

Imperial Solar Energy Center South

Appendix I-1

Biological Technical Report

Prepared by Recon Environmental, Inc.

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Biological Technical Report for Imperial Solar Energy Center South Project

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A handwritten signature in black ink, appearing to read "Cheri Bouchér".

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Executive Summary

CSOLAR Development, LLC proposes to construct a photovoltaic solar facility and associated transmission lines west of Calexico, California. The proposed Imperial Solar Energy Center South Project is located approximately 8 miles west of Calexico in Imperial County, California (Attachment 1: Figure 1). The proposed project includes a 927.6-acre solar field (R-2 and IVS-6) that is situated on the United States/Mexico Border; and a proposed 230-kilovolt transmission line route (IVS-1) adjacent to the existing 230-kilovolt transmission corridor that starts on the north side of the Imperial Valley Substation, and wraps around the eastern side of the substation to run south for 5 miles (Preferred Alternative). The transmission line then runs east for 1 mile (IVS-3) to connect to the solar field. The proposed transmission corridor would consist of an approximately 83-acre (120-foot-wide) right-of-way along Bureau of Land Management-administered lands, although most of these lands would not be subject to disturbance. An alternate transmission line extension (Alternative A) runs south from IVS-1 for 1 mile (IVS-4), and then east for 0.5 mile (IVS-5) to connect to the solar field (Attachment 1: Figures 2 and 3). A second project alternative, Alternative B, includes a reduced solar field of 467.4 acres that connects to the Imperial Valley Substation via IVS-1 and IVS-3 (Attachment 1 Figures 2 and 3).

General biological surveys, rare plant surveys, and a preliminary jurisdictional delineation were conducted during the spring of 2010 within the proposed solar field and transmission routes. In addition, focused burrowing owl and southwestern willow flycatcher surveys have been conducted. The 1,353.3-acre survey area is located in a Colorado Desert lowland between agricultural fields to the east, open desert to the west, and Mount Signal to the southwest.

Seven vegetation communities were mapped within the survey area, including creosote bush–white burr sage scrub, desert wash, cattail marsh, arrow weed thicket, mesquite thicket, tamarisk thicket, and active agricultural fields. A small amount of disturbed and developed land is also present within the survey area. Vegetation communities associated with wetland or riparian habitats such as the desert wash and mesquite thickets are considered sensitive by California Department of Fish and Game. In addition, the creosote bush–white burr sage scrub provides habitat for the federally proposed threatened flat-tailed horned lizard (*Phrynosoma mcallii*). Potentially significant impact will occur to desert wash and creosote bush–white burr sage scrub. Habitat restoration and compensation, as well as a weed management plan, will be required to mitigate this impact to a level of less than significant.

Three priority plant species were observed within the survey area during spring rare plant surveys including Wolf's cholla (*Cylindropuntia wolffii*), Thurber's pilostyles (*Pilostyles thurberi*), and Parish's desert thorn (*Lycium parishii*). One of the nine Wolf's

cholla plants recorded within the survey area falls within the temporary work area of a lattice tower location. This individual will likely be impacted; however, the removal of this one plant is not expected to affect the sustainability of the Wolf's cholla population on-site. No other priority plant species are expected to be impacted.

Seven sensitive wildlife species were observed during general surveys: the federally proposed threatened flat-tailed horned lizard, the Bureau of Land Management-sensitive burrowing owl (*Athene cunicularia*), and the California Species of Special Concern western least bittern (*Ixobrychus exilis*), loggerhead shrike (*Lanius ludovicianus*), crissal thrasher (*Toxostoma crissale*), LeConte's thrasher (*T. lecontei lecontei*), and yellow warbler (*Dendroica petechia*). Species-specific avoidance, minimization, and mitigation measures such as pre-construction surveys, timing of construction, biological monitoring during construction, compensation for habitat loss, and wildlife mortality reporting will be required to reduce potentially significant impact to a level of less than significant.

A preliminary delineation of jurisdictional waters of the United States and State of California was conducted to identify drainages and washes within the jurisdiction of United States Army Corps of Engineers and California Department of Fish and Game/California Regional Water Quality Control Board. Impacts to jurisdictional waters of the United States under United States Army Corps of Engineers jurisdiction on-site would require a permit under Section 404 of the Clean Water Act and, as part of the 404 permit process, a Section 401 state water quality certification from the California Regional Water Quality Control Board. Depending on the extent of the impact, a Section 404 Nationwide Permit may be appropriate. In addition, a Section 1602 Streambed Alteration Agreement would also need to be authorized for any alteration to the bed or bank of any waters of the State. Compliance with the State Water Resources Control Board's General Construction Permit is also required.

1.0 Introduction

CSOLAR Development, LLC proposes to construct a photovoltaic (PV) solar facility and associated transmission lines west of Calexico, California. This report identifies biological resources within the proposed project area and adjacent land (“survey area”), summarizes findings of on-site surveys, evaluates potential impact associated with project construction and operation, and recommends mitigation measures for the Imperial Solar Energy Center (ISEC) South Project.

1.1 Location

CSOLAR Development, LLC proposes to construct a PV solar facility and associated transmission lines west of Calexico, California. The proposed ISEC South is located approximately 8 miles west of Calexico in Imperial County, California (Attachment 1: Figure 1). The proposed project includes a 837.5-acre solar field (R-2 and IVS-6) that is situated on the United States (U.S.)/Mexico Border, and a proposed 230-kilovolt (kV) transmission line route (IVS-1) adjacent to the existing 230-kV transmission corridor that starts on the north side of the Imperial Valley Substation and wraps around the eastern side of the substation to run south for 5 miles (Preferred Alternative). The transmission line then runs east for 1 mile (IVS-3) to connect to the solar field. An alternate transmission line extension runs south from IVS-1 for 1 mile (IVS-4), and then runs east for 0.5 mile (IVS-5) to connect to the solar field (see Attachment 1: Figures 2 and 3). A second project alternative, Alternative B, includes a reduced solar field of 476.4 acres that connects to the Imperial Valley Substation via IVS-1 and IVS-3 (see Attachment 1: Figures 2 and 3).

The project area is found in Township 16 ½ South, Range 12 East, Section 3; Township 17 South, Range 12 East, portions of Section 2, 11, 12, 13, 19, and 24; of the U.S. Geological Survey (USGS) Mount Signal quadrangle (USGS 1976; Attachment 1: Figures 2 and 3).

1.2 Project Description

1.2.1 Solar Facility Project Components

PV Solar Power Generating System

The proposed PV solar facility consists of a ground-mounted PV solar power generating system capable of producing approximately 200 megawatts of electricity. For purposes of this analysis, it is assumed that temporary and/or permanent impact will occur within the entire 837.5-acre proposed solar field site. Construction impact associated with the

solar field consists of the use of heavy equipment, on-site cement mixing, and deliveries of equipment. Minimal cut and fill grading would be required.

The major generation equipment that makes up the PV electrical generation system includes PV solar modules, a panel racking and foundation design inverter and transformer station, an electrical collection system, and a switchyard. The facility would also have auxiliary equipment which would include safety and security equipment and operations and maintenance facilities.

PV modules, which are non-reflective and convert sunlight directly into electricity, will be combined in arrays and mounted to racks supported by driven piles, drilled and grouted piles, ballasted piles, or similar mechanism. The output of multiple rows of PV modules is collected and delivered through combiner boxes and associated electrical wiring along an underground trench (approximately 3 feet deep and up to 5 feet wide [width includes trench and disturbed area]) to the inverter at the inverter and transformer station.

The Project inverters and transformers, as well as other electrical equipment, are located within protective electrical equipment supported by concrete pads or compacted gravel. The dimensions of the inverters are approximately 3.5 feet in width by 12 feet in length by 8 feet in height.

The transformers are 8 feet in width by 8 feet in length by 6 feet in height. Transformers contain dielectric fluid (mineral oil) and will be located on a concrete pad approximately 30 feet long by 15 feet wide, surrounded by an earthen or concrete containment berm/curb approximately 55 feet long by 35 feet wide. The containment area will be lined with an impermeable membrane covered with gravel and will drain to an underground storage tank. The above containment/storage tank/holding pond system will be designed to accommodate the volume of the dielectric fluid in the transformer plus an allowance for precipitation.

Multiple transformers are connected together and deliver alternating current (AC) power along a cable in an underground trench (approximately 4 feet deep and up to 5 feet wide [width includes trench and disturbed area]) to electrical risers located throughout the site. From the risers, the power is delivered to the internal overhead collection lines to the on-site Project switchyard. The on-site overhead lines are mounted on wooden poles approximately 60 feet tall and spaced approximately 160 feet apart. Alternatively, the Project may be constructed with an underground collection system.

Grounding of the Project substation will be accomplished by a ground grid designed to meet the requirements of Institute of Electrical and Electronics Engineers (IEEE 2000). Final ground grid design will be based on site-specific information such as available fault current and local soil resistivity. Typical ground grids consist of direct buried copper conductors with 8-foot-long copper-clad ground rods arranged in a grid pattern to approximately 3 feet outside of the substation area.

Solar Field Auxiliary facilities

The solar field and support facilities perimeter will be secured with security fencing. Controlled access gates will allow access to staff and the Bureau of Land Management (BLM), County Fire, and Border Patrol.

Project lighting will be primarily in the area of the operations and maintenance (O&M) building. Lighting will be designed to provide the minimum illumination needed to achieve safety and security objectives and will be downward facing and shielded to focus illumination on the desired areas only.

Paving road facilities on-site is not proposed in order to allow water to continue to percolate into the soil. The roads will be constructed to all weather access standards. A network of roads between solar blocks will provide operations and maintenance access to solar equipment (e.g., solar panels, inverters, transformers). These roads will be 20 feet in width to allow for emergency access.

The Project will include a single O&M building located adjacent to the solar field. The building will be approximately 10,000 square feet with a maximum height of 25 feet. A gravel parking lot will be constructed.

Once the Project PV facilities are fully operational, water will be required for domestic use, solar panel washing, and fire protection. The facility will use approximately 5 acre-feet of water per year. Water for panel washing and fire protection will be drawn from the Westside Main Canal and treated to the level required for domestic and panel washing use. Water tanks of 5,000–10,000 gallons will be installed for storage of treated water.

The Project will also include one or more on-site Solar Meteorological Stations (SMS) which will be mounted on tripods, 6 and 10 feet in height, and located inside the solar array field.

Operations and Maintenance

The Project will primarily operate during daylight hours and will require approximately four full-time personnel for O&M. The Project site will be staffed with a security guard 24 hours per day, seven days per week. Regular security patrols will be conducted throughout the site.

Water would be sprayed on the PV panels using a wash truck with a water tank to remove dust to maintain efficient conversion of sunlight to electrical power. The cleaning interval would be determined by the rate at which electrical output degrades between cleanings. It is estimated that panel cleaning will be required about twice per year and approximately 1 gallon would be required for washing each PV module. Total operational

water needs would total approximately 5 acre-feet per year of water—primarily for panel washing.

The ongoing maintenance requirements for the solar farm once it is constructed are minimal. O&M activities include:

- Replacing any defective solar panels
- System testing
- Maintaining the inverters and transformers (a few times per year)
- Equipment inspections
- Maintaining the switchyard
- Noxious weed abatement and/or habitat restoration
- Security

No heavy equipment will be used during normal Project operation. O&M vehicles will include utility vehicles, trucks, forklifts and loaders for routine and unscheduled maintenance. Large heavy haul transport equipment may be brought to the site infrequently for equipment repair or replacement.

Termination and Restoration

The generating facility's total useful operating life with appropriate maintenance, repair, and component replacement procedures is expected to be 30 years.

The applicant has obtained leases from the current owners of the Project site. These leases require the applicant to restore the land to its current agricultural use at the end of the Project term.

1.2.2 Transmission Lines

The Project would also construct a single-circuit, 230-kV transmission line (IVS-1) extending from the north side of the existing Imperial Valley Substation (Substation) to south approximately 5 miles and then east for 1 mile (IVS-3) to the Imperial Solar Energy Center South (Attachment 1: Figures 2 and 3). The transmission line support structures would consist of steel lattice towers and steel monopoles from the Project site to just south of the Substation, where steel A-frame structures would be used for each transmission line to allow the crossing of the Southwest Power Link. The BLM right-of-way (ROW) required for this transmission Project would be 120 feet wide. However, as shown below, the Project disturbance footprint would be substantially smaller. The transmission support structures would be erected on the center line of the

120-foot ROW. The towers would be spaced approximately 900 to 1,150 feet apart (600 to 800 feet apart for monopoles) and would be roughly in line with the existing lines' towers in an east–west direction. It is planned for each support structure to be capable of carrying two electrical circuits. One circuit would be added as part of this project, and the second circuit could be added at a later date. The electrical circuit consists of three phases with one unbundled conductor making up each phase. The towers would be anchored to concrete foundations at each of the four corners at the base of the tower. The tower base dimensions would range from approximately 30 feet by 30 feet for suspension towers to 40 feet by 40 feet for the deflection and dead-end towers.

Areas of permanent impact would be those areas where the surface of the ground would be permanently disturbed. Specifically, permanent impact would occur where new access roads and footings or anchors for tower, monopole, or crossing structures are constructed. Temporary impact would occur in areas where construction activity takes place, but where restoration of the surface is possible.

CSOLAR is also proposing an alternative transmission line route, Alternative A, that continues south from IVS-1 along IVS-4 and turns east at the border along IVS-5 to connect to the ISEC South solar field.

The Preferred Alternative transmission route would result in 2.8 acres of permanent impacts and 7.3 acres of temporary impacts from the following Project components:

- Permanent Access Roads (12 feet wide)
- 8 Permanent Monopole Footings (8-foot diameter)
- 2 A-frame Towers (4 footings that are 6 feet in diameter)
- 25 Permanent Lattice Tower Sites (4 footings that are 6 feet in diameter)
- 8 Temporary Monopole Work Areas (100' X 100')
- 26 Temporary Lattice Tower Work Areas (60' X 80' or 140' X 140')
- 6 Temporary Pull Sites (100' X 60')
- 1 Temporary Trench

Alternative A transmission route would result in 3.2 acres of permanent impacts and 7.7 acres of temporary impacts:

- Permanent Access Roads (12 feet wide)
- 8 Permanent Monopole Footings (8-foot diameter)

- 2 A-frame Towers (4 footings that are 6 feet in diameter)
- 26 Permanent Lattice Tower Sites (4 footings that are 6 feet in diameter)
- 8 Temporary Monopole Work Areas (100' X 100')
- 26 Temporary Lattice Tower Work Areas (60' X 80' or 140' X 140')
- 7 Temporary Pull Sites (100' X 60')
- 1 Temporary Trench

Construction would begin with site preparation, consisting of grading of access roads, where necessary, and drilling or excavation for support structures and footings. Support structures would be fabricated in segments by the same vendor. In order to minimize the amount of lay-down area required, lattice towers and A-frame structures may be carried to the construction site by helicopter depending on conditions at tower locations. All lay-down areas would be on private land. Monopoles would be brought to the site by truck in sections, assembled in lay-down areas, and lifted into place with a crane. Principal preparation at each support structure location would consist of preparing concrete foundation footings. Each tower would require four footings, one on each corner. A single footing would be needed for each monopole.

The following transmission line support structures would be utilized throughout the ROW corridors: suspension, deflection, and dead-end towers, which are about 140 feet high, and deflection and suspension monopoles, which are about 100 feet high. Once support structures are in place, conductors would be strung for the entire length of the transmission lines using truck-mounted cable-pulling equipment.

At the crossing structure south of the Southwest Power Link, the static wires would be brought down the structure, placed in a trench to pass to the other side of the Southwest Power Link and brought back up the crossing structure on the other side. The trench would be backfilled.

Construction would be completed by restoring disturbed ground surfaces to original contours. Spoil dirt excavated for the footings would be spread on the ground, on access roads, or taken off-site for disposal in a permitted disposal site.

Operations and Maintenance

O&M requirements for transmission lines are limited. O&M activities would include, but not necessarily be limited to, the following:

- (1) Yearly maintenance grading of access roads

- (2) Insulator washing
- (3) Monthly on-ground inspection of towers, poles, and access roads by vehicle
- (4) Air or ground inspection as needed
- (5) Repair of tower or pole components as needed
- (6) Repair or replacement of lines as needed
- (7) Replacement of insulators as needed
- (8) Painting pole or tower identification markings or corroded areas
- (9) Response to emergency situations (e.g., outages) as needed to restore power.

For most of these operations, equipment could use the access roads, which are subject to ongoing disturbance. Transmission line conductors may occasionally need to be upgraded or replaced over the life of the line.

Termination and Restoration

Restoration will be completed upon termination of construction in temporary use areas. Permanent restoration will be completed upon expiration of the ROW term. The disturbed surfaces will be restored to the original contour of the land surface to the extent determined by the BLM. Salvaged native plants will be used for re-vegetation, if appropriate, along with seeding using BLM-recommended seed mixes.

1.3 Regulatory Environment

The following state and federal environmental regulations apply to the proposed project:

Endangered Species Act of 1973. Endangered Species Act of 1973 (16 United States Code [U.S.C.] 1531-1544), as amended (ESA) protects federally listed threatened and endangered species from unlawful take. "Take" under ESA includes activities such as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." The U.S. Fish and Wildlife Service (USFWS) regulations define harm to include some type of "significant habitat modification or degradation."

Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or modify their critical habitat. When a federal agency action, such as issuance of a permit or grant of ROW, may affect a federally listed species, the federal agency initiates consultation with USFWS. The final product of Section 7 consultation is a biological opinion in which USFWS determines whether the proposed action is likely to

jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat. If the determination is affirmative, the USFWS will recommend reasonable and prudent alternatives to the proposed action that would reduce the level of impact to no jeopardy/no adverse modification of critical habitat. A biological opinion includes an incidental take statement that provides the federal agency and the Project applicant with incidental take authority for the activities evaluated in the biological opinion. The regulations implementing Section 7 of ESA require federal agencies to conference with the USFWS for any species that is proposed as a candidate for federal listing so that USFWS can provide non-binding recommendations that will avoid or minimize impact to the species. The USFWS may, if requested, conduct the conference as a formal consultation by providing a conference opinion and incidental take statement. If a species becomes listed, the USFWS may adopt the incidental take statement provided in the biological opinion, thus conferring incidental take authority.

National Environmental Policy Act. The National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) was signed into law on January 1, 1970. The Act establishes national environmental policy and goals for the protection, maintenance, and enhancement of the environment and it provides a process for implementing these goals within the federal agencies. NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the environmental impact of and reasonable alternatives to their proposed actions.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act of 1918 (MBTA; 16 U.S.C. 703 et seq.) is a federal statute that implements treaties with several countries on the conservation and protection of migratory birds. The number of bird species covered by the MBTA is extensive, and is listed at 50 Code of Federal Regulations (CFR) 10.13. The regulatory definition of “migratory bird” is broad, and includes any mutation or hybrid of a listed species and any part, egg, or nest of such birds (50 CFR 10.12). Migratory birds are not necessarily federally listed endangered or threatened species under the ESA). The MBTA, which is enforced by USFWS, makes it unlawful “by any means or in any manner, to pursue, hunt, take, capture, [or] kill” any migratory bird, or attempt such actions, except as permitted by regulation. The applicable regulations prohibit the take, possession, import, export, transport, sale, purchase, barter, or offering of these activities, except under a valid permit or as permitted in the implementing regulations (50 CFR 21.11).

Bald and Golden Eagle Protection Act. The Bald and Golden Eagle Protection Act (16 U.S.C. 668–668c), enacted in 1940, and as amended, prohibits anyone, without a permit issued by the USFWS, from “taking” bald and golden eagles including their parts, nests, or eggs. The Act defines “take” as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” For purposes of these guidelines, “disturb” means: “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in

its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior."

California Fish and Game Code 3503.5. Raptors (birds of prey) and active raptor nests are protected by the California Fish and Game Code 3503.5, which states that it is "unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird" unless authorized (California Department of Fish and Game [CDFG] 1991).

California Fish and Game Code 3503. Bird nests and eggs are protected by the California Fish and Game Code 3503, which states "it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto."

California Fish and Game Code 3513. Protects California's migratory birds by making it unlawful to take or possess any migratory nongame bird as designated in the Migratory Bird Treaty Act or any part of such migratory nongame birds.

State of California Fully Protected Species. The classification of Fully Protected was the State's initial effort in the 1960s to identify and provide additional protection to those animals that were rare or faced possible extinction. Lists were created for fish, mammals, amphibians and reptiles, birds and mammals. Most fully protected species have also been listed as threatened or endangered species under ESA and/or California Endangered Species Act (CESA). Fully Protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock.

Native Plant Protection Act. The Native Plant Protection Act (*California Fish and Game Code Section. 1900-1913*) (NPPA) prohibits the taking, possessing, or sale within the state of any plant listed by CDFG as rare, threatened, or endangered. An exception to this prohibition in the Act allows landowners, under specified circumstances, to take listed plant species, provided that the owners first notify CDFG at least 10 days prior to the initiation of activities that would destroy them. The NPPA exempts from "take" prohibition "the removal of endangered or rare native plants from a canal, lateral ditch, building site, or road, or other right of way".

Federal Water Pollution Control Act (Clean Water Act, 1972. The Clean Water Act (CWA; 33 U.S.C. 1251 et seq.), as amended, provides a structure for regulating discharges into the waters of the U.S. Through this Act, the Environmental Protection Agency is given the authority to implement pollution control programs. These include setting wastewater standards for industry and water quality standards for contaminants in surface waters. The discharge of any pollutant from a point source into navigable

waters is illegal unless a permit under its provisions is acquired. In California, the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) are responsible for implementing the CWA. Section 404 of the CWA regulates the discharge of dredged, excavated, or fill material in wetlands, streams, rivers, and other U.S. waters. The U.S. Army Corps of Engineers (ACOE) is the federal agency authorized to issue Section 404 Permits for certain activities conducted in wetlands or other U.S. waters. Section 401 of the CWA grants each state the right to ensure that the State's interests are protected on any federally permitted activity occurring in or adjacent to Waters of the State. In California, the RWQCBs are the agency mandated to ensure protection of the State's waters. For a proposed project that requires an ACOE CWA Section 404 permit and has the potential to impact Waters of the State, the RWQCB will regulate the project and associated activities through a Water Quality Certification determination (Section 401).

California Environmental Quality Act (CEQA). The California Environmental Quality Act of 1970 (CEQA), Public Resources Code (PRC) 21100 et seq., requires lead agencies to evaluate the environmental impact associated with a proposed project. CEQA requires that a local agency prepare an Environmental Impact Report (EIR) on any project it proposes to approve that may have a significant effect on the environment. The purpose of an EIR is to provide decision-makers, public agencies, and the general public with an objective and informational document that fully discloses the potential environmental effects of a proposed project. The EIR process is specifically designed to objectively evaluate and disclose potentially significant direct, indirect, and cumulative impact of a proposed project; to identify alternatives that reduce or eliminate a project's significant effects; and to identify feasible measures that mitigate significant effects of a project. In addition, CEQA requires that an EIR identify adverse impact that remains significant after mitigation.

California Fish and Game Code, Section 1600, as amended. Under Section 1602 of the Fish and Game Code, CDFG regulates activities that would divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. CDFG has jurisdiction over riparian habitats (e.g., southern willow scrub) associated with watercourses. Jurisdictional waters are delineated by the outer edge of riparian vegetation or at the top of the bank of streams or lakes, whichever is wider. CDFG jurisdiction does not include tidal areas or isolated resources. Section 1602 of the Fish and Game Code requires any person who proposes a project that will substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake or use materials from a streambed to notify the CDFG before beginning the project. If the CDFG determines that the Project may adversely affect existing fish and wildlife resources, a Lake or Streambed Alteration Agreement is required.

