, fans, and valleys. The elevation range for this community is typically 75 to 1,200 meters. This vegetation type makes up 68.6 acres within the BSA, including the 500-foot buffer.

***Blue Palo Verde-Ironwood Woodland***

Blue palo verde-ironwood woodland is a vegetation community co-dominated by blue palo verde (*Parkinsonia florida*) and ironwood (*Olneya tesota*) in the tree canopy layer that is a State Rank S3 community, is a high priority for inventory (CDFG 2010), and is considered sensitive by the BLM. The canopy and shrub layers are open to intermittent, with sparse seasonal annuals. Other common plant species in this habitat can include honey mesquite (*Prosopis glandulosa*), screwbean mesquite (*Prosopis pubescens*), catclaw acacia, white burr sage, burrobush, sweet bush (*Bebbia juncea*), and creosote bush. This plant community is usually found in desert arroyos, alluvial fans, and desert washes. The elevation range for this community is typically at 10 to 500 meters. This vegetation type makes up 2,237.8 acres of the BSA, including the 500-foot buffer.

***Brittle Bush/Ferocactus Scrub***

Brittle bush/ferocactus scrub is a vegetation community co-dominated by creosote bush, brittle bush, and California barrel cactus (*Ferocactus cylindraceus*) (CDFG 2010). Shrubs are widely spaced with areas of bare ground between them, and are typically located on rocky, well-drained soils. The canopy is open to intermittent and two tiered, while the herbaceous layer is open with seasonal annuals. Other common plant species in this habitat can include desert agave (*Agave deserti*), white burr sage, desert holly (*Atriplex hymenelytra*), sweet bush, ocotillo, and desert trumpet (*Eriogonum inflatum*). The elevation range for this community is typically 75 to 1,400 meters. This plant community is usually found in small washes, alluvial fans, upland slopes, and bajadas. This vegetation type makes up a total of 220.4 acres of the BSA, including the 500-foot buffer.

***Desert Dunes***

Desert dune is a sensitive vegetation community not necessarily dominated by any plant species (CDFG 2010) but has a State Rank of S2 and is considered sensitive by BLM. Shrubs make up a small percent of the cover, with most of it being open sands. Although not necessarily dominants, desert twinbugs (*Dicoria canescens*) and/or desert sand verbena (*Abronia villosa*) are typically present in stands. Some of the more common plant species in this habitat can include splecklepod loco milkvetch (*Astragalus lentiginosus*), browneyes (*Camissonia claviformis*), California croton (*Croton californicus*), buckwheat (*Eriogonum* spp.), hairy desert sunflower (*Geraea canescens*), broad leaf gilia (*Gilia latifolia*), dune primrose (*Oenothera deltoides*), desert palafox (*Palafoxia arida*), big galleta grass, Russian thistle (*Salsola tragus*), desert twinbugs, desert sand verbena, and Asian mustard. Emergent shrubs including white burr sage and creosote bush may also be present. This plant community is usually found on active dunes and sand fields; the canopy is open to intermittent, with seasonal annuals. The elevation range for this community is typically 10 to 1,200 meters. This vegetation type makes up a total of 789.2 acres of the BSA, including the 500-foot buffer.

***Bush Seepweed Scrub***

Bush seepweed scrub is a vegetation community dominated by bush seepweed with a State Rank of S3 (CDFG 2010). The shrub canopy is generally open with the herbaceous layer being highly variable. Other common plant species in this habitat can include iodine bush, sagebrush (*Artemisia tridentata*),

fourwing saltbush (*Atriplex canescens*), shadscale saltbush (*Atriplex confertifolia*), Parry's saltbush (*Atriplex parryi*), spinescale saltbush (*Atriplex spinifera*), and rabbitbrush (*Ericameria nauseosa*). This plant community is usually found on dry lake beds above drainages and plains. This vegetation type makes up 7.5 acres of the BSA, including the 500-foot buffer.

### ***Bush Seepweed Scrub/ Mesquite Bosque***

Bush seepweed scrub/Mesquite bosque is a vegetation community in which bush seepweed (*Suaeda moquinii*) is dominant or co-dominant with iodine bush (*Allenrolfea occidentalis*) and has a State Rank of S3 (CDFG 2010). This community is found in habitat characterized by gently sloping valley bottoms, playas, bajadas, and toe slopes adjacent to alluvial fans. The elevation range for this community is typically 0 to 1,300 meters. In the Colorado Desert, stands are usually widespread in alkali areas. The canopy and shrub layers are open to continuous, while the herbaceous layer is sparse to intermittent. The canopy and herbaceous layers found on site were observed to be continuous and sparse to absent, respectively. Mesquite bosque 'islands' were found within the bush seepweed/mesquite bosque community. The bush seepweed and mesquite plant communities make up a total of 110.3 acres of the BSA, including the 500-foot buffer.

### ***Developed/ Open Channel***

Developed and open channel lands include roads, built structures, and associated infrastructure. Within the project area, these include dirt roads, existing transmission lines, underground gas pipelines, and any other built environments. Several open channels cross under Bradshaw Trail and 34th Avenue. These open channels flow into Hodges Drain which runs north-south on the east end of the site. Open channel areas make up approximately 0.8 acres of the BSA, including the 500-foot buffer.

### ***Agricultural Areas***

Agricultural areas include actively cultivated lands or lands that support nursery operations. The level of soil disturbance is such that only the species under cultivation and most ruderal plant species would be expected to occur in this vegetative community. The majority of agricultural land is in the buffer at the eastern border of the project area. This vegetation type makes up a total of 85.7 acres of the BSA, including the 500-foot buffer.

### ***Ruderal***

Ruderal habitat typically develops on sites with heavily compacted soils following intense levels of disturbance such as grading. This type of disturbed area is dominated by broad-leaf herbaceous species such as mustards, fennel, horseweed, thistles, and a lesser percent cover of non-native grasses are often present. Invasive Asian mustard is particularly widespread along the existing transmission line in the northern part of the site, while Mediterranean grasses are present throughout the project area. This vegetation type makes up a total of 44.2 acres of the BSA (along the northern part of the existing transmission line ROW and the eastern sections of the project site), including the 500-foot buffer.

### 5.2.5.2 Invasive Plant Species

Invasive Asian mustard (*Brassica tournefortii*) and Mediterranean grasses (*Schismus arabicus* and *S. barbatus*) are scattered throughout the project area while Asian mustard is particularly widespread in the northern section of the site along the existing transmission line. Additional non-native invasive plant species were also detected during the early and late spring 2011 protocol surveys (Table 5.2-6). These additional species were not widespread and typically included 1 to 10 individuals per location found.

**Table 5.2-6  
Invasive Plant Species found within the BSA**

Invasive Species Detected	
Family Name/Species Name	
Asteraceae	Poaceae (cont.)
<i>Lactuca serriola</i>	<i>Dactylis glomerata</i>
<i>Sonchus oleraceus</i>	<i>Phalaris minor</i>
Brassicaceae	<i>Schismus arabicus</i>
<i>Brassica tournefortii</i>	<i>Schismus barbatus</i>
<i>Sisymbrium altissimum</i>	<i>Setaria pumila</i>
<i>Sisymbrium irio</i>	<i>Vulpia bromoides</i>
Chenopodiaceae	Polygonaceae
<i>Chenopodium murale</i>	<i>Polygonum arenastrum</i>
<i>Salsola paulsenii</i>	Tamaricaceae
<i>Salsola tragus</i>	<i>Tamarix ramosissima</i>
Geraniaceae	Zygophyllaceae
<i>Erodium cicutarium</i>	<i>Kallstroemia grandiflora</i>
Poaceae	<i>Tribulus terrestris</i>
<i>Cynodon dactylon</i>	

### 5.2.5.3 Special-Status Plants

Five State Ranked plant species were observed during focused surveys: ribbed cryptantha, Harwood's milk-vetch, Utah vine weed, desert unicorn plant, and Harwood's eriastrum.

#### *Ribbed Cryptantha*

Ribbed cryptantha (State Rank S3.3) has a limited distribution in California as well as other states and is an uncommon native annual found in Mojave and Sonoran Desert creosote bush scrub and desert dunes. Distribution of this species includes areas in eastern California, southwestern Arizona, and Baja California. Ribbed cryptantha was detected during the 2011 spring survey season, in the desert dunes vegetation community located in the northwestern portion of the existing transmission line ROW of the

BSA, and the 500-foot buffer. Thousands of ribbed cyptantha individuals (approximately 13,000) were detected and mapped during both the early and late spring 2011 protocol surveys (Figure 5.2-3).

### *Harwood's Milk-vetch*

Harwood's milk-vetch (State Rank S2.2?) is a moderately endangered native annual in the Mojave and Colorado deserts of California. This species is more commonly found in the Sonoran deserts of Arizona and Sonora, Mexico. The majority of the 119 individuals of Harwood's milk-vetch found occur within the northwestern portion of the existing transmission area and within sandy washes in the eastern portion of the BSA and were mapped during both the 2011 early and late spring protocol surveys (Figure 5.2-3).

### *Utah Vine Milkweed*

Utah vine milkweed (State Rank S3.2) is a perennial herb that is native to California, Arizona, Utah, and Nevada. This species is considered vulnerable and threatened in California; however, populations outside of California are considered secure within its range. Previous to the 2011 spring protocol surveys, there were no known observations in the CNDDDB (CDFG 2011) for the BSA and vicinity. During both the 2011 early and late spring surveys, a total of 98 individuals were identified and mapped within the boundaries of the BSA (See Appendix 5.2A for locations).

### *Desert Unicorn Plant*

Desert unicorn plant (*Proboscidea althaeifolia*, State Rank S3.3) was detected during both the early and late spring 2011 protocol surveys. A total of 132 individuals of desert unicorn plant were detected within the BSA (See Appendix 5.2A for locations). The desert unicorn plant has no known threats besides development and vehicles, and is not endangered or vulnerable in California. Populations of this species occur outside of California in Arizona, New Mexico, Baja California and Sonora, Mexico. When considering these outside-of-California populations, Desert unicorn plant is considered secure.

### *Harwood's Eriastrum*

Harwood's eriastrum (State Rank S2) is a perennial, endemic species of California. This species is considered comparatively endangered with less than 20 current, known occurrences (CNPS 2011)., Harwood's eriastrum populations are mostly known to occur at 37 sites in San Bernardino County, with 8 locations in Riverside County including 2 populations on the project site and 2 in the immediate vicinity at the northern end of the gen-tie line (Calflora 2011). During the late season spring protocol surveys, 160 individuals were detected in the northwestern portion of the initial boundaries of the gen-tie line corridor (Figure 5.2-3).

#### **5.2.5.4 General Wildlife Species**

The BSA supports a diverse assemblage of desert wildlife species. A complete list of all wildlife species detected during the 2011 surveys and representative site photographs are found in Appendix F of the BTR (Appendix 5.2A). Reptiles detected included desert tortoise, Mojave fringe-toed lizard (in the northern gen-tie area only), common side-blotched lizard (*Uta stansburiana*), long-tailed brush lizard (*Urosaurus graciosus*), ornate tree lizard (*Urosaurus ornatus*) western whiptail lizard (*Cnemidophorus tigris*), zebra-

tailed lizard (*Callisaurus draconoides*), desert iguana (*Dipsosaurus dorsalis*), chuckwalla (*Sauromalus obesus*), coachwhip (*Masticophis flagellum*), desert glossy snake (*Arizona elegans eburnata*), sidewinder (*Crotalus cerastes*) and western diamondback (*Crotalus atrox*).

Common bird species detected in the BSA include horned lark (*Eremophila alpestris*), western kingbird (*Tyrannus verticalis*), tree swallow (*Tachycineta bicolor*), barn swallow (*Hirundo rustica*), mourning dove (*Zenaidura macroura*), ash-throated flycatcher (*Myiarchus cinerascens*), and red-tailed hawk (*Buteo jamaicensis*).

Mammals observed or indirectly detected from scat or tracks include black-tailed jackrabbit (*Lepus californicus*), kit fox (numerous burrow complexes representing occupied and refuge shelters from predators), coyote, American badger, Nelson's bighorn sheep (hoof and horn), and woodrat (*Neotoma sp.*). Unidentified rodent tracks and burrows were observed throughout the BSA.

### **5.2.5.5 Special Status Wildlife Species**

A total of 17 special status wildlife species and/or signs of their presence were detected in the BSA: desert tortoise, Mojave fringe-toed lizard, American badger, Nelson's bighorn sheep, California leaf-nosed bat (*Macrotus californicus*), burrowing owl, golden eagle, Swainson's hawk (*Buteo swainsoni*), Northern harrier (*Circus cyaneus*), prairie falcon, American white pelican (*Pelecanus erythrorhynchos*), loggerhead shrike (*Lanius ludovicianus*), Le Conte's thrasher (*Toxostoma lecontei*), Crissal thrasher (*Toxostoma crissale*), Gila woodpecker (*Melanerpes uropygialis*), Lucy's warbler (*Oreothlypis luciae*) and Vaux's swift (*Chaetura vauxi*). The following species accounts are provided for the special-status wildlife species detected or for which sign was found on site, or for which focused surveys were performed. A listing of other special-management-status species known to be located within the project site is provided in Appendix 5.2A as are representative site photographs and special-status species data forms that were submitted to the CNDDDB.

#### ***Desert Tortoise***

Regulatory Status: Federal: USFWS: Threatened; State: CDFG: Threatened

Desert tortoise is widely distributed in the deserts of California, southern Nevada, extreme southwestern Utah, western and southern Arizona, and throughout most of Sonora, Mexico. Desert tortoise populations are declining because of various factors, including the spread of a respiratory disease, increases in raven populations that prey on juvenile tortoises, and habitat loss and degradation because of various extensive and intensive land uses. Scientists believe that the disease-related mortality may be a result of multiple factors including drought, poor nutrition, environmental toxicants, or habitat degradation including exotic plant invasion and fire (USFWS 2011). Only the Mojave population of desert tortoise is federal- and State-listed as threatened. Typical tortoise habitat consists of firm but not hard ground, usually soft sandy loams and loamy sands that allow for burrow construction (Karl 1983). Desert tortoise primarily occurs in four subpopulations in the California Mojave Desert (Ord-Rodman, Superior-Cronese, Fremont-Kramer, and Joshua Tree Designated Wildlife Management Areas [DWMA]). Outside of these DWMA's, tortoises tend to occur at much lower densities. This species is mostly found in creosote bush scrub, with lower densities occurring in Joshua tree woodland and saltbush scrub. The topography where this species is

typically found includes flats, low valleys, bajadas, and low hills between 2,000 and 3,300 feet and occasionally above 4,100 feet.

The diet of desert tortoises consists mainly of annual plants and grasses, but also contains perennial plants such as cacti and native forbs. When available, certain non-native plant species are also eaten (West Mojave Planning Team 1999). Desert tortoises are most active when plants are available for forage or when pooled water is available for drinking, usually from March through early June and again between September and early November (Marlow 1979). They typically have overlapping home ranges averaging between 5 and 131 acres, which can fluctuate in size on a year-to-year basis based on several factors such as sex of the tortoise, rainfall, availability of resources, and other factors (Berry 1986, Duda 1999, CDFG 2000). Individuals commonly traverse 1,500-2,600 feet per day within their home range, and males have been recorded traveling up to 3,200 feet within their home range. Mojave desert tortoises are also known to disperse over more extended distances (1.9 miles in 16 days and 4.5 miles in 15 months; Berry 1986).

Observations of desert tortoise and desert tortoise sign in the BSA are shown in Figure 5.2-4 and in Appendix 5.2A respectively. Observations made during focused desert tortoise surveys and incidental observations made during all biological surveys conducted in 2011 were noted. Focused survey observations consisted of six live desert tortoise in total (three adults and one juvenile in the BSA and two in the ZOI), 37 carcasses, 31 instances of scat, and 113 burrows, with a great majority located in the western portion of the BSA. Incidental observations were excluded from the focused desert tortoise survey results and population estimates because they may include repeat counts of individuals, burrows, and/or signs that were not part of a sampling design for estimation of populations. A summary of observations made during both focused desert tortoise surveys and incidental observations from all surveys is provided in Table 5.2-7.

The USFWS formula for protocol surveys estimates that between 3 and 30 adult (i.e.,  $\geq 160$  mm Mid-line Carapace Length or MCL) desert tortoises may occur on the project site and vicinity and are likely clustered toward the western third of the project site.

The CDFG *Desert Tortoise Species Account* (CDFG 2000) states that typical desert tortoise densities are approximately 9 tortoises per square mile in the eastern Mojave Desert and 2,600 tortoises per square mile in the western Mojave Desert (CDFG 2000). Additionally, a 10-year research project conducted in the California Mojave Desert by the BLM estimated densities from 21 to 467 desert tortoises per square mile (8 to 184 desert tortoises per square kilometer) (Berry 1986). The estimated density of desert tortoise within the total desert tortoise survey area (USFWS protocol estimates 0.18 tortoises per square mile) is substantially lower than the densities reported by the CDFG and BLM.

The distribution of tortoise and signs of tortoise throughout the BSA, as well as throughout the total desert tortoise survey area, was not random and tended to be concentrated in the western third of the project site (in Figure 5.2-4 and in Appendix 5.2A). The soils on the western portion of the project site tend to be more compact and less sandy compared to the soils on the rest of the project site. These soils are better suited for tortoise burrowing activities. Potential movement areas for tortoise are also associated with the western portion of the site.

**Table 5.2-7  
All Desert Tortoise and Desert Tortoise Signs Detected  
within the BSA**

	Focus Survey Detections BSA	Incidental Detections BSA <sup>1</sup>
Live Desert Tortoise	4 <sup>2</sup>	8
Active Tortoise Burrow	15	3
Inactive Tortoise Burrow	44	2
Possible Tortoise Burrow <sup>3</sup>	54	None
Tortoise Carcass	37	29
Tortoise Scat	31	1
Tortoise Drinking Pan	None	None
Tortoise Pallet	4	1
Total	191	43

BSA = Biological Survey Area

<sup>1</sup> Numbers listed may include repeat counts of the same tortoise or sign

<sup>2</sup> Excludes two tortoises observed in Zone of Influence (ZOI)

<sup>3</sup> Possible Tortoise Burrow = burrow categories 2, 3, and 5

### *Mojave Fringe-toed Lizard*

Regulatory Status: Federal: BLM: Sensitive; State: CDFG: Species of Special Concern

The Mojave fringe-toed lizard inhabits areas of fine windblown sand in the Mojave Desert from the southern end of Death Valley south of the Colorado River near Blythe, California, and into western Arizona. Suitable habitat includes sparsely vegetated arid areas with fine wind-blown sand, including dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. Mojave fringe-toed lizards require fine, loose sand for burrowing. The elevation range for this species is approximately 300 to 3,000 feet (Stebbins 2003) above sea level. Adults burrow underground in the sand in the fall, and emerge in late winter. Young lizards may go underground later and emerge earlier, or may remain active all year. Their diet consists primarily of small invertebrates, such as ants, beetles, and grasshoppers, along with occasional blossoms, leaves, and seeds. Clutches of one to five eggs are laid from May to July.

Two URS herpetologists conducted a habitat assessment of the project site on June 11, 2011. The habitat along the northwest section of the existing transmission line and CRS was delineated into three different habitats regarding Mojave fringe-toed lizard potential use (Appendix 5.2A):

- good habitat (162.4 acres);
- moderate habitat (228.6 acres); and
- poor habitat (173.7 acres).

There were 70 observations of Mojave fringe-toed lizards during the spring 2011 survey (Figure 5.2-4), all associated with the windblown sand areas within the existing transmission line and CRS areas. A small area (approximately 2.5 acres) of windblown sands on the western slope of the mountains to the west side of the project site was also surveyed (Appendix 5.2A). No Mojave fringe-toed lizards were observed in this area.

### *Couch's Spadefoot Toad*

Regulatory Status: Federal: None; State: CDFG: SSC

Couch's spadefoot toad is generally active at night during spring and early summer rains and can be found in temporary desert rain pools. Breeding is primarily from May through September during rainfall periods. The aquatic lifecycle of this species (i.e., the time it takes the eggs to hatch into tadpoles and then metamorphose into toadlets) is approximately 8 to 10 days. They require friable soil for burrowing where they typically spend up to 11 months underground until sufficient rainfall has accumulated. The Couch's spadefoot toad occupies a variety of habitat types, including desert dry wash woodland, creosote bush scrub, desert riparian, palm oasis, desert succulent scrub, shortgrass plains, mesquite savannah, and alkali sink scrub. In California, the Couch's spadefoot toad habitat lies within Imperial, Riverside, and San Bernardino Counties between 500 to 3,000 feet above sea level.

After 2011 summer rains in early July, observations of potential pool habitat were almost exclusively documented along the north section of the gen-tie line corridor. These pools were revisited approximately eight days after they formed to see if they remained inundated for the time required to fulfill the aquatic portion of the toad's lifecycle. As a result of the large amount of permeable sand within the gen-tie-line corridor, no pools were able to hold water for more than a few days. No Couch's spadefoot toad calls were heard at night while the pools were inundated, nor were individuals observed during the day. No evidence of toad use was found during the follow-up visit. Therefore, it was determined that no suitable habitat for Couch's spadefoot toads exists at the project site or within the BSA.

### *American Badger*

Regulatory Status: Federal: None; State: CDFG: Species of Special Concern

The American badger is an uncommon resident of level, open areas in grasslands, agricultural areas, and open shrub habitats. It digs large burrows in dry, friable soils and feeds mainly on fossorial mammals (e.g., ground squirrels, gophers, rats, mice). Badgers are primarily active during the day, but may become nocturnal if living in close proximity to humans. The home range of badgers has been shown to vary from up to 1,549 acres for males, and 751 acres for females in Utah (Lindzey 1978) compared to as few as 400 acres for females in Idaho (Messick and Hornocker 1981). Mating occurs in late summer or early fall. Two to three young are born 183 to 265 days later in March or April (Long 1973). Badgers are known to live at least 11 to 15 years (Messick and Hornocker 1981). Threats to badgers include urban and agricultural development of habitat, excessive trapping, and persistent poisoning of prey in some areas (Zeiner, *et. al.*, 1990).

Two badgers were detected incidentally while driving through the project site (Figure 5.2-4); however, no badgers were observed during the 2011 focused biological surveys.

*Nelson's Bighorn Sheep*

Regulatory Status: Federal: BLM: Sensitive, USFS: Sensitive; State: CDFG: Species of Special Concern

Nelson's bighorn sheep is a subspecies of bighorn sheep that occurs in the Southwest desert regions of the U.S. The preferred habitat of bighorn sheep is steep, rocky areas that are visually open (Wehausen unpublished data). Bighorn sheep tend to live in semi-open, precipitous terrain with rocky slopes, ridges, and cliffs or canyons. Steep slopes and cliffs are used to escape from predators such as coyotes and cougars. Home ranges for rams vary from 20.5 to 38.6 square miles (Stephenson 2007). The Nelson subspecies has become well adapted to desert mountain environments; they are typically found in small bands in areas with little to no permanent water. Their diet consists of grasses, forbs, and sedges. The species is polygamous; the dominant ram does most of the courting and mating. Mating may take place at any time in the desert if climatic conditions are suitable. The gestation period is approximately 180 days. The Nelson subspecies population decline began in the mid-1800s at the time of heavy human settlement of the West (Smithsonian National Museum of Natural History [SNMNH] 2008). This decline can be attributed in part to the degradation of their habitat due to development, road building, water management practices, and recreational activities. Nelson's bighorn sheep have also been affected by disease which is sometimes acquired from domestic sheep, and are often preyed upon by mountain lions and sometimes domestic dogs. In some places where Nelson's bighorn sheep populations have been extirpated, new herds have been reintroduced, but many parts of their original range are no longer suitable (SNMNH 2008).

There were no observations of live Nelson's bighorn sheep during the spring 2011 survey in the BSA, although body parts were observed (i.e., hoof and horn) (Figure 5.2-4). No historic use of this area by bighorn sheep has been documented. The nearest herd is west of the site more than 50 miles away.

*California Leaf-Nosed Bat and Cave Myotis Bat*

Regulatory Status: Federal: USFS: Sensitive, BLM: Sensitive; State: CDFG: Species of Special Concern

In California, California leaf-nosed bats and cave myotis bats (*Myotis velifer*) are primarily found in the mountain ranges along the Colorado River basin. These species are also found in southern Nevada, Arizona, and northwestern Mexico. Roosts tend to be within one to three miles from foraging habitat. The adjacency of roosting and foraging is more important in winter when the bats tend to forage closer to their roost (Brown et al 1993). California leaf-nosed bats and cave myotis bats forage on insects (e.g., large moths, butterflies, grasshoppers, katydids) found within desert wash vegetation. The California leaf-nosed bat relies on mines or caves for roosting. All major maternity, mating, and overwintering sites also occur in mines or caves (Brown 1995). In the Colorado River Basin, all known winter roosts are in geothermal-heated mines and may be up to one kilometer away from the entrance (P. Brown, pers. comm.). Summer and winter roosts are typically located no more than a few kilometers apart.

During the 2011 focused burrowing owl surveys, bats were observed flying over the project site at dusk; however, they could not be identified to the species level. The bats were observed flying west to east.

***Burrowing Owl***

Regulatory Status: Federal: BLM: Sensitive, USFWS: Birds of Conservation Concern;  
State: CDFG: Species of Special Concern

The burrowing owl is a small, ground-dwelling bird that inhabits open spaces such as grasslands, agricultural fields, and disturbed areas in the western half of the U.S. south into Baja California and central Mexico (Johnsgard 1988). Burrowing owls use burrows throughout the year for shelter from weather and predators, and for nesting during the breeding season (February 1 to August 31). In southern California, the most commonly used rodent burrow is that of the California ground squirrel (*Spermophilus beecheyi*). Burrowing owl nesting distribution is strongly correlated to local ground squirrel burrow distribution (Collins 1979). Burrowing owls form short-term pair bonds. Not all individuals capable of breeding do so every year. Burrowing owls have declined through much of their range because of habitat loss resulting from urbanization, agricultural conversion, and destruction of ground squirrel colonies (Remsen 1978, Shuford and Gardali 2008). The incidental poisoning of burrowing owls and the destruction of their burrows during eradication programs aimed at rodent colonies has also been a large factor in their population decrease (Collins 1979; Remsen 1978; and Zarn 1974).

During the focused burrowing owl surveys, there were no observations of burrowing owls in the BSA; however, instances of old, vacant burrows were identified. Two burrowing owls were observed incidentally in September 2011, one in the center of the site, the other just off site to the east (Figure 5.2-4).

***Golden Eagle***

Regulatory Status: Federal: BLM: Sensitive, USFWS: Birds of Conservation Concern;  
State: CDFG: Watch List, Fully Protected (individuals and nesting sites)

Golden eagles are distributed throughout North America (Johnsgard 1990), although the golden eagle is an uncommon resident within California (Zeiner, *et al.*, 1990; Unitt 1984). Golden eagles forage in grassy and open shrubby habitats and nest primarily on cliffs, but have been known to nest in large trees (e.g., oaks, sycamores). Breeding pairs may occupy territories of several square miles, within which they may often use several nest sites, shifting nest sites from year to year. This species' population has declined because of loss of foraging and nesting habitat to urban and agricultural development, illegal shooting, incidental poisoning of prey species (e.g., ground squirrels, prairie dogs), egg collecting, power line electrocution, and human disturbance at nest sites (Snow 1973; Johnsgard 1990; Scott 1985).

Two golden eagles were observed during the 2011 spring botany survey (Figure 5.2-4). Both observations were fly-overs. No active or occupied golden eagle nests were documented immediately surrounding or within the 10-mile spatial buffer of the Project for the 2011 breeding season (January through June). Three inactive golden eagle nests were observed within the 10-mile vicinity of the project site. The closest active (though not used for breeding) nest observed was more than 14 miles from the project site. A golden eagle survey report is included as Appendix J to the BTR (Appendix 5.2A).

***Swainson's Hawk***

Regulatory Status: Federal: USFS: Sensitive, USFWS: Birds of Conservation Concern;  
State: CDFG: Threatened

Swainson's hawk breeds throughout much of the Rocky Mountains and western Great Plains, from southern Alberta and Saskatchewan in Canada to northern Mexico. Its breeding range in California is limited to the northern portion of the state. It is most often found in grasslands, shrubs, and agricultural areas, where both open land for foraging, and trees for roosting and nesting are available. Ground squirrels, gophers, voles, mice, small birds, lizards, and snakes are the majority of the hawk's prey. A decline in Swainson's hawk populations has been reported across much of the species' range over the past 50 years. Loss or degradation of nesting, foraging, wintering, and migration stop-over habitat are the primary reasons for the population decline; however, illegal shooting and electrocutions on power lines have contributed to fatalities. The hawk's insect diet makes it especially vulnerable to pesticide poisoning in agricultural fields.

There was one observation of a Swainson's hawk in the BSA in 2011 (Figure 5.2-4). This species is not expected to breed near the project site, as it is outside of the species' breeding range, and the observed individual was likely a migrant.

***Prairie Falcon***

Regulatory Status: Federal: None; CDFG: Species of Special Concern (breeding)

The prairie falcon inhabits open, arid regions of plains to forage in and nests in cliffs. It is most often observed in open scrub and grassland habitats. The prairie falcon has declined largely because of human disturbance of nest sites (Remsen 1978). It forages widely in desert and grasslands during its non-breeding season.

There was a single prairie falcon observation (fly-over) during the spring 2011 survey (Figure 5.2-4). No suitable nesting habitat occurs in the BSA.

***Northern Harrier***

Regulatory Status: Federal: None; State: CDFG: SSC

The Northern harrier breeds in North America from northern Alaska and Canada to the mid- and lower latitudes of the U.S., south to northern Baja California. It occurs year round within the breeding territory. It prefers open habitats with lookout perches, such as shrubs or fence posts. These habitats include weedy borders of rivers, lakes, and streams, freshwater marshes, grasslands, weed fields, pastures, and some croplands (including alfalfa and melons). This species is often polygamous, with a single male mating with two, three, or more females. It nests on the ground on mounds of dead reeds and grass in marshes or shrubby meadows. The Northern harrier flies slowly and close to the ground while hunting and takes small animals, birds, reptiles and insects by surprise. Destruction of wetland habitat, native grassland, and moist meadows, and burning and plowing of nesting areas during early stages of breeding cycle are major reasons for the decline (Remsen 1978).

There was a single Northern harrier observation (fly-over) during the spring 2011 survey (Figure 5.2-4). No nests were detected during the field surveys.

### *American White Pelican*

Regulatory Status: Federal: None; State: CDFG: SSC

The American white pelican is found year round in California (Shuford and Gardali, 2008). It breeds primarily in the interior of North America, southern Oregon, northeastern California, and western Nevada (Evans and Knopf 1993, AOU 1998). In the west, the American white pelican winters primarily on the Pacific coast and lowlands from central California and southern Arizona to the south through Baja California and western Mexico to Nicaragua. This species often forages cooperatively in shallow inland waters, such as river or lake edges, or open areas in marshes. Degradation of breeding habitat has eliminated several major colonies in California.

A group of 14 American white pelicans were observed (fly-over) during the spring 2011 survey (Figure 5.2-4). It is believed that this was a group that wandered over the project site from the Colorado River floodplain to the east during their migration north.

### *Loggerhead Shrike*

Regulatory Status: Federal: USFWS: Birds of Conservation Concern; State: CDFG: Species of Special Concern (nesting)

The Loggerhead shrike is an uncommon year-round resident of grassland and desert scrub. It prefers open habitat with scattered shrubs, trees, posts and other perches (CDFG 1990). This species occurs throughout central and southern California. The Great Basin population in California within Inyo County migrates during the winter; however, it is a year-round resident in warmer climates. Territories and home ranges are the same size and vary from 11 to 40 acres, averaging approximately 19 acres (CDFG 1990). Nests are well concealed and usually found in densely foliated shrubs or trees, typically below 15 feet in height, although found much higher as well. It preys mostly on insects, but is also known to take small birds, mammals, and various other invertebrates. This species searches for prey from perches at least two feet above ground, swooping directly upon prey once located. It has also been known to hover in search of prey and occasionally hawk insects. It is known as the “butcher bird” for its habit of skewering prey on small twigs or barbed wire before consuming them (Unitt 2004).

There were 45 observations of Loggerhead shrikes made during the Spring 2011 surveys in the BSA (Figure 5.2-4).

### *Le Conte's Thrasher*

Regulatory Status: Federal: BLM: Sensitive, USFWS: Birds of Conservation Concern;  
State: CDFG: Species of Special Concern

Le Conte's thrasher is found from southern Mono County, in western and southern parts of the San Joaquin Valley, and in the southern California deserts to the Mexican border. Within this range, its

distribution is uncommon to rare locally (CDFG 2005). This species is not migratory and typically occupies home ranges of approximately 100 acres in open desert wash, Joshua tree habitat with scattered shrubs, and assorted desert scrub habitats. Territories average 15 acres, with nests occurring in dense, spiny shrubs or densely branched cactus. This species uses scattered shrubs and cactus for cover, most frequently saltbush and cholla. It forages primarily on the ground for insects and other arthropods, but will also eat seeds, small lizards, and other small vertebrates (CDFG 2005).

There was a single observation of Le Conte's thrasher (observed incidentally just off site but within the survey buffer portion of the BSA) during the spring 2011 survey. One other sighted Le Conte's thrasher was observed along the existing transmission line during the focused burrowing owl surveys (Figure 5.2-4).

### *Crissal Thrasher*

Regulatory Status: Federal: None; State: CDFG: SSC

This is a non-migratory resident whose territory ranges from southeastern California and southern Nevada through western Texas and central Mexico. This species prefers habitats characterized by dense, low scrubby vegetation, such as desert and foothill scrub and riparian brush. The nest of the Crissal thrasher typically consists of an open cup of twigs, lined with finer vegetation, and placed in the middle of a dense shrub or bush. Loss of habitat due to clearing for agriculture or urban and suburban development threatens some populations.

There was a single observation of Crissal thrasher made during the spring 2011 survey in the BSA (Figure 5.2-4).

### *Gila Woodpecker*

Regulatory Status: Federal: USFWS: BCC; State: Endangered

The Gila woodpecker is generally a permanent resident where found. Habitat includes desert mesas that have large cacti or trees suitable for nesting, dry subtropical forests, riparian woodlands, and residential areas from central Arizona to edges of neighboring states. In California it tends to be restricted to the riparian and wash woodlands along the lower Colorado River Valley. This species excavates holes in saguaro cacti for its nests or in other trees outside the saguaro's range. Saguaro fruits, mistletoe, ants, beetles, and grasshoppers make up the Gila woodpecker's diet.

There were six observations of Gila woodpeckers during the spring 2011 survey in the BSA (Figure 5.2-4) though proximity of incidental observations to point count surveys suggest fewer unique individuals are observed. Based on an estimate of 0.8 birds per square kilometer (Emlen 1974), there is sufficient suitable nesting habitat on site to support up to four nesting pairs. While no nests were observed, their residential status indicates that this species nests in trees in the palo verde / ironwood woodland.

### *Lucy's Warbler*

Regulatory Status: Federal: None; State: CDFG: SSC

Lucy's warbler breeds only in the southwestern U.S. (Arizona, southern New Mexico, southwestern Texas, extreme southern Nevada and Utah, and southeastern California) and adjacent northern Mexico (Dunn and Garrett 1997 in Shuford and Gardali 2008). Within the U.S., it is most abundant in south-central Arizona (Price *et al.* 1995). Lucy's warblers migrate north from Mexico in the first half of March, coinciding with the leafing out of honey mesquite (Rosenberg *et al.* 1991). Breeding occurs mainly from mid-April to early July (Rosenberg *et al.* 1991, Johnson *et al.* 1997, Unitt 2004). Most depart the California breeding grounds by mid-July, but some do not migrate south until September (Rosenberg *et al.* 1991). Lowland riparian breeding habitat includes mesquite and willow "thickets", cottonwood-mesquite, cottonwood-willow gallery forests, cottonwoods, willows, and mid-elevation ash-walnut-sycamore-live oak associations and tamarisk thickets, while more arid habitats include (usually locally) larger stands of xero-riparian vegetation along dry desert washes or occasional upland mesquites, and rarely palo verde and ironwood (Johnson *et al.* 1997).

A total of 16 Lucy's warblers were observed during the spring 2011 survey in the BSA (Figure 5.2-4) and were likely nesting on site.

### *Vaux's Swift*

Regulatory Status: Federal: None; State: CDFG: SSC

Vaux's swift breeds from southeastern Alaska, southern British Columbia, northern Idaho, and western Montana south to central California. Generally in California, it is primarily a migrant and summer resident from mid-April to mid-October. In southern California, it is a spring and fall migrant, and it is also occasionally in winter (Shuford and Gardali, 2008). Vaux's swifts usually roost and nest in large cavities in a variety of tree species and less frequently in artificial structures. This species forages over a variety of habitats during the breeding season, including over water at various heights where it searches for small flying insects.

There were 28 Vaux's swifts observed (fly-overs) during the spring 2011 survey in the BSA (Figure 5.2-4). Being a migrant, the species is not expected to nest on site.

### *Baseline Raven Population Estimate*

Raven numbers were estimated based on visual observations during bird count, burrowing owl and desert tortoise surveys. A total of seven raven observations occurred during the bird count surveys conducted over four weeks, generally in the east of the project site or along the gen-tie line. Some of these observations may be of the same individuals. Combined with the lack of observation of ravens during the other surveys, it is apparent that the resident raven population is currently very low.

### *Kit Fox and Badger Surveys*

Kit fox (no status) and American badger (SSC) use of the site was determined by the observation of kit fox and badger individuals and burrows on site. Burrows of these species were searched for during the desert tortoise survey and burrowing owl burrow search. Any burrows that might potentially contain kit fox or American badger were marked and the information was used to determine the potential impact of the Project on kit fox and/or American badger.

Two badgers were observed incidentally during the spring 2011 survey effort near the existing transmission line just south of the Bradshaw Trail, though none were observed during focused surveys.

While desert kit fox den complexes were prevalent in the BSA (193 observed), many den complexes occur within the home ranges of each single female and can be used for birthing or as refuges from coyotes. The species is solitary except during the breeding season and does not maintain territories. Birthing dens are chosen in September and October after the female visits most of the dens in her home range and cleans them. Females usually use one complex for birthing that is three to four kilometers from the nearest neighbor to ensure a good hunting territory. Puppies are born in February or March and are weaned by June. Den changes are frequent during the summer when puppies are being fed. At three to four months the pups begin to forage with the parents. In October the pups head out away from their parents' home range. Young foxes may travel long distances (30 or more km) before settling down. With kit fox ranges varying from 1-2 square miles Morrell (1972), the 193 den complexes observed may only represent 8 to 16 home ranges on site.

## 5.2.6 Wetlands and Jurisdictional Waters

The following sections describe wetlands and jurisdictional waters delineated in the BSA.

### 5.2.6.1 Waters of the U.S.

The BSA contains small-to-large, well-defined, ephemeral washes with smaller, broad alluvial fan/plains intertwined with high topographic variation. The overall landform slopes, trending from the west to east and in some areas to the southeast. There are occasional small hills (buttes) and sand dune areas in the BSA. Several drainage systems occur on the project site. These drainage systems follow the gradient of higher elevations in the mountains west of the project site towards lower elevations east and southeast across the project site. Ultimately, the proposed jurisdictional ephemeral washes flow to Hodges Drain, the Palo Verde Outfall, and into the Colorado River, a traditionally navigable water.

The project site is dissected by numerous ephemeral washes ranging in size from small (one to three feet wide), to broad, well-defined (100+ feet wide) drainages. The active flow channels are devoid of vegetation and typically have a sandy, gravel substrate, although some washes also contained cobble and scattered larger rocks. Throughout the study area, the majority of the washes are associated with blue palo verde / ironwood woodland. The co-dominant species are blue palo verde and ironwood. Additional species include cheesebush, catclaw acacia, Anderson's boxthorn, wire lettuce (*Stephanomeria pauciflora*), in some medium- to large-sized washes, especially in braided channels that contain slightly elevated areas intermixed with the active flow channels.

The drainage features on site are considered to be well-defined channels that result from seasonal, active flow. The drainage features consist of floodplains with areas that exhibit a mixed pattern of sheet flow or shallow, concentrated flow across isolated, wide areas of land; defined drainage features occur over most of the site with evenly distributed desert scrub vegetation throughout. Well-defined active floodplain or flow channels, whether from low or high flows, are present. Flow of water on site is ephemeral and occurs during periods of brief intense rainfall. Flow of water on site occurs seasonally in most years. The seasonal major storm events tend to occur from December to February with predicted winter rain, and intermittent, high-intensity monsoon rains coming from the south in late July to September. Water flow

on site is of sufficient intensity or duration to maintain channels indicative of a stream or wash that all drain off site to Hodges Drain and ultimately to the Colorado River.

The paths of higher concentrated flow that may occur with major, high-intensity storm events on site are associated with distinct, continuous washes and flood terraces across the project site. These paths of concentrated flow events indicate a clear natural scour line impressed on the bank, recent bank erosion, destruction of native terrestrial vegetation, and the presence of litter and debris. Blue palo verde / ironwood woodland is prevalent throughout these areas. Relict flood channels occur on site with indicators of watermarks in some areas that are indicative of larger floodplains. These relict flood channels are sometimes discontinuous on site, but are not isolated from the potential WUS. Therefore, potential WUS occur on site (Jim Mace, USACE, informal personal communication, July 2011).

Based on the field data and aerial photograph interpretation, the project site was divided into 11 drainage systems, labeled A through I, gen-tie line ROW corridor, and Bradshaw Trail/34th Avenue Access, for simplicity. These drainage systems are shown in Figures 5.2-5a and 5.2-5b and are summarized in Table 5.2-5. The drainage systems were delineated based on connectivity of the smaller delineated ephemeral washes to the largest five intermittent drainages and/or to Hodges Drain to the east of the project site boundary (Figure 5.2-5b). Features for each drainage system include single, large channels with well-defined bed and banks, as well as broad, but sometimes weakly expressed, assemblages of shallow braided ephemeral channels. A total of approximately 1,179 acres of potentially jurisdictional WUS were identified and mapped in the project area, with an additional 255 acres in the 500-foot buffer area. Table 5.2-8 shows the breakdown of each drainage system's total acreage and linear feet. A National Wetlands Inventory (NWI) wetland area of 8.3 acres is found on the eastern portion of the BSA; however, the 117.8 acres of bush seepweed scrub and bush seepweed scrub/mesquite bosque in the BSA are considered to be USACE jurisdictional wetlands (Figure 5.2-2). A detailed analysis of the potential WUS within the project site is provided in the USACE Preliminary Determination included in Appendix K to the BTR (Appendix 5.2A).

### *5.2.6.2 Lakes and Streambeds*

Seasonal, surface water flow events occur on site in most years. The majority of ephemeral washes within the project site frequently flow intermittently through a bed or channel having banks that support riparian vegetation. No lakes occur on site. Fish and Game Code §1600 typically applies to delineated potential WUS, other drainage patterns on site, including wash and drainage patterns ("blue lines") shown on USGS topographic maps, and relict flood channels indicative of larger floodplains. Figures 5.2-5a and 5.2-5b shows the patterns of USGS "blue line" washes, drainage patterns, and drainage paths that are relict flood channels. For ephemeral washes, § 1600 analyses typically focus on the overall drainage patterns onsite. As noted above, the Energy Commission will "stand in the shoes" of the CDFG for purposes of applying the LSAA requirements to a power plant under the Energy Commission's jurisdiction.

**Table 5.2-8**  
**Potential Waters of the United States (WUS) (acres)**

Drainage Systems Division <sup>1</sup>	Project Site (acres)	500 ft Buffer Area (acres)	Total Area (acres) (Project + Buffer)
A	17.31	7.01	24.32
B	127.84	17.26	145.10
C	9.88	1.17	11.05
D	6.52	0.98	7.50
E	191.62	44.86 [4.11] <sup>2</sup>	236.46 [4.11]
F	6.20	7.62 [6.09]	13.82 [6.09]
G	419.85 [58.85]	75.69 [42.85]	495.59 [107.57]
H	141.53	50.05	191.58
I	238.28	50.20	288.48
Generator tie line (gen-tie line) Right-of-Way (ROW)	9.05	<sup>3</sup>	9.05
Bradshaw Trail & 34th Ave Access	10.7	<sup>3</sup>	10.7
<b>Totals</b>	<b>1,178.78 [58.85]</b>	<b>254.84 [58.93]</b>	<b>1433.62 [117.78]</b>

<sup>1</sup> Drainage Divisions A through I are shown on Figure 5.2-5a

<sup>2</sup> Numbers in parentheses designates wetland acreage included in total WUS

<sup>3</sup> Acreage included in Project Site

Gen-tie line = Generator tie line  
 ROW = right-of-way  
 WUS = Waters of the United States under Section 404 and 401 of the Clean Water Act. Defined in the study area by Ordinary High Water Mark in ephemeral washes and adjacent wetlands, where present.

### 5.2.6.3 Waters of the State of California (WSC)

All blue palo verde / ironwood woodland and potentially jurisdictional WUS ephemeral streams, washes and drainages within the entire project area were delineated as WSC. Potential jurisdictional WSC within the project site are divided into 11 drainage systems labeled A through I, gen-tie line ROW, and Bradshaw Trail and 34th Avenue Access, for simplicity, and are presented in Figures 5.2-6a and 5.2-6b, and summarized in Table 5.2-9. A more detailed analysis of the potential WUS within the project site is provided in the CDFG Jurisdiction submittal included in Appendix K to the BTR (Appendix 5.2A).

The total area of all WSC delineated within the BSA is approximately 2,608 acres (Table 5.2-9). Approximately 2,355.6 acres are composed of wash-dependent vegetation, which includes: 2,237.8 acres of blue palo verde/ironwood woodland, and 117.8 acres of wetlands which includes 7.5 acres of bush seepweed scrub, and 110.3 of bush seepweed scrub/mesquite bosque (Table 5.2-5, Figure 5.2-2).

**Table 5.2-9  
Potential Jurisdictional Waters of the State of California (WSC) (acres)**

Drainage Systems <sup>1</sup>	Project Site (acres)	500ft Buffer Area (acres)	Within BSA (Project + Buffer) (acres)
A	86.46	32.25	118.71
B	255.27	31.42	286.69
C	24.39	1.88	26.27
D	8.16	1.37	9.53
E	273.66	56.75 [4.11] <sup>2</sup>	330.41 [4.11]
F	14.55	7.79 [6.09]	22.34 [6.09]
G	675.22 [58.85]	171.20 [48.72]	846.42 [107.58]
H	418.53	108.64	527.17
I	302.93	70.45	373.38
Gen-tie line and ROW	56.84	<sup>3</sup>	56.84
Bradshaw Trail & 34th Ave Access	10.70	<sup>3</sup>	10.70
<b>Totals</b>	<b>2,126.71 [58.85]</b>	<b>481.75 [58.93]</b>	<b>2,608.46 [117.78]</b>

<sup>1</sup> Drainage Divisions A through I are shown on Figure 5.2-6a

<sup>2</sup> Numbers in parentheses designates wetland acreage included in total WSC

<sup>3</sup> Acreage included in Project Site

Gen-tie line = Generator tie line  
 ROW = right-of-way  
 WSC = Water of the State of California under Section 1602 of the State Fish and Game Code and Porter Cologne Act. Defined in the study area by bank to bank limits or to outer extent of riparian community where present. WSC includes riparian and streambed and includes WUS jurisdiction.