Porter–Cologne Water Quality Control Act, as amended. The Porter–Cologne Act grants the SWRCB and the RWQCBs power to protect water quality and is the primary vehicle for implementation of California’s responsibilities under the federal Clean Water Act. Any person proposing to discharge waste within any region must file a report of waste discharge with the appropriate regional board.

California Desert Conservation Area (CDCA). The CDCA encompasses 25 million acres of land in southern California that were designated by Congress in 1976 through Federal Lands and Policy Management Act. The BLM directly administers approximately 10 million acres of the CDCA (BLM 1980). The CDCA Plan-designated Yuha Basin Area of Critical Environmental Concern (ACEC) Management Plan (BLM 1981) was prepared to give additional protection to unique cultural resource and wildlife values found in the region, while also providing for multiple use management. The ACEC Management Plan allows for the “traversing of the ACEC by proposed transmission lines and associated facilities if environmental analysis demonstrates that it is environmentally sound to do so.”

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2.0 Survey Methods

Data regarding biological resources within the Project area were obtained through field reconnaissance and a literature review of applicable reference materials.

2.1 Field Surveys

The 1,353.3-acre survey area includes the following Project components:

- R-2: ISEC South Solar Field (927.6 acres)
- IVS-1: Preferred Transmission Line—300-foot corridor (120-foot ROW + 90-foot survey buffer; 242.0 acres)
- IVS-3: Preferred Transmission Line Extension—500-foot corridor (120-foot ROW + 190-foot survey buffer; 68.5 acres)
- IVS-4: Alternative Transmission Line—300-foot corridor (120-foot ROW + 90-foot survey buffer; 33.6 acres)
- IVS-5: Alternative Transmission Line Extension—500-foot corridor (120-foot ROW + 190-foot survey buffer; 29.2 acres)
- IVS-6: R-2 Corner Parcel (18.9 acres)
- IVS-7: Substation Buffer (33.5 acres)

This report encompasses data collected in March, April, May, and June 2010. Additional focused surveys to be conducted will be reported under separate cover. Dates, times, weather conditions, and personnel for all surveys are listed in Table 1.

TABLE 1
SURVEY DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS WITHIN ISEC SOUTH SURVEY AREA

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
03/24/2010	ALL	N/A	Vegetation mapping, general biological survey	Cheri Bouchér Carianne Campbell	8:00 A.M.; 50°F; winds 7–10 mph; 0% cloud cover	4:15 P.M.; 80°F; winds 0–4 mph; 0% cloud cover	N/A
03/30/2010	IVS-6	21	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Karyl Palmer	1:00 P.M.; 82°F; winds 3–5 mph; 10% cloud cover	2:00 P.M.; 80°F; winds 7–13 mph; 10% cloud cover	7
03/30/2010	ALL	N/A	Vegetation mapping, general biological survey	Cheri Bouchér Carianne Campbell Karyl Palmer	2:00 P.M.; 80°F; winds 7–13 mph; 10% cloud cover	5:00 P.M.; 77°F; winds 5–10 mph; 5% cloud cover	N/A
04/06/2010	IVS-5	29	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Gerry Scheid Peter Dolan	2:30 P.M.; 77°F; winds 2–5 mph; <5 % cloud cover	3:30 P.M.; 82°F; winds 7–10 mph; <5 % cloud cover	7.3
04/07/2010	ALL	N/A	Vegetation mapping, general biological survey	Cheri Bouchér Carianne Campbell	2:00 P.M.; 78°F; winds 3–7 mph; 0% cloud cover	4:00 P.M.; 78°F; winds 5–7 mph; 2% cloud cover	N/A
04/08/2010	IVS-3	68	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	9:00 A.M.; 74°F; winds 0--1 mph; 0% cloud cover	12:30 P.M.; 84°F; winds 2–4 mph; 0% cloud cover	4.8
04/08/2010	IVS-4	39	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	1:00 P.M.; 84°F; winds 0—1 mph; 0% cloud cover	3:00 P.M.; 84°F; winds 0—1 mph; 0% cloud cover	4.9
04/08/2010	IVS-1	38	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	3:00 P.M.; 84°F; winds 0—1 mph; 0% cloud cover	4:15 P.M.; 84°F; winds 0–2 mph; 0% cloud cover	7.6
04/09/2010	IVS-1	221	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	8:00 A.M.; 65°F; winds 0--1 mph; 0% cloud cover	1:00 P.M.; 89°F; winds 2–4 mph; 0% cloud cover	11.1

TABLE 1
SURVEY DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS WITHIN ISEC SOUTH SURVEY AREA (Cont.)

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
04/13/2010	IVS-1	45	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	9:00 A.M.; 68°F; winds 2--5 mph; 0% cloud cover	12:00 P.M.; 74°F; winds 2--6 mph; 0% cloud cover	7.5
04/13/2010	IVS-1/ IVS-7	65	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	1:00 P.M.; 75°F; winds 2--5 mph; 0% cloud cover	4:00 P.M.; 79°F; winds 2--5 mph; 0% cloud cover	10.8
04/14/2010	IVS-7	55	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	2:30 P.M.; 78°F; winds 2--4 mph; 50% cloud cover	4:30 P.M.; 82°F; winds 2--4 mph; 50% cloud cover	13.75
05/11/2010	R-2	N/A	General biological survey	Cheri Bouchér Carianne Campbell	7:00 A.M.; 62°F; winds 25--30 mph; 5% cloud cover	9:00 A.M.; 64°F; ; winds 25--30 mph; 5% cloud cover	-
05/11/2010	IVS-1, IVS-5	30	Rare Plant Survey #2	Cheri Bouchér Carianne Campbell	9:00 A.M.; 64°F; ; winds 25--30 mph; 5% cloud cover	12:30 P.M.; 72°F; winds 25--30 mph; 1% cloud cover	4.28
6/3/2010	IVS-1, IVS-7	130	BUOW Survey #1	Cheri Bouchér Glenna Westbrook Randy Westbrook	5:00 A.M.; 66°F; winds 0--1 mph; 0% cloud cover	8:00 A.M.; 80°F; winds 0 mph; 0% cloud cover	<15
6/3/2010	IVS-1, IVS-7	120	BUOW Survey #1	Rob Klotz Colby Henley Daniela Fromer	5:50 P.M.; --°F; wind s-- mph; --% cloud cover	8:15 P.M.; --°F; winds -- mph; --% cloud cover	<15
6/4/2010	IVS-1	135	BUOW Survey #1	Rob Klotz Colby Henley Daniela Fromer	5:00 A.M.; --°F; winds -- mph; 1% cloud cover	8:00 A.M.; --°F; winds -- mph; 1% cloud cover	<15
6/8/2010	IVS-1	270	BUOW Survey #1	Cheri Bouchér Rob Hastings Rob Klotz Jake Mohlmann Glenna Westbrook Randy Westbrook	5:00 A.M.; 77°F; winds 4 mph; 5% cloud cover	7:30 A.M.; 78°F; winds 5 mph; 5% cloud cover	<15
6/8/2010	IVS-1, IVS-4, IVS-5, IVS-6	180	BUOW Survey #1	Rob Hastings Rob Klotz Jake Mohlmann Randy Westbrook	5:30 P.M.; 105°F; winds 13.5 mph; 1% cloud cover	8:30 P.M.; 97°F; winds 13 mph; 1% cloud cover	<15
6/8/2010	IVS-3	90	BUOW Survey #1	Cheri Bouchér Glenna Westbrook	5:45 P.M.; 105°F; winds 13.5 mph; 0% cloud cover	8:15 P.M.; 96°F; winds 13.5 mph; 0% cloud cover	<15

TABLE 1
SURVEY DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS WITHIN ISEC SOUTH SURVEY AREA (Cont.)

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
6/9/2010	R-2	270	BUOW Survey #1	Cheri Bouchér Rob Hastings Rob Klotz Jake Mohlmann Glenna Westbrook Randy Westbrook	5:00 A.M.; 70°F; winds 2 mph; 0% cloud cover	8:00 A.M.; 80°F; winds 4 mph; 0% cloud cover	<15
6/15/2010	IVS-1	90	BUOW Survey #2	Rob Hastings Wendy Loeffler	5:00 A.M.; 74°F; winds 0 mph; 0% cloud cover	8:00 A.M.; 84°F; winds 0 mph; 0% cloud cover	<15
6/16/2010	IVS-1	315	BUOW Survey #2	Cheri Bouchér Jillian Bates Wendy Loeffler Rob Hastings Jake Mohlmann Glenna Westbrook Randy Westbrook	5:00 A.M.; 73°F; winds 0–2 mph; 0% cloud cover	8:00 A.M.; 86°F; winds 1–5 mph; 0% cloud cover	<15
6/16/2010	IVS-1, IVS-4, IVS-5	270	BUOW Survey #2	Rob Hastings Wendy Loeffler Jake Mohlmann Jillian Bates Glenna Westbrook Randy Westbrook	5:45 P.M.; 98°F; winds 5–10 mph; 0% cloud cover	8:45 P.M.; 88°F; winds 6 mph; 0% cloud cover	<15
6/17/2010	R-2	300	BUOW Survey #2	Cheri Bouchér Jillian Bates Rob Hastings Wendy Loeffler Jake Mohlmann Glenna Westbrook Randy Westbrook	5:00 A.M.; 60°F; winds 0–2 mph; 0% cloud cover	8:00 A.M.; 78°F; winds 0–2 mph; 0% cloud cover	<15
6/17/2010	IVS-3, IVS-5, IVS-6	180	BUOW Survey #2	Jillian Bates Rob Hastings Wendy Loeffler Jake Mohlmann Glenna Westbrook Randy Westbrook	5:45 P.M.; 101°F; winds 7 mph; 0% cloud cover	8:15 P.M.; 95°F; winds 4–12 mph; 0% cloud cover	<15

°F = degrees Fahrenheit; mph = miles per hour; % = percent

2.1.1 General Biological Survey

A general biological survey of the 1,353.3-acre survey area was conducted by RECON biologists Cheri Bouchér and Carianne F. Campbell on March 24, 2010, with supplemental surveying from March 29 through April 15, 2010. These surveys were conducted to map vegetation communities, inventory species present at the time of the survey, and assess the presence or potential for occurrence of sensitive and priority plant and animal species within the Project area.

Vegetation communities were mapped within the survey area on a one-inch-equals-400-foot color aerial photograph taken in the summer of 2009. In addition, the vegetation communities within a 1,000-foot buffer of the survey area were mapped in order to characterize the surrounding habitat. All plant species observed within the Project area were recorded, and plants that could not be identified in the field were collected for identification with taxonomic keys. Animal species observed directly or detected from calls, tracks, scat, nests, or other sign were recorded. The wildlife survey was limited by seasonal and temporal factors. Nocturnal animals were not observed directly, as the survey was performed during the day. In addition, species that are present within the area as fall migrants may not have been detected at the time of the survey.

2.1.2 Focused Rare Plant Survey

The survey also included a directed search for special status plants that would have been apparent during the time of the survey. Two surveys were conducted: a complete survey designed to cover 100 percent of the Project area (excluding active agriculture) in March–April 2010 and a follow-up intuitive controlled survey in May 2010. The surveys included a directed search for special status plants that would have been apparent during the time of the surveys. Rare plant surveys followed the *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009).

The complete floristic survey was conducted within the survey area between March 24 and May 11, 2010. Survey transects were conducted by two biologists walking roughly parallel transects approximately 15–30 meters apart, depending on topography and homogeneity of vegetation in the area. Biologists had overlapping fields of vision at this distance, resulting in very thorough survey coverage. Survey routes (aka “track logs”) and locations of rare plants were mapped using a Trimble Geographical Positioning System (GPS) with sub-meter accuracy.

This second spring survey followed the “Intuitive Controlled Survey” protocol (BLM 2009) in order to further investigate habitats that were identified during the primary focused survey as having a higher potential for the presence of special status species. This survey included a focused and intensive survey in uplands with rocky cobble substrates and washes and provided an opportunity to make additional species identifications based on phenological characters that were not present during the initial survey.

Floral nomenclature follows Baldwin et al. (2002) for common plants and California Native Plant Society (CNPS 2001) for sensitive plants, as updated by the Jepson Flora Project Jepson Online Interchange (2009). Zoological nomenclature is in accordance with the American Ornithologists' Union Checklist (1998) and Unitt (2004) for birds; with Baker et al. (2003) and Hall (1981) for mammals; and with Crother (2001) and Crother et al. (2003) for amphibians and reptiles.

2.1.3 Focused Burrowing Owl Surveys

Focused nesting season surveys for the ISEC Project were conducted in accordance with the 1993 California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993). Data from the 2010 surveys have been incorporated into this report, including species observations and survey dates/personnel.

2.1.4 Southwestern Willow Flycatcher Surveys

RECON conducted focused nesting season surveys for the ISEC Project in accordance with the recently revised survey protocol (Sogge et al. 2010). The protocol (Sogge et al. 2010) stipulates five surveys be conducted during three distinct survey periods, May 15 to May 31, June 1 to June 24, and June 25 to July 17. Surveys were initiated in June, after detecting a willow flycatcher (*Empidonax traillii*) within the survey area, in order to determine subspecies and migratory status of the species present. Because the first survey period had already past, RECON decided to conduct four surveys—two each during the two remaining survey periods, each at least five days apart.

2.1.5 Jurisdictional Delineation

RECON biologists conducted a preliminary jurisdictional waters delineation within the ISEC South project area. Methods for delineating wetlands followed guidelines set forth by the ACOE, including the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (ACOE 2008a) and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States: A Delineation Manual* (ACOE 2008b). Jurisdictional waters of the State were also delineated in accordance with the CDFG and RWQCB guidelines, as described later in this report.

2.2 Literature Review

Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for the species (State of California 2009 and 2010a; CNPS 2001; Reiser 2001), species occurrence records from the California Natural Diversity Database (CNDDDB; State of California 2010b), the BLM Special Status plant and wildlife species website (BLM 2010), and species occurrence records from other sites in the vicinity of the survey area.

Additional resources that were consulted included the *Biological Technical Report for Imperial Valley to La Rosita 230-kV Line, Imperial Valley, California* (RECON 2001) and the *Draft Environmental Impact Statement for the SES Solar Two* (URS 2008).

3.0 Existing Conditions

3.1 Topography and Soils

The 1,353.3-acre survey area is located in the Yuha Basin of the Colorado Desert between agricultural fields to the east and Mount Signal to the southwest, as well as within active agricultural lands. Alluvial fans and washes run through the transmission survey areas at various locations, flowing northeast from Mount Signal to enter the Westside Main Canal that skirts the edge of the active agricultural fields until bisecting the proposed solar field. The proposed IV South solar field comprises active agricultural fields. The upland topography between the washes is relatively flat, with sparse vegetation and sand that ranges from soft and rolling to flat and compact. Elevation of the survey area ranges from sea level to 60 feet above mean sea level (USGS 1976).

There are seven major soil types found within the survey area: Rositas, Niland, Carsitas, Glenbar, Imperial, Indio-Vint, and Meloland soils (NRCS 2006 and 2010).

- Rositas soils are sandy soils found on flat basin floors and formed from mixed alluvium or sandy eolian material typically found on dunes and sand sheets (NRCS 2009). Rositas soils are the dominant soils along the transmission corridors.
- Niland gravelly sand occurs on basin floors, and its parent material consist of alluvium derived from mixed sources. This soil occurs in small sections within IVS-1.
- Carsitas gravelly sand occurs on basin floors and is formed from alluvium derived from granite. This soil is the dominant soil within the southern-most mile of IVS-1 and IVS-4.
- Glenbar Complex soils are found on flat basin floors, and are formed from mixed alluvium. These soils are found in portions of the active agricultural fields.
- Imperial soils are silty clay soils found on flat basin floors and consist of clayey alluvium derived from mixed sources and/or clayey lacustrine deposits. These soils are found in portions of the active agricultural fields.
- Indio-Vint complex is made primarily of Indio and Vint soils, both of which are found on flat basin floors and formed from mixed alluvium or sandy eolian material. These soils are found in portions of the active agricultural fields.

- Melolond soils are fine sands found on flat basin floors and formed from mixed alluvium or sandy eolian material. These soils are found in portions of the active agricultural fields.

3.2 General Vegetation

A total of 99 plant species, representing 32 plant families, were identified within the Project area. Of this total, 82 (83 percent) are native to southern California and 17 (17 percent) are non-native, introduced species. A complete list of plant species observed in the Project area can be found in Attachment 2.

As shown in Attachment 1: Figure 4, seven vegetation communities were mapped within the survey area, including creosote bush-white burr sage scrub, desert wash (smoke tree woodland mix), cattail marsh, arrow weed thicket, mesquite thicket, tamarisk thicket, and active agricultural fields. Vegetation community classifications follow *A Manual of California Vegetation* (Sawyer, Keeler-Wolfe and Evens 2009). Under *A Manual of California Vegetation*, vegetation communities are classified by the dominant or co-occurring species, and are referred to as alliances. A small amount of disturbed and developed land is also present within the survey area. Table 2 below lists the acreage of each vegetation community in relation to the Project components.

**TABLE 2
VEGETATION COMMUNITIES/LAND COVER TYPES WITHIN ISEC SOUTH PROJECT
SURVEY AREA**

Vegetation Community/ Land Cover Type	R-2 (ac.)	IVS-1 (ac.)	IVS-3 (ac.)	IVS-4 (ac.)	IVS-5 (ac.)	IVS-6 (ac.)	IVS-7 (ac.)	Total (ac.)
Creosote bush– white burr sage scrub	0.3	195.3	60.0	33.0	29.2	17.5	31.3	366.6
Desert wash	-	44.6	-	0.6	-	-	-	45.2
Cattail marsh	2.8	-	-	-	-	-	-	2.8
Arrow weed thicket	1.0	-	-	-	-	-	-	1.0
Mesquite thicket	-	-	8.1	-	-	-	-	8.1
Tamarisk thicket	5.8	-	-	-	-	-	-	5.8
Active agricultural fields	916.5	-	0.4	-	-	-	-	916.9
Disturbed/developed land	1.2	2.1	-	-	-	1.4	2.2	6.9
TOTAL	927.6	242.0	68.5	33.6	29.2	18.9	33.5	1,353.3

ac. = acres

3.2.1 Vegetation Communities within the Survey Area

Creosote bush–white burr sage scrub is the dominant vegetation community within the transmission line corridors in the survey area, and accounts for 366.6 acres (28 percent of the survey area). This native vegetation alliance is dominated by creosote bush (*Larrea tridentata*) and white burr sage (*Ambrosia dumosa*) with relatively sparse vegetative cover and flat topography. A number of annual species were observed during the spring surveys that offered a sparse herbaceous layer between shrubs (Photograph 1). These species include desert sunflower (*Geraea canescens*), desert sand verbena (*Abronia villosa* var. *villosa*), Peirson's browneyes (*Camissonia claviformis* ssp. *peirsonii*), pebble pincushion (*Chaenactis carophoclina* var. *carophoclina*), pincushion flower (*C. stevioides*), desert cambess (*Oligomeris linifolia*), narrow-leaved forget-me-not (*Crypthantha angustifolia*), and Mediterranean grass (*Schismus barbata*). A few scattered ironwood trees (*Olneya tesota*) are present within the creosote bush- white burr sage scrub vegetation in IVS-5, along the U.S./Mexico Border (Photograph 2).

A number of **desert washes**, flow northeast through the transmission corridors from Mount Signal into the Westside Main Canal. These washes are braided with the main flow channels primarily lacking in vegetation, while the sandbars and banks support the **smoke tree woodland** vegetation alliance. The areas dominated by smoke tree woodland support a number species, including rayless encelia (*Encelia frutescens*), sweetbush (*Bebbia juncea*), individual honey mesquite trees (*Prosopis glandulosa*) and tamarisk trees (*Tamarix aphylla*), scattered saltbush shrubs, a moderate to sparse cover of big galleta grass (*Pleuraphis rigida*), and sparse creosote bush and white burr sage.

A small amount of **cattail marsh** was present in one of the irrigation channels between agricultural fields. While broad-leaved cattail (*Typha domingensis*) was the dominant species in this vegetation alliance; tamarisk was also present throughout.

Arrow weed (*Pluchea sericea*) has established along the edges of the irrigation canal in many locations, forming 5- to 10-foot-deep **arrow weed thickets**. These thickets largely exclude other plant species, but weedy invasive species such as sow thistle (*Sonchus* sp.), Sahara mustard (*Brassica turnifortii*), and London rocket (*Sisymbrium irio*) grow along the banks in between the arrow weed thickets.

A small **mesquite thicket**, dominated by honey mesquite, is present along the eastern edge of the IVS-3 corridor, adjacent to an irrigation ditch. Creosote bush and Mormon tea shrubs are present in between the honey mesquite trees. A larger mesquite thicket is present outside of the survey area along the western boundary of the IV South solar field.



PHOTOGRAPH 1
Creosote Bush- White Burr Sage Scrub within IVS-1



PHOTOGRAPH 2
Creosote bush- White Burr Sage Scrub with
Scattered Ironwood Trees along IVS-5

As seen in Attachment 1: Figure 5b, a large **tamarisk thicket** is present adjacent to the agricultural fields. Tamarisk thickets are dominated by tamarisk trees (*Tamarix* spp.). Honey mesquite trees are interspersed within tamarisk, but not in great enough number for this vegetation to be considered a mesquite thicket.

The R-2 survey area contains 916.5 acres of **active agricultural fields**.

Natural vegetation has been removed for vehicle parking and driving immediately south of State Route 98 within IVS-1, adjacent to the Imperial Valley Substation within IVS-7, and in the southeast corner of IVS-6. These areas contain little to no vegetation and are classified as **disturbed land**.

3.2.2 Vegetation Communities Adjacent to the Survey Area

The Westside Main Canal, as well as other agricultural irrigation channels, runs adjacent to and in between the agricultural fields. The channels that are unvegetated but holding water are classified as **open water**.

3.3 General Wildlife

The wildlife species observed on-site were typical of the desert scrub, desert wash, and agricultural habitats, which provide cover, foraging, and breeding habitat for a variety of native wildlife species. Attachment 3 provides a list of all wildlife species observed.

3.3.1 Invertebrates

The Project area contains suitable habitat for a wide variety of invertebrates. Harvester ants (*Pogonomyrmex* spp.) were observed regularly along the transmission corridors. Cabbage white (*Pieris rapae*) and painted lady (*Vanessa cardui*) butterflies were also regularly observed nectaring on the annual flowers in all portions of the survey area.

3.3.2 Amphibians

Most amphibians require moisture for at least a portion of their life cycle, with many requiring a permanent water source for habitat and reproduction. Terrestrial amphibians have adapted to more arid conditions and are not completely dependent on a perennial or standing source of water. These species avoid desiccation by burrowing beneath the soil or leaf litter during the day and during the dry season.

A bullfrog (*Rana catesbeiana*) was observed within the irrigation channels between the active agricultural fields in R-2.

3.3.3 Reptiles

The diversity and abundance of reptile species varies with habitat type. Many reptiles are restricted to certain plant communities and soil types, although some of these species would also forage in adjacent communities. Other species are more ubiquitous, using a variety of vegetation types for foraging and shelter.

Three reptile species were commonly observed throughout the survey area: desert iguana (*Dipsosaurus dorsalis*), common side-blotched lizard (*Uta stansburiana*), and common zebra-tailed lizard (*Callisaurus draconoides*). Great Basin tiger whiptail (*Aspidoscelis tigris tigris*) and sidewinder rattlesnake (*Crotalus cerastes*) were also observed in fewer numbers, and a flat-tailed horned lizard (FTHL; *Phrynosoma mcallii*) was observed within the creosote bush-white burr sage scrub at the west end of IVS-3.

3.3.4 Birds

The diversity of bird species varies with respect to the character, quality, and diversity of vegetation communities. Due to the seasonal homogeneity of low habitat structure within the majority of the survey area, bird diversity was expectedly low, while it increased within the desert washes and thickets near the canal.

Birds commonly observed within the sparse creosote bush-white burr sage scrub include horned lark (*Eremophila alpestris*), Gambel's quail (*Callipepla gambelii gambelii*), mourning dove (*Zenaida macroura marginella*), lesser nighthawk (*Chordeiles acutipennis*), Say's phoebe (*Sayornis saya*), black phoebe (*S. nigricans semiatra*), and white-crowned sparrow (*Zonotrichia leucophrys*).

The desert wash, mesquite thicket, tamarisk thicket, and the denser portions of creosote bush-white burr sage scrub were observed to host a number of bird species such as yellow-rumped warbler (*Dendroica coronata*), blue-gray gnatcatcher (*Poliophtila caerulea*), black-tailed gnatcatcher (*P. melanura*), verdin (*Auriparus flaviceps*), song sparrow (*Melospiza melodia*), western kingbird (*Tyrannus verticalis*), and greater roadrunner (*Geococcyx californianus*). Loggerhead shrike (*Lanius ludovicianus*) and yellow warbler (*Dendroica petechia*) were also observed within mesquite trees and the adjacent tamarisk thicket.

A number of species that rely on the adjacent open water canals, cattail marsh, and tamarisk thicket use the active agricultural fields for foraging. Species commonly observed during the survey, foraging in or adjacent to the agricultural fields, include cliff swallow (*Petrochelidon pyrrhonota tachina*), northern rough-winged swallows (*Stelgidopteryx serripennis*), cattle egret (*Bubulcus ibis ibis*), snowy egret (*Egretta thula thula*), red-winged blackbird (*Agelaius phoeniceus*), great-tailed grackle (*Quiscalus mexicanus*), western meadowlark (*Sturnella neglecta*), and common ravens (*Corvus*

corax clarionensis). Burrowing owls (*Athene cunicularia*) and active burrowing owl burrows were also observed within the survey area (see Section 3.4.2.3).

3.3.5 Mammals

Creosote bush–white burr sage scrub and desert wash communities typically provide cover and foraging opportunities for a variety of mammal species. Many mammal species are nocturnal and must be detected during daytime surveys by observing their sign, such as tracks, scat, and burrows.

Desert black-tailed jackrabbit (*Lepus californicus deserticola*), desert cottontail (*Sylvilagus audubonii*), round-tailed ground squirrel (*Spermophilus tereticaudus*), desert kangaroo rat (*Dipodomys deserti deserti*), and coyote (*Canis latrans*) were detected often within the transmission corridors through direct observation as well as burrows, tracks, and scat. Mule deer (*Odocoileus hemionus*) tracks and scat were also observed within three of the transmission corridors.

3.4 Sensitive Biological Resources

3.4.1 Special Status Plant Species

There are a number of special status plant species that are known from the vicinity of the Project area. Attachment 4 lists all species known from the vicinity that are listed by the federal or state government as threatened or endangered, or are listed as sensitive by BLM or the State of California. Locations of special status plant species found during the survey are presented in Attachment 1: Figure 5. Table 3 also provides a more detailed analysis of the potential of these species to occur in the survey area.

3.4.1.1 Federally Listed Species

Based on the literature review, one federally threatened plant species, Peirson's milkvetch (*Astragalus magdalena* var. *peirsonii*), was identified as having the potential to occur within the survey area. Critical habitat has been designated (and revised) for this species in the Algodones Dunes (USFWS 2008), which are located approximately 50 miles east of the Project area. This species was not observed during focused spring rare plant surveys, and is not expected to occur based on elevation, lack of dune habitat, and range restrictions (see Attachment 4).

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Amaranthaceae—Amaranth Family											
<i>Amaranthus watsonii</i> Watson's amaranth	-/-	4.3	-	Annual herb; blooms in spring; creosote bush scrub and wetlands.	Potential to occur along canals and ditches within the survey area	Not expected to occur.	No suitable wetland habitat within the survey area.				
Asclepiadaceae—Milkweed Family											
<i>Cynanchum utahense</i> Utah vine milkweed	-/-	4.3	-	Perennial herb; blooms April–June; creosote bush scrub; <3,281 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
Asteraceae—Sunflower Family											
<i>Chaenactis carphoclina</i> var. <i>peirsonii</i> Peirson's pincushion	-/-	1B.3	BLM Sensitive	Annual herb; blooms March–April; creosote bush scrub; <1,640 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused surveys.					
<i>Helianthus niveus</i> ssp. <i>tephrodes</i> Algodones Dunes sunflower	-/CE	1B.2	BLM Sensitive	Perennial herb; blooms March–May; dunes; <328 ft	Not expected to occur. No suitable dune habitat is present within the survey area.	In addition, this perennial herb would have been observed during spring focused surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Asteraceae—Sunflower Family (cont.)</i>											
<i>Malperia tenuis</i> brown turbans	-/-	2.3	-	Annual herb; blooms April and Dec; Sonoran desert scrub; sandy areas and rocky slopes; <1,640 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. Not observed within the survey area during spring focused rare plant surveys. No suitable desert pavement habitat is present for this species.					
<i>Palafoxia arida</i> var. <i>gigantea</i> giant Spanish needles	-/-	1B.3	BLM Sensitive	Dunes	Not expected to occur. No suitable dune habitat is present within the survey area.	In addition, this perennial herb would have been observed during spring focused surveys.					
<i>Xylorhiza cognata</i> Mecca aster	-/-	1B.2	BLM Sensitive	Perennial herb; blooms Jan–June; creosote bush scrub; canyons; 65–787 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
<i>Xylorhiza orcuttii</i> Orcutt's woody aster	-/-	1B.3	BLM Sensitive	Perennial herb; blooms March–April; creosote bush scrub; canyons; 65–984 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence					
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6
Boraginaceae - Borage Family										
<i>Cryptantha costata</i> ribbed cryptantha	-/-	-	4.3	Annual herb; blooms Feb–May; creosote bush scrub, sandy soil; <1,640 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused surveys.				
<i>Cryptantha holoptera</i> winged cryptantha	-/-	-	4.3	Annual herb; blooms March–April; creosote bush scrub, sandy soil; 328–3,937 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused surveys.				
Brassicaceae—Mustard Family										
<i>Lyrocarpa coulteri</i> var. <i>palmeri</i> Coulter's lyrepod	-/-	-	4.3	Perennial herb; blooms April–Dec; creosote bush scrub; dry slopes, gravelly flats, and washes; <1,969 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.				
Cactaceae—Cactus Family										
<i>Cylindropuntia echinocarpa</i> [= <i>Opuntia wigginsii</i>] Wiggins' cholla	-/-	3.3	-	Shrub; creosote bush scrub.	Not expected to occur. No suitable habitat present.	Not expected to occur. This species would have been observed during focused rare plant surveys.				

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Cylindropuntia wolfii</i> [= <i>Opuntia wolfii</i>] Wolf's' cholla	-/-	4	-	Shrub; blooms April–May; Alluvial fans and rocky slope in Sonoran desert scrub.	Not expected to occur. This species would have been observed during focused rare plant surveys.	Observed. A total of 9 individuals were observed within the survey area in desert wash vegetation.	Not expected to occur. This species would have been observed during focused rare plant surveys.				
Euphorbiaceae—Spurge Family											
<i>Chamaesyce abramsiana</i> Abram's sandmat	-/-	2.2	-	Annual herb; blooms Sept–Nov; creosote bush scrub; <656 ft.	Not expected to occur. No suitable habitat present.	Potential to occur. This annual herb would not have been detectable during the spring focused surveys.					
Euphorbiaceae—Spurge Family (cont.)											
<i>Chamaesyce arizonica</i> Arizona sandmat	-/-	2.3	-	Perennial herb; blooms March–April; creosotebush scrub; <984 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
<i>Chamaesyce platysperma</i> flat-seeded spurge	-/-	1B.2	BLM Sensitive	Annual herb; blooms May; dunes & sandy areas; <328 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Croton wigginsii</i> Wiggins' croton	-/CR	2.2	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; dunes; <328 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
<i>Ditaxis serrata</i> var. <i>californica</i> California ditaxis	-/-	3.2	-	Perennial herb; blooms April–Nov; creosote bush scrub; <656 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
Euphorbiaceae—Spurge Family (cont.)											
<i>Tetracoccus hallii</i>	-/-	4.3	-	Shrub; blooms March–May; creosote bush scrub; rocky slopes and washes; <3,937 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
Fabaceae—Legume Family											
<i>Astragalus crotolariae</i> Salton milkvetch	-/-	4.3	-	Perennial herb; blooms Jan–April; creosote bush scrub; 60–250 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during focused rare plant surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Astragalus insularis</i> var. <i>harwoodii</i> Harwood's milkvetch	-/-	2.2	-	Annual herb; blooms Jan–May; desert dunes; open sandy flats or stony desert washes; mostly in creosote bush scrub.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
Fabaceae—Legume Family (cont.)											
<i>Astragalus lentiginosus</i> var. <i>borreganus</i> Borrego milkvetch	-/-	4.3	-	Annual herb; blooms March–May; creosote bush scrub, sandy areas; 98–820 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
<i>Astragalus magdalena</i> var. <i>peirsonii</i> Peirson's milkvetch	PFE/CE	1B.2	BLM Sensitive	Perennial herb; blooms Dec–April; dunes; 164–656 ft.	Not expected to occur. There is no suitable dune habitat within the survey area. In addition, this perennial herb would have been observed within the survey area during focused rare plant surveys.						
<i>Lotus haydonii</i> pygmy lotus	-/-	1B.3	BLM Sensitive	Perennial herb; blooms March–June; creosote bush scrub; 1,969–3,937 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Lupinus excubitis</i> var. <i>medius</i> Mountain Springs bush lupine	-/-	1B.4	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; desert washes; <3,281 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
Fabaceae—Legume Family (cont.)											
<i>Parkinsonia microphylla</i> [= <i>Cercidium microphyllum</i>] yellow paloverde	-/-	4.3	-	Tree; blooms April–May; creosote bush scrub.	Not expected to occur. This tree would have been observed during focused rare plant surveys.						
Lamiaceae—Mint Family											
<i>Salvia greatae</i> lavender sage	-/-	1B.3	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; alluvial slopes; 98–787 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
<i>Teucrium cubense</i> ssp. <i>depressum</i> small coastal germander	-/-	2.2	-	Annual herb; blooms March–May; creosote bush scrub, sandy areas; <797 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					
Lennoaceae—Sand Food Family											
<i>Pholisma sonorae</i> sandfood	-/-	1B.2	BLM Sensitive	Perennial parasitic herb; blooms April–May; dunes; <656 ft.	Not expected to occur. There is no suitable dune habitat within the survey area. In addition, this species would have been observed within the survey area during spring focused rare plant surveys.						

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Loasaceae—Blazing Star Family											
<i>Mentzelia hirsutissima</i> hairy stickleaf	-/-	2.3	-	Annual herb; blooms April–May; creosote bush scrub; washes, fans, and slopes; <1,969 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					
<i>Mentzelia tridentata</i> dentate blazing star	-/-	1B.3	BLM Sensitive	Annual herb; blooms April–May; creosote bush scrub; 2,296–3,280 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					
Malvaceae—Mallow Family											
<i>Horsfordia alata</i> pink velvet mallow	-/-	4.3	-	Shrub; blooms April and Nov–Dec; creosote bush scrub; rocky canyons and washes; 328–1,640 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
Malvaceae—Mallow Family (cont.)											
<i>Horsfordia newberryi</i> Newberry's velvet mallow	-/-	4.3	-	Perennial herb; blooms March–April and Nov–Dec; creosote bush scrub; 328–2,625 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring rare plant focused surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Herrisantia crispa</i> bladder mallow	-/-	2.3	-	Annual or perennial herb; creosote bush scrub.	Not expected to occur. No suitable habitat.	Low potential to occur. This species would have been observed during spring rare plant focused surveys.					
Martyniaceae—Unicorn Plant Family											
<i>Proboscidea althaeifolia</i> devil's claw	-/-	4.3	-	Perennial herb; blooms in fall; desert washes within creosote bush scrub; <3,281 ft.	Not expected to occur. No suitable habitat.	Potential to occur in desert wash habitat within the survey area.	Low potential due to the lack of desert wash vegetation.	Potential to occur in desert wash habitat within the survey area.		Low potential to occur due to the lack of desert wash vegetation.	
Nyctaginaceae - Four O'Clock Family											
<i>Mirabilis tenuiloba</i> slender lobed four o'clock	-/-	4.3	-	Perennial herb; blooms March–May; creosote bush scrub; rocky slopes; <1,640 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring rare plant focused surveys.					
Onagraceae—Evening Primrose Family											
<i>Camissonia arenaria</i> Fortuna Range suncup	-/-	2.2	-	Annual or perennial herb; creosote bush scrub; rocky slopes; <1,411 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This herb would have been observed during spring rare plant focused surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Polemoniaceae—Phlox Family											
<i>Ipomopsis tenuifolia</i> slenderleaf skyrocket	-/-	2.3	-	Perennial herb; blooms March–May; creosote bush scrub; gravelly to rocky slopes and canyons; 328–3,937 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring rare plant focused surveys.					
Poaceae—Grass Family											
<i>Imperata brevifolia</i> satintail	-/-	2.1	-	Perennial grass; blooms Sept–May; creosote bush scrub; <1,640 ft.	Not expected to occur. This perennial rhizomatous grass would have been observed during focused rare plant surveys.						
Polemoniaceae—Phlox Family											
<i>Ipomopsis effusa</i> Baja California ipomopsis	-/-	2.1	-	Annual herb; alluvial fans.	Not expected to occur. No suitable habitat.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					
Polygonaceae—Knotweed Family											
<i>Nemacaulis denudata</i> var. <i>gracilis</i> slender woolly heads	-/-	2.2	-	Annual herb; blooms March–May; dunes; <1,312 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Rafflesiaceae—Rafflesia Family											
<i>Pilostyles thurberi</i> Thurber's pilostyles	-/-	4.3	-	Perennial herb (parasitic); blooms January; Sonoran desert scrub; sandy alluvial plains; <984 ft.	Not expected to occur. No suitable habitat.	Detected on 6 Emory's indigo bush shrubs within the survey area.	Potential to occur. This parasite was not detected on any <i>Psorothamnus</i> spp. within the survey area.				
Rhamnaceae—Buckthorn Family											
<i>Colubrinia californica</i>	-/-	2.3	-	Shrub; blooms April–May; creosote bush scrub; <3,281 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
<i>Condalia globosa</i> var. <i>pubescens</i> spiny crucillo	-/-	4.2	-	Shrub; blooms March–April; creosote bush scrub; <3,281 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
Selaginellaceae—Spikemoss Family											
<i>Selaginella eremophila</i> desert spike moss	-/-	2.2	-	Perennial fern; creosote bush scrub; shaded crevices and rocky places; <2,953 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring focused rare plant surveys.					

TABLE 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Solanaceae—Nightshade Family											
<i>Lycium parishii</i> Parish's desert thorn	-/-	2.3	-	Shrub; blooms March–April; Sonoran desert scrub; sandy–rocky slopes and canyons; <3,281 ft.	Not expected to occur. No suitable habitat.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.		Observed. 2 shrubs were observed within desert wash habitat.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.		
Sterculiaceae—Cocoa Family											
<i>Ayenia compacta</i> desert ayenia	-/-	2.3	-	Perennial herb/shrub; blooms March–April; washes and dry rocky canyons; <1,640 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring focused rare plant surveys.					

FEDERAL LISTED PLANTS

PFE = Proposed Federally listed endangered

STATE-LISTED PLANTS

CE = State-listed endangered

CR = State-listed rare

CALIFORNIA NATIVE PLANT SOCIETY LISTS

1A = Species presumed extinct.

1B = Species rare, threatened, or endangered in California and elsewhere; eligible for state listing.

2 = Species rare, threatened, or endangered in California—but more common elsewhere; eligible for state listing.

3 = Species for which more information on distribution, endangerment, and/or taxonomic information is needed.

4 = A watch list of species of limited distribution, that need to be monitored for changes in population status.

BUREAU OF LAND MANAGEMENT

Sensitive = Identified as BLM sensitive

3.4.1.2 State-listed Species

There were three state-listed species identified during the literature review as having the potential to occur within the survey area: Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*), Wiggins' croton (*Croton wigginsii*), and Peirson's milkvetch (see Attachment 4). These species were not observed during focused spring rare plant surveys, and are not expected to occur within the survey area based on elevation and the lack of suitable habitat.

3.4.1.3 BLM Sensitive Species

BLM sensitive species include all species currently on CNPS List 1B, as well as others that are designated by the California BLM State Director. Several BLM sensitive species were identified as having the potential to occur within the survey area (see Attachment 4). These species were not observed during focused spring rare plant surveys, and either have a low potential to occur or are not expected to occur within the survey area based on elevation and the lack of suitable habitat.

3.4.1.4 Priority Plant Species

Priority plant species are rare, unusual, or key species that are not considered sensitive by BLM or listed as threatened and endangered. Priority plant species are specifically plants that are included on the CNPS Lists 2–4. Three priority plant species were observed within the survey area during spring rare plant surveys, including Wolf's cholla (*Cylindropuntia wolfii*), Thurber's pilostyles (*Pilostyles thurberi*), and Parish's desert thorn (*Lycium parishii*). These species are discussed below and are shown on Attachment 1: Figure 5a-b.

Two additional species, Abram's sandmat (*Chamaesyce abramsiana*) and devil's claw (*Proboscidea althaeifolia*), which actively grow and bloom in the late summer and fall, have potential to occur within the survey area. An additional rare plant survey is planned for fall 2010 in order to search for these species. This survey will target the habitats in which these species would be found, if present.

Wolf's cholla (*Opuntia wolfii*). Wolf's cholla is a CNPS (2001) List 4 species. This generally erect cylindrical cactus (Cactaceae family) grows up to 6 feet tall and bears pale purple-brown flowers with red-purple filaments in April and May. The range of Wolf's cholla is limited to the western edge of the Sonoran desert in Imperial and San Diego counties and Baja California (Baldwin et al. 2002, CNPS 2001). It occurs in creosote-bush scrub between elevations of 1,000 and 3,300 feet, where it can be locally common. Typical microhabitat for Wolf's cholla is on alluvial fans, rocky slopes, or dry places above the valley floor (Baldwin et al. 2002, Reiser 2001). This cactus is reported from San Felipe Valley, Vallecito Canyon, Jacumba, Sentenac Canyon, and Mountain Springs Grade (Reisser 2001). *Opuntia wolfii* was formerly considered a variety of silver

cholla (*O. echinocarpa*), but can be distinguished from it by having the terminal stem segment longer than eight inches and tubercles more than three times longer than they are wide (Baldwin et al. 2002).

Nine Wolf's chollas were observed within the braided wash channel system south of the Substation within IVS-1 (Photograph 3). These plants were scattered in the desert wash (smoketree woodland alliance) vegetation community. Two additional individuals were recorded adjacent to the survey area in the same vicinity. This species was in bloom during the survey period and was positively identified based on its upright growth form and red-purple anther filaments.

Thurber's pilostyles (*Pilostyles thurberii*). Thurber's pilostyles is a CNPS List 4 species. It is a perennial stem-parasite in the rafflesia family (Rafflesiaceae) that shows only its flowers and bracts on the stem of its host plant. The brown or maroon flowers are less than 1/10 inch across and bloom in January. The host plant is indigo bush (*Psorothamnus* spp.), usually Emory's indigo bush (*P. emoryi*). While Emory's indigo bush occurs in both the southern Mojave and Sonoran deserts, in California Thurber's pilostyles is limited to the southern Sonoran Desert in Riverside, San Diego, and Imperial counties, where it occurs in open desert scrub at elevations below 1,000 feet. Thurber's pilostyles also occurs in Baja California and as far east as Texas (Baldwin et al. 2002).

Thurber's pilostyles was observed on six Emory's indigo bush shrubs located within the desert wash in IVS-1 south of the Imperial Valley Substation.

Parish's desert-thorn (*Lycium parishii*). Parish's desert-thorn is a CNPS List 2 species. It is an intricately-branched spiny shrub in the nightshade family (Solanaceae) that may grow 10 feet tall and produces purplish tubular flowers in March and April (Munz 1973). Parish's desert thorn is found from Sonora, Mexico, and Arizona to Riverside, Imperial, and eastern San Diego counties; it is thought to be extirpated from the San Bernardino Valley (Munz 1974; NPS 2001). The habitat for Parish's box-thorn is sandy to rocky slopes in creosote-bush desert scrub at elevations below 3,300 feet. It may have occurred in coastal scrub habitat as well (CNPS 2001).

Two Parish's desert thorns were observed along the desert wash within IVS-4. An additional six individuals were recorded adjacent to the IVS-4 and IVS-1 survey areas.



PHOTOGRAPH 3
Wolf's Cholla Adjacent to Desert Wash
Vegetation in IVS-1

**TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH SURVEY AREA**

Species	Status			Occurrence/Comments						
	Federal/ State Status	BLM Status	Habitat	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
REPTILES (Nomenclature from Crother 2001 and Crother et al. 2003)										
GEKKONIDAE ECKOS										
Switak's banded gecko <i>Coleonyx switaki</i>	ST	-	Rock outcrops on arid hillsides and canyons in desert scrub vegetation types.	Not expected to occur. There is no suitable rocky habitat for this species within the survey area.						
IGUANIDAE GUANID LIZARDS										
Flat-tailed horned lizard <i>Phrynosoma mcalli</i>	FPT	Sensitive	Dunes and sandy flats of low desert.	Not expected to occur. No suitable habitat present.	High potential to occur. This species is known from the vicinity and is likely to occur within the survey area.	Two observed within creosote bush-white burr sage scrub at the west end of the survey area.	High potential to occur. This species is known from the vicinity and is likely to occur within the survey area.			