Surface water flows occur on-site in most years. Approximately 1,433.62 acres of WSC within the project site are confined by beds, banks, and/or channels indicative of streams, creeks, or washes subject to the Porter-Cologne Water Quality Control Act. Stormwater runoff and flows from flash floods on site would represent surface water in the form of storm water runoff that could potentially be regulated pursuant to the Porter-Cologne Water Quality Control Act. Concentrated flows through culverts under Bradshaw Trail and 34th Avenue may also be potentially regulated.

The BSA was determined to contain a total of 1,433.6 acres of WUS and WSC, and an additional 1,174.84 acres of WSC within the project site and buffer areas (Table 5.2-10). This included the potential NWI wetland area of 8.3 acres found on the eastern portion of the BSA. The total acreages for both potential WUS and WSC are summarized in Table 5.2-10.

**Table 5.2-10  
Potential Jurisdictional Water of the United States (WUS) and Waters of the State of California (WSC) in the BSA**

Type	Existing within Project Site	Existing within Buffer Area	Existing Acres within BSA
Jurisdictional Waters of the United States (WUS)			
Wetland*	58.85	58.45	117.30
Non-wetland WUS	1,119.93	196.39	1,326.32
<b>TOTAL United States Army Corps of Engineers (USACE) Jurisdiction</b>	<b>1,178.78</b>	<b>254.84</b>	<b>1,433.62</b>
Jurisdictional Waters of the State of California (WSC)*			
Wetland*	58.85	58.45	117.30
Non-wetland WSC	2,067.86	423.30	2,491.16
<b>TOTAL California Department of Fish and Game (CDFG) Jurisdiction</b>	<b>2126.71</b>	<b>481.75</b>	<b>2608.46</b>

BSA = Biological Survey Area  
 CDFG = California Department of Fish and Game  
 WSC = Waters of the State of California  
 WUS = Waters of the United States  
 USACE = United States Army Corps of Engineers

\* National Wetland Inventory (NWI) wetland present included seepweed scrub/ mesquite bosque vegetation community.

**5.2.7 Environmental Analysis**

The following sections describe the environmental analysis that was conducted of biological resources within the BSA.

**5.2.7.1 Standards of Significance**

Potential and expected direct and indirect effects on 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 on vegetation, wildlife, and special management status species if it would (CEQA Guidelines, Section 15065(a), Appendix G):

1. have a substantial adverse effect, either directly or through habitat modifications, on any species identified as endangered, threatened, candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS;

2. cause a fish or wildlife population to drop below self-sustaining levels;
3. threaten to eliminate a plant or animal community;
4. substantially reduce the number, or restrict the range of rare, threatened or endangered species;
5. substantially reduce habitat for fish or wildlife species;
6. interfere substantially with the movement of resident or migratory fish or wildlife species;
7. conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;
8. conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan;
9. have a substantial adverse effect on federal or state protected waters of the U.S. (including wetlands) as defined by Sections 404 and 401 of the Clean Water Act; and/or a substantial effect on non-federal waters of the State (including wetlands) as defined by the Porter-Cologne Act, either through direct removal, filling, hydrological alteration, or other means; or
10. have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFG or USFWS.

The above criteria were used to evaluate the Project's effects on plant communities, wildlife, and special status species.

#### *5.2.7.2 Potential Impacts of Project Construction, Operation and Maintenance*

The potential effects associated with Project construction, operation, and maintenance are discussed below.

##### *Impacts to Vegetation*

The project site encompasses a total of 5,645.5 acres that will be fenced with tortoise exclusion and security fencing. Estimated impact acreages to the various vegetation types within the fenced area, a 500-foot buffer to the fence, along the gen-tie line and access roads is provided in Table 5.2-11.

##### *Impacts to Special-Status Vegetation Communities*

Sensitive vegetation communities are natural vegetation communities that are of limited distribution within a county, region, or state (CDFG 2010). These vegetation communities are often vulnerable to environmental impacts associated with the construction and maintenance of projects. The Project site contains six sensitive vegetation communities (Figure 5.2-2), which are described below. Each of the vegetation communities was also observed within the one-mile buffer during reconnaissance-level surveys, but the amounts present were not quantified. Impacts to these communities would be significant unless mitigated as it would reduce habitat for listed species and riparian/wetland vegetation (significance criteria 1, 9 and 10).

**Table 5.2-11  
Vegetation Impact Acreage for Rio Mesa SEGF**

Vegetation Type	Impacts (acres)					
	Inside Fence	Gen-tie Line	Access Roads	Total Direct Impacts	500 ft Buffer from Fence	Total Project Impacts
Creosote Bush Scrub	1,747.6	1.9	4.9	1,754.4	548.9	2,303.2
Creosote / White Burr Sage Scrub	2,526.7	5.7	2.6	2,535.1	325.3	2,860.4
Creosote Bush / White Burr Sage Scrub with Big Galleta Grass Association #	173.9	0.1	0.3	174.4	105.7	280.0
Creosote Bush / White Burr Sage Scrub with Ocotillo Association #	60.7	0	0	60.7	7.9	68.6
Blue Palo Verde / Ironwood Woodland #	1,117.88	0.80	1.42	1,120.10	313.08	1,433.18
Brittle Bush / Ferocactus Scrub #	18.6	0	0	18.6	48.8	67.5
Desert Dunes #	0	5.6	0	5.6	0	5.6
Bush Seepweed Scrub	0	0	0	0	0	0
Bush Seepweed/Mesquite Bosque #	0	0	0.78	0.78	0	0.78
Open Channel	0	0	0.04	0.04	0	0.04
Ruderal	0	0	1.6	1.6	0	1.6
Agriculture	0	0	15.9	15.9	0	15.9
<b>Totals</b>	<b>5,645.5</b>	<b>14.1</b>	<b>27.7</b>	<b>5,687.2</b>	<b>1,349.6</b>	<b>7,036.8</b>

# Vegetation associations considered by CDFG as being rare or uncommon and having a high priority for inventory.

**Blue Palo Verde / Ironwood Woodland**

Approximately 1,433.18 acres of blue palo verde / ironwood woodland community type could be impacted by construction of the Project, 1,120.10 acres directly and 313.08 acres indirectly within the adjacent 500-ft buffer zone. This vegetation community is mainly found in larger desert washes throughout the project site.

**Bush Seepweed Scrub / Mesquite Bosque**

No impact to the vegetation community is anticipated from the heliostat field, since it occurs beyond the 500-ft buffer zone of the fence line to the project and does not occur near where gen-tie line tower pads will be sited; however, the access road to 34th Street would impact 0.78 acres of this community

**Creosote Bush / White Burr Sage Scrub with Big Galleta Grass Association.**

Approximately 280 acres of creosote bush / white burr sage scrub with big galleta grass association could be impacted by the Project either directly (174.4 acres) or indirectly (105.7 acres in buffer). This community is found primarily on upland areas on the southeastern portion of the project site.

**Brittle Bush / Ferocactus Scrub**

Approximately 67.5 acres of brittle bush / ferocactus scrub community could be impacted by the Project, 18.6 acres directly with an additional 48.8 acres within the 500-ft buffer. This community is typically found on the slope of desert mountains. It is found in the northwestern area of the project site by the mountains surrounding Bradshaw Trail.

**Desert Dunes**

Approximately 5.6 acres of desert dunes community could be impacted by the gen-tie line. This community is found on the northwestern portion of the gen-tie line. Impacts to this community would be limited to tower pads and access roads.

***Impacts to Special-Status Plants***

The following sections describe the potential impacts to special-status plants that could occur as a result of the construction, operation and maintenance of the Project. Table 5.2-12 presents the tabulation of impacted individuals within the project site fence line, the 500-ft buffer to the fence line and the impact areas associated with the access to the site and within the gen-tie line corridor.

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**Table 5.2-12  
Impacts to Special Status Species**

Scientific Name	Common Name	Status	Number of Individuals Impacted				
			Observed in BSA	Inside Fence	Gen-tie Line	Total Direct Impacts	500ft Buffer to Fence
<b>Plants</b>							
<i>Astragalus insularis var. harwoodii</i>	Harwood's milk-vetch	S2.2?	119	4	2	6	46
<i>Eriastrum harwoodii</i>	Harwood's eriastrum	S2	160	0	0	0	0
<i>Funastrum utahense (Cyanchum utahense)</i>	Utah vine milkweed	S3.2	98	83	0	83	6
<i>Proboscidea althaeifolia</i>	Desert unicorn plant/desert devil's claw	S3.3	132	45	0	45	12
<i>Cryptantha Costata</i>	Ribbed cryptantha	S3.3	ca. 13,000	0	0	0	0
<b>Animals</b>							
<i>Gopherus agassizii</i>	Desert Tortoise	FT, ST	4	2	2 <sup>1</sup>	5	0
<i>Melanerpes uropygialis</i>	Gila Woodpecker	ST	6 <sup>2</sup>	3	0	3	0
<i>Taxidea taxus</i>	American badger	SSC	2	2	0	2	0
<i>Athene cunicularia</i>	Burrowing owl	SSC	1	1 <sup>3</sup>	0	1	0
<i>Aquila chrysaetos</i>	Golden Eagle	DFG-FP, BLM-S, BGEPA	2 <sup>4</sup>	0	0	0	2 <sup>4</sup>
<i>Circus cyaneus</i>	Northern harrier (SSC)	SSC, FP	1 <sup>4</sup>	0	0	0	1
<i>Chaetura vauxi</i>	Vaux's swift	SSC	28 <sup>4</sup>	6	0	6	2
<i>Oreothlypis luciae</i>	Lucy's warbler	SSC	16	5	0	5	0
<i>Lanius ludocianus</i>	Loggerhead shrike	BBC/SSC	45	23	0	23	13
<i>Pelecanus erythrorhynchos</i>	American White Pelican	SSC	14 <sup>4</sup>	0	0	0	14
<i>Falco mexicanus</i>	Prairie Falcon	FP	1	1	0	1	0
<i>Toxostoma lecontei</i>	Le Conte's thrasher	BCC, BLM-S, SSC	2	0	0	0	0
<i>Toxostoma crissale</i>	Crissal thrasher	SSC	1	1	0	0	0

Notes:

<sup>1</sup>Two desert tortoise observed incidentally in gen- tie.line

<sup>2</sup>While 6 observed, estimate 4 territories on site

<sup>3</sup> Incidental detection during September 2011

<sup>4</sup> Fly-overs during migration period.

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**Ribbed Cryptantha (State Rank S3.3)**

Thousands of ribbed cyptantha individuals (approximately 13,000) were mapped during both the early and late spring 2011 protocol surveys within the BSA (See Appendix 5.2A for locations). Project design avoids all impacts to all known locations of ribbed.

**Harwood's Milk-vetch (State Rank S2.2?)**

The majority of the 119 individuals of Harwood's milk-vetch found occur within the northwestern portion of the existing transmission line area and within sandy washes in the eastern portion of the BSA and were mapped during both the 2011 early and late spring protocol surveys (Figure 5.2-3). Unavoidable impacts to Harwood's milk-vetch are considered less than significant because they will likely affect only 6 individuals of this moderately rare species.

**Utah vine milkweed (State Rank S3.2)**

During both the 2011 early and late spring surveys, a total of 98 individuals were identified and mapped within the boundaries of the BSA (See Appendix 5.2A for locations). Impacts to this species (83 directly and 6 indirectly in the buffer zone) are considered adverse, but less than significant due to the species being too common in the region and its low sensitivity.

**Desert Unicorn Plant (State Rank S3.3)**

A total of 132 individuals of desert unicorn plant were detected within the BSA (See Appendix 5.2A for locations). Populations of this species occur outside of California in Arizona, New Mexico, Baja California and Sonora, Mexico. When considering populations outside California, desert unicorn plant is considered secure. Direct impacts to 45 occurrences of desert unicorn plants within the project fence line impact areas as a result of construction and operation of the Project and indirect impacts to 12 more in the 500-foot buffer is considered adverse, but less than significant because the impact is not substantial for a species of such low sensitivity.

**Harwood's Eriastrum (State Rank S2)**

During the late season spring protocol surveys, 160 individuals were detected in the northwestern portion of the initial boundaries of the gen-tie line corridor (Figure 5.2-3). The Project design avoids impacts to all of these individuals.

***Noxious Weeds***

During the regeneration of native habitat, there is potential for the establishment of invasive plant species within the BSA. Exotic, invasive species can displace or replace native plant and animal species, disrupt nutrient cycles, and cause changes in the patterns of plant succession. Asian/Sahara mustard and red brome (*Bromus madritenis rubens*) are common invasive species that persist and are spreading across the Mojave Desert region. Shading from heliostats has been shown to increase soil moisture and lower soil temperatures. The mirrors will also be washed regularly, which might provide moisture for establishment of invasive species. The spread of noxious weeds can be reasonably controlled with the implementation of a noxious weed abatement program. Consequently, impacts associated with noxious weeds will be less than significant with mitigation.

Construction equipment will not operate beyond the project site, other than on roads designated open by the BLM. Roads that currently exist, but are not designated as open will not be used. Temporary disturbance of areas beyond the Project boundary due to the operation of equipment will not occur. The project plan also does not include the wholesale grading of the entire site. The heliostats themselves will occupy areas where shrub vegetation will be trimmed, as previously described; however, the herbaceous component of the vegetation will be retained.

The majority of the existing BSA is not currently infested with weed species, although several non-native plant species occur throughout the general area. Some elements associated with the Project, such as the existing transmission line, already support these non-native plant species. There is some potential that non-native plant species densities may increase within the Project boundary in areas of temporary surface land disturbance and shading. This could potentially contribute to the establishment and spread of non-native species on site and off site. A Noxious Weed Management Plan will be created to address potential issues stemming from planned ground disturbance. The goal of this plan will be to minimize potential effects from weeds within the Project boundary and adjacent lands, as well as to avoid adverse effects on desert tortoise forage habitat off site. Given that a Noxious Weed Management Plan will be implemented to address effects of potential weed issues, it is unlikely that these issues would result in substantial increases in non-native species such that adjacent lands beyond the Project boundaries would be at substantial risk from weeds. With implementation of the Weed Management Plan, no adverse effects due to weeds within the Project boundary or in adjacent lands are expected to occur.

### *Impacts to Special-Status Wildlife Species*

Temporary and permanent impacts to special status wildlife could occur from removal, mowing and crushing of shrubs and herbaceous vegetation (resulting in loss of nesting/breeding and foraging habitat), vegetation clearing, trenching, entombment of animals in dens or burrows, collisions with vehicles, collision with power line conductors or towers, concentrated heat hazards, electrocutions, increased predation on sensitive species, disturbance from noise, and fragmentation of habitat. These impacts have the potential to be significant.

However, with the implementation of awareness training, pre-construction and clearance surveys, avoidance, proper timing of vegetation disturbance activities, implementation of standard and project-specific Best Management Practices (BMP) and mitigation measures proposed by the Applicant and required by the BLM, USFWS, CDFG, and the CEC Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP), no significant, unmitigated environmental impacts to biological resources will occur in association with the construction and operation of the Project. Species-specific impacts are discussed below.

### **Desert Tortoise**

The desert tortoise population of adult / juvenile tortoises at the project site was estimated using USFWS Protocol 10-meter transect survey data and the USFWS desert tortoise population estimation formula. A total of three desert tortoise (two adults and one juvenile) were found within the proposed project site in 2011 (Figure 5.2-4). An additional adult was observed in the project site survey buffer for a total of 4 tortoises within the BSA. Two more tortoises were observed in the ZOI survey transects beyond the 500-foot buffer zone to the fence line. Two tortoises were also detected incidentally within the gen-tie line corridor. The distribution of tortoise and signs of tortoise was not random and tended to be concentrated

in the western third of the project site (Figure 5.2-4 and Appendix 5.2A). Based on the USFWS formula (USFWS 1992), approximately eight adult/sub-adult desert tortoise (95 percent confidence interval range of 3 to 30 individuals) may occupy the 9,184-acre total within the larger BSA.

Eggs and juveniles are difficult to detect and it is assumed that many or most will be missed during the clearance surveys; therefore, a conservative estimate of eggs and juvenile tortoises based on 15 female tortoises (maximum 95% estimate = 30/2) being present would be 90 eggs (six eggs per female) and 232 juveniles based on the life table estimation method (Croft 2011). Eggs and most juveniles are likely to be missed during surveys and not be translocated as a result of the Project implementation. Mortality due to roadkill, site grading, enhanced predation by human-subsidized predators, and loss or degradation of suitable foraging habitat are the most likely impacts on any desert tortoise that may remain on site during construction. Installation of tortoise-proof fencing around the site will preclude reoccupation of the site after construction is completed. Desert tortoise will be excluded (relocated and/or translocated) via clearance surveys before initiation of the construction phase of the Project. Translocation/relocation of desert tortoise can potentially represent take via harm and/or harassment as a possibility exists for tortoises to be killed or injured during the translocation/relocation process.

The fence and heliostats could provide roosting perches for ravens, which could prey upon hatchling and juvenile desert tortoise occurring in the 500-ft buffer zone adjacent to the perimeter fence. Other project activities also have some potential to subsidize potential predators of tortoise, such as ravens and coyotes, through the provision of limited resources (e.g., fresh water, food, nest sites), which are mostly absent from the site (Boarman et al. 2006). Potential effects of predators would be limited to the area surrounding the site due to exclusion of tortoises from any potentially suitable habitat remaining on site.

Desert tortoises were observed in the western third of the project site, most likely because the remainder of the project site has soils that are too soft (fine sands) or are dominated by desert pavement, which are not optimal for the creation of desert tortoise burrows. Using a 500 meter buffer around tortoise sightings and recent sign and burrows, an estimated 1,572 acres of tortoise occupied habitat occurs within the project fence line (Figure 5.2-7; Table 5.2-13). An additional 220.17 acres of tortoise occupied habitat occurs within the 500-ft buffer zone. Only 1.4 acres of tortoise occupied habitat occurs within the gen-tie line impact areas. No tortoise –occupied habitat is associated with the access roads to the project site.

**Table 5.2-13  
Impacts to Desert Tortoise Occupied Habitat on the Project Site.**

Vegetation Community with Desert Tortoise Sign Detected	Within Fence	Gen-tie line Corridor	In 500-ft Buffer to Fence
Creosote Bush Scrub	<i>649.64</i>		<i>84.55</i>
Creosote / White Burr Sage Scrub	<i>533.75</i>		<i>27.40</i>
Creosote Bush / White Burr Sage Scrub with Big Galleta Grass Association	<i>21.73</i>		<i>2.79</i>
Blue Palo Verde / Ironwood Woodland	<i>348.52</i>		<i>59.90</i>
Brittle Bush / Ferocactus Scrub	<i>18.34</i>		<i>45.53</i>
Desert Dunes		<i>1.40</i>	
<b>Total</b>	<b>1,571.98</b>	<b>1.40</b>	<b>220.17</b>

The potential for edge effects along the project site boundary, especially to the west of the Project, has been considered. The primary indirect effects beyond the Project boundary include:

- disturbance from vibration during construction that could affect burrowing animals near the boundary;
- potential for dust during construction to negatively affect adjacent intact native vegetation;
- introduction of weeds that may increase on the project site and in the buffer area during construction and operation;
- potential for partial loss of tortoise home ranges along the Project boundary; and
- potential increases in ravens and other predators of desert tortoise occupying adjacent lands as a result of perches provided by the heliostats, transmission towers, and perimeter fencing.

Noise and vibration during construction is a short-term effect that will not be a permanent issue. The majority of disruption due to noise and vibration is limited to the immediate area and dissipates significantly with distance from the construction activity. No significant impacts from noise and vibration are expected to occur because of the temporary nature of the impact.

Construction activities and operational vehicle traffic on the roads within the project site could generate dust that could affect adjacent vegetation, although adverse effects on vegetation are also not expected to occur with appropriate mitigating dust prevention measures. Use of water or tackifiers (compounds that cause dust particles to stick to each other) on the roads during operations will also help prevent adverse impacts to vegetation from dust. Introduction of weeds will be controlled via implementation of a Noxious Weed Management Plan that should prevent the spread/colonization of weeds both on site and off site. With the project site fully fenced, there may be a partial loss of occupied desert tortoise territories along the Project boundary; however, with estimated desert tortoise density on site being low (0.21 to 1.95 desert tortoises per square mile), partial territory loss is anticipated to only affect a few individuals, if any.

Given that a Noxious Weed Management Plan will be implemented to address effects of potential weed issues, it is unlikely that these issues would result in substantial increases in non-native species such that adjacent lands beyond the Project boundaries would be at substantial risk from weeds. With implementation of the Weed Management Plan, no adverse effects on desert tortoise from weeds within the Project boundary or in adjacent lands are expected to occur.

Ravens may be attracted to the heliostats, perimeter fencing and transmission lines as perches, as well as to other facilities associated with the Project. Boorman *et al.* (2006) illustrates that ravens are primarily attracted to areas with human influence that provide supplemental nesting, food or water resources. Increased sources of food or water for ravens will not be present at the heliostats. There is potential for increased sources of food or water at the few buildings on site where people will concentrate; however, a Raven Management Plan will be prepared to deal with potential raven-related impacts to desert tortoise. Education regarding control of food/trash sources and minimization of water resources are the main focus of the plan. Ravens may also be attracted to evaporation ponds. Covering or netting the ponds will prevent raven and other wildlife access to the ponds. With implementation of the Raven Management Plan, increased predation on desert tortoise from ravens within the project site or in adjacent lands is expected to be less than significant.

A taking of a species listed pursuant to CESA is defined as:

“Take means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill” (CDFG Code Division 0.5, Chapter 1, 86).

Therefore, take of an estimated 3 to 30 adult desert tortoise (95% CI range) within the project site is anticipated. The above impacts to tortoise are considered significant (Criterion 1). The implementation of various measures, including exclusionary fencing, worker environmental awareness training, pre-construction and clearance surveys, and habitat compensation, as well as those measures required by the CEC, CDFG, BLM, and USFWS, will be employed to fully mitigate impacts on tortoises to a less than significant level. Mitigation measures to reduce potentially significant impacts to the tortoise are detailed in Section 5.2.9.1.

### **Mojave Fringe-toed Lizard**

Approximately 653 acres of potential Mojave fringe-toed lizard habitat was surveyed on the northwest section of the gen-tie line and proposed CRS, along with approximately 2.5 acres on the western slope of the mountains on the west edge of the project site. URS biologists observed 70 Mojave fringe-toed lizards in the BSA during focused surveys, but only along the gen-tie line and at the CRS area. Habitat that supports the Mojave fringe-toed lizard will be directly affected as a result of placement of the generator tie-line and tie-in to the proposed substation, though to a much smaller degree than the construction of the CRS and the Palo Verde-Devers No. 2 500 kV line. Indirect effects of the Project will include subsidizing potential predators of Mojave fringe-toed lizard, such as ravens, through the provision of limited resources (e.g., fresh water, roosting/nest sites) that are mostly absent from the site; however, the gen-tie line and tie-in to the proposed CRS will not provide such resources for ravens, so no indirect impact is expected from increased predation by ravens. No Mojave fringe-toed lizard-occupied habitat exists at the main project site, no impacts would occur to mapped Mojave fringe-toed lizard locations, and only small, potentially avoidable, impacts would occur along the gen-tie line where habitat occupied by the species exists. As a result, impacts to Mojave fringe-toed lizards are considered adverse, but less than

significant due to the limited amount of habitat disturbance and current sensitivity status of the species in the region.