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Colorado desert fringe-toed lizard <i>Uma notata notata</i>	CSC	Sensitive	Loose sand of desert dunes, flats, riverbanks, and washes. Prefers scant vegetation.	High potential to occur. This species is known from the vicinity and is likely to occur within the survey area.						
XANTUSIIDAE	IGHT LIZARDS									
Sandstone night lizard <i>Xantusia granilis</i>	CSC		Anza-Borrego Desert State Park in sandstone habitats.	Not expected to occur. The survey area lacks the sandstone habitat for this species.						
BIRDS (Nomenclature from American Ornithologists' Union 1998 and Unitt 1984)										
PELECANIDAE	ELICANS									
American white pelican (nesting colony) <i>Pelecanus erythrorhynchos</i>	CSC		Lagoons, bays, estuaries, freshwater ponds; inland lakes during spring migration. Migrant and winter visitor.	Not expected to nest within the survey area. While the adjacent canals and agricultural land may provide foraging habitat for this species, there is no suitable nesting habitat for this species within the survey area.						
PHALACROCORACIDAE	ORMORANTS									

**TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)**

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
ARDEIDAE	ERONS & BITTERNS									
Great egret (rookery site) <i>Ardea alba</i> H	*		Lagoons, bays, estuaries. Ponds and lakes in the coastal lowland. Winter visitor, uncommon in summer.	Observed foraging. No rookery sites observed, but potential to occur adjacent to the survey area.	Not expected to occur. No suitable habitat present.					
Great blue heron (rookery site) <i>Ardea herodias</i>	*		Bays, lagoons, ponds, lakes. Non-breeding year-round visitor, some localized breeding.	Observed foraging. No rookery sites observed, but potential to occur adjacent to the survey area.	Not expected to occur. No suitable habitat present.					

**TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)**

Species	Status		Habitat	Occurrence/Comments							
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7	
Green heron (breeding) <i>Butorides virescens</i>	*		Riparian woodland, lakes, ponds, brackish lagoons.	Observed foraging within cattail marsh. High potential to nest adjacent to the survey area.	Not expected to occur. No suitable habitat present.						
Snowy egret (rookery site) <i>Egretta thula thula</i>	*		Coastal waters and freshwater ponds and lakes. Winter visitor, summer resident. Localized breeding colonies.	Observed foraging. No rookery sites observed, but potential to occur adjacent to the survey area.	Not expected to occur. No suitable habitat present.						

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments							
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7	
Western least bittern <i>Ixobrychus exilis hesperis</i>	CSC		Brackish and freshwater marshes in the coastal lowland. Rare summer resident, rare in winter.	Observed nesting. No rookery sites observed, but potential to occur adjacent to the survey area.	Not expected to occur. No suitable habitat present.						
Black-crowned night heron (rookery site) <i>Nycticorax nycticorax</i>	*		Lagoons, estuaries, bayshores, ponds, and lakes. Often roost in trees. Year-round visitor. Localized breeding.	Observed foraging. No rookery sites observed, but potential to occur adjacent to the survey area.	Not expected to occur. There is no suitable habitat for this species within the survey area.						
ACCIPITRIDAE	AWKS, KITES, & EAGLES										
Cooper's hawk (nesting) <i>Accipiter cooperii</i>	CSC		Mature forest, open woodlands, wood edges, river groves. Parks and residential areas. Migrant and winter visitor.	Not expected to occur. No suitable habitat present.	Moderate potential to nest and forage within large trees in desert wash vegetation.					Not expected to occur. No suitable habitat present.	

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Golden eagle (nesting and wintering) <i>Aquila chrysaetos</i> <i>canadensis</i>	CSC, BEPA		Require vast foraging areas in grassland, broken chaparral, or sage scrub. Nest in cliffs and boulders. Uncommon resident.	Not expected to occur within the survey area. No known locations within 10 miles of the survey area and golden eagles have not been reported in El Centro or the surrounding area.						
Ferruginous hawk (wintering) <i>Buteo regalis</i>	CSC		Require large foraging areas. Grasslands, agricultural fields. Uncommon winter resident.	Moderate potential to winter within the survey area The survey area proves suitable foraging habitat for this species, and it has potential to winter in the vicinity.						
FALCONIDAE	ALCONS & CARACARAS									
Prairie falcon (nesting) <i>Falco mexicanus</i>	CSC		Grassland, agricultural fields, desert scrub. Uncommon winter resident. Rare breeding resident.	Not expected to nest within the survey area due to the lack of cliff faces and rocky habitat. Likely to forage or winter within the survey area.						

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
RALLIDAE	AILS, GALLINULES, & COOTS									
Yuma clapper rail <i>Rallus longirostris yumanensis</i> R	FE, ST		Marshland vegetation, dense cattail stands, bulrush, reeds. Resident.	Low potential to occur. A small amount of cattail marsh vegetation is present in an irrigation ditch outside of the survey area, but lacks any mudflats or usable bank.						
GRUIDAE	RANES									
Greater sandhill crane (wintering) <i>Grus canadensis tabida</i> C	ST		Prairies, fields, marshes.	Potential to winter and forage within the AG fields.	Not expected to occur. There is no suitable habitat for this species.					
LARIDAE	ULLS, TERNS, & SKIMMERS									
Laughing gull (nesting colony) <i>Larus atricilla</i> G	CSC		Salton Sea.	Not expected to occur. There is no suitable shoreline habitat for this species within the survey area.						
STRIGIDAE	YPICAL OWLS									
Long-eared owl (nesting) <i>Asio otus wilsonianus</i> T	CSC		Riparian woodland, oak woodland, tamarisk woodland. Rare resident and winter visitor. Localized breeding.	Not expected to nest within the survey area. Potential to winter and forage within the entire survey area.						

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments							
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7	
Burrowing owl (burrow sites) <i>Athene cunicularia</i>	CSC	Sensitive	Grassland, agricultural land, coastal dunes. Require rodent burrows. Declining resident.	Observed -breeding pairs and burrows present within the ag fields.	Potential to occur. This species is known to occur in the vicinity of the survey area.						
TYRANNIDAE	TYRANT FLYCATCHERS										
Southwestern willow flycatcher \uparrow <i>Empidonax traillii extimus</i>	FE/SE		Nesting restricted to willow thickets. Also occupies other woodlands. Rare spring and fall migrant. Extremely localized breeding.	May forage within the mesquite and tamarisk thickets adjacent to the survey area during migration. No suitable nesting habitat.	Not expected to nest or forage within the survey area.						
Vermilion flycatcher <i>Pyrocephalus rubinus flammeus</i>	CSC		Agricultural areas, parks, ponds, rivers. Rare fall and spring migrant, winter visitor, summer resident. Breeding rare.	Low potential to occur within adjacent canal and mesquite thickets.	Not expected to occur. There is no suitable habitat within the survey for this species.						

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
LANIIDAE	HRIKES									
Loggerhead shrike <i>Lanius ludovicianus</i> S	CSC		Open foraging areas near scattered bushes and low trees.	Observed within large shrubs and trees throughout the survey area.						
VIREONIDAE	IREOS									
Least Bell's vireo (nesting) <i>Vireo bellii pycillus</i>	FE/SE		Willow riparian woodlands. Summer resident.	Not expected to nest within the survey area due to lack of suitable nesting habitat. Not observed during surveys, but potential to forage within the mesquite and tamarisk thickets adjacent to the Westside Canal during migration.						
MIMIDAE	OCKINGBIRDS & THRASHERS									
Crissal thrasher <i>Toxostoma crissale</i> M	CSC		Mesquite thickets in Borrego Springs area. Rare resident.	High potential to occur. There is suitable desert wash or mesquite thicket habitat within the survey areas.	Observed within the mesquite thicket at the east end of this survey area.	Moderate potential to occur. There is suitable desert wash habitat within the survey areas.				Low potential to occur due to lack of high standing vegetation.
LeConte's thrasher <i>Toxostoma lecontei</i>	CSC		Desert washes, creosote bush scrub. Uncommon resident.	High potential to occur. This species is known to occur in the vicinity and there is suitable habitat for this species throughout the survey area.						

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
PARULIDAE OOD WARBLERS										
Yellow warbler (nesting) <i>Dendroica petechia</i> W	CSC		Breeding restricted to riparian woodland. Spring and fall migrant, localized summer resident, rare winter visitor.	Not expected to nest within the survey area, but observed within the tamarisk thicket adjacent to the site.	Observed within the desert wash south of the sub-station.	High potential to nest within the mesquite thicket.			Not expected to nest within the survey area due to lack of dense mesquite or desert wash vegetation. Potential to forage in the survey area.	
Yellow-breasted chat (nesting) <i>Icteria virens auricollis</i>	CSC		Dense riparian woodland. Localized summer resident.	Not expected to occur. There is no suitable riparian woodland habitat within the survey for this species.						
MAMMALS (Nomenclature from Jones et al. 1997 and Hall 1981)										
PHYLLOSTOMIDAE EW WORLD LEAF-NOSED BATS										
California leaf-nosed bat <i>Macrotus californicus</i> N	CSC	Sensitive	Low deserts. Caves, mines, buildings. Colonial. Migrational. Mostly near Colorado River in California.	Low potential to occur. May forage along the canal, but no roosting habitat is present.		Low potential to occur. This species may forage within the survey area, but no suitable roosting habitat is present.				

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
VESPERTILIONIDAE V	ESPER BATS									
Pallid bat <i>Antrozous pallidus</i>	CSC	Sensitive	Arid deserts and grasslands. Shallow caves, crevices, rock outcrops, buildings, tree cavities. Especially near water. Colonial. Audible echolocation signal.	Low potential to occur. May forage along the canal, but no roosting habitat is present.	Low potential to occur. This species may forage within the survey area, but no suitable roosting habitat is present.					
MOLOSSIDAE	REE-TAILED BATS									
Pocketed free-tailed bat <i>Nyctinomops femorosaccus</i>	CSC		Normally roost in crevice in rocks, slopes, cliffs. Lower elevations in San Diego and Imperial Counties. Colonial. Leave roosts well after dark.	Low potential to occur. May forage along the canal, but no roosting habitat is present.	Low potential to occur. This species may forage within the survey area, but no suitable roosting habitat is present.					

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
HETEROMYIDAE OCKET MICE & KANGAROO RATS										
Jacumba little pocket mouse <i>Perognathus longimembris internationalis</i>	CSC		Desert riparian, desert scrub, desert wash, coastal scrub, and sagebrush.	Not expected to occur. No suitable habitat.						Moderate potential to occur. This species is not known to occur in the project vicinity, but the entire survey area provides suitable habitat for this species.
MURIDAE LD WORLD MICE & RATS (I)										
Southern grasshopper mouse <i>Onychomys torridus ramona</i>	CSC		Alkali desert scrub & desert scrub preferred. Can also occur in succulent shrub, wash, & riparian areas; coastal sage scrub, mixed chaparral, sagebrush, low sage, and bitterbrush. Low to moderate shrub cover preferred.	Not expected to occur. No suitable habitat.						Moderate potential to occur. There is suitable habitat for this species throughout the survey area.
Yuma hispid cotton rat <i>Sigmodon hispidus eremicus</i>	CSC		Cattail marshes along the Colorado River.	Low potential to occur in small amount of cattail marsh adjacent to survey area.						Not expected to occur. There is no suitable marsh vegetation within the survey area.

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Species	Status		Habitat	Occurrence/Comments						
	Federal/ State Status	BLM Status		R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
MUSTELIDAE	EASELS, OTTERS, & BADGERS									
American badger <i>Taxidea taxus</i> ^(I)	*		Grasslands, Sonoran desert scrub.	Not expected to occur. No suitable habitat present.	Moderate potential to occur within the survey area.					
CERVIDAE	EER									
Mule deer <i>Odocoileus hemionus</i> ^(I)	*		Many habitats.	Detected in the survey area. Deer tracks and scat were observed within IVS-1, IVS-3, and IVS-5.						
FELIDAE	ATS									
Mountain lion <i>Felis concolor</i>	*		Many habitats.	Potential to forage in the survey area. Mountain lion scat observed approximately 6 miles northwest of the survey area. The survey area lacks suitable den sites for breeding.						
BOVIDAE	ATTLE, ANTELOPE, GOATS, & SHEEP									
Peninsular bighorn sheep <i>Ovis canadensis nelsoni</i> ^(I)	FE, ST, *	Sensitive	Open, rocky habitat, sparse vegetated desert slopes, rocky ridges. San Bernardinos and desert ranges.	Not expected to occur. There is no suitable rocky habitat for this species within the survey area and the site does not provide a likely corridor for foraging between the peninsular ranges.						

(I) = Introduced species

STATUS CODES

Listed/Proposed

FE = Listed as endangered by the federal government

TABLE 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN
ISEC SOUTH PROJECT SURVEY AREA (Cont.)

FPE = Federally proposed endangered
FPT = Federally proposed threatened
FT = Listed as threatened by the federal government
SE = Listed as endangered by the state of California
ST = Listed as threatened by the state of California

Other

BEPA = Bald and Golden Eagle Protection Act
CSC = California Department of Fish and Game species of special concern
FC = Federal candidate for listing (taxa for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list as endangered or threatened; development and publication of proposed rules for these taxa are anticipated)
PSE = Proposed as endangered by the state of California
= Taxa listed with an asterisk fall into one or more of the following categories:
*

- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range but which are threatened with extirpation within California
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands)

3.4.2 Special Status Wildlife Species

A number of special status wildlife species were evaluated for the potential to occur within the survey area. Table 4 provides a summary of those species and their potential to occur. Seventeen of these species are discussed in detail below, including federally listed species, state listed species, and BLM sensitive species that are known to occur in the Imperial Valley, as well as CDFG species of special concern that were observed during surveys.

3.4.2.1 Federally Listed Species

Five federally listed or proposed listed wildlife species were evaluated based on their occurrences in Imperial County: FTHL, Yuma clapper rail (*Rallus longirostris yumanensis*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), and Peninsular bighorn sheep (*Ovis canadensis nelsoni*). Each of these species is discussed below (see Table 4).

Flat-tailed Horned Lizard (*Phrynosoma mcallii*) Proposed Threatened

Species

In California, the FTHL was designated a sensitive species by the BLM in 1980. In 1988, a petition was submitted to the California Fish and Game Commission (CFGC) to list the species as endangered. In 1989, the commission voted against the proposed listing. In 1993, the USFWS published a proposed rule to list the FTHL as a threatened species (USFWS 2010a). In 2006, the USFWS withdrew its proposal (USFWS 2006). On March 2, 2010, USFWS re-instated the 1993 proposed listing of the FTHL as federally threatened (USFWS 2010a). The Ninth Circuit Court of Appeals has ordered the USFWS to make a final listing determination by November 3, 2010.

FTHL has the typical flattened body shape of horned lizards. It is distinguished from other species in its genus by its dark dorsal stripe, lack of external openings, broad flat tail, and comparatively long spines on the head (Funk 1981 as cited in FTHL Interagency Coordinating Committee [ICC] 2003). The FTHL has two rows of fringed scales on each side of its body. The species has cryptic coloring, ranging from pale gray to light rust brown dorsally and white or cream ventrally with a prominent umbilical scar. The only apparent external difference between males and females is the presence of enlarged postanal scales in males. Maximum snout-vent length for the species is 3.3 inches (Muth and Fisher 1992 as cited in ICC 2003).

FTHLs escape extreme temperatures by digging shallow burrows in the loose sand. Adults are primarily inactive from mid-November to mid-February. Juvenile seasonal activity is often dependent on temperature fluctuations. Breeding activity takes place in the spring with young hatching in late July and September. The diet of horned lizards

typically consists of greater than 95 percent native ant species, mostly large harvester ants (*Pogonomyrmex* spp.).

The FTHL is found in the low deserts of southwestern Arizona, southeastern California, and adjacent portions of northwestern Sonora and northern Baja California, Mexico. In California, the FTHL is restricted to desert washes and desert flats in central Riverside, eastern San Diego, and Imperial counties. The majority of the habitat for the species is in Imperial County (Turner et al. 1980 as cited in ICC 2003).

The lizard is known to inhabit sand dunes, sheets, and hummocks, as well as gravelly washes. The species is thought to be most abundant in creosote bush scrub vegetation communities. However, this species may also be found in desert scrub, desert wash, succulent shrub, alkali scrub, sparsely vegetated sandy flats, desert pavement, and rocky slopes. It is typically found in dry, hot areas of low elevation (less than 800 feet).

Human activities have resulted in the conversion of approximately 49 percent of the historic habitat of the FTHL (ICC 2003). The decline in the FTHL population is primarily due to impacts from utility lines, roads, geothermal development, sand and gravel mining, off-highway vehicle (OHV) recreation, waste disposal sites, military activities, pesticide use, and U.S. Border Patrol (USBP) activities (ICC 2003). The Argentine ant (*Linepithema humile*), an invasive species, was considered as a possible threat, but dismissed as such, since the climate at the dunes is too dry for Argentine ants to survive.

Local Populations

The ICC's *Flat-tailed Horned Lizard Rangewide Management Strategy* (2003) designated five Management Areas (MAs) to help focus conservation and management of FTHL key populations. The action area for the proposed Project falls partially within the Yuha Basin MA (see Attachment 1: Figure 6); while the proposed transmission line falls within the MA, the proposed solar field is adjacent to the MA.

The BLM recently estimated the population size on the three MAs by using capture-mark-recapture techniques incorporating detection probabilities (USFWS 2010f). Grant analyzed the BLM mark-recapture data from the Yuha Desert MA for 2002 and 2004. The Yuha Desert MA in 2002 was estimated to have 25,514 adult lizards (95 percent confidence interval = 12,761 to 38,970), and in 2004 was estimated to have 73,017 adult lizards (95 percent confidence interval = 4,837 to 163,635) (USFWS 2010f). Recent data indicate that a relatively large FTHL population remains in the Yuha Desert, and a recent report from USFWS (2010 as cited in USFWS 2010f) analyzing several years of occupancy and demographic data concluded that FTHL populations in the Yuha Desert MA are not low and have not declined since 2007 and probably have not declined since 1997 (USFWS 2010f).

Occurrence

As seen in Attachment 1: Figure 5b, two FTHLs were observed during spring/summer 2010 surveys within the creosote bush–white burr sage scrub at the west end of IVS-3 (Photograph 4). In accordance with the Rangewide Management Strategy, occupancy of FTHL within the MA is assumed; therefore, all of the transmission corridor ROWs (IVS-1, IVS-3, IVS-4, IVS-5, and IVS-7) are considered occupied by FTHL.

Habitat for FTHL throughout much of the proposed corridors is consistent with habitat criteria for this species, including sparse desert scrub and desert wash vegetation, soft, sandy soils, and the presence of harvester ants. Topography immediately north and south of Highway 98 (within 1 mile in each direction) appears to be flatter and the soils more compact than areas farther away from the Highway. Studies by the ICC suggest that recorded densities of FTHL adjacent to Highway 98 are fewer than in habitat farther from the paved highway (ICC 2003). The more compact nature of the soils observed during 2010 surveys adjacent to the Highway, and lack of FTHL observations in these areas, lends support to the assessment that the habitat adjacent to the Highway 98 provides only moderate quality habitat rather than the high-quality habitat throughout the rest of the proposed ROW.

The creosote bush-white burr sage scrub vegetation within the southwest corner of the proposed solar field (IVS-6) is adjacent to, and contiguous with, the FTHL MA. Although no FTHLs were observed within this parcel, the creosote bush–white burr sage scrub vegetation provides suitable habitat for FTHL, and in accordance with the RMS, occupancy is assumed within the adjacent parcel, as it provides suitable habitat within a 2-mile radius of a known FTHL location.

The active agricultural fields do not provide habitat for this species due to lack of appropriate vegetation, soils, and harvester ants. The active agricultural fields are not within a MA, no FTHLs were observed within these fields during general surveys, and no FTHLs are expected to occur within these fields.

Yuma Clapper Rail (*Rallus longirostris yumanensis*)

Species

The Yuma clapper rail was federally listed as endangered March 11, 1967, under the Endangered Species Preservation Act of October 15, 1966, and state-listed as threatened February 22, 1978. The rail is also protected under the MBTA and similar State laws. Critical habitat has not been established for this species.



PHOTOGRAPH 4
Flat-tailed Horned Lizard at West End of IVS-3

Habitat

This bird breeds in freshwater marshes along the Colorado River from Needles, California, to the Colorado River delta and at the Salton Sea. The Yuma clapper rail breeds in freshwater marshes and brackish waters and nests on firm, elevated ground, often under small bushes. It typically occupies emergent marsh vegetation, such as pickleweed and cordgrass, as well as mature stands of bulrush and cattail around the Salton Sea. High water levels may force them into willow and tamarisk stands. Tamarisk is also used after breeding and in winter at some sites. Nests are built between March and late July in clumps of living emergent vegetation over shallow water. Typical home ranges exceed 17 acres, increasing after the breeding season.

The diet of Yuma clapper rails is dominated by crayfish, with small fish, tadpoles, clams, and other aquatic invertebrates also utilized (Ohmart and Tomlinson 1977; Anderson and Ohmart 1985; Todd 1986; Eddleman 1989; Conway 1990 as cited in USFWS 2010b). The seasonal availability of crayfish in different habitat locations corresponds to shifts in habitat use by Yuma clapper rails (Bennett and Ohmart 1978; Eddleman 1989, Conway et al. 1993 as cited in USFWS 2010b).

Yuma clapper rails are active most of the daylight hours, with little to no activity after dark. Daily movement was lowest during the late breeding period (May-July) and highest during the late winter (January-February; USFWS 2010b). Juvenile dispersal, movements by unpaired males during the breeding season and by both sexes post-breeding, and relocations in response to changing water levels are also documented (USFWS 2010b). Studies to determine migratory patterns showed a difficulty in locating the Yuma clapper rail during winter months without telemetry. While the Yuma clapper rail was previously thought to be migratory, experts have determined that they are year-round residents, albeit discreet during winter months, of the lower Colorado River and Salton Sea (USFWS 2010b).

Habitat destruction and depredation by mammals and raptors have caused population declines. It is also possible that increased selenium concentrations from agricultural runoff are affecting reproduction (Unitt 2004; Zeiner 1989).

Occurrence

This species was not observed during surveys and is not expected to nest within the survey area. Morning surveys of the cattail marsh, tamarisk vegetation, and open water within the irrigation channels adjacent to the active agricultural fields in R-2 were conducted April (one general bird survey), May (one general bird survey), and June (3 focused burrowing owl surveys). The nearest known location for this species is approximately 2 miles east of the survey area, adjacent to the New River (USFWS 2010c). No crayfish were observed within the small amount of cattail marsh vegetation present within a concrete lined irrigation channel adjacent to the survey area. While the

survey area contains a small amount of disturbed cattail marsh, the lack of crayfish provides unsuitable foraging habitat for this species. In addition, it is isolated and does not provide banks or shores next to the cattail marsh that are protected from human disturbance. No suitable habitat exists within the Project site that provides foraging and adequate safe nesting areas for this species. Therefore, the Proposed Project will not affect the Yuma clapper rail.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Species

The southwestern willow flycatcher is federally listed as endangered, and all willow flycatchers in California, including the southwestern and two other subspecies (*E. t. brewsteri* and *E. t. adastus*) are state listed as endangered. Critical habitat was designated for the southwestern willow flycatcher on October 19, 2005 in San Diego County, California, and in Arizona (USFWS 2005). No critical habitat was designated within Imperial County, California.

Habitat

Willow flycatchers are in the Tyrannidae family and are one of ten species of *Empidonax* flycatchers in the United States. *Empidonax* flycatchers are difficult to distinguish visually but have distinctive songs. The southwestern willow flycatcher is generally paler than other willow flycatcher subspecies and also differs in morphology. Southwestern willow flycatchers are migrants, arriving on their breeding grounds in mid-May to early June (Garrett and Dunn 1981; Unitt 2004). The southwestern willow flycatcher migrates from its breeding range in August or September. Several subspecies of willow flycatcher migrate through southern California, with the most common migrant being *E. t. brewsteri* (Unitt 2004). It is virtually impossible to differentiate between subspecies of willow flycatcher during migration. The southwestern willow flycatcher requires riparian habitat with willow (*Salix* spp.) thickets (Unitt 2004). Understory species include mule fat (*Baccharis* sp.) and arrow weed (*Pluchea* sp.). Southwestern willow flycatchers also nest in areas with tamarisk (*Tamarix* spp.) and Russian olive (*Eleagnus angustifolia*) in areas where these species have replaced the native willow. Surface water is required at nesting sites. Estimated nesting habitat patch size varies from 0.2 to 1.5 acres. Nests are constructed in densely vegetated thickets with trees between 13 and 23 feet in height (Tibbitts et al. 1994; USFWS 1993).