### **Couch's Spadefoot Toad**

No Couch's spadefoot toads were observed during the summer 2011 surveys. No suitable breeding habitat occurs within the project site. As a result, it is expected that no Couch's spadefoot toads will be affected by the Project.

### **American Badger**

No American badgers were observed during the spring 2011 focused surveys, although two badgers were observed incidentally while driving through the site along the existing transmission line. American badgers are known to have home ranges from 338 to 1,549 acres, with males having larger home ranges than females (CDFG 2009). Based on this information, the project site may potentially support up to 27 badgers; however, based on the extensive field efforts conducted for this Project, the actual numbers of badgers on site is likely to be less than 10. American badgers present on site will be detected during desert tortoise clearance surveys prior to site disturbance. An accurate estimate of the number of badgers impacted will be known at that time. Prior to construction, measures will be taken to minimize impacts on badgers. A qualified biologist will monitor any burrows during construction. It is expected that badgers will leave the site once construction begins and burrows will be collapsed after it is confirmed that the burrows are unoccupied. Direct mortality of badgers should be avoided through construction monitoring. Impacts to American badger are considered adverse, but less than significant with the required biological construction monitoring to be implemented.

### **Nelson's Bighorn Sheep**

No live Nelson's bighorn sheep were detected in the AFC Assessment Area, although signs were observed (Figure 5.2-4). The sign was likely from a killed sheep that was transferred to the site by a predator. No historic use of this area by bighorn sheep has been documented; therefore, no known bighorn sheep habitat will be affected as a result of the Project. No bighorn sheep herds are known to occur in the project vicinity. No impact to bighorn sheep is anticipated.

### **California Leaf-Nosed Bat and Cave Myotis Bat**

The largest known winter colonies of California leaf-nosed bat (personal communication with Patricia Brown) are located approximately 1.4 miles northwest of the Project in Stonehouse / Hodge mine and Roosevelt Mine in the Mule Mountains. Approximately 4,000 bats (both species) are known to roost in these mines. The exact number of California leaf-nosed bats in the mines is unknown. It is presumed that these bats forage within the BSA. Bats also likely fly over the project site in order to forage and drink in the Colorado River Valley, adjacent canals and irrigated agricultural fields. Foraging ranges for these species are small, with most activity within 0.9 mile (1.5 kilometers) of day roosts in winter months and up to 1.9 miles (3.1 kilometers) during summer months (personal communication with Patricia Brown). Impacts to California leaf-nosed and Cave myotis bats are not anticipated to be significant due to the amount of preferred foraging habitat in the region and project vicinity.

**Burrowing Owl**

No burrowing owls were observed on site during the 2011 spring focused survey. Seventeen burrows showing signs of past, historic but not recent, activity were observed. No active owl burrows were observed. Two burrowing owls were observed, one on site, the other off site, in September 2011, but were likely migrant individuals. One of these locations is within the proposed Project fence line. Habitat that supports the old burrows and that could potentially support burrowing owls will be affected as a result of the proposed Project; however, impacts to burrowing owl individuals are not considered significant since no resident individuals likely occupy the project site. Preconstruction surveys for burrowing owl are required to confirm absence from the site.

**Golden Eagle**

Two golden eagles were observed flying over the project site early in the 2011 survey season outside of the fence line and the 500-foot buffer to the proposed Project on one day during spring surveys. No active/occupied golden eagle nests were documented on site, immediately surrounding, or within 10 miles of the Project during the 2011 breeding season (WRI 2011); however, three inactive golden eagle nests were observed within 10 miles of the project site. The closest nest considered active in 2011 was more than 14 miles from the Project. As a result, the observed eagles were likely migrants. Potential impacts to golden eagles are considered less than significant because of the extensive amount of suitable foraging habitat for this species in the region and project vicinity and the lack of current occupation. Additional monitoring of historically occupied golden eagle nest sites may be required if golden eagles are detected at the project site during the breeding season. Implementation of relevant BMP measures included in the project-specific Avian/Bat Protection Plan can be expected if eagles become resident in the Project vicinity.

**Swainson's Hawk**

There were no observations of Swainson's hawk on the project site in early spring, 2011. One fly-over observation was made near the agricultural lands to the east of the project site. This species is not expected to breed in the area and was likely a migrant. Potential impacts to Swainson's hawks are less than significant due to the limited use of this area and the extensive amount of suitable foraging habitat for these species in the region.

**Prairie Falcon**

There was one observation of a prairie falcon in the BSA during focused bird surveys. This individual was observed flying over the western portion of the project site. This species is not expected to breed within the project site and no suitable nesting habitat was observed in the immediate vicinity. Prairie falcons do use open arid habitat for foraging, therefore, it is likely that suitable foraging habitat occurs on-site. Due to the large amount of suitable foraging habitat in the vicinity of the Project, the impacts to this species are considered less than significant.

**Northern Harrier**

One northern harrier was observed flying within the 500-ft buffer zone (Figure 5.2-4) to the project fence line during focused bird surveys. Northern harrier use desert habitat for foraging. Although the majority

of the BSA will be developed, there will still be undeveloped areas in the BSA, in addition to an extensive amount of suitable foraging habitat for northern harriers in the region. Impacts are considered less than significant.

### **American White Pelican**

A flock of 14 American white pelicans were observed flying within the 500-ft buffer zone to the project fence line in April 2011, during the first week of bird surveys (Figure 5.2-4, Table 5.2-12). These pelicans were likely migrants on their migration route along the Colorado River. No suitable habitat for this species occurs within or immediately adjacent to the project site. Impacts to American white pelicans are not considered significant due to the lack of suitable habitat existing at or near the project site.

### **Loggerhead Shrike**

A total of 45 Loggerhead shrikes were observed during the course of the bird surveys. The habitat within, and adjacent to, the project site may provide suitable foraging and nesting habitat for this species. Proposed project site clearing activities will be conducted during the non-breeding season (August through February). A total of 24 individuals were detected within the project fence line, an additional 13 individuals occurred within the 500-ft buffer zone to the fence line, and one occurred in proposed access road from 34th Street (Figure 5.2-4, Table 5.2-12). There will still be undeveloped areas on site in addition to an extensive amount of suitable habitat for this species in the region. Therefore, impacts are considered adverse, but less than significant.

### **LeConte's Thrasher**

One LeConte's thrasher was observed during the course of the bird surveys, but not within the project fence line or 500-ft buffer zone, and a second was observed incidentally in the gen-tie line. The habitat within and adjacent to the project site may provide suitable foraging habitat for the LeConte's thrasher and provide suitable cover or nesting sites. Proposed site clearing activities will be conducted during the non-breeding season (August through February). Although the majority of the BSA will be developed, there will still be undeveloped areas on site in addition to an extensive amount of suitable habitat for this species in the region. For this reason, impacts are considered less than significant.

### **Crissal Thrasher**

One Crissal thrasher was observed during the course of the bird surveys within the project fence line. As for Le Conte's thrasher, the habitat within and adjacent to the project site may provide suitable foraging habitat for the Crissal thrasher and provide suitable cover or nesting sites. Proposed project site clearing activities will be conducted during the non-breeding season (August through February). Although the majority of the project site will be developed, there will still be undeveloped areas on site in addition to an extensive amount of suitable habitat for this species in the region. Therefore, impacts are considered less than significant.

### **Gila Woodpecker**

Four Gila woodpeckers were observed during the course of the bird point count surveys; three within the project fence line and one beyond the 500-ft buffer zone to the fence line (Figure 5.2-4, Table 5.2-12). Two additional incidental observations were within the fence line though one may be the same individual

seen nearby during point count surveys. The habitat within and adjacent to the project site may provide suitable foraging habitat for Gila woodpeckers and provide suitable cover or nesting sites. In the adjacent lower Colorado River Valley, reduction of suitable native habitat is thought to restrict viability of local populations (Rosenberg et al. 1991). Isolated mature cottonwood-willow groves of less than 50 acres were observed to be devoid of Gila woodpeckers in this valley. In general, the smaller the habitat patch, the less likely this species will be present. There is sufficient suitable nesting habitat to support up to four nesting pairs in similar desert habitat as the project site (0.8 birds/km<sup>2</sup>; Emlen 1974). Gila woodpecker densities ranged from 2.75 birds per square kilometer (km<sup>2</sup>) in February to 8.75 birds/km<sup>2</sup> in June along 450 kilometers of riparian habitats in the lower Colorado River Valley (Anderson, et al. 1982). Impacts to Gila woodpeckers are considered significant (Criterion 1) because of the potential loss of over 1,100 acres of suitable and potentially occupied habitat, but are fully mitigable through implementation of measures described in Section 5.2.9.1. Proposed site clearing activities will be conducted during the non-breeding season (August through February).

### **Lucy's Warbler**

Sixteen Lucy's warblers were observed during the course of the bird surveys. Five of these individuals occur within the fence line but none were observed within the 500-ft buffer zone to the fence. The habitat supporting ironwood within and adjacent to the project site may provide some suitable nesting habitat for the Lucy's warbler. Although the majority of the project site will be developed, there will still be undeveloped wash areas on site, in addition to an extensive amount of suitable habitat for this species in the region. Impacts to this species are considered less than significant due to the current sensitivity status of this species and amount of suitable conserved habitat in the region and project vicinity.

### **Vaux's Swift**

Vaux's swift was observed during the course of the bird surveys. The habitat within and adjacent to the project site may provide suitable foraging habitat for the Vaux's swift. No nesting habitat for this species occurs within the project site, so site clearing activities will not affect nesting sites of the species. Impacts to this species are regulated by the MBTA. Although the majority of the project site will be impacted, there will still be undeveloped areas on site, in addition to an extensive amount of suitable habitat for this species in the region. Therefore, impacts are considered less than significant.

### ***Impacts to migratory birds due to collision and concentrated heat***

Review of the ornithological literature suggests that the Lower Colorado River Valley is a secondary bird migration route for migrant songbirds and the river valley is a minor wintering area for a few waterfowl and shorebird species. The desert scrub habitat that comprises most of the project site is not primary habitat for birds that use the Colorado River as a migratory corridor. These birds more commonly inhabit the riparian habitat associated with the river, as well as the adjoining agricultural lands. Despite a one-mile buffer of desert habitat from the agricultural valley floor to the project facilities, the desert habitat on the project site is likely to receive some "spillover" from the adjacent agricultural areas, however the number of species and relative abundance is likely to be far less than in the preferred riparian or agricultural lands located east of the site.

Buildings, communications towers, wind farms, and power lines are known contributors to bird mortality. Only one study of bird mortality at concentrated solar power facilities has been published to date

(McCrary et al. 1986). This study was conducted at the Solar One facility in Daggett, California. The McCrary study concluded that the primary concerns for impacts to migratory birds at the Solar One Facility resulted from an attraction to birds, primarily associated with large agricultural evaporation ponds directly adjacent to the project site. Impacts resulted primarily from collisions, and for some species, such as swallows and swifts, heat mortality from the central receiver tower.

In contrast, the BrightSource demonstration plant, SEDC (Solar Energy Development Center) near Dimona, Israel has resulted in no known bird fatalities since start of operation in 2008 despite the bird activity being observed at the plant, the facility being adjacent to a nature preserve, and only being 10 miles from a major bird migratory route (BrightSource 2011). Birds have been observed in all areas of the plant, flying around the mirrors, in the 80-meter tall tower and around the equipment. In addition, birds have been observed flying in the air around the tower. There has been no evidence of any impacts to birds. This includes no evidence of collisions with the mirrors or other equipment, or of damage caused to the birds from flying near the solar flux receiver.

The site features associated with the Project likely will reduce the potential for bird mortality, as compared to the Solar One site. Specifically, the project site is dominated by desert creosote-dominated scrub vegetation that is usually only sparsely inhabited by birds, lacks accessible impounded water, and is located over one mile from the river valley corridor and adjacent agricultural fields. In addition, the taller, concrete SRSR tower does not pose the same threats to foraging birds as a steel lattice tower and the proposed heliostats are smaller than those used at the Solar One facility. Annual impacts are expected to be much lower compared to the Solar One site based on the known Project features and currently available deterrent technology.

Due to the lack of post-construction bird mortality studies at utility-scale solar projects, the CEC has required bird mortality studies to be conducted at most of the solar projects certified in 2010. The need for a mortality study for this Project depends upon the results from similar studies at other solar projects. Birds with flight behavior that may put them at higher risk for concentrated heat mortality include raptors, swifts, swallows, and winter flocking songbirds (e.g. finches, horned lark). The condition of the project site in terms of its attractiveness to birds will greatly influence the presence of birds on site. Reduced vegetation cover will likely limit the composition and abundance of birds attempting to inhabit or forage at the project site after construction of the project is completed. The number of migratory birds that fly below 300 meters above ground level is likely to be small. The peripheral location of the project site to the Colorado River Valley corridor and the one-mile buffer of desert habitat from the agricultural area to the solar generating facility also will reduce the likelihood that large concentrations of riparian birds or waterfowl will directly pass over the project facilities, since riparian birds are attracted to riparian habitats and desert habitats are not preferred.

A three-and-a-half-year study conducted by Smallwood and Thelander (2005) at the Altamont Pass Wind Resource Area revealed that a majority of bird fatalities occurred during the first few years of operation. During this time, the birds became aware of operating wind turbines and took measures to avoid them. It is assumed that the same behavior will occur among resident individuals at the Rio Mesa SEGF if the tower proves to be a significant hazard to birds.

The overall project design features, location attributes, and feasible mitigation measures associated with the proposed Project reduces adverse effects to migratory birds to a less-than-significant level.

*Impacts to Wetlands and Other Jurisdictional Waters***Waters of the United States**

Project construction and operation activities will require removal of vegetation, grading, placement of fill, placement of structures, construction of road crossings, placement of culverts and underground piping, causing disturbance to potentially jurisdictional WUS. Construction activities, including vegetation clearing and grading, will result in alteration of most of the existing ephemeral washes at the project site. Features most likely to be significantly affected are the smaller ephemeral washes that both have and lack defined bed and bank characteristics.

The surface water control for development of the site will maintain the pre-construction volumes and velocity of run-off from the site into the same drainage basins; however, as currently designed, the proposed Project will permanently impact 621.30 acres of non-wetland WUS and 0.78 acre of wetland WUS. Within the buffer area of the proposed Project, 158.13 acres of non-wetland WUS will be indirectly impacted by implementation of the proposed Project (Figures 5.2-5a and 5b and 5.2-6a and 6b, Table 5.2-14). All jurisdictional WUS determinations will be confirmed during consultation with the USACE and RWQCB.

**Lakes and Streambeds**

Well-defined streams that are under the jurisdiction of the CDFG and RWQCB or surface waters that are potentially subject to Porter-Cologne Water Quality Control Act occur at the project site; therefore, adverse impacts on WSC are expected to occur as a result of the Project. Drainage across the site in the form of flood flows will be affected by the Project, and will be addressed in with storm water management BMPs approved by the RWQCB.

**Table 5.2-14  
Temporary and Permanent Impacts to Jurisdictional Waters**

Type	Existing Acres within BSA (acres)	Within Fence Line (acres)	Transmission Line (acres)	Access Roads to Site (acres)	Total Direct Impacts (acres)	Indirect Impacts Within 500-ft Buffer to Fence Line (acres)
Jurisdictional Waters of the United States (WUS)						
Wetland <sup>1</sup>	117.8	0.0	0.0	0.78	0.78	0.0
Non-wetland WUS	1,205.5	618.69	0.15	1.68	620.52	158.13
<b>TOTAL United States Army Corps of Engineers (USACE) Jurisdiction</b>	<b>1,433.6</b>	<b>618.69</b>	<b>0.15</b>	<b>2.46</b>	<b>621.30</b>	<b>158.13</b>
Jurisdictional Waters of the State of California (WSC) <sup>2</sup>						
Wetland <sup>1</sup>	117.8	0	0	0.78	0.78	0
Non-wetland WSC	2,490.6	1,261.49	0.92	1.75	1,264.16	347.61
<b>TOTAL California Department of Fish and Game (CDFG) Jurisdiction</b>	<b>2,608.4</b>	<b>1,262.49</b>	<b>0.92</b>	<b>2.53</b>	<b>1,264.94</b>	<b>347.61</b>

CDFG = California Department of Fish and Game

WSC = Waters of the State of California

WUS = Waters of the United States

USACE = United States Army Corps of Engineers

<sup>1</sup>Wetlands consist of Bush seepweed scrub and Bush seepweed scrub/mesquite bosque

<sup>2</sup>WSC includes streambeds, adjacent riparian vegetation.

**Waters of the State**

Project activities will require removal of vegetation; grading; placement of fill; placement of structures; construction of road crossings; and placement of culverts and underground piping, which will cause disturbance to potentially jurisdictional WSC, as defined by CDFG. The surface water control for development of the site will maintain the pre-construction volumes and velocity of run-off from the site into the same drainage basins; however, the proposed Project will permanently impact 1,205.5 acres of non-wetland WSC, and permanently impact 0.78 acre of wetland WSC. Within the BSA, 347.61 acres of non-wetland WSC will be indirectly impacted by construction and operation of the proposed Project (Table 5.2-14). The majority of the impacts are to the jurisdictional blue palo verde / ironwood woodland associated with the major washes that provide the highest quality habitat on the site and provide food, shelter, and cover for movement of disproportionate number of wildlife species, including the federal and state listed desert tortoise and state-listed Gila woodpecker. This impact is significant based on significance criteria 1, 4, 7, 9, and 10. All jurisdictional WSC determinations will be confirmed during consultation with the RWQCB and CDFG.

### *Impacts to 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). Corridors are intermittently used by species to move from one area of preferred habitat to another. To function effectively, a corridor must accomplish two basic functions. First, it must effectively link two or more large areas 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 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. Presence of wildlife corridors allow an exchange of individuals between populations, lowering inbreeding within populations, increasing effective population size, and facilitating re-establishment of populations that have been decimated or eliminated because of random events.

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. 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. Disturbance outside of the animal's normal experience is often avoided by animals. In the Colorado Desert, potential focal species for wildlife movement assessment could include desert tortoise, Mojave fringe-toed lizard, mountain lion (*Puma concolor cougar*), coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), American badger, Nelson's bighorn sheep, bobcat (*Lynx rufus mohavensis*), and desert kit fox (*Vulpes macrotis arsipus*).

Generally, the project site is unrestricted, with uniform habitat composition throughout the area conducive to occupation and movement of wildlife. The primary constraints to wildlife movement are agricultural fields and associated roads and canals situated to the east of the Project and the Mule and Palo Verde Mountains to the west and southwest.

Currently, north-south wildlife movement is unrestricted from undeveloped habitat in the northern and southern portions of the BSA. Operation of the Project will restrict the north-south movement corridor and force wildlife to use the immediately adjacent foothills of the Mule Mountains to the west, the off-mesa area immediately east of the site, or the agricultural fields to the east. This constraint will primarily affect terrestrial species such as desert tortoise, mule deer, kit fox, coyote, badger, and bobcat that have been documented at the project site. Mammal species are less constrained because they can use the foothills and existing roads and trails as travel corridors. A low elevation pass exists between the Mule and Palo Verde mountains west of the site provides access to lands to the west. Bird species will still be able to fly over the BSA, but collision and concentrated heat may present a hazard to certain bird species. Project-related impacts to movement corridors of Nelson's bighorn sheep are not anticipated because of their preference for steep habitats and their tendency to avoid flat areas. Herds of Nelson's bighorn sheep have not recently been documented in the BSA.

Local east-west movement will also be potentially affected by the Project. Undeveloped land to the north and south of the Project will remain intact and allow for movement from the Mule Mountains west toward agricultural fields and east toward the Colorado River. A transmission line and associated access road already exist within the proposed Project gen-tie line corridor. A large wash along the southern portion of the site will be avoided to allow for some wildlife movement eastward, however, several washes across the center and north of the main project site will be impacted by the placement of heliostats and fencing.

In addition, the presence of operations and maintenance staff and vehicles will likely discourage use of the project site or these washes by diurnal wildlife. Impacts to local wildlife movement are considered adverse, but less than significant due to the retention of large washes north and south of the project site. Regional movement routes are conserved along the Colorado River and conserved lands west of the Mule Mountains.

### 5.2.8 Cumulative Effects

Potential impacts to biological resources could result due to past, present, and reasonably foreseeable future actions, in combination with the Project, associated with the loss of individuals, loss of habitat, constraints to wildlife movement corridors, habitat degradation, and other “edge” effects. At present, there are numerous pending BLM solar and wind applications (appendix

5.2-8) for projects within the area near the proposed project site.

The BLM, in consultation with the USFWS and CDFG, has identified areas of biological concern and has designated DWMA, ACECs, and DCHs to avoid significant cumulative impacts on biological resources in the project vicinity. The project site is located outside of these high-value biological resource areas, and impacts resulting from the Project would not substantially affect the integrity of these high-value areas. The Project will not interfere with the preservation of these high-value areas that are necessary for long-term preservation of natural resources. Additionally, the Project will not substantially prevent movement to and from high-value biological areas. The area that might be impacted by the Project does not support special management resources and, on a regional scale, the proposed Project will not contribute to a cumulatively significant impact based on the preservation of designated high-value biological habitat.

The Project will have less than significant impacts to Desert tortoise, Mojave fringe-toed lizard, Gila woodpecker, Harwood’s milk-vetch, Harwood’s eriastrum, WSC, and WUS. The potential for these less than significant impacts of the Project to be increased or compounded by similar effects of other past, present, and reasonably foreseeable future projects is evaluated below.

The Blythe Solar Power Project (BSPP) will result in significant direct and indirect impacts to biological resources, including Desert tortoise, Mojave fringe-toed lizard, Harwood’s milk-vetch, and WSC. The Genesis Solar Energy Project (GSEP) will result in significant direct and indirect impacts to biological resources, including Desert tortoise, Mojave fringe-toed lizard, Harwood’s milk-vetch, Harwood’s eriastrum, and WSC. Palen Solar Power Project (PSPP) will result in significant direct and indirect impacts to biological resources, including Desert tortoise, Mojave fringe-toed lizard, and WSC. GSEP will result in significant direct and indirect impacts to biological resources, including Desert tortoise, Harwood’s milk-vetch, and WSC. DSSF will have impacts to WSC. Each of these projects will reduce these impacts to less than significant levels. None of these projects will result in adverse effects to Gila woodpecker or WUS. The Devers-Palo Verde No. 2 transmission line, including the new CRS, also has the potential to adversely affect biological resources in the project vicinity.

The Project will only affect a relatively small number of desert tortoises, and potential impacts will be avoided or reduced. Moreover, the project site is not located in a DWMA, HMA, ACEC, National Wilderness Preservation Area, or DCH for the desert tortoise. Impacts to Mohave fringe-toad lizard will be marginal since the species and its habitat are predominantly avoided by the Project. Harwood’s eriastrum and Harwood’s milkvetch are predominantly avoided by the Project. Therefore, the incremental

effects of the Project to these special status wildlife and plant species and WSC, when considered together with the less than significant impacts of other reasonably foreseeable projects, will not contribute to cumulatively significant impacts. Existing LORS for impacts to WSC will ensure that the incremental effects of the Project are not cumulatively considerable when considered together with the WSC impacts of the other reasonably foreseeable projects. Impacts to Gila woodpecker and WUS will not be cumulatively significant since no reasonably foreseeable projects will affect these biological resources.