Threats in the United States include loss of riparian habitat due to water diversion, flood control, urbanization, grazing, and invasion of non-native species. Parasitism by brown-headed cowbirds has been a significant factor in the decline of this species in California and Arizona and elsewhere (Sedgwick 2000). Tropical deforestation may also contribute to the decline of this species, but the effects are not known (USFWS 1993).

The southwestern willow flycatcher breeds in southern California, Arizona, New Mexico, southern Nevada, southern Utah, western Texas, northwestern Mexico, and possibly southwestern Colorado and winters in Mexico, Central America, and possibly northern South America (USFWS 1993). Historically common in all the lower-elevation riparian areas of southern California, the southwestern willow flycatcher was found in the Los Angeles Basin, San Bernardino/Riverside County area, and San Diego County (Unitt 1984). Southwestern willow flycatcher persists in the Colorado, Owens, Kern, Mojave, Santa Ana, Santa Margarita, San Luis Rey, Santa Clara, Santa Ynez, Sweetwater, and San Dieguito river systems and in San Timeteo, Pilgrim, and Temecula Creeks.

Occurrence

Southwestern willow flycatchers are not expected to nest within the survey area due to lack of suitable habitat.

During focused burrowing owl surveys in early June 2010, at least five willow flycatchers were observed foraging in a wind-row comprising mesquite and tamarisk trees approximately 4.5 miles north of the action area (RECON 2010). To determine subspecies and migratory status of this species, a USFWS protocol survey for southwestern willow flycatcher was initiated for both ISEC South and West projects.

Four focused surveys for southwestern willow flycatcher took place June 13 and 23, and July 7 and 13, 2010. On June 13, one willow flycatcher was observed within the tamarisk thicket adjacent to the Westside Main Canal. Prior to this observation, a recording of the southwestern willow flycatcher vocalization was played to elicit a response. The individual willow flycatcher did not respond to the vocalization for the southwestern subspecies, but did respond to the vocalization of the northern subspecies *E. t. brewsteri*. During the subsequent surveys for both the ISEC South and West projects in late June and July 2010, no willow flycatchers were detected.

Based on these preliminary data, the willow flycatchers observed in early June are likely *E. t. brewsteri*, utilizing the riparian vegetation for foraging during migration. Based on all available data of southwestern willow flycatcher habits, known populations, and habitat requirements, no willow flycatchers, including the southwestern subspecies, are expected to nest within the survey area. Furthermore, the tamarisk thicket adjacent to the agricultural fields will not be impacted by the proposed project. Therefore, the proposed project will not impact the southwestern willow flycatcher.

Least Bell's Vireo (*Vireo bellii pusillus*)

Species

Least Bell's vireo was federally listed as an endangered species on May 2, 1986, and the USFWS designated critical habitat for the least Bell's vireo in 1994 (USFWS 1994). A draft recovery plan for the least Bell's vireo was developed in 1998 (USFWS 1998).

Least Bell's vireo is a small, nondescript vireo, with generally gray plumage, rounded wings with pale white wing bars and narrow white eye rings. Juveniles are distinguished from adults by whiter plumage and more distinct wing bars. This species has a distinctive song and is most easily located through its vocalizations. Least Bell's vireo is a migratory songbird that winters in Baja California, Mexico, arriving in California from mid-March to April and departing for Baja California again in September (Brown 1993). Breeding season generally ranges from March through July. Males establish breeding territories that range in size from 0.5 to 4 acres (RECON 1988). Nests are commonly located on branches approximately 1.5 to 5 feet above the ground (Brown 1993). Most pairs produce only one brood per season, but pairs have been documented to produce up to four in one season (Franzreb 1989). Least Bell's vireo is parasitized throughout its breeding range by brown-headed cowbirds (*Molothrus ater*), which are the cause of a substantial proportion of nest failures (Brown 1993).

Habitat

These birds are restricted to dense riparian habitats that usually have a canopy of willows (*Salix* spp.) and an understory comprising mule fat (*Baccharis* sp.), wild rose (*Rosa californica*), and other riparian species (Franzreb 1989). Least Bell's vireos select riparian areas with dense shrub cover and a well-developed understory for nesting. Degradation of riparian habitat due to invasion by exotic plants, grazing practices, and other causes have decreased the amount of available habitat for least Bell's vireo.

Least Bell's vireo was historically common, ranging from near Red Bluff in Tehama County south through the Central Valley and the foothills of the Sierra Nevada. In the coastal region, this bird ranged from Santa Clara County south to San Fernando in Baja California. Desert sites include Owens Valley, Death Valley, and oases in the Mojave Desert (Franzreb 1989).

After 1940, extensive habitat loss and nest parasitism by the brown-headed cowbird caused the population to decline and this species has been extirpated from many historic areas, including the Central Valley (Franzreb 1989). It has been estimated that 95–97 percent of the riparian habitat within the floodplain of southern California has been lost due to flood control measures and development (Faber et al. 1989). In 1986 when least Bell's vireo was listed as endangered, the total population in California was estimated at 300 pairs, with the majority of the birds located in San Diego County.

Following the listing, intensive brown-headed cowbird trapping programs were initiated and the population began to increase, showing exponential growth in some locations such as the Santa Margarita River, Tijuana River, and Prado Basin and Hidden Valley Drain on the Santa Ana River.

Currently, least Bell's vireo is known from coastal Santa Barbara County south into Baja California. Least Bell's vireo is also present in the desert of San Diego County at Anza Borrego State Park, where 117 territories were recorded in 2002 (USFWS 2006). Large populations are located on the Santa Margarita River in San Diego County and the Santa Ana River in Riverside and San Bernardino counties (USFWS 2006).

Occurrence

No least Bell's vireo was observed within the survey area during various spring and summer surveys conducted in 2010. There are no large riparian corridors that provide suitable habitat for this species to nest within the survey area, and the nearest reported location of this species is approximately 25 miles to the northwest (State of California 2010b). This species may forage within the survey area during migration, but it is not expected to use the survey area for long-term nesting or foraging; and will therefore not be impacted by the proposed project.

Peninsular Bighorn Sheep (*Ovis canadensis nelsoni*)

Species

Peninsular bighorn sheep (*Ovis canadensis nelsoni* [=cremnobates]) (distinct vertebrate population segment) was federally listed endangered on March 18, 1998, and state-listed threatened on June 27, 1971 (USFWS 2001). The Peninsular bighorn sheep is similar in appearance to other desert bighorn sheep. The coat is pale brown, and the permanent horns, which become rough and scarred with age, vary in color from yellowish brown to dark brown. The horns are massive and coiled in males; in females, they are smaller and not coiled. In comparison to other desert bighorn sheep, the Peninsular bighorn sheep is generally described as having paler coloration and having horns with very heavy bases (Cowan 1940). Previously, this subspecies was considered to be distinct from the other subspecies of *Ovis canadensis*. However, new DNA analysis has concluded that the Peninsular bighorn sheep are synonymous with Nelson's bighorn sheep (*Ovis canadensis nelsoni*); *O. c. cremnobates* was placed into the same subspecies as Nelson's bighorn sheep. The distinct vertebrate population segment that occurs within the Peninsular Ranges is the population of this subspecies that is listed as federally endangered (USFWS 2000). Critical habitat was designed in 2009 and includes portions of western Imperial County, approximately 20 miles west of the survey area.

Habitat

Peninsular bighorn sheep occur on steep, open slopes, canyons, and washes in hot and dry desert regions where the land is rough, rocky, and sparsely vegetated. Open terrain with good visibility is critical, because bighorn primarily rely on their sense of sight to detect predators (USFWS 2001). Most Peninsular bighorn sheep live between 300 and 4,000 feet in elevation, where average annual precipitation is less than four inches and daily high temperatures average 104 degrees Fahrenheit (°F) in the summer. Caves and other forms of shelter (e.g., rock outcrops) are used during inclement weather and for shade during the hotter months. In the Peninsular Ranges, bighorn sheep use a wide variety of plant types as food sources, including shrubs, forbs, cacti, and grasses (USFWS 2001). Although steep escape route terrain is closely associated with bighorn sheep, low rolling and flat terrain including foothills and washes provide an alternative source of high quality browse forage during times when resources become limited (USFWS 2001). Lambing areas are associated with ridge benches or canyon rims adjacent to steep slopes or escarpments. Alluvial fans (sloping deposits of gravel, sand, clay, and other sediments that spread fanlike at the base of canyons and washes) are also used for breeding, feeding, and movement (USFWS 2001).

Historically, bighorn sheep have been documented in the Peninsular Ranges since early explorers such as Anza observed them in the 1700s (Bolton 1930, as cited in USFWS 2001). The distribution of Peninsular bighorn sheep has become more fragmented in the recent past, possibly due to the construction of roads that bisect ancestral bighorn trails and restrict bighorn movement (USFWS 2001). Bighorn sheep exhibit a natural patchy distribution as a result of natural breaks in mountainous habitat (Schwartz et al. 1986 and Bleich et al. 1990a and 1996, as cited in USFWS 2001). Currently, the Peninsular bighorn is distributed in fragmented populations from the Jacumba Mountains in San Diego County near the U.S./Mexico border to the San Jacinto Mountains in Riverside County (USFWS 2001).

Occurrence

Prior to 2009, the nearest recorded location for this species was approximately 16.7 miles west of the survey area, in the rocky hills southwest of Ocotillo, California (State of California 2010b). In March 2009, biologists observed a small herd (five ewes and/or juveniles) on the Imperial Valley Solar Project, located northwest of the proposed ISEC West solar field (BLM 2010). This sighting was approximately 4 miles east of designated critical habitat and was considered an unusual occurrence, as the habitat on the ISEC project sites is not optimal for the sheep due to lack of cover, escape routes, human recreational OHV use, and distance from typical habitat (BLM 2010).

The survey area does not contain the steep, rocky terrain that typically provides cover and habitat for the Peninsular bighorn sheep. The Coyote, In-Ko-Pah, and Jacumba

mountains, peninsular ranges that provide suitable year-round habitat for this species, are located 7 to 19 miles from the proposed project. The Project is situated adjacent to the large agricultural complex that surrounds El Centro and does not function as a movement corridor for Peninsular bighorn sheep between the peninsular mountain ranges in the Imperial Valley. While it is possible that the Peninsular bighorn sheep may on the rare occasion move into the survey area for foraging, the site is too far from shelter and cover to be a regular source for foraging or water (USFWS 2000). The proximity of the action area to continuous agricultural activities also reduces the likelihood of use by Peninsular bighorn sheep, who are sensitive to human activity and disturbance (USFWS 2010d).

Peninsular bighorn sheep were not detected in the survey area during various biological surveys conducted in April, May, June, and July 2010. Given the distance from suitable rocky terrain; sparse vegetation within the survey area; lack of detection within the survey area; and the unlikelihood of the survey area to function as a corridor for this species, Peninsular bighorn sheep are not likely to occur within the survey area. Therefore, Peninsular bighorn sheep are not expected to be impacted by the proposed project.

3.4.2.2 State-listed Species

Four state-listed wildlife species were evaluated based on their known occurrences in Imperial County: greater sandhill crane (*Grus canadensis tabida*), Yuma clapper rail, barefoot banded gecko (*Coleonyx switaki*), and Peninsular bighorn sheep (see Attachment 5). Of these species, the Yuma clapper rail and Peninsular bighorn sheep are federally listed were discussed above.

Greater Sandhill Crane (*Grus canadensis tabida*)

Species

The greater sandhill crane is state listed as threatened and is protected under the federal MBTA and similar state legal protections. This species is known to winter in Imperial County California (Zeiner et al. 1989).

Habitat

Both greater (*Grus canadensis tabida*) and lesser (*G. c. canadensis*) sandhill cranes occur in California. Historically, *G. c. tabida* was a fairly common breeder on northeastern plateau (Zeiner et al. 1989). It is now reduced greatly in numbers, and breeds only in Siskiyou, Modoc, Lassen, Sierra Valley, Plumas, and Sierra counties (Zeiner et al. 1989). In summer, this race occurs in and near wet meadow, shallow lacustrine, and fresh emergent wetland habitats. It winters primarily in the Sacramento and San Joaquin valleys from Tehama County south to Kings County where it frequents

annual and perennial grassland habitats, moist croplands with rice or corn stubble, and open, emergent wetlands. It prefers relatively treeless plains. The migratory subspecies *G. c. canadensis* winters in similar habitats in the San Joaquin and Imperial valleys (Zeiner et al. 1989), and to a lesser extent in the Sacramento Valley. In southern California, it concentrates on the Carrizo Plain, San Luis Obispo County, with smaller flocks near Brawley, Imperial County, and Blythe, Riverside County (Zeiner et al. 1989). The latter two flocks may be partly, or largely, *G. c. tabida*, which formerly wintered more commonly in southern California, but which has declined greatly there and throughout its range. Outside of known wintering grounds, *G. c. tabida* is extremely rare except that it migrates over much of the interior of California. A few coastal sightings of greater sandhill crane exist from Marin County southward, but there are no records from offshore islands. When foraging, the greater sandhill crane prefers open shortgrass plains, grain fields, and open wetlands (Zeiner et al. 1989), but it may also feed on dry plains far from water. The greater sandhill crane feeds on grasses and forbs, especially cereal crops (newly planted or harvested), and also uses its long bill to probe in soil for roots, tubers, seeds, grains, earthworms, and insects. It will also feed on larger prey, such as mice, small birds, snakes, frogs, and crayfish.

Occurrence

The greater sandhill crane is likely to forage within the agricultural fields during winter, but this species is not expected to breed in the survey area.

Barefoot Banded Gecko (*Coleonyx switaki*)

Species

The barefoot banded gecko is state listed as threatened. Its known range occurs along the eastern face of the Peninsular Ranges in San Diego and Imperial counties, and little information is known about its extended range or abundance.

Habitat

Habitat for the barefoot banded gecko is found in arid rocky areas on flatlands, canyons, and thornscrub, especially where there are large boulders and rock outcrops, and where vegetation is sparse (Murphy 1974). In California, it inhabits the arid desert slopes of the eastern side of the Peninsular Ranges from near Borrego Springs south to the Baja California border, and may occur at elevations from near sea level to over 2,000 feet. An isolated population is known to occur in the Coyote Mountains of Imperial County. The barefoot banded gecko ranges farther south in Baja California along the eastern edge of the mountains to near Santa Rosalia (Murphy 1974).

The barefoot banded gecko is insectivorous. Most likely, the breeding season lasts from spring to summer, May to July. Females lay one or two eggs, roughly 3 weeks after

mating, and may lay eggs several times each season. Eggs hatch after around 2 months, in late summer to early fall (Murphy 1974).

Occurrence

No barefoot banded geckos are expected to occur within the Project area based on a lack of suitable habitat in the form of large boulders and rocky outcrops.

3.4.2.3 BLM Sensitive Wildlife

Six BLM sensitive wildlife species were evaluated based on their presence on the BLM sensitive list within the El Centro Field Office's jurisdiction: Colorado Desert fringe-toed lizard (*Uma notata notata*), FTHL, barefoot banded gecko, burrowing owl, California leaf-nosed bat (*Macrotus californicus*), and pallid bat (*Antrozous pallidus*). The FTHL and barefoot banded gecko are proposed federally listed and state-listed species, respectively, and discussed above.

Colorado Desert Fringe-toed Lizard (*Uma notata notata*)

Species

The Colorado Desert fringe-toed lizard is a CDFG Species of Special Concern and a BLM sensitive species. They are primarily insectivores, but also take plant material. Their diet consists of ants, beetles, antlion larvae, hemipterans, grasshoppers, and caterpillars. Plant foods include buds, flowers, leaves, and seeds. Conspecifics and other lizards are also eaten occasionally. Sight is most frequently used to find food on the surface of sand. Buried fringe-toed lizards also use hearing to detect prey on the sand surface, or to find buried prey when above ground (Zeiner et al. 1988).

Fringe-toed lizards usually seek refuge from enemies by burrowing in the sand ("sand swimming") within 5 to 6 centimeters (2 to 2.4 inches) of the surface. They are usually buried on the lee sides of dunes and hummocks to prevent excavation by wind. Rodent burrows and the bases of shrubs are also used for cover and thermoregulation. Lizards usually hibernate in sand 30 centimeters (12 inches) deep, but juveniles and subadults may be found closer to the surface (Zeiner et al. 1988).

Habitat

The Colorado Desert fringe-toed lizard is found in the Colorado and Sonoran deserts south of the Salton Sea in Imperial and San Diego counties. Its elevational range extends from sea level up to 180 meters (590 feet; Jennings and Hayes 1994). The Colorado Desert fringe-toed lizard is restricted to fine, loose, wind-blown sand dunes, dry lakebeds, sandy beaches or riverbanks, desert washes, and sparse desert scrub (Zeiner et al. 1988).

Occurrence

This species has a high potential to occur within the survey area, but none were observed during surveys. This species is known to occur approximately two miles west of the survey area (State of California 2010), and the creosote bush–white burr sage scrub vegetation provides suitable habitat.

Burrowing Owl (*Athene cunicularia*)

Species

The burrowing owl is a California Species of Special Concern and a BLM sensitive species. It is protected by the MBTA and California Fish and Game Code §§ 3503, 3503.5, 3513. It is nocturnal and perches during daylight at the entrance to its burrow or on low posts. Nesting occurs from March through August. Burrowing owls form a pair-bond for more than one year and exhibit high site fidelity, reusing the same burrow year after year (Haug et al. 1993). The female remains inside the burrow during most of the egg laying and incubation period and is fed by the male throughout brooding. Burrowing owls are opportunistic feeders, consuming a diet that includes arthropods, small mammals, and birds, and occasionally amphibians and reptiles (Haug et al. 1993). Urbanization has greatly reduced the amount of suitable habitat for this species. Other contributions to the decline of this species include the poisoning of squirrels and prairie dogs and collisions with automobiles. A survey effort carried out between 1991 and 1993 indicated that major population densities remain in the Central and Imperial valleys (DeSante et al. 1996); this species is a year-round resident in Imperial County.

Habitat

Burrowing owl is primarily restricted to the western U.S. and Mexico. Habitat for the burrowing owl includes dry, open, short-grass areas often associated with burrowing mammals (Haug et al. 1993). In Imperial County, it can be found in desert scrub, grassland, and agricultural areas, where it digs its own or occupies existing burrows (Haug et al. 1993).

Occurrence

Four active burrowing owl burrows were observed within the active agricultural fields in R-2 during the focused burrowing owl breeding season surveys (RECON 2010b). Each active burrow, typically found in the berms adjacent to the concrete irrigation channels, hosted a pair of burrowing owls. No eggs or fledglings were observed within the burrows.

No burrowing owls were observed within the transmission corridors during the June 2010 survey.

California Leaf-nosed Bat (*Macrotus californicus*)

Species

The California leaf-nosed bat is a Species of Special Concern and a BLM sensitive species. This bat is found primarily in desert areas of the southwestern U.S., and ranges through Imperial County and the western parts of Riverside and San Diego counties in California.

Habitat

It is commonly found in desert habitats that include riparian, wash, scrub, succulent scrub, alkali scrub, and palm oasis. The California leaf-nosed bat is non-migratory and active year-round, requiring rocky, rugged terrain, caves, or mine shafts for roosting. These gregarious bats have been observed in groups of up to 500, with both sexes roosting together during the non-breeding season and separately during spring and summer. It forages over flats and washes within a mile of its roost, and is a "gleaning" insectivore which captures prey such as crickets, grasshoppers, beetles, and sphinx moths straight from the ground or foliage rather than in flight (BCI 2010). It typically hunts within a few feet of the ground using its superior eyesight to search for insects. Population declines are generally attributable to loss of roost sites resulting from human intrusion and physical alteration (Zeiner et al. 1990).

Occurrence

The desert washes, thickets, agricultural fields and irrigation channels offer foraging opportunities for this species. The nearest reported location for the California leaf-nosed bat is approximately 26 miles northwest of the proposed Project (State of California 2010b). No known roosts occur in the survey area and there is no suitable roosting habitat within the survey area.

Pallid Bat (*Antrozous pallidus*)

Species

Pallid bat is a Species of Special Concern and a BLM sensitive species. It is a locally common yearlong resident of low elevations throughout most of California.

Habitat

This bat occupies a variety of habitats including grasslands, shrublands, woodlands, and forests at elevations ranging from sea level up through mixed conifer forests. The species occurs most commonly in open, dry habitats and prefers rocky areas for roosting. Pallid bats are social, commonly roosting in multi-species groups of 20 or more. The day roosts, such as caves, crevices, and mines, must protect the bats from high

temperatures. The bats forage low over open ground, and consume large, hard-shelled prey items such as beetles, grasshoppers, cicadas, spiders, scorpions, and Jerusalem crickets. Pallid bats are very sensitive to disturbance of the roosting sites as these roosts are crucial for metabolic economy and juvenile development. Population declines are generally attributable to loss of roost sites resulting from human intrusion and physical alteration (Zeiner et al. 1990).

Occurrence

The entire survey area offers foraging opportunities for this species. The nearest reported location for the pallid bat is approximately 26 miles west of the proposed Project (State of California 2010b). Roosts are not known to occur in the survey area and there is no suitable roosting habitat within the survey area.

3.4.2.4 California Species of Special Concern and Fully Protected Species

Four species that are classified by CDFG as California Species of Special Concern were observed within the survey area, including western least bittern (*Ixobrychus exilis*), loggerhead shrike, crissal thrasher (*Toxostoma crissale*) and yellow warbler. Golden eagle (*Aquila chrysaetos*), a CDFG fully protected species under the Bald and Golden Eagle Protection Action, is also evaluated. These species are discussed below.

Western Least Bittern (*Ixobrychus exilis*)

Species

The western least bittern is a CDFG Species of Special Concern, and is a year-round resident of the Imperial Valley (Zeiner 1989).

Habitat

In southern California, this species is a common summer resident (especially April to September) at the Salton Sea and Colorado River in dense emergent wetlands near sources of freshwater, and in desert riparian areas (saltcedar scrub; Zeiner 1989). Probably nests only in emergent wetlands. In deserts and coastal lowlands, quite rare, but breeds locally in the Owens Valley and Mojave Desert (Zeiner 1989). Rare to uncommon April to September in large, fresh emergent wetlands of cattails and tules in San Diego county, and the Sacramento and San Joaquin valleys, and where it nests (Cogswell 1977; McCaskie et al. 1979 as cited in Zeiner 1989).

Occurrence

This species was observed nesting within the cattail marsh vegetation in R-2. It is not expected to occur in any of the other Project survey areas, due to lack of suitable marsh vegetation along the transmission line corridors.

Golden Eagle (*Aquila chrysaetos*)

Species

The golden eagle is a federally protected species under the Bald and Golden Eagle Protection Act. This species is also protected by the MBTA and California Fish and Game Code §§ 3503, 3503.5, 3513 protecting nests, eggs, and young. It is also a Fully Protected Species by the State of California. This eagle occurs throughout the U.S. and is a rare resident in San Diego and Imperial counties (Unitt 2004; Zeiner 1989).