The pending Desert Quartzite project is located immediately north of the Project, but there is a lack of certainty at this time regarding the whether this project will be developed, and if so, when it will be developed. Other details regarding this project, such as the location of project features, also are not available at this time. Nevertheless, to provide a conservative evaluation of potential cumulative effects, the potential for the Desert Quartzite project to increase or compound the effects of the Project on wildlife movement are evaluated below.

Despite the fact that the Desert Quartzite project would be located immediately north of the Project and extend northward near I-10, the combined impact of the two projects to wildlife movement will not be cumulatively significant. The incremental effects of the Project and the Desert Quartzite project may restrict some north-south wildlife movement along the western edge of the project site, primarily for desert tortoise movement since the western edge of the site contains mountainous terrain not navigable for desert tortoise. Cumulative impacts to north-south movement of wildlife south of the project site are not expected to change with the implementation of the Project as only a few hundred acres of similar habitat are present south of the project area before mountainous terrain and the agricultural fields of the Colorado River Valley converge less than five miles south of the community of Palo Verde. Agricultural lands and State Route 78 to the east of the Project also remain major constricting factors to north-south wildlife movement. North-south movement of desert tortoise will not be affected along the eastern edge of the site since this species is not found along the eastern edge of the site.

East-west wildlife movement would still be possible for terrestrial species south of the Project because of the presence of desert habitats in this area and also to the west of the south of the site between the Mule Mountains to the northwest of the project site and the Palo Verde Mountains to the southwest of the project site. Between the northernmost portion of the gen-tie line and I-10, there is an approximately two-mile-wide east-west corridor. This corridor north of the Project will remain available for wildlife use. An analysis of the areas where desert tortoise are found and the potential combined effects of the Project and the Desert Quartzite project, will not significantly impede movement to and from critical resource areas for this species. The Project will not result in cumulatively considerable impacts to wildlife movement.

### 5.2.9 Mitigation Measures

The following section describes the proposed measures that are intended to avoid, minimize, offset, and mitigate the potential adverse effects of the project to biological resources. It also includes a summary of the proposed plan to monitor and document the effectiveness of their implementation. These and other measures contained within the USFWS Biological Opinion and other resource agency permits will be combined into a BRMIMP. The BRMIMP will be prepared prior to Project construction and will outline how the Applicant will implement the measures. Mitigation measures are identified and described in this section for the species-specific effects previously identified. In addition, several general mitigation measures and BMPs are also proposed that address the means to mitigate potential indirect effects that could affect the biological resources of the site. It is assumed that mitigation will be “nested” such that

mitigation for certain vegetation communities will also provide mitigation for sensitive species if present in the mitigation lands and that mitigation for some species will offset impacts to other species. The final mitigation package will be subject to approval by the CEC, BLM, USFWS and CDFG.

### ***BIO-1: Designated Persons***

A Field Contact Representative, Designated Biologist, Authorized Biologist(s), and Biological Monitor(s) will be appointed to oversee compliance with the protection measures for the desert tortoise and other species.

- The project owner's Environmental Compliance Manager (ECM) will act as the Field Contact Representative (FCR). This individual will be responsible for upper-level management of the natural resources and other environmental compliance issues associated with the project.
- The Designated Biologist will be assigned to oversee the implementation of the BRMIMP, coordinate the Authorized Biologist and Biological Monitor activity, act as the primary contact with the FCR during construction, and prepare monthly compliance reports for the FCR.
- The Authorized Biologist or Biological Monitor will be on site during ground-disturbing activities that have the potential to impact sensitive species and will be the principal agents in the direct implementation of the BRMIMP and compliance assurance.

### ***BIO-2: Worker Environmental Awareness Training***

A site-specific Worker Environmental Awareness Program (WEAP) will be administered by the project biologists and botanists as part of the mitigation plan, and it is intended to educate all site workers on the identified resources in the area and the measures that will be undertaken to avoid or minimize impacts to these resources.

### ***BIO-3: Compliance and Reporting***

- The FCR will oversee compliance with the BRMIMP including the assurance that sufficient numbers of Authorized Biologists and Biological Monitors are present during ground-disturbing or any other activities that could impact biological resources.
- All non-compliance with the BRMIMP will be documented immediately and reported to the FCR. The FCR will then document and report the corrective action.
- The CPM will be contacted for resolution if the FCR, Designated Biologist, Authorized Biologist, or Biological Monitor do not agree on a matter of compliance or the implementation of a measure contained in the BRMIMP.
- The FCR or Designated Biologist will contact the CPM for a field review once the construction has been completed.
- Proof of WEAP training will be provided to CPM.
- Observations of desert tortoise, burrowing owls, or of any listed or sensitive animal species will be reported to the CNDDDB within 30 calendar days of the observation.

- The CEC, BLM, USFWS, and CDFG will be notified within one working day of the discovery of death or injury to a desert tortoise or any other special-status animal that occurs due to Rio Mesa SEGF-related activities.
- The FCR will also submit the monthly compliance report to the CPM.
- The FCR or Designated Biologist will report any information to the appropriate agencies regarding take or suspected take of federal or state listed wildlife species not authorized by the USFWS Biological Opinion or CDFG incidental take permit.

#### *5.2.9.1 Vegetation and Species-Specific Mitigation Measures*

##### *BIO-4: Vegetation and Special-Status Plants*

- No mitigation is required to compensate for non-sensitive vegetation types that would be directly impacted by Project activities.
- Impacts to sensitive vegetation communities will be satisfied through habitat conservation, habitat enhancement, in lieu fee payment, or other means agreed to by the CEC, BLM, USFWS and CDFG.
- Uncommon cactus species could be salvaged and donated to a botanical garden, or native plant restoration nursery for study and propagation, or offered as salvage to the local cactus societies and interested public. A plan detailing the appropriate salvage techniques will be required. This plan will be included in the BRMIMP and submitted to the CEC, CDFG, and BLM for approval prior to implementation.

##### *BIO-5: Desert Tortoise*

- Pre-construction five-meter transect clearance surveys shall be conducted to remove tortoise from the construction area, permanent exclusionary fence shall be erected around the construction area, and roving biological monitors will be assigned who will monitor the various construction crews in the active construction areas. Biological monitoring shall also occur during access road improvements in occupied desert tortoise habitat.
- A desert tortoise relocation program shall be developed and approved by BLM and the wildlife agencies to minimize the direct mortality of tortoise during construction and operation. Relocation of desert tortoises shall only occur when ground temperatures are below 107 °F, so desert tortoises can safely find refuge without the restraints of potentially lethal temperatures. All relocated tortoises will have radio transmitters in order to monitor their status after translocation.
- Impacted burrows inhabited by tortoises will be excavated by Approved Biologists. To prevent reentry by a tortoise, all burrows that do not contain tortoises will be collapsed. Tortoises excavated from burrows will be relocated to unoccupied natural or artificial burrows immediately following excavation. The new burrow will be of similar size, shape and orientation as the original burrow. Relocated tortoises will not be placed in existing occupied burrows. Equipment will be sterilized between each use, and the ABs will wear disposable surgical gloves when handling tortoises in order to avoid the transmission of upper respiratory tract disease. Tortoise handling, burrow construction, egg handling, and other procedures will follow those described in

the *Guidelines for Handling Desert Tortoise during Construction Projects* (Desert Tortoise Council 1994).

- Prior to removal of tortoises from the site, a tortoise proof perimeter fence will be installed to preclude tortoise from re-entering the site. The fence design will be per USFWS specifications.
- Mitigation for permanent impacts on desert tortoise habitat will occur through an acreage-based mitigation formula as required by the BLM- and USFWS-approved NECO Plan and in consultation with CEC and CDFG. The amount of mitigation required is subject to final design, estimated acreage of tortoise-occupied habitat, and concurrence with the resource agencies.
- A biological monitor shall be present during maintenance activities if occurring in occupied desert tortoise habitat located outside of the perimeter fence. Pre-maintenance clearance surveys followed by exclusionary construction fencing may also be required in occupied desert tortoise habitat, if the maintenance action requires significant ground or vegetation disturbance.
- Workers shall inspect underneath their vehicles for tortoise anytime a vehicle or construction equipment is parked in unfenced desert tortoise habitat. If a tortoise is observed, it shall be left to move on its own. If it does not move within 15 minutes, the designated biologist shall remove and relocate the tortoise to a safe location according to the techniques established in *Guidelines for Handling Tortoises during Construction Projects* (Desert Tortoise Council 1994).
- Cross-country vehicle and equipment use outside designated work areas shall be prohibited. Personnel shall use established roadways (paved or unpaved) in traveling to and from the site and existing tracks on site whenever possible. Speed limits within the project site will be restricted to less than 25 miles per hour during construction and in areas outside the project site fence during operation of the Project.
- Monitoring for the presence of ravens and other potential human-subsidized predators of desert tortoise will be performed, per an agency-approved Raven Management Plan. BMPs shall be instituted to minimize the subsidization of predators (trash control, availability of freshwater, nest sites, etc.).

#### ***BIO-6: Mojave Fringe-toed Lizard***

A temporary enclosure fence around the Mojave fringe-toed lizard-occupied habitat patches within the project site shall be erected to protect Mojave fringe-toed lizard from adjacent construction activities.

#### ***BIO-7: Burrowing Owl***

- A Burrowing Owl Mitigation and Monitoring Plan shall be approved by CDFG if the species is detected on site during preconstruction surveys.
- Pre-construction surveys for occupied owl burrows will be conducted during the non-breeding season prior to initial site disturbance. If an occupied owl burrow is detected, owls will be passively removed from burrows. All potentially suitable owl burrows will be subsequently collapsed to prevent occupation.
- If an occupied burrow is removed from the project site, a replacement burrow(s) will be installed to the west or south of the Project fence line.

***BIO-8: American Badger***

Prior to construction, measures will be taken to minimize impacts on badgers that are encountered. If a badger and its active burrow are found on site, a qualified biologist shall monitor the burrow during construction. It is likely that the badger will leave the site once construction begins. One-way trap doors will be installed to passively exclude badgers from dens. Once the burrow is confirmed to be unoccupied, it will be collapsed. Collapsing of the burrows will occur prior to construction of the desert tortoise fence to ensure that the badgers can easily move off site.

***BIO-9: Migratory Birds***

The following mitigation measures are recommended to reduce or eliminate effects on migratory birds during Project construction and operation in compliance with the MBTA and CFG Code. The Project will implement the suggested courses of action listed below to minimize affects to nesting raptors and migratory birds.

- Where practicable, vegetation clearing activities will be conducted outside the bird nesting season (February through June).
- 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. Active nests will be avoided until nestlings have fledged.
- Raptor-safe designs approved by the agencies will be used for the proposed transmission lines.
- An initial monitoring program of the evaporation pond basin water for trace element concentrations and bird use of the ponds are recommended (Bradford *et al.*, 1991). The basins shall be designed to be unattractive to wildlife species and be covered to preclude wildlife access. An evaporation pond monitoring plan shall be submitted to CEC for approval.
- An Avian/Bat Protection Plan will be developed that will describe a program to reduce risks to bats and birds during the construction and operation of the Project. Development of this plan will be coordinated with the agencies.

***BIO-10: Gila Woodpecker***

- A Gila woodpecker Habitat Mitigation Plan will be required for this State-listed endangered species. Gila woodpeckers are very tolerant of human activity and occupied ironwood habitat retained within the Project is likely to be utilized by nesting woodpeckers.
- A species-specific survey for Gila woodpeckers will be performed within the palo verde-ironwood habitat located in the BSA in order to verify the number of individuals and the amount of woodpecker-occupied habitat that will be affected by the Project.
- Palo verde-ironwood habitat and other desert riparian habitats that support Gila woodpecker shall be conserved on the California side of the lower Colorado River Valley, if practicable. Creation/enhancement of conserved riparian habitats adjacent to occupied Gila woodpecker habitat is an alternative mitigation measure.

***BIO-11: Other Wildlife Species Measures***

- If Nelson's bighorn sheep are found on site or within 500 feet of construction activities, a biologist shall be present to monitor and minimize impacts on this species, where practicable.
- Prior to construction, the site should be cleared of potential desert kit fox dens and potential burrows shall be safely collapsed to prevent re-occupation.

***5.2.9.2 Waters of the U.S. / State***

The Project must comply with all conditions typically required by state and local agencies, including conditions that typically applied through a 1602 agreement from CDFG, and Porter-Cologne compliance from the RWQCB. Federal compliance with CWA 404/401 is also required.

***BIO-12: Jurisdictional Mitigation and Water Quality Measures***

- Permanent impacts to jurisdictional wetlands and non-wetland waters will be mitigated either on or off site in the form of enhancement, restoration, or creation of wetland habitat or use of mitigation credits from an approved wetlands mitigation.
- Temporary impacts to jurisdictional wetland and non-wetland waters will be mitigated on site through the restoration of temporary impact areas to pre-construction conditions.
- A Wetland Restoration Plan shall be approved by the appropriate regulatory agencies.
- Appropriate BMPs shall be used at all times to maintain proper water quality and prevent excessive soil erosion and scour.
- A Storm Water Pollution Prevention Plan will be prepared in conformance with the SWRCB Order Number 99-08-DWQ, General Permit Number CAS000002.

***5.2.9.3 Wildlife Movement******BIO-10: Maintaining Corridors***

Land within the immediate vicinity of the Project that contributes to the conservation of adequate wildlife habitat connectivity, if deemed appropriate and if the Applicant agrees, will be acquired, conserved, and managed. Some of the larger west-east washes will be avoided to allow use as wildlife corridors.

***5.2.9.4 General Mitigation Measures******BIO-11: Construction Monitoring, Vegetation Clearing***

- Construction monitoring will be performed by a qualified biologist. The biologist will be given authority to supervise the functions listed below.
- 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 offsite areas around the construction site.
- Awareness training for desert tortoise, Gila woodpecker, Mojave fringed-toed lizard, burrowing owl and other special-status resources will be provided to all construction crews and operations staff.
- A biologist will monitor the construction activities daily during the initial site disturbance and at weekly intervals after all tortoises have been removed from the site. Exclusionary fencing will be checked frequently to ensure that they are effective barriers for tortoise.

An agency-approved Weed Management Plan will be implemented that is consistent with the Mojave Weed Management Area Memorandum of Understanding (MOU), which includes prevention, control, and eradication of weeds and invasive plant species, and educating the public about weed control in the region (DMG 2002a). The MOU identifies a priority list of invasive species to control in the Mojave Desert. The final plan shall include weed control measures with demonstrated records of success, based on the best available information.

From the time construction begins and throughout the life of the Project, surveying for new invasive weed populations and the monitoring of identified and treated populations shall be required within the project area and surrounding 250-foot buffer area. Surveying and monitoring for weed infestation shall occur annually. Treatment of all identified weed populations shall occur once annually, at a minimum. When no new seedlings or re-sprouts are observed at treated sites for three consecutive, average rainfall years, the weed infestation at that site can be considered eradicated and weed control efforts, but not annual monitoring, may cease for that impact site.

#### ***5.2.9.5 Site Rehabilitation Plan***

##### ***BIO-12: Temporary Impacts***

Temporarily disturbed areas associated with the project site and generator tie-line will be rehabilitated and revegetated as appropriate after construction as described in the site rehabilitation plan to be included in the BRMIMP.

##### ***BIO-13: Closure Plan Site Rehabilitation***

Over the long term, once the Rio Mesa SEGF is no longer needed, the structures will be removed and the project area will be rehabilitated to approximate preconstruction conditions. A formal rehabilitation plan for the Rio Mesa SEGF closure will be developed by BrightSource and submitted to the BLM, USFWS, CDFG, and the CEC at least one year prior to facility closure.

**5.2.10 Involved Agencies and Agency Contacts**

Involved agencies and contact information is provided in Table 5.2-15.

**Table 5.2-15  
Agency Contacts**

Agency	Contact	Address
US Fish and Wildlife Service (USFWS)	Peter Sorensen Division Chief (760) 322 2070 x 202 <a href="mailto:pete_sorensen@fws.gov">pete_sorensen@fws.gov</a>	Palm Springs Fish and Wildlife Office 777 E. Tahquitz Canyon Way, Ste 208 Palm Springs, CA 92262
Bureau of Land Management (BLM)	Cedric Perry (951) 697-5200 <a href="mailto:cperry@blm.gov">cperry@blm.gov</a>	Bureau of Land Management 22835 Calle San Juan de Los Lagos Moreno Valley, CA 92553-9046
United States Army Corp of Engineers (USACE)	James E. Mace Senior Project Manager (951) 8276-6624 x 263 <a href="mailto:James.E.Mace@usace.army.mil">James.E.Mace@usace.army.mil</a>	USACE Riverside Regulatory Field Office 1451 Research Park Drive, Suite 100 Riverside, CA 92507-2154
California Department of Fish and Game (CDFG)	Magdalena Rodriguez Staff Environmental Scientist (760) 922-6508 <a href="mailto:MCRodriguez@dfg.ca.gov">MCRodriguez@dfg.ca.gov</a>	CDFG Inland Deserts Region 3602 Inland Empire Blvd, Suite C220 Palm Springs, CA 92262
County of Riverside	Jared Bond Senior Biologist (951) 955-6892 <a href="mailto:JBOND@rctlma.org">JBOND@rctlma.org</a>	Riverside County Environmental Programs Department 4080 Lemon Street, 12 <sup>th</sup> Floor Riverside, CA 92501
Regional Water Quality Control Board (RWQCB)	Jay Mirpour/John Carmona (760) 340-4521 <a href="mailto:jmirpour@waterboards.ca.gov">jmirpour@waterboards.ca.gov</a> <a href="mailto:jcarmona@waterboards.ca.gov">jcarmona@waterboards.ca.gov</a>	Colorado River RWQCB Region 7 73-720 Fred Waring Drive, Suite 100 Palm Springs, CA 92260
California Energy Commission (CEC)	Pierre Martinez (916) 651-3765 <a href="mailto:PMartinez@energy.state.ca.us">PMartinez@energy.state.ca.us</a>	California Energy Commission 1516 9th Street Sacramento, CA 95814

BLM = Bureau of Land Management  
CDFG = California Department of Fish and Game  
CEC = California Energy Commission  
CWA = Clean Water Act of 1977  
EIS = Environmental Impact Statement  
ESA = Endangered Species Act of 1973

NEPA = National Environmental Policy Act of 1969  
ROW = Right of Way  
RWQCB = Regional Water Quality Control Board  
USACE = United States Army Corps of Engineers  
USFWS = United States Fish and Wildlife Service

**5.2.11 Permits and Required Permit Schedule**

Permits and Required Permit Schedule are provided in Table 5.2-16.

**Table 5.2-16  
Applicable Permits**

Permit	Agency/Purpose	Schedule
United States Fish and Wildlife Service (USFWS) Endangered Species Act of 1973 (ESA) and implementing regulations, Title 16 United States Code (USC) §§1531 <i>et seq.</i> , Title 50 Code of Federal Regulations (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.	Obtain a biological opinion for take of desert tortoise habitat and translocation of tortoise from the project site. Implement BIO-1 and BIO 2, mitigation measures.
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-6 and BIO-11 mitigation measures.
California Department of Fish and Game (CDFG) Fully Protected Species Includes: §3511: Fully Protected Birds; §4700: CDFG Fully Protected Mammals; §5050: CDFG Fully Protected Reptiles and Amphibians; §5515: CDFG Fully Protected Fishes.	Issues guidance after Project effect assessment (California Environmental Quality Act [CEQA]) review. Note: no legal means exists whereby take of California Fully Protected species may be authorized by CDFG.	Implement all BIO mitigation measures.
Clean Water Act (CWA) of 1977: 33 USC Section 1251 – 1376; 30 CFR Section 330.5(a)(26).	Individual 404 permit from the USACE and CWA 401 water quality certification from the Regional Water Quality Control Board (RWQCB) for compliance with CWA.	Obtain a CWA 404 permit and 401 Certification for compliance with CWA.
Right-of-way (ROW) Grant	Bureau of Land Management (BLM)	
2008 Porter-Cologne Water Quality Control Act.	Regulates discharges of waste and fill material into waters of the state through the RWQCB.	Addressed by CEC Certification
CDFG California Endangered Species Act of 1984 (CESA), Fish and Game Code, §2050 through §2098.	Issues guidance after Project effect assessment (CEQA) review.	Addressed by CEC Certification.
CDFG Fish & Game Code 1602.	Lake and Streambed Alteration Agreement (LSAA).	Addressed by CEC Certification.