Habitat

Golden eagles nest on cliffs of all heights and in large trees in open areas, and use rugged, open habitats with canyons and escarpments most frequently for nesting (Zeiner 1989). Alternative nest sites are maintained and old nests are reused. Golden eagles build large platform nests, often 3 meters (10 feet) across and 1 meter (3 feet) high, of sticks, twigs, and greenery.

This species forages over large areas of grassland, desert, and open chaparral or sage scrub where they primarily prey upon rabbits and ground squirrels. Golden Eagles forage close to and far from their nests (i.e., < 6 kilometers from the center of their territories), but have been observed to move 9 kilometers from the center of their territories in favorable habitat (McGrady et al. 2002 as cited in USFWS 2010d). These distances may be greater in xeric habitats (USFWS 2010d). Several golden eagle territories have been eliminated by urbanization, agricultural development, and other human disturbances (Unitt 2004; Zeiner 1989).

Occurrence

The golden eagle is not expected to occur within or adjacent to the survey area. Golden eagles have not been recorded within the Project vicinity (LaPre 2010; State of California 2010) and were not observed during various spring and summer 2010 biological surveys for the proposed project. No suitable nesting habitat is present within the survey area; therefore, golden eagles are not expected to nest within the survey area.

The nearest known golden eagle population is approximately 10 miles northwest of the survey area, in the Coyote Mountains (LaPre 2010). The In-Ko-Pah and Jacumba mountains, approximately 10 miles west of the proposed project, also provide suitable

habitat for this species. Due to the distance from known territories, golden eagles are not expected to forage within or adjacent to the survey area.

Loggerhead shrike (*Lanius ludovicianus*)

Species

The loggerhead shrike is a Species of Special Concern and protected by the MBTA and California Fish and Game Code §§ 3503, 3513. It is a year-round resident in Imperial County.

Habitat

This species inhabits most of the continental United States and Mexico and is a year-round resident of southern California. The loggerhead shrike prefers open habitat with perches for hunting and fairly dense shrubs for nesting (Yosef 1996). In southern California, loggerhead shrikes inhabit grasslands, agricultural fields, chaparral, and desert scrub (Unitt 1984). Their breeding season is from March to August. Loggerhead shrikes are highly territorial and usually live in pairs in permanent territories (Yosef 1996). Loggerhead shrikes feed on small reptiles, mammals, amphibians, and insects that they often impale on sticks or thorns before eating. Loggerhead shrike populations are declining, likely due to urbanization and loss of habitat and, to a lesser degree, pesticide use (Yosef 1996).

Occurrence

As seen on Attachment 1: Figure 5b, loggerhead shrikes were observed in mesquite trees within all of the Project component survey areas. This species is likely to nest within the mesquite trees in the desert wash, mesquite thicket, or tamarisk thicket within and adjacent to the survey area.

Crissal thrasher (*Toxostoma crissale*)

Species

The crissal thrasher is a Species of Special Concern and protected by the MBTA and California Fish and Game Code §§ 3503, 3513. It is a year-round resident in Imperial County.

Habitat

The species is a resident of southeastern deserts. It is still fairly common in Colorado River Valley, but local and uncommon elsewhere. It occupies dense thickets of shrubs or low trees in desert riparian and desert wash habitats. In eastern Mojave Desert of San Bernardino and southeastern Inyo counties, also occurs in dense sagebrush and other

shrubs in washes within juniper and pinyon–juniper habitats, up to 1,800 meters (5,900 feet). Also resident in Imperial, Coachella, and Borrego valleys, but numbers have declined markedly in recent decades (Grinnell and Miller 1944; Remsen 1978; Garrett and Dunn 1981 as cited in Zeiner 1989).

This species forages mostly on the ground, especially between and under shrubs. It uses its bill to dig in friable soil and to probe in litter. Its diet is poorly known, but includes insects, other invertebrates, berries, and other small fruits, seeds, and occasionally small lizards (Bent 1948 as cited in Zeiner 1989). Breeding season for the crissal thrasher lasts from February into June with a peak in March and April.

Numbers have been reduced greatly by removal of mesquite brushland for agricultural development, and by introduction of tamarisk. Off-road vehicle activity also may degrade habitat and disturb these thrashers (Zeiner 1989).

Occurrence

This species was observed within the mesquite thickets at the east end of the IVS-3 corridor.

Le Conte's Thrasher (*Toxostoma lecontei lecontei*)

Species

The Le Conte's thrasher is a CDFG Species of Special Concern and is a year-round resident in Imperial County.

Habitat

Le Conte's thrasher is an uncommon to rare local resident in southern California deserts from southern Mono County south to the Mexico border, and in western and southern San Joaquin Valley. It occurs primarily in open desert wash, desert scrub, alkali desert scrub, and desert succulent shrub habitats. Le Conte's thrasher may also occur in Joshua tree habitat with scattered shrubs (Grinnell and Miller 1944; McCaskie et al. 1979, 1988; Garrett and Dunn 1981 as cited in Zeiner 1989).

This species feeds on a variety of insects and other terrestrial arthropods; occasionally on seeds, small lizards, other small vertebrates (Bent 1948; Sheppard 1970 as cited in Zeiner 1989). It primarily forages on the ground by probing and digging in soil and litter with bill. The Le Conte's thrasher is a year-round, non-migratory species that breeds from late January into early June, with a peak from mid-March to mid-April.

Occurrence

This species was observed within desert wash vegetation along the transmission corridors and in the tamarisk thicket within R-2.

Yellow warbler (*Dendroica petechia*)

Species

The yellow warbler is a Species of Special Concern and protected by the MBTA and California Fish and Game Code §§ 3503, 3513. It is known to both winter and breed in Imperial County.

Habitat

Yellow warblers breed from Alaska south to Peru, including most of the continental U.S. and Canada, and winter in Central and South America. In California, yellow warblers are an obligate riparian species, nesting and foraging almost exclusively in riparian habitats (Harmsworth Associates 1999). Yellow warblers are known to winter in the desert lowlands of Imperial County, as well as occasional breeding. Nesting occurs from late May through early August and nests are typically 3 to 5 feet from the ground (Lowther et al. 1999). Yellow warblers primarily consume insects and other arthropods and occasional wild fruits. This species is declining due to the loss of riparian habitat and as a result of nest parasitism by brown-headed cowbirds.

Occurrence

Three yellow warblers were observed within the desert wash vegetation south of the Substation, and one was observed within the tamarisk thicket adjacent to the agricultural fields. This species is likely to nest within the mesquite trees in the desert wash, mesquite thicket, or tamarisk thicket within and adjacent to the survey area.

3.4.3 Riparian Habitat or Sensitive Natural Communities

Sensitive vegetation communities are those that are considered rare or sensitive based on the level of disturbance or habitat conversion within their range. Vegetation communities associated with wetland or riparian habitats such as the desert wash and mesquite thickets are considered sensitive by CDFG (State of California 2010). In addition, the creosote bush–white burr sage scrub within the survey area is considered occupied by the FTHL and is therefore protected under BLM and CEQA guidelines.

3.4.4 Jurisdictional Waters

A jurisdictional delineation was conducted to determine the extent of ACOE, CDFG, and RWQCB resources within the survey area. The delineation results for these resources are discussed below, detailed in Table 5, and shown in Attachment 1: Figures 7a–b.

**TABLE 5
JURISDICTIONAL RESOURCES WITHIN ISEC SOUTH PROJECT SURVEY AREA**

Jurisdictional Resource	R-2 (acres)	IVS-1 (acres)	IVS-4 (acres)	Total (acres)
ACOE				
Non-wetland Waters of the U.S.	-	7.3	-	7.3
ACOE Total	-	7.3	-	7.3
CDFG				
Riparian	-	44.6	0.5	45.1
Streambed	-	0.5	-	0.5
CDFG Total	-	45.1	0.5	45.6

3.4.4.1 ACOE Jurisdictional Waters

No ACOE wetland areas were identified within the ISEC South survey area. All ACOE jurisdictional areas are assumed non-wetland waters made up of ephemeral drainages. Some man-made features (e.g. farm drains/ditches) that occur within the survey area are potentially exempt from ACOE jurisdiction.

Non-wetland Waters of the U.S.

Jurisdictional non-wetland waters within the ISEC South project survey area include one or more ephemeral drainages and a large expanse of the Pinto Wash alluvial fan that appears to occur within the active floodplain.

Exemptions from ACOE Jurisdiction

Drainage features within the Project survey area that could possibly be considered exempt from ACOE jurisdiction include farm drains. The active farm fields where the photovoltaic solar field would be located contain a series of ditches and drains that convey irrigation water to the crops. These drainage features consist of mostly concrete lined and some earthen ditches. The farm drains would not be not considered ACOE jurisdictional waters because they do not convey natural flows, were excavated in upland areas, are mostly concrete lined, and function as part of an active agricultural operation. An approved jurisdictional determination form and supplemental information have been provided to the ACOE for consideration of a non-jurisdictional determination for these farm drains.

3.4.4.2 CDFG / RWQCB Jurisdictional Waters

CDFG/RWQCB jurisdiction waters of the State include all ACOE non-wetland jurisdictional waters (streambed) and any xeroriparian habitat that occurs outside of the limits of the ACOE jurisdiction. The xeroriparian areas observed, particularly in the Pinto Wash alluvial fan, consist of desert wash vegetation dominated by smoke tree, tamarisk, and mesquite stands of varying density.

3.4.5 Habitat Connectivity and Wildlife Corridors

Wildlife movement corridors and habitat linkages are areas that connect suitable wildlife habitat areas in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Corridors are generally local pathways connecting short distances usually covering one or two main types of vegetation communities. Linkages are landscape level connections between very large core areas and generally span several thousand feet and cover multiple habitat types. Natural features such as canyon drainages, ridgelines, or areas with vegetation cover provide corridors and linkages for wildlife travel. The habitat connectivity provided by corridors and linkages is important in providing access to mates, food, and water, allowing the dispersal of individuals away from high population density areas, and facilitating the exchange of genetic traits between populations (Beier and Loe 1992).

Both avian and terrestrial wildlife species are able to move freely throughout the transmission corridor survey areas east to the Westside Main Canal, an important source of perennial water. Although avian species can access resources in agricultural areas, movement into the agricultural areas for many terrestrial species is only feasible by crossing the culverted bridges over the canal.

3.4.6 California Desert Conservation Area

As seen on Figure 6, the proposed transmission line survey areas fall entirely within the Yuha Basin ACEC of the CDCA, and are within the "Utility Corridor N", as designated by the CDCA. The proposed ISEC South solar field is outside of and immediately adjacent to the designated ACEC land.

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4.0 Proposed Project Impacts

The proposed Project will develop 837.5 acres of the 927.6-acre solar field (R-2 and IVS-6), as described in Section 1.2.1.

There are two transmission line alternatives; the Preferred Alternative and Alternative A. Both transmission line alternatives would start at the Substation and impact land within the IVS-1 transmission corridor as well as the IVS-7 Substation buffer. From the south end of IVS-1, the Preferred Alternative would run east along IVS-3 to connect to the solar field. Alternative A would continue south from IVS-1 to the U.S./Mexico border along IVS-4, and then run east along the border through IVS-5 before connecting to the solar field.

A third Alternative, Alternative B, reflects a reduction in size of the solar field within the active agricultural fields. The transmission route for Alternative B includes IVS-1 and IVS-3.

The proposed impacts are summarized below, and impacts to vegetation communities within the survey area are detailed in Table 6 and shown on Attachment 1: Figure 8a-b.

4.1 Impacts to Special Status Species

For purposes of this report, the proposed Project would have a significant impact if it would:

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

4.1.1 Special Status and Priority Plants

Three priority plant species were observed within the survey area during spring rare plant surveys, including Wolf's cholla, Thurber's pilostyles, and Parish's desert thorn.

As seen in Attachment 1: Figures 8a-8b, one of the nine Wolf's cholla plants recorded within the survey area falls within the temporary work area of a lattice tower location. This individual will likely be impacted; however, the removal of this one plant is not

**TABLE 6
VEGETATION COMMUNITY IMPACTS FOR ISEC SOUTH PROJECT**

Vegetation Communities/ Land Cover Types	Preferred Transmission Alternative (IVS-1 + IVS-3)			Alternative A (IVS-1, IVS-4, & IVS-5)			Alternative B (IVS-1 + IVS-3)		
	Solar Field Impact (acres)	Transmission Line Impacts (acres)	Total (acres)	Solar Field Impact (acres)	Transmission Line Impact (acres)	Total (acres)	Reduced Solar Field Impact (acres)	Transmission Line Impacts (acres)	Total (acres)
Permanent Impacts									
Creosote bush–white burr sage scrub (CBS)	16.8		16.8	16.8		16.8	16.8		16.8
Access roads		2.2	2.2		2.6	2.6		2.2	2.2
Monopole footings		<0.1	<0.1		<0.1	<0.1		<0.1	<0.1
Lattice tower footings*		<0.1	<0.1		<0.1	<0.1		<0.1	<0.1
<i>CBS Sub-total</i>	16.8	2.2	19.0	16.8	2.6	19.4	16.8	2.2	19.0
Desert Wash (DW)									
Access roads		0.6	0.6		0.6	0.6		0.6	0.6
Lattice tower sites		<0.1	<0.1		<0.1	<0.1		<0.1	<0.1
<i>DW Sub-total</i>		0.6	0.6		0.6	0.6		0.6	0.6
Active Agriculture (AG)	818.3	-	818.3	818.3	-	818.3	457.2		457.2
Disturbed land (DL)	2.4		2.4	2.4		2.4	2.4		2.4
<i>Permanent Impacts Total</i>	837.5	2.8	840.3	837.5	3.2	840.7	476.4	2.8	479.2
Temporary Impacts									
Creosote bush–white burr sage scrub (CBS)									
Pullsite		0.8	0.8		1.0	1.0		0.8	0.8
Monopole work areas		1.7	1.7		1.7	1.7		1.7	1.7
Lattice tower work areas*		4.0	4.0		4.2	4.2		4.0	4.0
Trench		<0.1	<0.1		<0.1	<0.1		<0.1	<0.1
<i>CBS Sub-total</i>		6.5	6.5		6.9	6.9		6.5	6.5
Desert Wash (DW)									
Lattice tower work areas		0.8	0.8		0.8	0.8		0.8	0.8
<i>DW Sub-total</i>		0.8	0.8		0.8	0.8		0.8	0.8
<i>Temporary Impacts Total</i>	-	7.3	7.3		7.7	7.7		7.3	7.3
Total Project Impacts	837.5	10.1	847.6	837.5	10.9	848.4	476.4	10.1	486.5

*Includes A-frames.

expected to affect the sustainability of the Wolf's cholla population on-site. This impact would be adverse, but less than significant, and no mitigation would be required. Wolf's cholla and Thurber's pilostyles are not within the proposed Project area and would not be affected.

4.1.2 Sensitive Wildlife

4.1.2.1 Flat-tailed Horned Lizard

4.1.2.1.1 Construction Impacts

Direct Impacts

Direct impacts to FTHL may occur during construction of the proposed solar field and associated transmission line. Construction activities such as the movement of construction vehicles or heavy equipment and the installation of transmission towers or solar facility components may result in the direct mortality, injury, or harassment of FTHLs. These impacts would be considered significant and mitigation would be required.

The proposed transmission corridor alternatives are within the Yuha Desert Flat-tailed Horned Lizard MA, as designated in the 2003 *Flat-tailed Horned Lizard Rangewide Management Strategy* (RMS; ICC 2003; Attachment 1: Figure 6). The creosote bush–white burr sage scrub vegetation within and adjacent to the MA, including the proposed transmission corridor and the southwestern corner of the solar field (IVS-6), provides habitat for this species. In accordance with the RMS, the proposed impacts to the MA are the minimum necessary to construct the project.

- The ISEC South solar field is located outside of the Yuha MA, primarily within active agricultural fields.
- The majority of the transmission line towers (all of IVS-1) will be located adjacent to existing towers and will use the existing primary access road for installation as well as O&M; small spur roads will extend from the adjacent existing tower for access to this line.
- Extensive resource surveys have been conducted to facilitate the siting of the transmission components to ensure that they are located in a manner that is the least disturbing to resources.
- Whenever possible, any removal of vegetation will be in the form of trimming instead of root grubbing, to allow shrubs to readily resprout. The only soil removal necessary during transmission construction will be during excavation of tower footings and trenching.

As seen in Table 7, the Preferred Alternative for electrical transmission may permanently impact up to 2.8 acres and temporarily impact up to 7.3 acres, for a total of 10.1 acres of FTHL habitat within the MA.

The proposed ISEC South solar facility would impact 16.8 acres of creosote bush- white burr sage scrub vegetation outside of the MA that may provide suitable habitat for FTHL. Outside of designated access roads for O&M, this habitat will be restored to native desert vegetation after construction, therefore; the level of this impact to FTHL habitat would be less than significant, and no mitigation would be required.

Indirect Impacts

Disturbance of soil and vegetation will take place during construction, which can encourage invasive, exotic plant species to encroach into FTHL habitat. In addition, construction vehicles and equipment can transport seeds and vegetation from other regions within their tires and other various parts under the vehicles. This potential increase in invasive exotic plant species would be considered a significant impact to FTHL due to construction of the proposed Project and mitigation would be required.

4.1.2.1.2 O&M Impacts

Direct Impacts

General O&M activities that may be conducted within FTHL habitat (along the transmission line and within the southwest corner of the ISEC South solar field) include equipment inspection and/or repairs, solar panel or transmission tower cleaning, weed abatement activities, and a security guard within the solar field. These O&M activities will require vehicles to occasionally drive the access roads along the transmission line or within the suitable FTHL habitat in the southwestern corner of the solar field. FTHL injury or mortality could potentially occur due to occasional use of the transmission line access roads, or driving access roads within the southwest corner of the ISEC South solar field, weed abatement, or any other activities that may result in ground disturbance outside of the designated access roads. These potential impacts would be considered significant and mitigation would be required.

Indirect Impacts

Avian predators such as ravens, loggerhead shrikes, and American kestrels may be drawn to the solar field due to the increase in food sources such as garbage cans and nesting/perching areas such as the perimeter fence. While the majority of the solar field does not provide habitat for FTHL, it is immediately adjacent to the MA and the avian predators drawn to the solar field may also forage within the nearby FTHL habitat. This increase in avian predators may indirectly impact FTHL within the MA and the southwest

**TABLE 7
IMPACTS TO FLAT-TAILED HORNED LIZARD HABITAT FOR ISEC SOUTH PROJECT**

Vegetation Communities/ Land Cover Types	Preferred Transmission Alternative (IVS-1 + IVS-3)			Alternative A (IVS-1, IVS-4, & IVS-5)			Alternative B (IVS-1 + IVS-3)		
	Solar Field Impact (acres)	Transmission Line Impacts (acres)	Total (acres)	Solar Field Impact (acres)	Transmission Line Impact (acres)	Total (acres)	Reduced Solar Field Impact (acres)	Transmission Line Impacts (acres)	Total (acres)
Permanent Impacts									
Inside FTHL MA									
Access roads		2.8	2.8		3.2	3.2		2.8	2.8
Monopole footings		<0.1	<0.1		<0.1	<0.1		<0.1	<0.1
Lattice tower footings*		<0.1	<0.1		<0.1	<0.1		<0.1	<0.1
<i>Inside Sub-total</i>		2.8	2.8		3.2	3.2		2.8	2.8
Outside FTHL MA	16.8		16.8	16.8		16.8	16.8		16.8
<i>Outside Sub-total</i>	16.8			16.8		16.8	16.8		
<i>Permanent Impacts Total</i>	16.8	2.8	19.6	16.8	3.2	20.0	16.8	2.8	19.6
Temporary Impacts									
Inside FTHL MA									
Pullsite		0.8	0.8		1.0	1.0		0.8	0.8
Monopole work areas			1.7		1.7	1.7		1.7	1.7
Lattice tower work areas*		4.8	4.8		5.0	5.0		4.8	4.8
Trench		<0.1	<0.1		<0.1	<0.1		<0.1	<0.1
<i>Inside Sub-total</i>		1.7	7.3		7.7	7.7		7.3	7.3
<i>Temporary Impacts Total</i>	-	7.3	7.3		7.7	7.7		7.3	7.3
Total Project Impacts	16.8	10.1	26.9	16.8	10.9	27.7	16.8	10.1	26.9

*Includes A-frames.

corner of the ISEC solar field. These potential indirect impacts to FTHLs would be considered significant and would require mitigation.

4.1.2.2 Burrowing Owl

Construction Impacts

The 1995 CDFG's Staff Report on Burrowing Owl Mitigation (CDFG 1995) defines impacts to burrowing owl as:

- Disturbance within 50 meters (approximately 160 feet) which may result in harassment of owls at occupied burrows;
- Destruction of natural and artificial burrows (culverts, concrete slabs, and debris piles that provide shelter to burrowing owls); and
- Destruction and/or degradation of foraging habitat adjacent (within 100 meters) of an occupied burrow(s).

As seen in Attachment 1: Figures 8a–8b, four occupied burrowing owl burrows were observed within the active agricultural fields, and two were observed immediately adjacent to the field during on-going focused breeding season surveys. As discussed in Section 5.3.2, a pre-construction survey should be conducted prior to grading, as the number and location of owls may change from year to year. These fields will be graded during construction activities, including any berms and culverts that may host burrowing owl. Impact to any burrowing owl individuals and/or active burrowing owl burrows would be considered potentially significant, and mitigation in the form of avoidance and impacts minimization would be required to reduce the impacts to a level of less than significant.

The creosote bush–white burr sage scrub vegetation along the proposed transmission line and the active agricultural fields within the proposed solar field offer suitable habitat for this species. A total of 19 acres of creosote bush–white burr sage scrub will be permanently impacted by the proposed transmission line and solar field.

The agricultural fields and associated berms that contain the active burrowing owl burrows will be permanently impacted by the proposed solar field. In accordance with the CDFG Staff Report on Burrowing Owl Mitigation (1995), impacts to the foraging habitat within 100 meters (approximately 300 feet) of each active burrow would be considered significant and would require mitigation for the 26 acres of foraging habitat.

O&M Indirect Impacts

After construction of the solar field is complete, burrowing owls may occur within the active agricultural fields adjacent to the solar field, including using the perimeter fence as a foraging perch.

All permanent lighting within the solar field will be low-profile fixtures that point inward toward the solar field with directional hoods or shades to reduce light from shining into the adjacent habitat. In addition, any lighting not required daily for security purposes will have motion sensor or temporary use capabilities. No significant impacts due to lighting are expected to occur to this species, and no mitigation is required.

No equipment or component of the solar field or transmission lines is expected to produce noise that would exceed ambient noise in the vicinity. No significant impacts due to noise are expected to occur to this species, and no mitigation is required.

4.1.2.3 Nesting Raptors

Construction Impacts

The existing transmission towers and few tall trees within the survey provide nesting opportunities for raptors. To prevent direct and indirect noise impacts to nesting raptors such as red-tailed hawk (*Buteo jamaicensis*), initial grading and construction within the proposed Project site should take place outside the raptors' breeding season of February 1 to July 15. If construction occurs between February 1 and July 15, significant impacts to an active raptor nest may occur, and mitigation in the form of avoidance and impacts minimization would be required to reduce the impacts to a level of less than significant.

The creosote bush–white burr sage scrub and desert wash habitat along the proposed transmission line may provide foraging habitat for a variety of raptors, including the red-tailed hawk. Impacts to this foraging habitat may be considered significant and would require mitigation.