BLM = Bureau of Land Management  
 CDFG = California Department of Fish and Game  
 CEC = California Energy Commission  
 CFR = Code of Federal Regulations  
 CEQA = California Environmental Quality Act  
 CESA = California Endangered Species Act

CWA = Clean Water Act  
 ESA = Endangered Species Act  
 MOU = Memorandum of Understanding  
 ROW = Right of Way  
 RWQCB= Regional Water Quality Control Board

LSAA = Lake and Streambed Alteration Agreement  
 USC = United States Code  
 USFWS = United States Fish and Wildlife Service

## 5.2.12 References

- Anderson, B. W., R. D. Ohmart, and S. D. Fretwell. 1982. Evidence for social regulation in some riparian bird populations. *Am. Nat.* 120:340-352.
- Berry, K.H. 1986. Desert tortoise (*Gopherus agassizii*) research in California, 1976-1985. *Herpetologica* 42:62-67.
- Boarman, W.I., M.A. Patten, R.J. Camp, and S.J. Collis. 2006. Ecology of a population of subsidized predators: Common ravens in the central Mojave Desert, California. *Journal of Arid Environments*, Volume 67, Supplement 1, Pages 248-261
- Bradford, D.F., L.A. Smith, D.S. Drezner, and J.D. Shoemaker. 1991. Minimizing contamination hazards to waterbirds using agricultural drainage evaporation ponds. *Environmental Management* 15 (6): 785-795.
- BrightSource Industries (Israel), Ltd. 2011. SEDC Bird Observation Report.
- Brown, P.E. 1995 California leaf-nosed bat (*Macrotus californicus*). Species Accounts. Western Bat Working Group. Developed For the 1998 Reno Biennial Meeting. Updated at the 2005 Portland Biennial Meeting [http://www.wbwg.org/speciesinfo/species\\_accounts/phyllostomidae/maca.pdf](http://www.wbwg.org/speciesinfo/species_accounts/phyllostomidae/maca.pdf)
- Brown, P.E.; Berry, R.D.; Brown, C. 1993. Foraging behavior of the California leaf-nosed bat, *Macrotus californicus*. In: Ecology, conservation, and management of western bat species: Bat species accounts. Unpublished document distributed at the Western Bat Working Group Workshop, February 9- 13, 1998, Reno, NV.
- Calflora. Imperial County [map]. Calflora: What Grows Here. Accessed February 23, 2011. <http://www.calflora.org/app/wgh?page=entry>
- California Department of Fish and Game (CDFG). 2011. California Natural Diversity Data Base. Sacramento, CA.
- California Department of Fish and Game (CDFG). 2010. Sensitive Vegetation Communities. <http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf>. Accessed online July, 2011.
- California Department of Fish and Game, Natural Diversity Database. 2011c. Special Vascular Plants, Bryophytes, and Lichens List. Quarterly publication. 71 pp. April.
- California Department of Fish and Game (CDFG). Accessed November 2009. Life History Accounts and Range Maps, American badger. <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>
- California Department of Fish and Game (CDFG). 2000. Life History Accounts and Range Maps, Desert Tortoise. <http://www.dfg.ca.gov/biogeodata/cwhr/cawildlife.aspx>

- California Food and Agriculture Code. 1981. California Desert Native Plants Act [80001. – 80201.]. California Code, Division 72 and 73.
- California Native Plant Society (CNPS). 2001. CNPS Botanical Survey Guidelines. Sacramento, CA. 3 pp.
- California Native Plant Society. 2011. Inventory of rare and endangered plants (online edition).
- California Native Plant Society. Sacramento, CA. <http://www.cnps.org/inventory>. Accessed January and June 2011.
- Collins, C.T. 1979. The ecology and conservation of burrowing owls. Pages 6-17 Proceedings of the National Audubon Society symposium of owls of the west, their ecology and conservation, Scheaffer, P.P. and S.M. Ehlers (editors). National Audubon Society Western Education Center, Tiburon, CA.
- County of Riverside. 2003. Riverside County General Plan. Riverside, CA. Available at <http://www.rctlma.org/genplan/content/gp.aspx>
- DMG (Desert Managers Group). 2002a. Memorandum of Understanding, Mojave Weed Management Area.
- Emlen, J. T. 1974. An urban bird community in Tucson, Arizona: derivation, structure, regulation. *Condor* 76:184-197.
- Endangered Species Act. 1973. Section 3 (19), as amended. (definition of "take").
- McCrary, M.D., R.L. McKernan, R.W. Schreiber, W.D. Wagner, and T.C. Sciarrotta. 1986. Avian mortality at a solar energy power plant. *Journal of Field Ornithology*. 57(2): 135-141.
- Morrell, S. 1972. Life history of the San Joaquin kit fox. *Calif. Fish and Game*. 58:162-174. O'Farrell, T. P., and L. Gilbertson. 1979. Ecological life history of the desert kit fox in the Mojave Desert of southern California. USDI BLM., Riverside. Draft Final Rep. 95pp
- Remsen, J.V., Jr. 1978. Bird Species of Special Concern in California. California Department of Fish and Game, Sacramento, California.
- Rosenberg, K. V., R. D. Ohmart, W. C. Hunter, and B. W. Anderson. 1991. Birds of the lower Colorado River Valley. Univ. of Arizona Press, Tucson.
- Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A Manual of California Vegetation. 2nd ed. California Native Plant Society Press. Sacramento, CA. 1300 pp.
- Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

- Smallwood, K.S., C.G., Thelander. 2005. Bird Mortality at the Altamont Pass Wind Resource Area: March 1998 - September 2001. National Renewable Energy Laboratory. Retrieved on April 23, 2007 from <http://www.nrel.gov/docs/fy05osti/36973.pdf>
- Stebbins, R. C. 2003. A Field Guide to Western Reptiles and Amphibians. Third Edition. Houghton Mifflin Company, Boston. 533 pp.
- Turner, F.B., Berry, K.H., Randall, D.C., White, G.C. 1987. Population ecology of the desert tortoise at Goffs, California, 1983-1986. University of California at Los Angeles, California. Report Southern California Edison Co., Rosemead, CA, 101pp.
- USACE (Army Corps). 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- USACE (Army Corps). 2008a. A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States. Robert W. Lichvar and Shawn M. McColley. ERDC/CRREL TR-08-12. August 2008.
- USACE (Army Corps). 2008b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ERDC/EL TR-08-28. September 2008.
- USBLM (U.S. Bureau of Land Management). 2010a. BLM Ridgecrest Special Status Plants. <http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.30759.File.dat/Ridgecrest%20Plants%20Detailed%20Report-12-17-2010.pdf> (accessed August 2, 2011).
- USBLM (U.S. Bureau of Land Management). 2010b. BLM Needles Special Status Plants. <http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.79337.File.dat/Needles%20Plants%20Detailed%20Report-12-17-2010.pdf> (accessed August 2, 2011).
- USBLM (U.S. Bureau of Land Management). 2010c. BLM Barstow Special Status Plants. <http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.35945.File.dat/Barstow%20Plants%20Detailed%20Report-12-17-2010.pdf> (accessed August 2, 2011).
- USBLM (U.S. Bureau of Land Management). 2010d. BLM El Centro Special Status Plants. <http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.40592.File.dat/El%20Centro%20Plants%20Detailed%20Report-12-17-2010.pdf> (accessed August 2, 2011).
- USBLM (U.S. Bureau of Land Management). 2010e. BLM Palm Springs Special Status Plants. <http://www.blm.gov/pgdata/etc/medialib/blm/ca/pdf/pa/botany.Par.85410.File.dat/Palm%20Springs%20Plants%20Detailed%20Report-12-17-2010.pdf> (accessed August 2, 2011).
- USBLM (U.S. Bureau of Land Management)., 2002, Northern and Eastern Colorado Desert Coordinated Management Plan.
- USFWS (U.S. Fish and Wildlife Service). 1992. USFWS Field Survey Protocol for a Non-Federal Action that may occur within the range of the desert tortoise.

- USFWS (U.S. Fish and Wildlife Service). 1996b. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species; Notice of Review; Proposed Rule. Federal Register 61(40): 7596-7613.
- U.S. Fish and Wildlife Service. 2011. Revised recovery plan for the Mojave population of the desert tortoise (*Gopherus agassizii*). U.S. Fish and Wildlife Service, Pacific Southwest Region, Sacramento, California. 222 pp.
- USGS (United States Geological Survey). 1971a. Wiley Well quadrangle, California [map]. 1:24,000. 7.5 Minute Series. Washington D.C.: USGS.
- USGS (United States Geological Survey). 1971b. Thumb Peak quadrangle, California [map]. 1:24,000. 7.5 Minute Series. Washington D.C.: USGS.
- USGS (United States Geological Survey). 1975a. Mc Coy Wash quadrangle, California – Riverside Co [map]. Photoinspected 1975. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.
- USGS (United States Geological Survey). 1975c. Ripley quadrangle, California – Riverside Co. [map]. Photorevised 1975. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.
- USGS (United States Geological Survey). 1983a. Hopkins Well quadrangle, California – Riverside Co [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.
- USGS (United States Geological Survey). 1983b. Mc Coy Peak quadrangle, California – Riverside Co [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.
- USGS (United States Geological Survey). 1983d. Roosevelt Mine quadrangle, California – Riverside Co. [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.
- USGS (United States Geological Survey). 1983e. Palo Verde quadrangle, California [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.
- USGS (United States Geological Survey). 1983c. Mc Coy Spring quadrangle, California – Riverside Co [map]. Provisional Edition 1983. 1:24,000. 7.5 Minute Series. Reston, Va: United States Department of the Interior, USGS.
- VTN. 20110121\_PVM\_map\_VTN\_HI\_preliminary.jpeg. [map]. Jan 21, 2011.
- VTN. Topo\_image\_028\_sheet1-20 [map]. May 2011. Accessed June 2011.
- Winkler, H., D. A. Christie, and D. Nurney. 1995. Woodpeckers. Houghton Mifflin, Boston.

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Adequacy Issue: Adequate \_\_\_\_\_ Inadequate \_\_\_\_\_  
 Technical Area: **Biological Resources**  
 Project Manager: \_\_\_\_\_

DATA ADEQUACY WORKSHEET

Revision No. 0 Date \_\_\_\_\_  
 Technical Staff: \_\_\_\_\_  
 Technical Senior: \_\_\_\_\_

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (1)	...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.	Section 5.2.3, pp5.2-10 to 5.2-12 Section 5.2.5, pp 5.2-44 to 5.2-64 Section 5.2.7 pp 5.2-64 to 5.2-85 Section 5.2.9, pp 5.2-85 to 5.2-91		
Appendix B (g) (13) (A)	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:	Section Section 5.2.3, pp 5.2-10 to 5.2-12 Figure 5.2-1 NOTE scale is 1:190,080 (1" = 2 miles) to accommodate size and extent of project.		
Appendix B (g) (13) (A) (i)	species listed under state or federal Endangered Species Acts;	Section 5.2.3.1, p5.2-11 Table 5.2-2, p 5.2-15 Table 5.2-4, p 5.2-31		
Appendix B (g) (13) (A) (ii)	resources defined in sections 1702(q) and (v) of Title 20 of the California Code of Regulations;	Section 5.2.3.1, p 5.2-11 Table 5.2-4, p 5.2-31		
Appendix B (g) (13) (A) (iii)	species identified as state Fully Protected;	Table 5.2-4, p 5.2-29		
Appendix B (g) (13) (A) (iv)	species covered by Migratory Bird Treaty Act;	Section 5.2.2.1 p 5.2-6		

Adequacy Issue: Adequate  Inadequate   
 Technical Area: **Biological Resources**  
 Project Manager: \_\_\_\_\_

**DATA ADEQUACY WORKSHEET**

Revision No. 0 Date \_\_\_\_\_  
 Technical Staff: \_\_\_\_\_  
 Technical Senior: \_\_\_\_\_

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
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	Figure 5.2-1 Section 5.2.3.1, p 5.2-11 Tables 5.2-2 -5.2-4, p Sections 5.2.5 - 5.2.6, pp 5.2-44 to 5.2-64		
Appendix B (g) (13) (A) (vi)	fish and wildlife species that have commercial and/or recreational value.	Section 5.2.3.1, p 5.2-11		
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:	Appendix 5.2A		
Appendix B (g) (13) (B) (i)	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;	Figures 5.2-2 through 5.2-6b  NOTE: Maps are at various scales to accommodate size and extent of project.		
Appendix B (g) (13) (B) (ii)	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	N/A		

Adequacy Issue: Adequate  Inadequate   
 Technical Area: **Biological Resources**  
 Project Manager: \_\_\_\_\_

DATA ADEQUACY WORKSHEET  
 Project: \_\_\_\_\_  
 Docket: \_\_\_\_\_

Revision No. 0 Date \_\_\_\_\_  
 Technical Staff: \_\_\_\_\_  
 Technical Senior: \_\_\_\_\_

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (B) (iii)	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.	Figures 5.2-5a and b (federal), Figures 5.2-6a and b (state).  NOTE: Maps are at 1:24,600 to accommodate size and extent of project		
Appendix B (g) (13) (C)	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:	Section 5.2.3, p 5.2-10, Section 5.2.5, pp 5.2-44 to 5.2-64		
Appendix B (g) (13) (C) (i)	A list of all the species actually observed;	Appendix 5.2A		
Appendix B (g) (13) (C) (ii)	A list of sensitive species and habitats with a potential to occur (as defined in (A) above); and	Table 5.2-2, p 5.2-15 Table 5.2-4, p 5.2-29		

Adequacy Issue: Adequate \_\_\_\_\_ Inadequate \_\_\_\_\_  
 Technical Area: **Biological Resources**  
 Project Manager: \_\_\_\_\_

DATA ADEQUACY WORKSHEET  
 Project: \_\_\_\_\_  
 Docket: \_\_\_\_\_

Revision No. 0 Date \_\_\_\_\_  
 Technical Staff: \_\_\_\_\_  
 Technical Senior: \_\_\_\_\_

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
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		
Appendix B (g) (13) (D)	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:	Section 5.2.4, pp 5.2-12 to 5.2-43 Section 5.2.5, pp 5.2-44 to 5.2-64 Appendix 5.2A		
Appendix B (g) (13) (D) (i)	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;	Section 5.2.4, pp 5.2-12 to 5.2-43		

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (D) (ii)	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	N/A		
Appendix B (g) (13) (D) (iii)	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.	Appendix 5.2A Table 5.2-8, p 5.2-62 Table 5.2-10, p 5.2-66 Table 5.2-14, p 5.2-82		
Appendix B (g) (13) (E)	Impacts discussion of the following:			
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 5.2.7, pp 5.2-64 - 5.2-85		

Adequacy Issue: Adequate \_\_\_\_\_ Inadequate \_\_\_\_\_  
 Technical Area: **Biological Resources**  
 Project Manager: \_\_\_\_\_

DATA ADEQUACY WORKSHEET  
 Project: \_\_\_\_\_  
 Docket: \_\_\_\_\_

Revision No. 0 Date \_\_\_\_\_  
 Technical Staff: \_\_\_\_\_  
 Technical Senior: \_\_\_\_\_

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
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 5.2.9, pp 5.2-85 - 5.2-91		
Appendix B (g) (13) (F) (i)	All measures proposed to avoid and/or reduce adverse impacts to biological resources;	Section 5.2.9.1, p 5.2-87 Section 5.2.9.2, p 5.2-90 Section 5.2.9.3, p 5.2-90 Section 5.2.9.4, p5.2-90		
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 5.2.9.1 p 5.2-87 Section 5.2.9.2 p 5.2-90 Section 5.2.9.6 p 5.2-91, Table 5.2-15		
Appendix B (g) (13) (F) (iii)	Design features to better disperse or eliminate a thermal discharge;	N/A		
Appendix B (g) (13) (F) (iv)	All measures proposed to avoid or minimize adverse impacts of cooling water intake. This shall include a Best Technology Available (BTA) discussion. If BTA is not being proposed, the rationale for not selecting BTA must be provided; and	N/A		

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
Appendix B (g) (13) (F) (v)	Educational programs to enhance employee awareness during construction and operation to protect biological resources.	Section 5.2.9, p 5.2-86		
Appendix B (g) (13) (G)	A discussion of compliance and monitoring programs to ensure the effectiveness of impact avoidance and mitigation measures incorporated into the project.	Section 5.2.9.3 p 5.2-81		
Appendix B (g) (13) (H)	Submit copies of any preliminary correspondence between the project applicant and state and federal resource agencies regarding whether federal or state permits from other agencies such as the U. S. Fish and Wildlife Service, the National Marine Fisheries Service, the U.S. Army Corps of Engineers, the California Department of Fish and Game, and the Regional Water Quality Control Board will be required for the proposed project.	Appendix 5.2A		
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 5.2.2, pp 5.2-5 to 5.2-10 Table 5-2.1, p 5.2-2		
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.	Section 5.2.10, Table 5.2-15, p 5.2-92		

Adequacy Issue: Adequate \_\_\_\_\_ Inadequate \_\_\_\_\_  
 Technical Area: **Biological Resources**  
 Project Manager: \_\_\_\_\_

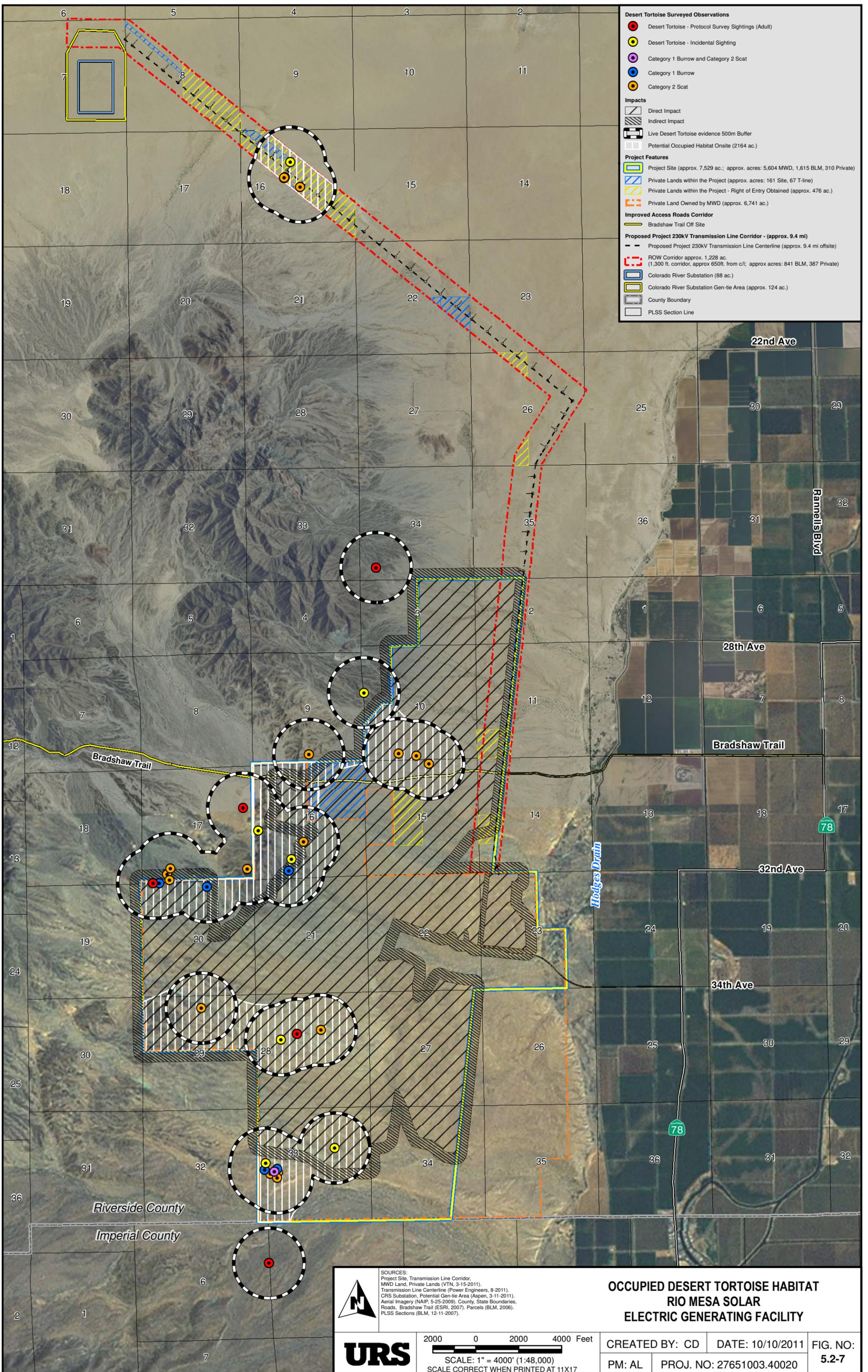
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Revision No. 0 Date \_\_\_\_\_  
 Technical Staff: \_\_\_\_\_  
 Technical Senior: \_\_\_\_\_

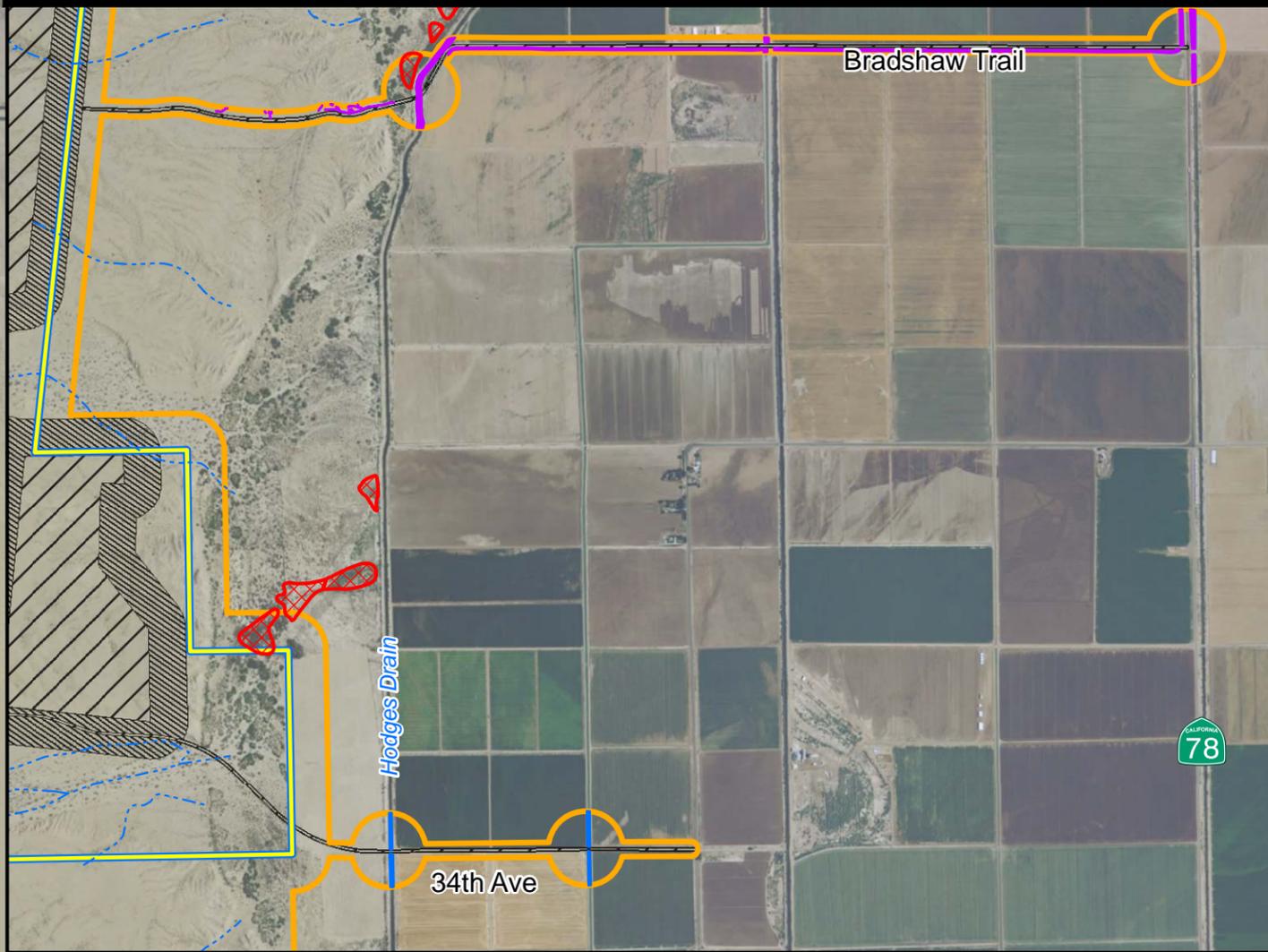
Project: \_\_\_\_\_  
 Docket: \_\_\_\_\_

SITING REGULATIONS	INFORMATION	AFC PAGE NUMBER AND SECTION NUMBER	ADEQUATE YES OR NO	INFORMATION REQUIRED TO MAKE AFC CONFORM WITH REGULATIONS
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.	Section 5.2.10 Table 5.2-15, p5.2-92		
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.	Section 5.2.11, Table 5.2-16, p 5.2-93		