O&M Indirect Impacts

Electrocution

The Avian Powerline Interaction Committee's (APLIC) 1996 report (APLIC 1996 as cited in California Energy Commission [CEC] 2002a) on power line electrocution in the U.S. reports that avian electrocution risk is highest along distribution lines (generally less than 69 kV) where the distance between energized phases, ground wires, transformers, and other components of an electrical distribution system are less than the length or skin-to-skin contact distance of birds (CEC 2002a). The distance between energized components along transmission lines (> 69 kV) is generally insufficient to present avian electrocution risk (CEC 2002a).

The towers and/or monopoles proposed along the alternate transmission line routes are designed to prevent avian electrocution, with a top-most arm structure above the conductors that may hold grounding wires or other insulated utility lines (LightSource

2010). In addition, each phase's insulators, attached to the conductors at each arm of the towers/monopoles, are spaced at least 30 feet apart (LightSource 2010); far enough apart that North American raptors' wingspans cannot reach two insulators at once.

No impacts to raptors are expected to occur due to electrocution along the proposed transmission line, and no mitigation would be required. However; to address any potential avian mortality that may occur during operations and maintenance activities along the transmission line, an Avian and Bat Protection Plan (ABPP) will be developed that will incorporate guidance from USFWS (2010e) and the Avian Powerline Interaction Committee (APLIC 2006), and will include a wildlife mortality reporting program. This ABPP is discussed further in Section 5 and will provide the applicant the vehicle to comply with the Bald and Golden Eagle Protection Act as well as the MBTA.

Collision

Potential indirect impacts to raptors and other avian species due to collision with the proposed transmission lines are discussed below in Section 4.1.2.4 Migratory Birds and Other Sensitive Non-migratory Species.

4.1.2.4 Migratory Birds

"Take" of a migratory bird species, which includes unintentionally killing adult birds or destroying active nests, would be considered a violation of the MBTA. An ABPP, subject to the approval of USFWS, would be adopted that would include avoidance and minimization measures to address potential construction and operations phase impacts. See section 5.2.4.

Construction Impacts

If construction occurs between February 1 and September 15, a composite breeding season for most migratory bird species, direct impacts may occur, and mitigation in the form of avoidance and impacts minimization would be required to reduce the impacts to a level of less than significant.

O&M Indirect Impacts

Lighting

All permanent lighting within the solar field will be low-profile fixtures that point inward toward the solar field with directional hoods or shades to reduce light from shining into the adjacent habitat. In addition, any lighting not required daily for security purposes will have motion sensor or temporary use capabilities. No significant impact due to lighting is expected to occur to migratory birds, and no mitigation is required.

Noise

No equipment or components of the solar field or transmission lines are expected to produce noise that would exceed ambient noise in the vicinity. No significant impacts due to noise are expected to occur to migratory birds, and no mitigation is required.

Collision

Collision with the terminal ground wire (or static wire) of transmission lines has been reported as a primary cause of avian fatality from power line strikes (Meyer 1978; James and Haak 1979; Beaulaurier 1981 as cited in CEC 2002b). Ground wires are installed on transmission lines to dissipate lightning strikes thereby preventing damage to transmission structures and equipment. Fatal strikes may also occur when birds collide with transmission and distribution wires, transmission tower guy wires, and other structures associated primarily with electrical power transmission (CEC 2002b).

Avian power line collisions are a widespread problem with potentially significant local impacts when high-risk conditions are present (CEC 2002b). Understanding the nature of this mortality factor requires the examination of a series of physical and biological factors and of the relationships between these factors that magnify collision hazards (CEC 2002b). Physical factors include weather, the design and placement of transmission and distribution lines, and physiognomic factors which consider the relationship between the geographic location of power lines and the surrounding vegetative communities and land uses. Biological factors include avian morphology, physiology, behavior, and age (CEC 2002b).

The survey area is situated along the Pacific Coast Migratory Route (USGS 2010), which encounters migratory birds moving northwest from Mexico into California and the Pacific northwestern U.S. The agricultural fields east of the proposed transmission lines, as well as the Westside Canal and other irrigation channels, are known to provide habitat for many of the migratory bird species moving through the area.

The proposed transmission lines are situated running west from the solar field for approximately 1 mile, then northwest to the substation. The majority of the transmission line will run parallel to the migratory flyway. The fact that the proposed lines do not bisect the canals and agricultural fields, but are instead situated west of the fields, is likely to reduce the potential for avian collision along the transmission corridor (CEC 2002b). In addition, the proposed IVS-1 is situated adjacent to two existing transmission lines, which would increase the visibility of the lines and may reduce the likelihood of collision with the lines.

Alonso and Alonso (1999 as cited in CEC 2002b) concur with other authors (e.g., Meyer 1978; James and Haak 1979; Faanes 1987 as cited in CEC 2002b) that collision fatalities are not a population decline factor and have little population-level significance,

except in areas where birds are concentrated for breeding or roosting, for species with naturally low populations, or for species whose populations are threatened or endangered (CEC 2002b).

As the agricultural fields to the east act as the primary breeding and foraging habitat for migratory birds in the vicinity, the transmission line is situated within the creosote bush–white burr sage scrub vegetation to avoid much of the avian migratory traffic. These potential indirect impacts to migratory birds, while considered adverse to individuals, would be less than significant to the migratory populations. However, to address any potential avian mortality that may occur during operations and maintenance activities along the transmission line, an ABPP will be developed that will incorporate guidance from USFWS (2010e) and the AAPLIC (2006), and will include a wildlife mortality reporting program. This ABPP is discussed further in Section 5 and will provide the applicant the vehicle to comply with the MBTA.

4.2 Impacts to Riparian Habitat or Sensitive Natural Communities

For purposes of this report, sensitive vegetation communities (i.e., natural communities) are those identified by the CDFG (State of California 2010b) and CEQA. Reasons for the designation as “sensitive” include restricted range, cumulative losses throughout the region, and a high number of endemic sensitive plant and wildlife species that occur in the vegetation communities.

The Project would have a significant impact if it would:

- 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 the CDFG or USFWS.

As shown in Table 6, creosote bush–white burr sage scrub and desert wash vegetation are the two sensitive natural communities potentially affected by the proposed project. These communities are considered sensitive whether or not they have been disturbed.

Proposed Impacts

Construction Impacts

The proposed impacts to creosote bush–white burr sage scrub and desert wash vegetation, as detailed in Table 5 and shown on Attachment 1: Figures 8a–8b, would be considered potentially significant and would require mitigation to offset these impacts to sensitive habitats.

O&M Indirect Impacts

Soil disturbed due to grading during construction and continued use of the access roads along the transmission line may result in the introduction or increased density of non-native invasive plant species. These species can undermine the habitat quality and integrity of the native plant communities. An increase in non-native invasive plants would be considered potentially significant indirect impacts to the creosote bush–white burr sage scrub and desert wash communities, and would require mitigation to reduce impacts to a level of less than significant.

4.3 Impacts to Jurisdictional Waters

All wetland areas, wetland buffer areas, and non-wetland waters of the U.S. are considered sensitive. Wetlands and non-wetland waters are under the jurisdiction of ACOE. Streambeds and associated vegetation are under the jurisdiction of CDFG. Waters of the state and waters of the U.S. are under the jurisdiction of RWQCB.

The Project would have a significant impact under CEQA if it would:

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

Proposed Impacts

Table 8 shows the proposed Project impacts to CDFG jurisdictional resources. No ACOE jurisdictional resources are expected to be impacted by the proposed project.

**TABLE 8
JURISDICTIONAL RESOURCES IMPACTS FOR ISEC SOUTH PROJECT**

Jurisdictional Resources	Preferred Alternative Transmission Line Impacts (acres)	Alternative A Transmission Line Impacts (acres)	Alternative B Transmission Line Impacts (acres)
PERMANENT IMPACTS			
CDFG–Riparian			
Access roads	0.6	0.6	0.6
Lattice tower footings*	<0.1	<0.1	<0.1
Total	0.6	0.6	0.6
TEMPORARY IMPACTS			
CDFG–Riparian			
Lattice tower work areas*	0.8	0.8	0.8
Total	0.8	0.8	0.8
TOTAL IMPACTS	1.4	1.4	1.4

*Includes A-frames.

Construction Impacts

No impacts to ACOE, CDFG, and RWQCB are anticipated for the solar field, as the irrigation channels within the active agricultural fields are man-made structures and are likely to be considered exempt from the jurisdiction of the resource agencies. A determination of jurisdiction on the farm drains is currently under review by the ACOE.

No impacts to ACOE are expected to occur due to transmission line construction. Impacts to CDFG and RWQCB jurisdictional resources may occur within Pinto Wash in IVS-1 from construction of the transmission line. Such impacts would be considered potentially significant and would require mitigation.

O&M Impacts

The proposed solar field will use approximately 5 acre-feet of water per year to clean the solar panels and for fire protection. The small amount water used for solar panel cleaning at a given time is not expected to be substantial enough to result in run-off or soil erosion into adjacent jurisdictional drainages or channels. The substrate under the panels will remain sandy and permeable, allowing water to be absorbed into the soil. No impacts to jurisdictional resources due to O&M are expected to occur, and no mitigation would be required.

4.4 Impacts to Wildlife Movement and Nursery Sites

Wildlife movement corridors are considered sensitive by resource and conservation agencies. The impact analysis provided below is based on the CEQA Guidelines Appendix G thresholds of significance. The Project would have a significant impact, if it:

- Interfered substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impeded the use of native wildlife nursery sites.

Proposed Impacts

Mitigation measures found in the *Flat-tailed Horned Lizard Rangelwide Management Strategy* (ICC 2003) that require a minimization of habitat disturbance along the transmission lines would ensure the continued ability of wildlife to move freely through the Project area. These measures include use of existing roads, minimization of habitat disturbance, a Worker Environmental Awareness Program (WEAP) for all crew and personnel, and speed limits during construction and O&M activities. Additional measures are detailed in Section 5.2.1 below.

The existing agricultural uses of R-2 provide limited connectivity for terrestrial species based on the continued disturbance from cultivation practices. Under the proposed use, the mechanized disturbance would decrease once the solar panels will be in place. The Project's ABPP will also ensure that movement and corridor uses to avian species will not be impacted by the proposed project. In addition, roads crossing over the canal and along the U.S./Mexico border will remain and continue to provide access for terrestrial wildlife species to move between the agricultural fields and the desert to the west. Thus there are no anticipated impacts to wildlife movement or nursery sites, and no additional mitigation would be required.

4.5 Impacts to California Desert Conservation Area

Pursuant to CEQA, the Project would have a significant impact if it would:

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

The BLM manages all land uses within the ACEC in order to minimize impacts to this sensitive area. The proposed transmission lines are an allowable use under the CDCA, as the proposed ROW falls within the CDCA designated "Utility Corridor N." Proposed impacts to resources discussed in Section 4 are in conformance with the CDCA and maintain the integrity and intent of the Conservation Plan.

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5.0 Recommended Mitigation

5.1 General Project Mitigation Recommendations

A number of general measures, designed to reduce potential indirect impacts to resources in the Project area as well as restore and/or improve the quality of habitat in the Project area, will be implemented after construction as standard operations and maintenance protocols. To reduce the potential impacts to biological resources during operations and maintenance, the following should be implemented:

- A brief Annual Report will be submitted to the relevant resource agencies documenting the implementation of the following general measures as well as any resource-specific measures such as habitat restoration and/or compensation:
 - Speed limits along all transmission access roads and within the solar field should not exceed 15 miles per hour. Transmission access for O&M activities shall be kept to the minimum necessary for operations. This limited access is designed to prevent FTHL mortality.
 - Annual formal Worker Education Training should be established for all employees and any subcontractors at the ISEC South to provide instruction on sensitive species identification; measures to avoid contact, disturbance, and injury; and reporting procedures in the case of dead and/or injured wildlife species. The USFWS and the BLM shall be notified per approved guidelines and channels of authority, if mortality should occur.
 - A *Raven Control Plan* will be prepared and implemented that details specific measures for storage and disposal of all litter and trash produced by the solar field and its employees. This plan is designed to discourage scavengers that may also prey on wildlife in the vicinity.
 - A *Weed Management Plan* will be prepared and implemented that describes specific on-going measures to remove weedy plant species from the solar field and encourages native plant growth. This plan should be prepared in conformance with herbicide and native seed/planting guidelines outlined in the project's Habitat Restoration Plan, and should be approved by the BLM.
 - A *Wildlife Mortality Reporting Program* will be prepared and implemented to identify and report any dead or injured animals observed by personnel conducting O&M activities within the solar field and along the transmission line. An appropriate reporting format for dead or injured wildlife observed

within the solar field and along the transmission line will be developed in coordination with the USFWS and the BLM. In addition, reporting of any dead or injured avian species found along the transmission line will follow the existing USFWS Bird Fatality/Injury Reporting Program (<https://birdreport.fws.gov/>).

- An *Avian and Bat Protection Plan* (ABPP) will be prepared that will outline conservation measures for construction and O&M activities that might reduce potential impacts to bird populations. These measures incorporate APLIC design guidelines for overhead utilities (2006) by incorporating recommended or other methods that enhance the visibility of the lines to avian species. The ABPP will also address disturbance minimization, timing of construction, minimization of activities that would attract prey and predators, and incorporation of the *Wildlife Mortality Reporting Program* and *Raven Control Plan* discussed above.

5.2 Sensitive Wildlife

5.2.1 Flat-tailed Horned Lizard

5.2.1.1 Construction Measures

In accordance with the *FTHL Rangewide Management Strategy* (ICC 2003), the measures proposed below are designed to avoid, minimize, and/or compensate for potential direct and indirect effects construction of the proposed Project may have on FTHL. The following will be implemented, when conducting construction activities on the transmission line and within the creosote bush–white burr sage scrub vegetation in the southwestern corner of the solar field:

1. Prior to ground-disturbing activities, an individual shall be designated and approved by the USFWS and BLM as a Designated Biologist¹ (i.e., field contact representative). A Designated Biologist will be designated for the period during which on-going construction and post-construction monitoring and reporting by an approved biologist is required, such as annual reporting on habitat restoration. Each successive Designated Biologist will be approved by the BLM's Authorized

¹ A qualified Designated Biologist must have (1) a Bachelor's degree with an emphasis in ecology, natural resource management, or related science; (2) 3 years of experience in field biology or a current certification of a nationally recognized biological society such as The Ecological Society of America or the Wildlife Society; (3) previous experience with applying terms and conditions of a biological opinion; and (4) an appropriate permit and/or training if conducting focused or protocol surveys for listed or proposed species.

Officer (i.e., BLM field manager, El Centro). The Designated Biologist will have the authority to ensure compliance with the conservation measures for the FTHL and will be the primary agency contact for the implementation of these measures. The Designated Biologist will have the authority and responsibility to halt activities that are in violation of the conservation measures. A detailed list of responsibilities for the Designated Biologist is summarized below. To avoid and minimize impacts to biological resources, the Designated Biologist and/or Biological Monitor(s) will:

- Notify BLM's Authorizing Officer and the USFWS at least 14 calendar days before initiating ground-disturbing activities.
 - Immediately notify BLM's Authorized Officer and the USFWS in writing, if the Project applicant is not in compliance with any conservation measures, including but not limited to any actual or anticipated failure to implement conservation measures within the time periods specified.
 - Conduct compliance inspections at a minimum of once per month during ongoing construction after clearing, grubbing, and grading are completed, and submit a monthly compliance report to BLM's Authorized Officer until construction is complete.
2. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) will be delineated with stakes and flagging prior to construction activities. Spoils will be stockpiled in disturbed areas lacking native vegetation or where habitat quality is poor. To the extent possible, disturbance of shrubs and surface soils due to stockpiling will be minimized. All disturbances, vehicles, and equipment will be confined to the flagged areas. To the extent possible, surface disturbance will be timed to minimize mortality to FTHL (see FTHL Construction Measure #7 below).
 3. Approved Biological Monitor(s) will assist the Designated Biologist in conducting pre-construction surveys and monitoring mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities. The Biological Monitor(s) will have experience conducting FTHL field monitoring, have sufficient education and field experience to understand FTHL biology, be able to identify FTHL scat, and be able to identify and follow FTHL tracks. The Designated Biologist will submit a resume, at least three references, and contact information of the proposed Biological Monitors to the BLM, CDFG, and USFWS for approval. To avoid and minimize impacts to biological resources, the Biological Monitors will assist the Designated Biologist with the following:
 - Be present during construction (e.g., grubbing, grading, solar panel installation) activities that take place in FTHL habitat to avoid or minimize take

of FTHL. Activities include, but are not limited to, ensuring compliance with all impact avoidance and minimization measures, monitoring for FTHLs and removing lizards from harm's way, and checking avoidance areas (e.g., washes) to ensure that signs, and stakes are intact and that human activities are restricted in these avoidance zones.

- At the end of each work day, inspect all potential wildlife pitfalls (trenches, bores and other excavations) for wildlife and then backfill. If backfilling is not feasible, all trenches, bores, and other excavations will be contoured at a 3:1 slope at the ends to provide wildlife escape ramps, or completely and securely covered to prevent wildlife access.
 - During construction, examine areas of active surface disturbance periodically, at least hourly, when surface temperatures exceed 29°Celsius (C; 85°F) for the presence of FTHL.
4. Prior to Project initiation, a WEAP will be developed and implemented, and will be available in both English and Spanish. Wallet-sized cards summarizing this information will be provided to all construction, operation, and maintenance personnel. The education program will include the following aspects:
- biology and status of the FTHL,
 - protection measures designed to reduce potential impacts to the species,
 - function of flagging designating authorized work areas,
 - reporting procedures to be used if a FTHL is encountered in the field, and
 - driving procedures and techniques, for commuting, and driving on, to the Project site, to reduce mortality of FTHL on roads.
5. FTHLs will be removed from harm's way during all construction activities, per conservation measure #6 below. FTHL removal will be conducted by two or more Biological Monitors when construction activities are being conducted in suitable FTHL habitat. To the extent feasible, methods to find FTHLs will be designed to achieve a maximal capture rate and will include, but not be limited to using strip transects, tracking, and raking around shrubs. During construction, the minimum survey effort will be 30 minutes per 0.40 hectare (30 minutes per 1 acre). Persons that handle FTHLs will first obtain all necessary permits and authorization from the CDFG. If the species is federally listed, only persons authorized by both CDFG and the USFWS will handle FTHLs. FTHL removal surveys will also include:

- A *Horned Lizard Observation Data Sheet* and a *Project Reporting Form*, per Appendix 8 of the RMS, will be completed. During construction, quarterly reports describing FTHL removal activity, per the reporting requirements described in Conservation Measure #1 above, will be submitted to the USFWS, BLM, and CDFG.
6. The removal of FTHLs out of harm's way will include relocation to nearby suitable habitat in low-impact (e.g., away from roads and solar panels) areas of the Yuha MA. Relocated FTHLs will be placed in the shade of a large shrub in undisturbed habitat. If surface temperatures in the sun are less than 24°C (75°F) or exceed 38°C (100°F), the Designated Biologist or Biological Monitor, if authorized, will hold the FTHL for later release. Initially, captured FTHLs will be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. Lizards will be held at temperatures between 75°F and 90°F and will not be exposed to direct sunlight. Release will occur as soon as possible after capture and during daylight hours. The Designated Biologist or Biological Monitor will be allowed some judgment and discretion when relocating lizards to maximize survival of FTHLs found in the Project area.
 7. To the maximum extent practicable, grading in FTHL habitat will be conducted during the active season, which is defined as March 1 through September 30, or when ground temperatures are between 24°C (75°F) and 38°C (100°F). If grading cannot be conducted during this time, any FTHLs found will be removed to low-impact areas (see above) where suitable burrowing habitat exists, (e.g., sandy substrates and shrub cover).
 8. Temporarily disturbed areas associated with transmission line construction and staging areas will be revegetated according to a Habitat Restoration Plan (HRP) approved by the BLM, CEC, CDFG, and USFWS. The HRP must be approved in writing by the aforementioned agencies prior to the initiation of any vegetation-disturbing activities. Restoration involves recontouring the land, replacing the topsoil (if it was collected), planting seed and/or container stock, and maintaining (e.g., weeding, replacement planting, supplemental watering) and monitoring the restored area for a period of 5 years (or less if the restoration meets all success criteria). Components of the HRP will include:
 - The incorporation of Desert Bioregion Revegetation/Restoration Guidance measures. These measures generally include alleviating soil compaction, returning the surface to its original contour, pitting or imprinting the surface to allow small areas where seeds and rain water can be captured, planting seedlings that have acquired the necessary root mass to survive without watering, planting seedlings in the spring with herbivory cages, broadcasting

locally collected seed immediately prior to the rainy season, and covering the seeds with mulch.

5.2.1.2 O&M Measures

To reduce the potential impacts to FTHL during O&M, the following will be implemented when conducting O&M along the transmission line and within the creosote bush--white burr sage scrub vegetation in the southwestern corner of the solar field:

9. No later than January 31 of every year that the Project remains in operation, the Designated Biologist will provide the BLM's Authorized Officer, USFWS, CDFG, and the FTHL ICC an annual FTHL *Status Report*, which will include, at a minimum:
 - A general description of the status of the Project site;
 - A copy of the table in the Project biological monitoring report with notes showing the current implementation status of each conservation measure;
 - An assessment of the effectiveness of each completed or partially completed measure in avoiding and minimizing Project impacts;
 - A completed a *Project Reporting Form from the Flat-tailed Horned Lizard RMS* (ICC 2003);
 - A summary of information regarding any FTHL mortality in conjunction with the Project's *Wildlife Mortality Reporting Program*; and
 - Recommendations on how conservation measures might be changed to more effectively avoid, minimize, and offset future Project impacts on the FTHL.
10. The Designated Biologist or Biological Monitor(s) will evaluate and implement the best measures to reduce FTHL mortality along access and maintenance roads, particularly during the FTHL active season (March 1 through September 30). These measures will include:
 - A speed limit of 15 miles per hour when driving transmission line access roads or maintenance roads within the solar field. All vehicles required for O&M along the transmission line and within the southwestern corner of the solar field containing suitable FTHL habitat must remain on the designated access/maintenance roads.
 - O&M activities including the washing of solar panels, weed abatement, or any other O&M activity that may result in ground disturbance will be conducted outside of the FTHL active season whenever feasible.

- If any O&M activities must be conducted during the FTHL active season that may result in ground disturbance, such as weed abatement or vehicles requiring access outside of a designated access road, a Biological Monitor will be present during activities to ensure that no FTHLs are impacted.

Implementation of these measures would be based on FTHL activity levels, the best professional judgment of the Designated Biologist, and site-specific road utilization. FTHL found on access/maintenance roads, if monitoring is required, will be relocated per Conservation Measure #7.

5.2.1.3 Compensation

In accordance with the *Flat-tailed Horned Lizard Rangewide Management Strategy*, mitigation would be required for impacts to FTHL habitat, as shown in Table 9.

11. FTHL is known to occur in the creosote bush–white burr sage scrub and desert wash vegetation along the proposed transmission corridors. In accordance with the *Rangewide Management Strategy*, compensation for permanent impacts to this habitat within the MA will be at a 6:1 ratio.

No mitigation for FTHL is required for the active agricultural land within the proposed solar field, as it does not provide habitat for this species.