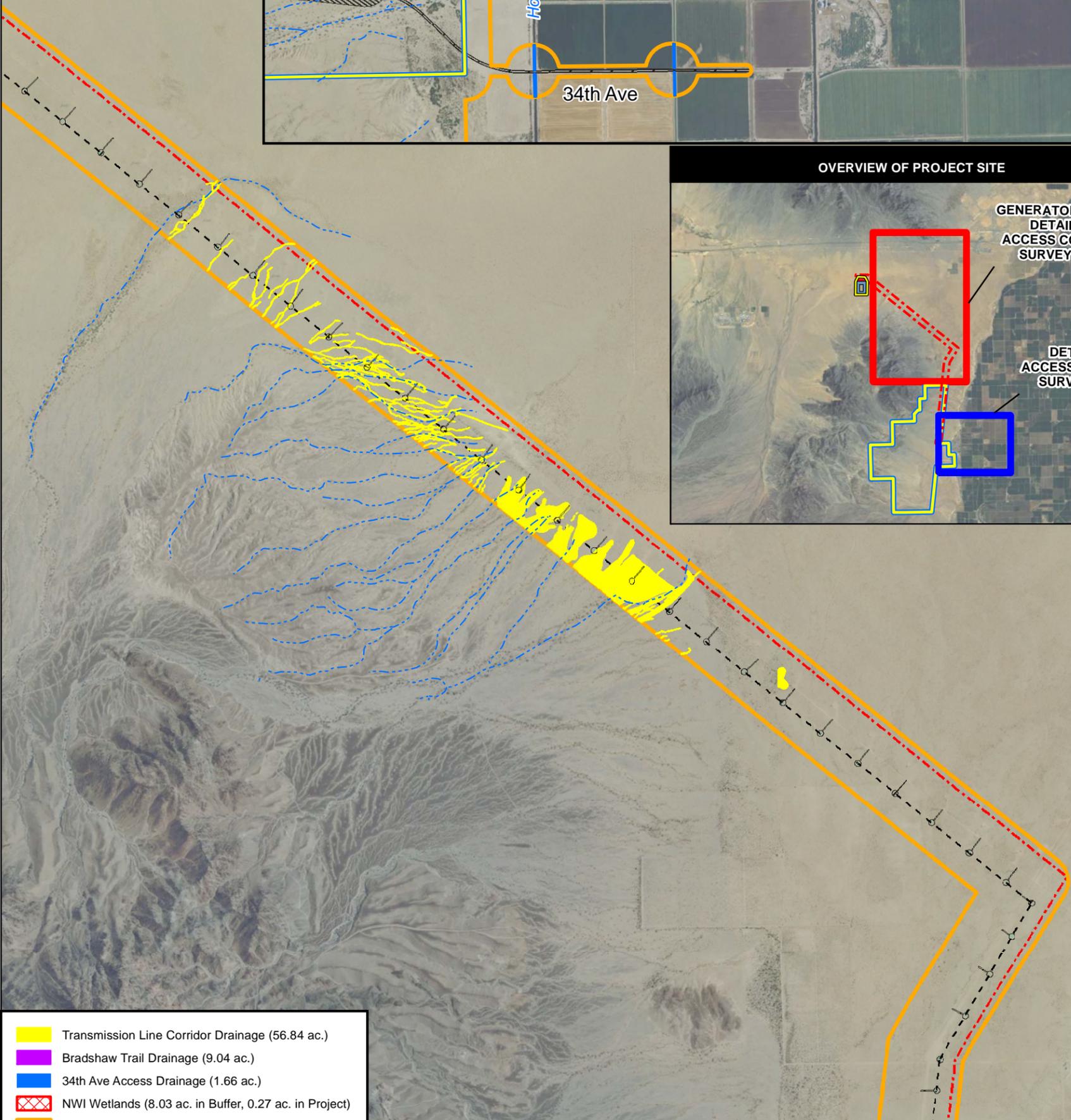
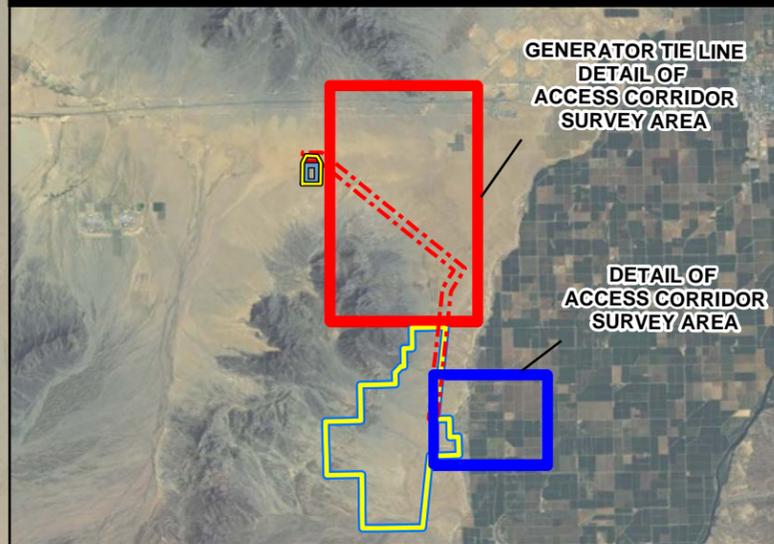
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DETAIL OF ACCESS CORRIDOR SURVEY AREA



OVERVIEW OF PROJECT SITE



- Transmission Line Corridor Drainage (56.84 ac.)
  - Bradshaw Trail Drainage (9.04 ac.)
  - 34th Ave Access Drainage (1.66 ac.)
  - NWI Wetlands (8.03 ac. in Buffer, 0.27 ac. in Project)
  - Biological Survey Area
  - Transmission ROW Corridor
  - Project Site Boundary
- Impacts**
- Direct Impact
  - Indirect Impact
  - USGS Blue Line



**SOURCES:**  
 Project Site, Transmission Line Corridor (VTN, 3-15-2011)  
 Aerial Imagery (NAIP, 5-25-2009), USGS Blue Lines (USGS, 2009)  
 CDFG Waters, Drainage Systems Division,  
 Biological Survey Area (URS, 2011),  
 NWI Wetlands (U.S. Fish & Wildlife Service, 2011).



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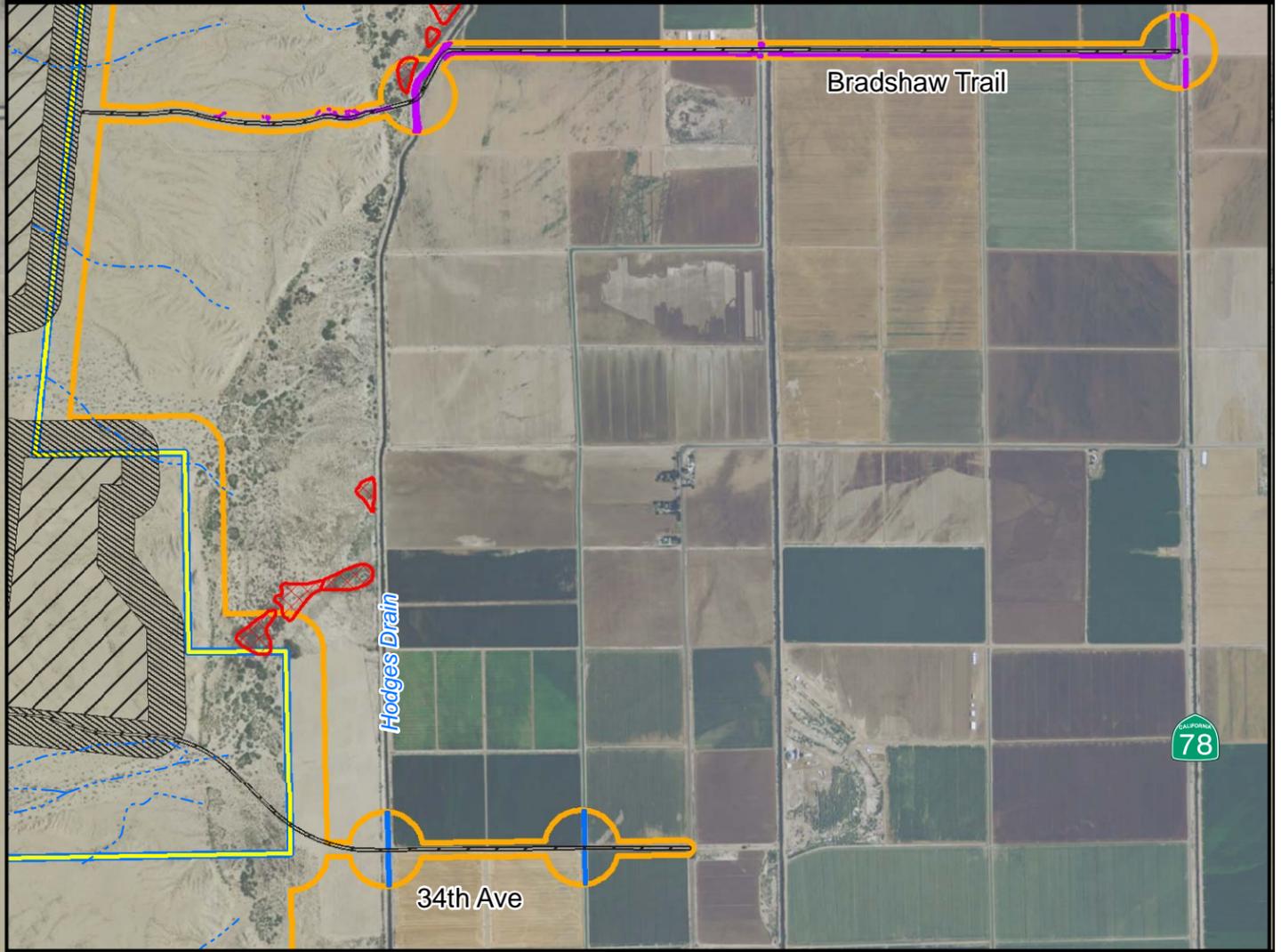
**CDFG POTENTIAL WATERS OF THE STATE  
 GENERATOR TIE LINE CORRIDOR AND ACCESS CORRIDORS  
 RIO MESA SOLAR  
 ELECTRIC GENERATING FACILITY**

CREATED BY: DT	DATE: 9/29/2011	FIG. NO: <b>5.2-6b</b>
PM: AL	PROJ. NO: 27651006.50506	

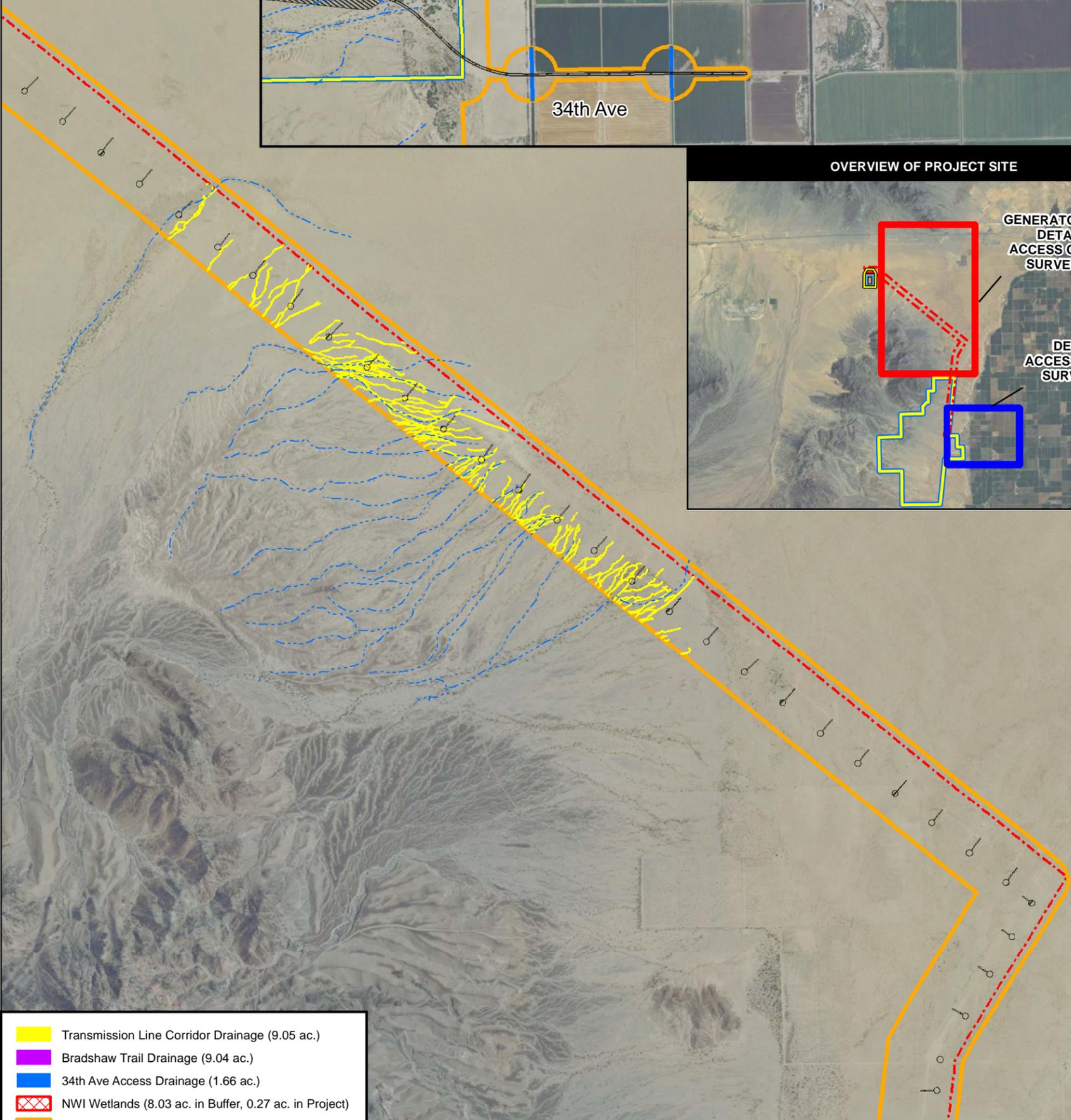
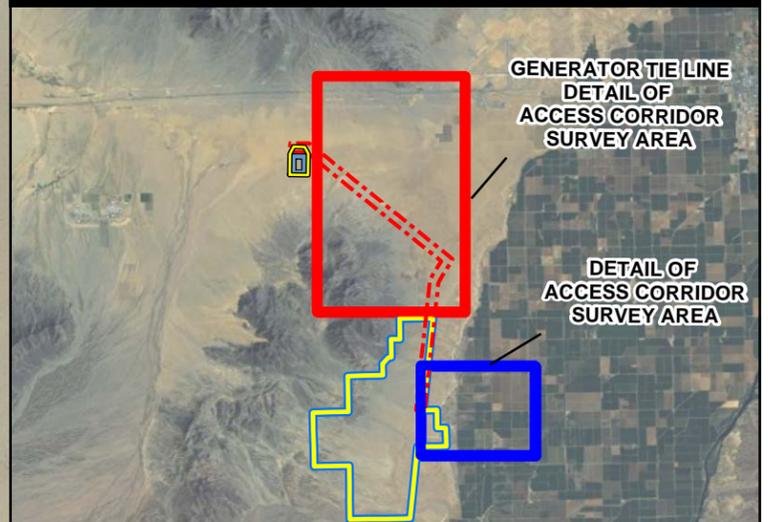
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DETAIL OF ACCESS CORRIDOR SURVEY AREA



OVERVIEW OF PROJECT SITE

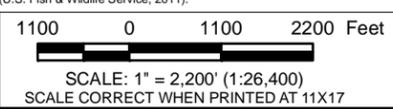


- Transmission Line Corridor Drainage (9.05 ac.)
  - Bradshaw Trail Drainage (9.04 ac.)
  - 34th Ave Access Drainage (1.66 ac.)
  - NWI Wetlands (8.03 ac. in Buffer, 0.27 ac. in Project)
  - Biological Survey Area
  - Transmission ROW Corridor
  - Project Site Boundary
- Impacts**
- Direct Impact
  - Indirect Impact
  - USGS Blue Line



SOURCES: Project Site, Transmission Line Corridor (VTN, 3-15-2011)  
 Aerial Imagery (NAIP, 5-25-2009)  
 USGS Blue Lines (USGS, 2009)  
 ACOE Informally Agreed Waters of the U.S.,  
 Drainage Systems Division, Biological Survey Area (URS, 2011).  
 NWI Wetlands (U.S. Fish & Wildlife Service, 2011).

ACOE INFORMALLY AGREED WATERS OF THE U.S.  
 GENERATOR TIE LINE CORRIDOR AND ACCESS CORRIDORS  
 RIO MESA SOLAR  
 ELECTRIC GENERATING FACILITY



CREATED BY: DT

DATE: 09-22-11

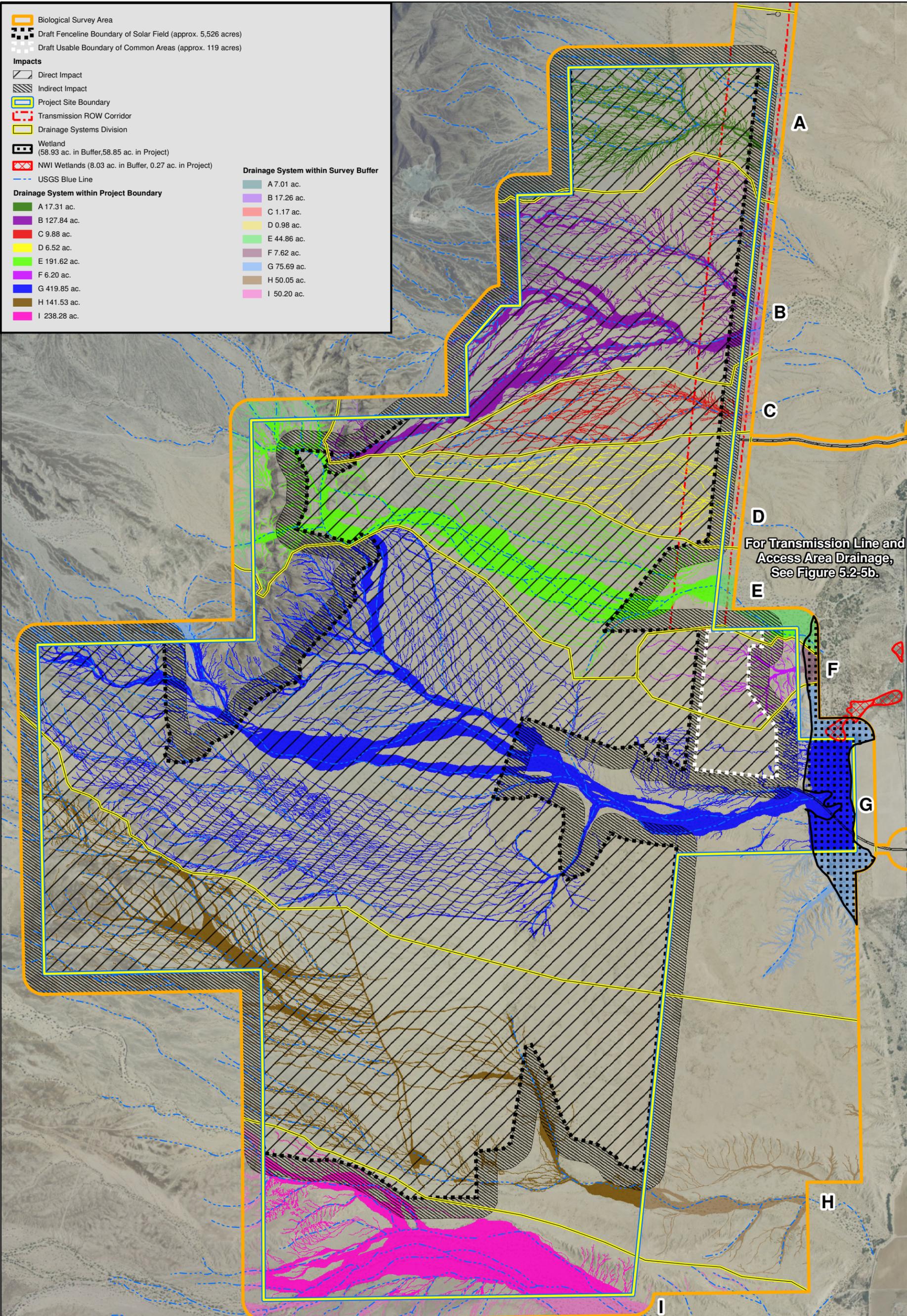
FIG. NO:

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PROJ. NO: 27651005.50506

**5.2-5b**

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**Biological Survey Area**

**Draft Fenceline Boundary of Solar Field (approx. 5,526 acres)**

**Draft Usable Boundary of Common Areas (approx. 119 acres)**

**Impacts**

- Direct Impact
- Indirect Impact
- Project Site Boundary
- Transmission ROW Corridor
- Drainage Systems Division

**Wetland**  
(58.93 ac. in Buffer, 58.85 ac. in Project)

**NWI Wetlands** (8.03 ac. in Buffer, 0.27 ac. in Project)

**USGS Blue Line**

**Drainage System within Project Boundary**

- A 17.31 ac.
- B 127.84 ac.
- C 9.88 ac.
- D 6.52 ac.
- E 191.62 ac.
- F 6.20 ac.
- G 419.85 ac.
- H 141.53 ac.
- I 238.28 ac.

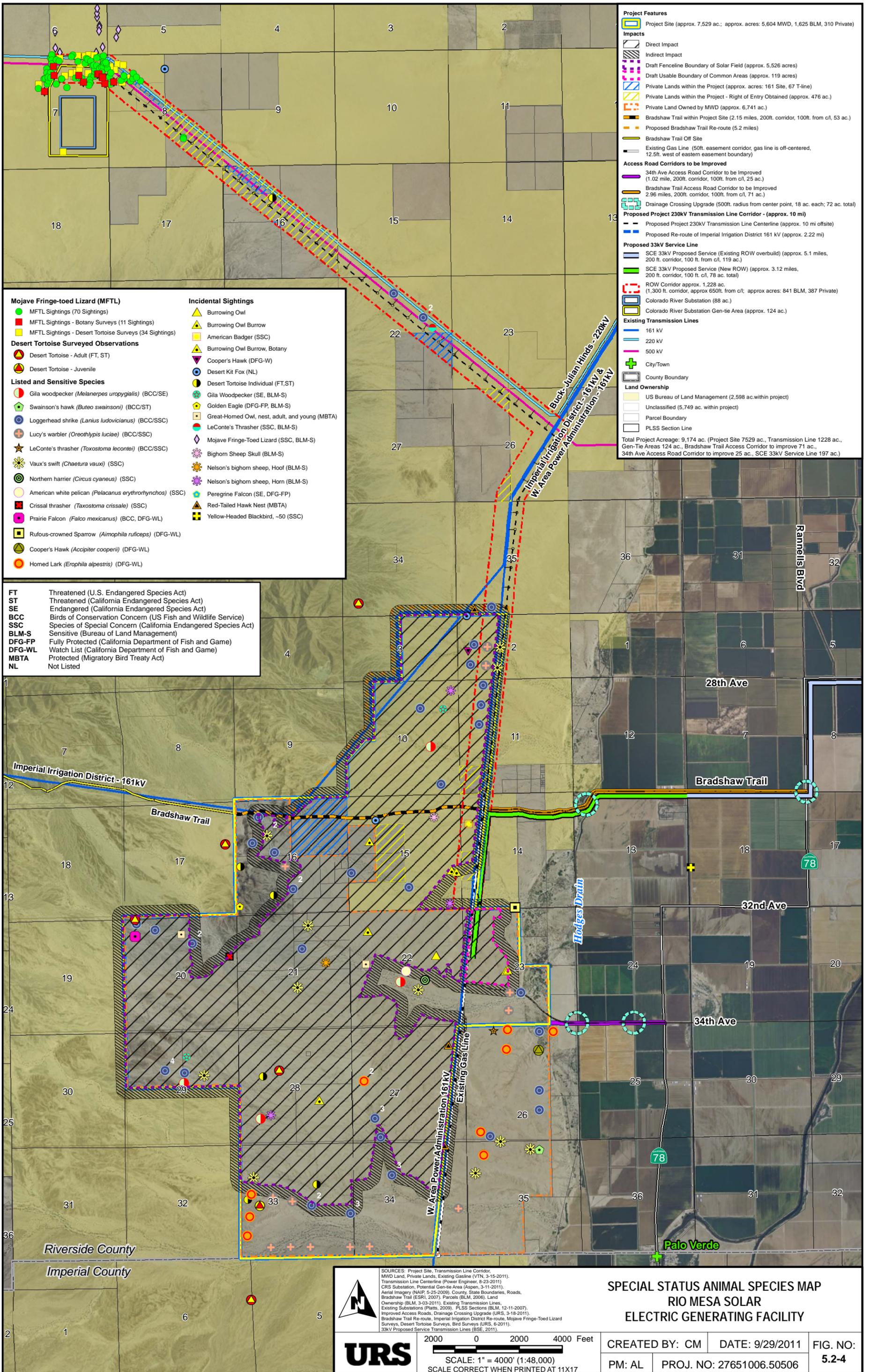
**Drainage System within Survey Buffer**

- A 7.01 ac.
- B 17.26 ac.
- C 1.17 ac.
- D 0.98 ac.
- E 44.86 ac.
- F 7.62 ac.
- G 75.69 ac.
- H 50.05 ac.
- I 50.20 ac.

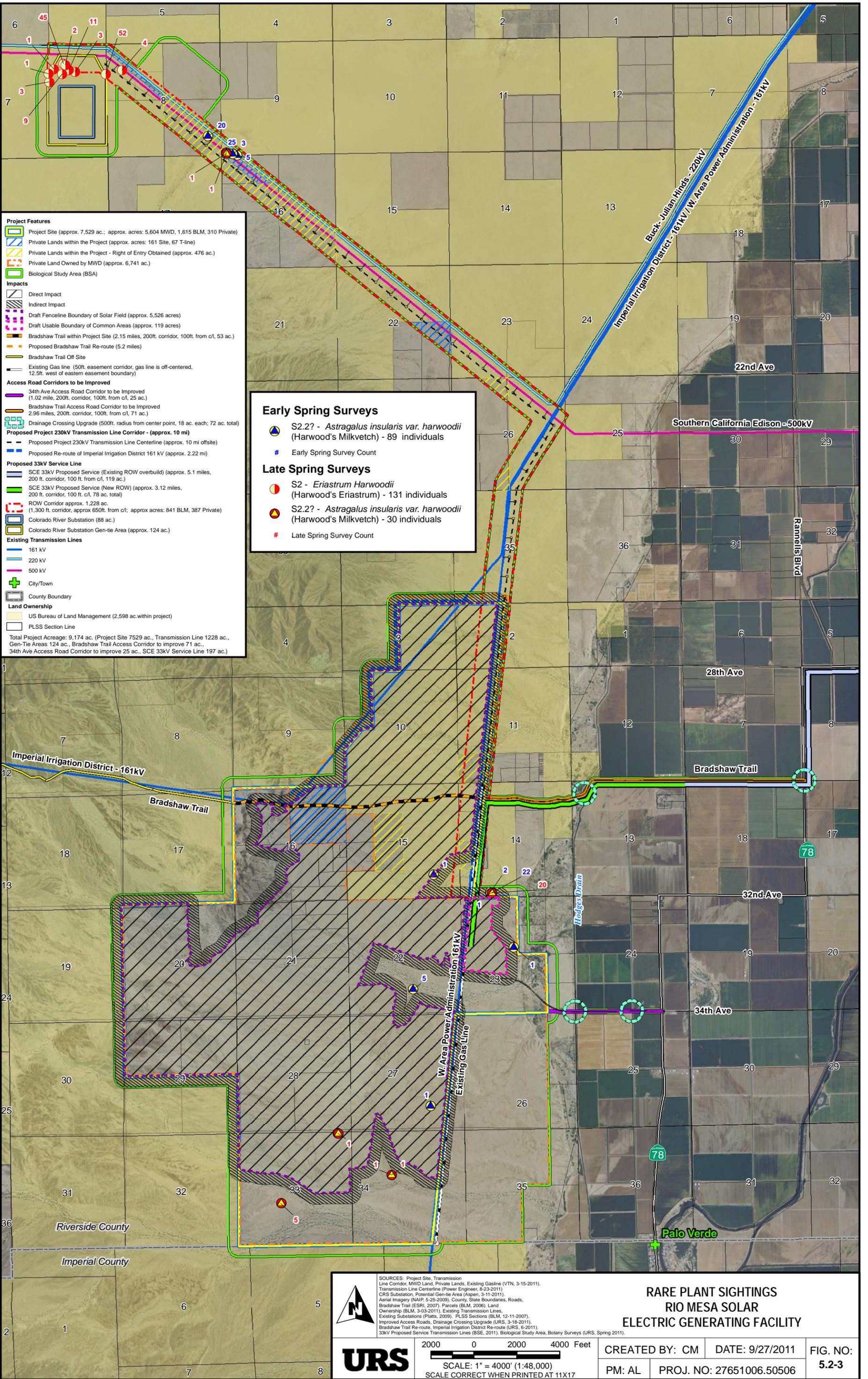
For Transmission Line and Access Area Drainage, See Figure 5.2-5b.

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	<p>SCALE: 1" = 2,200' (1:26,400) SCALE CORRECT WHEN PRINTED AT 11X17</p>	<p><b>ACOE INFORMALLY AGREED WATERS OF THE U.S.</b></p> <p><b>PROJECT SITE</b></p> <p><b>RIO MESA SOLAR</b></p> <p><b>ELECTRIC GENERATING FACILITY</b></p>		<p>CREATED BY: DT</p>	<p>DATE: 10/7/2011</p>	<p>FIG. NO:</p>
		<p>PM: AL</p>	<p>PROJ. NO: 27651006.50506</p>	<p><b>5.2-5a</b></p>		



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**Project Features**

- Project Site (approx. 7,529 ac.; approx. acres: 5,604 MWD, 1,615 BLM, 310 Private)
- Private Lands within the Project (approx. acres: 161 Site, 67 T-line)
- Private Lands within the Project - Right of Entry Obtained (approx. 476 ac.)
- Private Land Owned by MWD (approx. 6,741 ac.)
- Biological Study Area (BSA)

**Impacts**

- Direct Impact
- Indirect Impact
- Draft Fenceline Boundary of Solar Field (approx. 5,526 acres)
- Draft Usable Boundary of Common Areas (approx. 119 acres)
- Bradshaw Trail within Project Site (2.15 miles, 200ft. corridor, 100ft. from c/l, 53 ac.)
- Proposed Bradshaw Trail Re-route (5.2 miles)
- Bradshaw Trail Off Site
- Existing Gas line (50ft. easement corridor, gas line is off-centered, 12.5ft. west of eastern easement boundary)

**Access Road Corridors to be Improved**

- 34th Ave Access Road Corridor to be Improved (1.02 mile, 200ft. corridor, 100ft. from c/l, 25 ac.)
- Bradshaw Trail Access Road Corridor to be Improved (2.96 miles, 200ft. corridor, 100ft. from c/l, 71 ac.)
- Drainage Crossing Upgrade (500ft. radius from center point, 18 ac. each; 72 ac. total)

**Proposed Project 230kV Transmission Line Corridor - (approx. 10 mi)**

- Proposed Project 230kV Transmission Line Centerline (approx. 10 mi offsite)
- Proposed Re-route of Imperial Irrigation District 161 kV (approx. 2.22 mi)

**Proposed 33kV Service Line**

- SCE 33kV Proposed Service (Existing ROW overbuild) (approx. 5.1 miles, 200 ft. corridor, 100 ft. from c/l, 119 ac.)
- SCE 33kV Proposed Service (New ROW) (approx. 3.12 miles, 200 ft. corridor, 100 ft. c/l, 78 ac. total)
- ROW Corridor approx. 1,228 ac. (1,300 ft. corridor, approx 650ft. from c/l; approx acres: 841 BLM, 387 Private)
- Colorado River Substation (88 ac.)
- Colorado River Substation Gen-tie Area (approx. 124 ac.)

**Existing Transmission Lines**

- 161 kV
- 220 kV
- 500 kV
- City/Town
- County Boundary

**Land Ownership**

- US Bureau of Land Management (2,598 ac. within project)
- PLSS Section Line

Total Project Acreage: 9,174 ac. (Project Site 7529 ac., Transmission Line 1228 ac., Gen-Tie Areas 124 ac., Bradshaw Trail Access Corridor to improve 71 ac., 34th Ave Access Road Corridor to improve 25 ac., SCE 33kV Service Line 197 ac.)

**Early Spring Surveys**

- S2.2? - *Astragalus insularis var. harwoodii* (Harwood's Milkvetch) - 89 individuals
- # Early Spring Survey Count

**Late Spring Surveys**

- S2 - *Eriastrum Harwoodii* (Harwood's Eriastrum) - 131 individuals
- S2.2? - *Astragalus insularis var. harwoodii* (Harwood's Milkvetch) - 30 individuals
- # Late Spring Survey Count

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SOURCES: Project Site, Transmission Line Corridor, MWD Land, Private Lands, Existing Gasline (VTN, 3-15-2011), Transmission Line Centerline (Power Engineer, 8-23-2011), CRS Substation, Potential Gen-tie Area (Aspen, 3-11-2011), Aerial Imagery (NAIP, 5-25-2009), County, State Boundaries, Roads, Bradshaw Trail (ESRI, 2007), Parcels (BLM, 2006), Land Ownership (BLM, 3-23-2011), Existing Transmission Lines, Existing Substations (Platts, 2009), PLSS Sections (BLM, 12-11-2007), Improved Access Roads, Drainage Crossing Upgrade (URS, 3-18-2011), Bradshaw Trail Re-route, Imperial Irrigation District Re-route (URS, 6-2011), 33kV Proposed Service Transmission Lines (BSE, 2011), Biological Study Area, Botany Surveys (URS, Spring 2011).



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**RARE PLANT SIGHTINGS  
 RIO MESA SOLAR  
 ELECTRIC GENERATING FACILITY**

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**LEGEND**

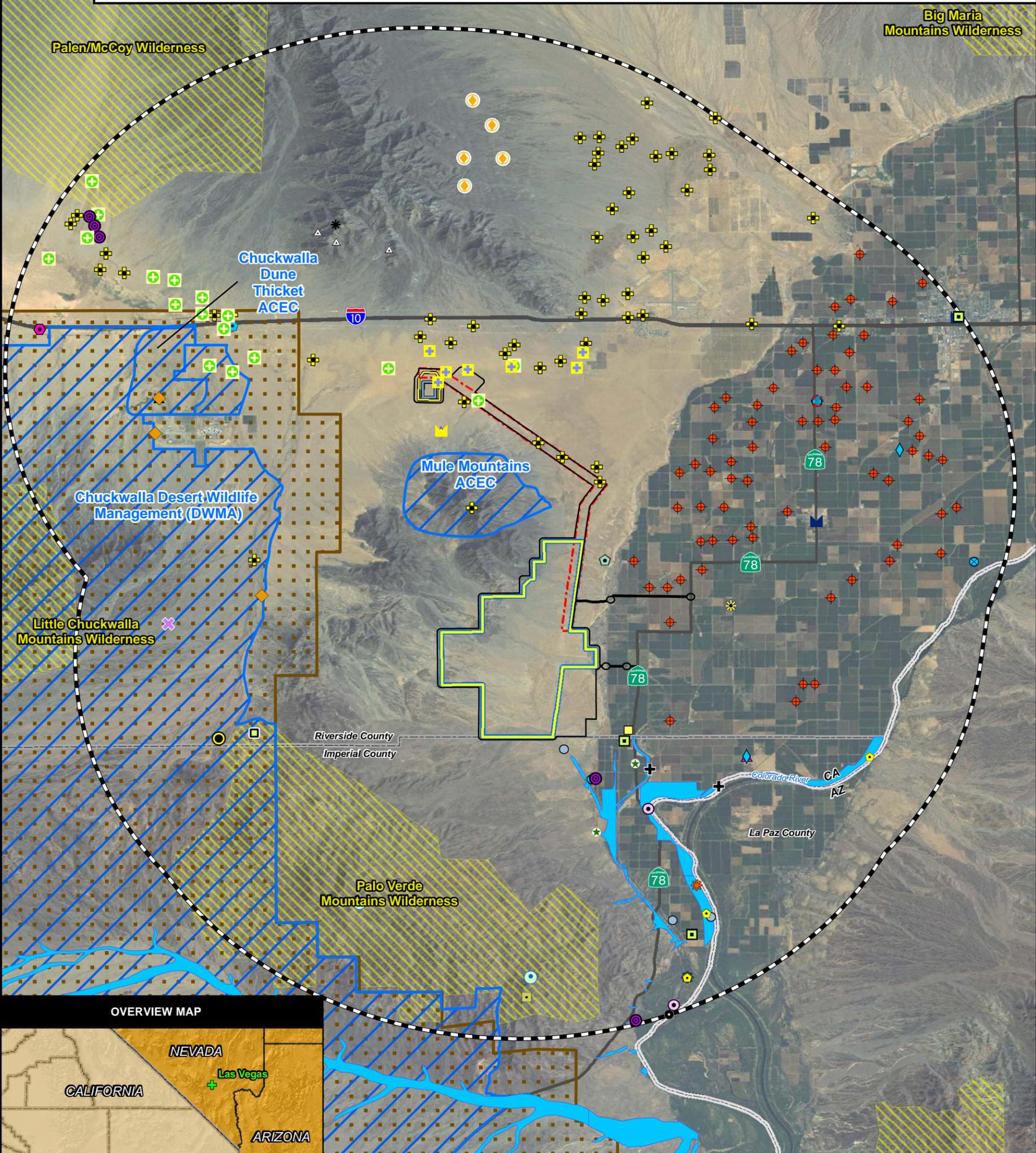
**Project Features**

- Project Site (approx. 7,529 ac.; approx. acres: 5,604 MWD, 1,615 BLM, 310 Private)
- Biological Study Area (BSA)
- ROW Corridor approx. 1,228 ac. (1,300 ft. corridor, approx 650ft. from c/l; approx acres: 841 BLM, 387 Private)
- Colorado River Substation Gen-tie Area (approx. 124 ac.)
- Colorado River Substation (88 ac.)
- State Boundary
- County Boundary
- 10 Mile Buffer Distance from Towers and Proposed 230kV Transmission Line
- Area of Critical Environmental Concern (ACEC)
- 100-year Floodplain
- National Wilderness Preservation Area
- Desert Tortoise Critical Habitat
- Major Highway

Total Project Acreage: 9,174 ac. (Project Site 7529 ac., Transmission Line 1228 ac., Gen-Tie Areas 124 ac., Bradshaw Trail Access Corridor to improve 71 ac., 34th Ave Access Road Corridor to improve 25 ac., SCE 33kV Service Line 197 ac.)

**CNDDDB Sensitive Species May 2011**

- |                           |                               |                              |
|---------------------------|-------------------------------|------------------------------|
| <b>Animal</b>             | Townsend's big-eared bat      | western yellow-billed cuckoo |
| American badger           | Yuma clapper rail             | yellow-breasted chat         |
| Arizona Myotis            | black-tailed gnatcatcher      | <b>Plant</b>                 |
| Arizona bell's vireo      | burrowing owl                 | Abrams' spurge               |
| California Mccoy snail    | cave myotis                   | Darlington's blazing star    |
| California leaf-nosed bat | desert tortoise               | Emory's crucifixion-thorn    |
| Colorado River cotton rat | great blue heron              | Harwood's eriastrum          |
| Colorado Valley woodrat   | great egret                   | Harwood's milk-vetch         |
| Colorado pikeminnow       | hoary bat                     | Las Animas colubrina         |
| Couch's spadefoot         | loggerhead shrike             | Wiggins' cholla              |
| Crissal thrasher          | pallid San Diego pocket mouse | bitter hymenoxys             |
| Gila woodpecker           | pallid bat                    | dwarf germander              |
| Le Conte's thrasher       | razorback sucker              | saguaro                      |
| Mojave fringe-toed lizard | vermilion flycatcher          | sand evening-primrose        |
|                           | western yellow bat            |                              |

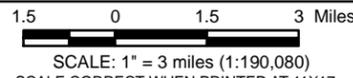


**OVERVIEW MAP**



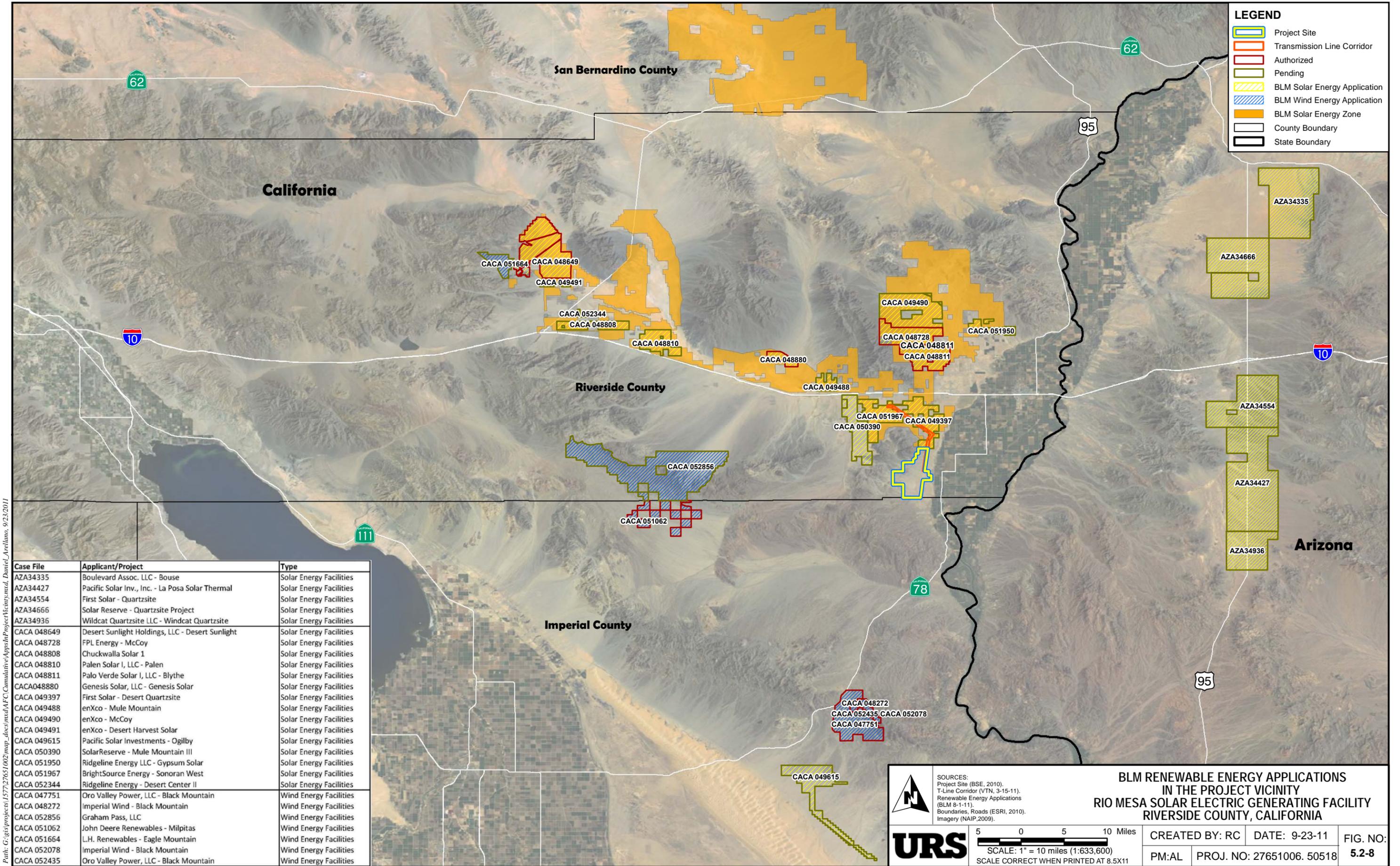
**CNDDDB DATA AND LAND CONSERVATION DESIGNATIONS IN THE PROJECT VICINITY**  
**RIO MESA SOLAR ELECTRIC GENERATING FACILITY**

SOURCES: Project Site (BSE, 2011). Proposed Transmission Line Corridor (VTN 3-15-2011). Roads, County, State Boundary (ESRI, 2007). Sensitive Species (CNDDDB, 2011). ACEC (BLM, 2008). Imagery (NAIP 2009). Desert Tortoise Critical Habitat (USFWS, 2010). Natural Wilderness Preserve (National Atlas, 2005). 100-year Flood (FEMA, 1993). Biological Study Area (URS, 2011).



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Case File	Applicant/Project	Type
AZA34335	Boulevard Assoc. LLC - Bouse	Solar Energy Facilities
AZA34427	Pacific Solar Inv., Inc. - La Posa Solar Thermal	Solar Energy Facilities
AZA34554	First Solar - Quartzsite	Solar Energy Facilities
AZA34666	Solar Reserve - Quartzsite Project	Solar Energy Facilities
AZA34936	Wildcat Quartzsite LLC - Windcat Quartzsite	Solar Energy Facilities
CACA 048649	Desert Sunlight Holdings, LLC - Desert Sunlight	Solar Energy Facilities
CACA 048728	FPL Energy - McCoy	Solar Energy Facilities
CACA 048808	Chuckwalla Solar 1	Solar Energy Facilities
CACA 048810	Palen Solar I, LLC - Palen	Solar Energy Facilities
CACA 048811	Palo Verde Solar I, LLC - Blythe	Solar Energy Facilities
CACA048880	Genesis Solar, LLC - Genesis Solar	Solar Energy Facilities
CACA 049397	First Solar - Desert Quartzsite	Solar Energy Facilities
CACA 049488	enXco - Mule Mountain	Solar Energy Facilities
CACA 049490	enXco - McCoy	Solar Energy Facilities
CACA 049491	enXco - Desert Harvest Solar	Solar Energy Facilities
CACA 049615	Pacific Solar Investments - Ogilby	Solar Energy Facilities
CACA 050390	SolarReserve - Mule Mountain III	Solar Energy Facilities
CACA 051950	Ridgeline Energy LLC - Gypsum Solar	Solar Energy Facilities
CACA 051967	BrightSource Energy - Sonoran West	Solar Energy Facilities
CACA 052344	Ridgeline Energy - Desert Center II	Solar Energy Facilities
CACA 047751	Oro Valley Power, LLC - Black Mountain	Wind Energy Facilities
CACA 048272	Imperial Wind - Black Mountain	Wind Energy Facilities
CACA 052856	Graham Pass, LLC	Wind Energy Facilities
CACA 051062	John Deere Renewables - Milpitas	Wind Energy Facilities
CACA 051664	L.H. Renewables - Eagle Mountain	Wind Energy Facilities
CACA 052078	Imperial Wind - Black Mountain	Wind Energy Facilities
CACA 052435	Oro Valley Power, LLC - Black Mountain	Wind Energy Facilities



**URS**

SOURCES:  
Project Site (BSE, 2010).  
T-Line Corridor (VTN, 3-15-11).  
Renewable Energy Applications (BLM 8-1-11).  
Boundaries, Roads (ESRI, 2010).  
Imagery (NAIP, 2009).

**BLM RENEWABLE ENERGY APPLICATIONS  
IN THE PROJECT VICINITY  
RIO MESA SOLAR ELECTRIC GENERATING FACILITY  
RIVERSIDE COUNTY, CALIFORNIA**

5 0 5 10 Miles

SCALE: 1" = 10 miles (1:633,600)

SCALE CORRECT WHEN PRINTED AT 8.5X11

CREATED BY: RC

PM:AL

DATE: 9-23-11

PROJ. NO: 27651006. 50518

FIG. NO:  
**5.2-8**