5.2.2 Burrowing Owl

5.2.2.1 Construction Impacts Mitigation

Impacts Avoidance and Minimization

Burrowing owls have been observed in the active agricultural fields within the proposed solar field. The following measures will avoid, minimize, or mitigate potential impacts to burrowing owl during construction activities.

- 1) Initial grading of the agricultural fields Project footprint should take place between September 1 and January 31 to avoid impacts to breeding burrowing owls (State of California 1995).

If construction is to begin during the breeding season, it is recommended that the measures below are implemented prior to February 1 to discourage the nesting of the burrowing owls within the area of impact. As construction continues, any area where owls are sighted should be subject to frequent surveys for burrows before the breeding season begins, so that owls can be relocated before nesting occurs.

**TABLE 9
FLAT-TAILED HORNED LIZARD HABITAT MITIGATION REQUIREMENTS FOR ISEC SOUTH PROJECT**

FTHL Habitat	Preferred Alternative Impact (acres)	Mitigation Ratio	Preferred Alternative Mitigation Required (acres)	Alternative A Impacts (acres)	Mitigation Ratio	Alternative A Mitigation Required (acres)	Alternative B Reduced Solar Field Alternative Impact (acres)	Mitigation Ratio	Alternative B Reduced Solar Field Alternative Mitigation Required (acres)
Permanent Impacts									
Inside FTHL MA									
Access roads	2.8	6:1	16.8	3.2	6:1	19.2	2.8	6:1	16.8
Monopole footings	<0.1	6:1	<0.1	<0.1	6:1	<0.1	<0.1	6:1	<0.1
Lattice tower footings*	<0.1	6:1	0.4	<0.1	6:1	0.4	<0.1	6:1	0.4
<i>Total Permanent</i>	<i>2.8</i>		17.2	<i>3.2</i>		19.6	<i>2.8</i>		17.2
Temporary Impacts									
Inside FTHL MA									
Pullsite	0.8	6:1	4.8	1.0	6:1	6.0	0.8	6:1	4.8
Monopole work areas	1.7	6:1	10.2	1.7	6:1	10.2	1.7	6:1	10.2
Lattice tower work areas*	4.8	6:1	28.8	5.0	6:1	30.0	4.8	6:1	28.8
Trench	<0.1	6:1	<0.1	<0.1	6:1	<0.1	<0.1	6:1	<0.1
<i>Total Temporary</i>	<i>7.3</i>		43.8	<i>7.7</i>		46.2	<i>7.3</i>		43.8
TOTAL MITIGATION REQUIRED			61.0			65.8			61.0

*Includes A-frames.

- 2) Within 30 days prior to initiation of construction, a pre-construction clearance surveys for this species shall be conducted to determine the presence or absence of this species within the construction area. This is necessary, as burrowing owls may not use the same burrow every year; therefore, numbers and locations of burrowing owl burrows at the time of construction may differ from the data collected during previous focused surveys. The proposed construction areas will need to be clearly demarcated in the field by the Project engineers prior to the commencement of the pre-construction clearance survey. The survey should follow the protocols provided in the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (the California Burrowing Owl Consortium 1993).
- 3) If active burrows are present within the Project footprint, the following mitigation measures should be implemented. Passive relocation methods are to be used to move the owls out of the impact zone. Passive relocation should only be done in the non-breeding season. This includes covering or excavating all burrows and installing one-way doors into occupied burrows. This will allow any animals inside to leave the burrow, but will exclude any animals from re-entering the burrow. A period of at least one week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin. The burrows should then be excavated and filled in to prevent their reuse. The destruction of the active burrows on-site requires construction of new burrows at a mitigation ratio of 2:1 at least 50 meters from the impacted area and must be constructed as part of the above-described relocation efforts. The construction of new burrows will take place on BLM land west of the solar field, and outside of the proposed transmission corridor.
- 4) As the construction schedule and details are finalized, an approved biologist should prepare a monitoring plan that will detail the methodology proposed to minimize and mitigate impacts to this species. Passive relocation, destruction of burrows, and construction of artificial burrows can only be completed upon approval by CDFG.

Compensation

CDFG's mitigation guidelines for burrowing owl (1995) requires a minimum of 6.5 acres of foraging habitat per pair or unpaired resident bird to be acquired and protected to offset the loss of foraging and burrow habitat on the Project site.

Assuming Project impacts to four active burrows, a minimum of 26 acres would be permanently protected to offset this loss. This mitigation would be implemented in concert with the purchase/acquisition of mitigation for FTHL as detailed in Section 5.2.1, provided at least 26 acres of the FTHL mitigation contains suitable habitat for burrowing owl and is approved by CDFG. If FTHL mitigation is in the form of an in lieu fee to be

used within the Yuha MA, which also provides suitable habitat for burrowing owl, it is assumed that the BLM or ICC's use of the funds within the MA will also improve or increase habitat for burrowing owl and will therefore fulfill the burrowing owl mitigation requirement.

5.2.2.2 O&M Impacts Mitigation

To reduce the potential impacts to burrowing owl during O&M, mitigation measures discussed in Section 5.1, including speed limits and a *Worker Education Program*, should be implemented.

5.2.3 Nesting Raptors

5.2.3.1 Construction Impacts Mitigation

Raptors and active raptor nests are protected under California Fish and Game Code 3503.5, 3503, 3513. In order to prevent direct and indirect noise impacts to nesting raptors such as red-tailed hawk, the following measures should be implemented:

- Initial grading and construction within the proposed Project site should take place outside the raptors' breeding season of February 1 to July 15.
- If construction occurs between February 1 and July 15, a qualified biologist shall conduct a pre-construction clearance survey for nesting raptors in suitable nesting habitat (e.g., tall trees or transmission towers) that occurs within 500 feet of the survey area. If any active raptor nest is located, the nest area will be flagged, and a 500-foot buffer zone delineated, flagged, or otherwise marked. No work activity may occur within this buffer area, until a qualified biologist determines that the fledglings are independent of the nest.

Mitigation for impacts to potential raptor foraging habitat would be conducted in concert with the purchase/acquisition of mitigation for FTHL habitat as detailed in Section 5.2.1. As the 6:1 mitigation ratio for FTHL habitat well exceeds the amount required for impacts to raptor foraging habitat, it is not anticipated that additional mitigation would be necessary.

5.2.3.2 O&M Impacts Mitigation

Mitigation for potential impacts to raptors and other avian species due to collision with the proposed transmission lines is discussed below in Section 5.2.4 Migratory Birds and Other Sensitive Non-migratory Species.

5.2.4 Migratory Birds and Other Sensitive Non-migratory Bird Species

To reduce the potential indirect impacts to migratory birds and other sensitive bird species, an ABPP will be prepared and implemented. This ABPP will outline conservation measures for construction and O&M activities that might reduce potential impacts to bird populations.

5.2.4.1 Construction Measures

Construction conservation measures to be incorporated into the ABPP include:

- Minimizing disturbance to vegetation to the extent practicable.
- Clearing vegetation outside of the breeding season. If construction occurs between February 1 and September 15, a qualified biologist shall conduct a pre-construction clearance survey for nesting birds in suitable nesting habitat that occurs within the proposed area of impact. Pre-construction nesting surveys will identify any active migratory birds (and other sensitive non-migratory birds) nests. Direct impacts to any active migratory bird nest should be avoided.
- Minimize wildfire potential.
- Minimize activities that attract prey and predators.
- Control of non-native plants.
- Apply APLIC design guidelines for overhead utilities (2006) by incorporating recommended or other methods that enhance the visibility of the lines to avian species.

5.2.4.2 O&M Measures

O&M maintenance conservation measures to be incorporated into the ABPP include:

- Preparation of a *Raven Control Plan* that avoids introducing water and food resources in the area surrounding the solar field;
- Incorporate APLIC Guidelines (2006) for overhead utilities as appropriate to minimize avian collisions with transmission facilities;
- Minimize noise;
- Minimize use of outdoor lighting; and

- Implement post-construction avian monitoring that will include incorporation of the *Wildlife Mortality Reporting Program*.

5.3 Riparian Habitat or Sensitive Natural Community

5.3.1 Construction Impacts Mitigation

Mitigation is required for impacts to desert wash, a CDFG sensitive habitat, and creosote bush–white burr sage scrub vegetation, which provide suitable habitat for FTHL. Mitigation ratios and acreage requirements are detailed in Table 10.

5.3.2 O&M Impacts Mitigation

To reduce the potential for the introduction and spread of non-native invasive plant species, mitigation measures discussed in Section 5.1, including a *Noxious Weed Abatement Plan*, should be prepared for general O&M within the solar field.

5.4 Jurisdictional Waters

The proposed Project will permanently impact 0.6 acre, and temporarily impact 0.8 acre of CDFG riparian habitat. No impacts to ACOE jurisdictional resources are anticipated.

As shown in Table 11, mitigation for the 0.6 acre of permanent impacts to CDFG riparian habitat is typically at a ratio of 2:1, while mitigation for the 1.7 acres of temporary impacts to CDFG riparian habitat is typically at a ratio of 1, totaling 2.9 acres of required mitigation.

Mitigation for these impacts will be conducted in concert with the purchase/acquisition of mitigation for FTHL as detailed in Section 5.2.1. As the acreage for FTHL mitigation well exceeds the amount required for impacts to CDFG resources, it is not anticipated that additional mitigation would be necessary as long as the FTHL mitigation meets the requirements and approval of CDFG as riparian habitat mitigation.

A Section 1600 Streambed Alteration Agreement would also need to be authorized for impacts to CDFG resources.

**TABLE 10
VEGETATION COMMUNITY MITIGATION REQUIREMENTS FOR ISEC SOUTH PROJECT**

Vegetation Communities/ Land Cover Types	Preferred Alternative			Alternative A			Alternative B		
	Impact (acres)	Mitigation Ratio	Preferred Alternative Mitigation Required (acres)	Impacts (acres)	Mitigation Ratio	Alternative A Mitigation Required (acres)	Alternative B Reduced Solar Field Alternative Impacts	Mitigation Ratio	Alternative B Reduced Solar Field Alternative Mitigation Required (acres)
Permanent Impacts									
Creosote bush–white burr sage scrub (CBS)									
Solar field	16.8	N/A	-	16.8	N/A	-	16.8	N/A	-
Access roads	2.2	6:1	13.2	2.6	6:1	15.6	2.2	6:1	13.2
Monopole footings	<0.1	6:1	<0.1	<0.1	6:1	<0.1	<0.1	6:1	<0.1
Lattice tower footings*	<0.1	6:1	0.3	<0.1	6:1	0.3	<0.1	6:1	0.3
<i>CBS Sub-total</i>	<i>19.0</i>		<i>13.5</i>	<i>19.4</i>		<i>15.9</i>	<i>19.0</i>		<i>13.5</i>
Desert Wash (DW)									
Access roads	0.6	6:1	3.6	0.6	6:1	3.6	0.6	6:1	3.6
Lattice tower footings	<0.1	6:1	0.1	<0.1	6:1	0.1	<0.1	6:1	0.1
<i>DW Sub-total</i>	<i>0.6</i>		<i>3.7</i>	<i>0.6</i>		<i>3.7</i>	<i>0.6</i>		<i>3.7</i>
Active Agriculture (AG)	818.3	N/A		818.3	N/A	-	457.2	N/A	-
Disturbed land (DL)	2.4	N/A		2.4	N/A	-	2.4	N/A	-
<i>Permanent Total</i>	<i>840.3</i>		<i>17.2</i>	<i>840.7</i>		<i>19.6</i>	<i>479.2</i>		<i>17.2</i>
Temporary Impacts									
Creosote bush–white burr sage scrub (CBS)									
Pullsite	0.8	6:1	4.8	1.0	6:1	6.0	0.8	6:1	4.8
Monopole work areas	1.7	6:1	10.2	1.7	6:1	10.2	1.7	6:1	10.2
Lattice tower work areas*	4.0	6:1	24.0	4.2	6:1	25.2	4.0	6:1	24.0
Trench	<0.1	6:1	<0.1	<0.1	6:1	<0.1	<0.1	6:1	<0.1
<i>CBS Sub-total</i>	<i>6.5</i>		<i>39.0</i>	<i>6.9</i>		<i>41.4</i>	<i>6.5</i>		<i>39.0</i>
Desert Wash (DW)									
Lattice tower sites	0.8	6:1	4.8	0.8	6:1	4.8	0.8	6:1	4.8
<i>DW Sub-total</i>	<i>0.8</i>		<i>4.8</i>	<i>0.8</i>		<i>4.8</i>	<i>0.8</i>		<i>4.8</i>
<i>Temporary Total</i>	<i>7.3</i>		<i>43.8</i>	<i>7.7</i>		<i>46.2</i>	<i>7.3</i>		<i>43.8</i>
TOTAL MITIGATION			61.0			65.8			61.0

*Includes A-frames.

**TABLE 11
JURISDICTIONAL RESOURCES REQUIRED MITIGATION FOR
ISEC SOUTH PROJECT**

Jurisdictional Resources	Preferred Alternative Transmission Line Impact (acres)	Mitigation Ratio	Preferred Alternative Mitigation Required (acres)	Alternative A Transmission Line Impact (acres)	Mitigation Ratio	Alternative A Mitigation Required (acres)	Alternative B Reduced Solar Field Alternative Impact (acres)	Mitigation Ratio	Alternative B Reduced Solar Field Alternative Mitigation Required (acres)
Permanent Impacts									
CDFG- Riparian									
Access roads	0.6	2:1	1.2	0.6	2:1	1.2	0.6	2:1	1.2
Lattice tower footings*	<0.1	2:1	<0.1	<0.1	2:1	<0.1	<0.1	2:1	<0.1
<i>Permanent Total</i>	<i>0.6</i>			<i>0.6</i>		<i>1.2</i>	<i>0.6</i>		<i>1.2</i>
Temporary Impacts									
CDFG- Riparian			1.2						
Lattice tower work areas*	1.7	1:1	1.7	1.7	1:1	1.7	1.7	1:1	1.7
<i>Temporary Total</i>	<i>1.7</i>		<i>1.7</i>	<i>1.7</i>		<i>1.7</i>	<i>1.7</i>		<i>1.7</i>
TOTAL MITIGATION			2.9			2.9			2.9

*Includes A-frames.

6.0 Cumulative Effects

The proposed Project has the potential to result in impacts to sensitive vegetation communities, FTHLs, burrowing owls, nesting raptors, migratory birds, other sensitive non-migratory bird species, and jurisdictional resources. However, with the implementation of the mitigation measures outlined in Section 5, these impacts would be reduced to a level of less than significant. As with the proposed project, each of the following projects would be required to provide mitigation for any impact to biological resources; therefore, the proposed Project would not contribute to a significant cumulative biological resources' impact.

**TABLE 12
APPROVED AND/OR PROPOSED PROJECTS IN THE IMPERIAL VALLEY**

Project Name (Project Proponent)	Impacts to Private Lands (acres)	Impacts to BLM Land (acres)	Impacts to Yuha FTHL MA (acres)
Existing disturbance (including Sunrise Powerlink)			180.1
"S" Line Upgrade 230-kV Transmission Line Project (Imperial Irrigation District)	106	2	2
Imperial Valley Solar (Stirling Energy Systems Two, LLC)	-	6,571	93
Proposed Project- ISEC South (CSOLAR)	837.5	10.1	10.1
ISEC West (CSOLAR)	1071.5	13.7	13.7
SDG&E Photovoltaic Solar Field	-	100	unknown
North Gila to Imperial Valley #2 (Southwest Transmission Partners)	-	450	3
Total			301.9

As shown in Table 12, existing and proposed projects are expected to impact a total of 301.9 acres of the 60,200-acre Yuha MA; approximately 0.5 percent of the 1 percent of the ake allowable within the Yuha MA. This impacts, still under the 1-percent threshold for impacts acreage, will be mitigated in accordance with the RMS, thereby reducing the impact to a level of less than significant.

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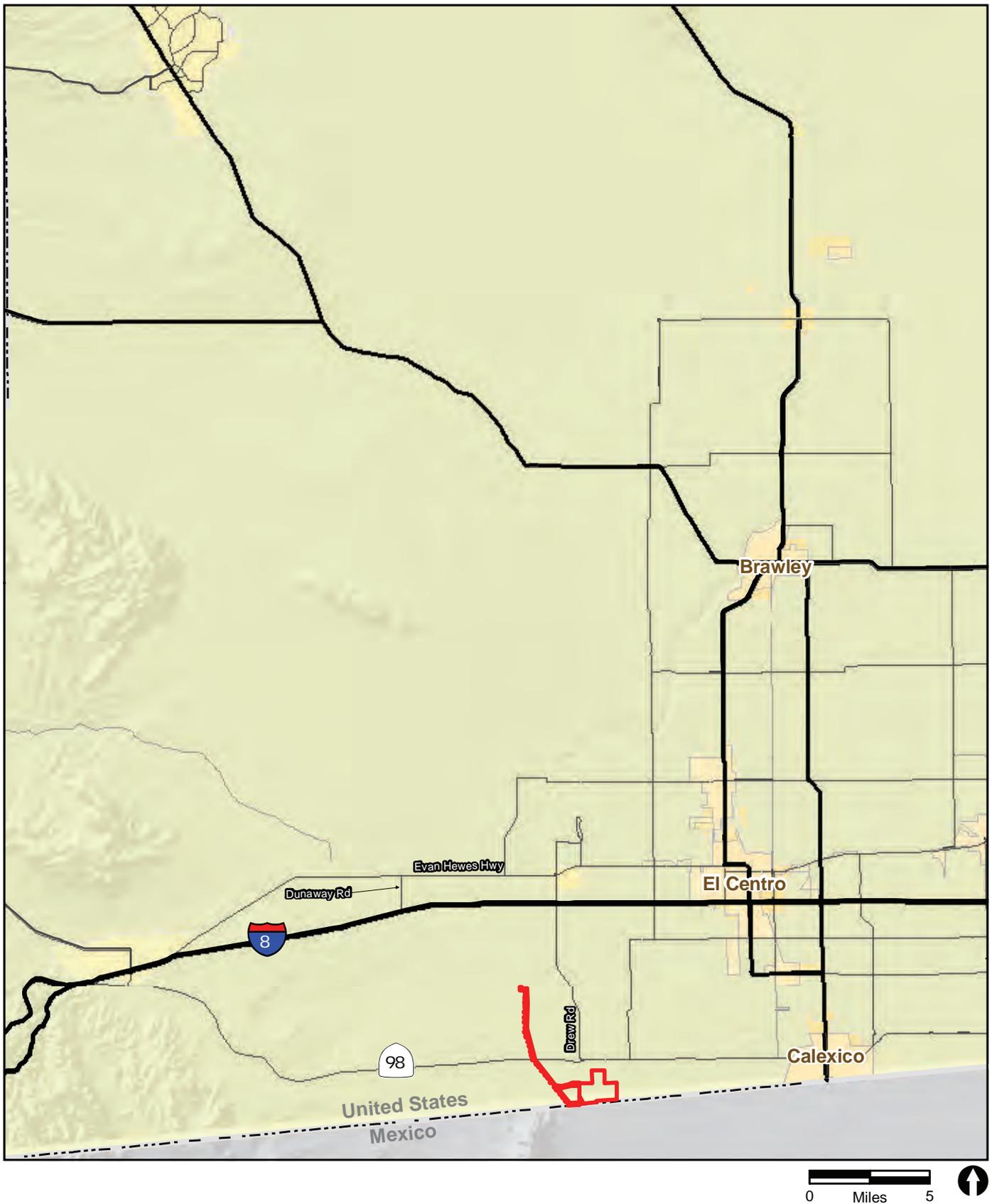
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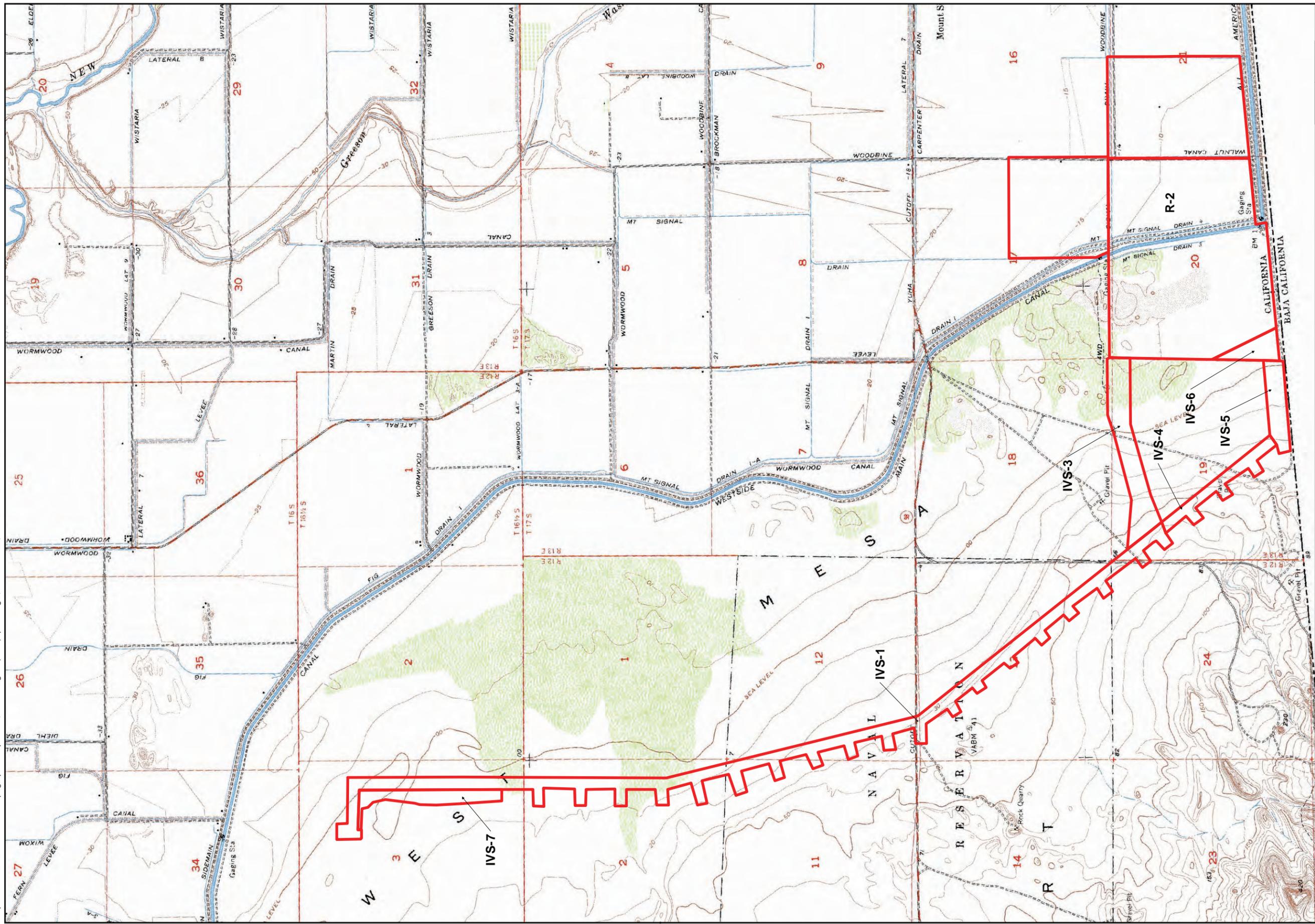
ATTACHMENTS

ATTACHMENT 1



 Project Area

FIGURE 1
Regional Location



Project Area

FIGURE 2
Imperial Solar Energy Center South
Project Location on USGS Map



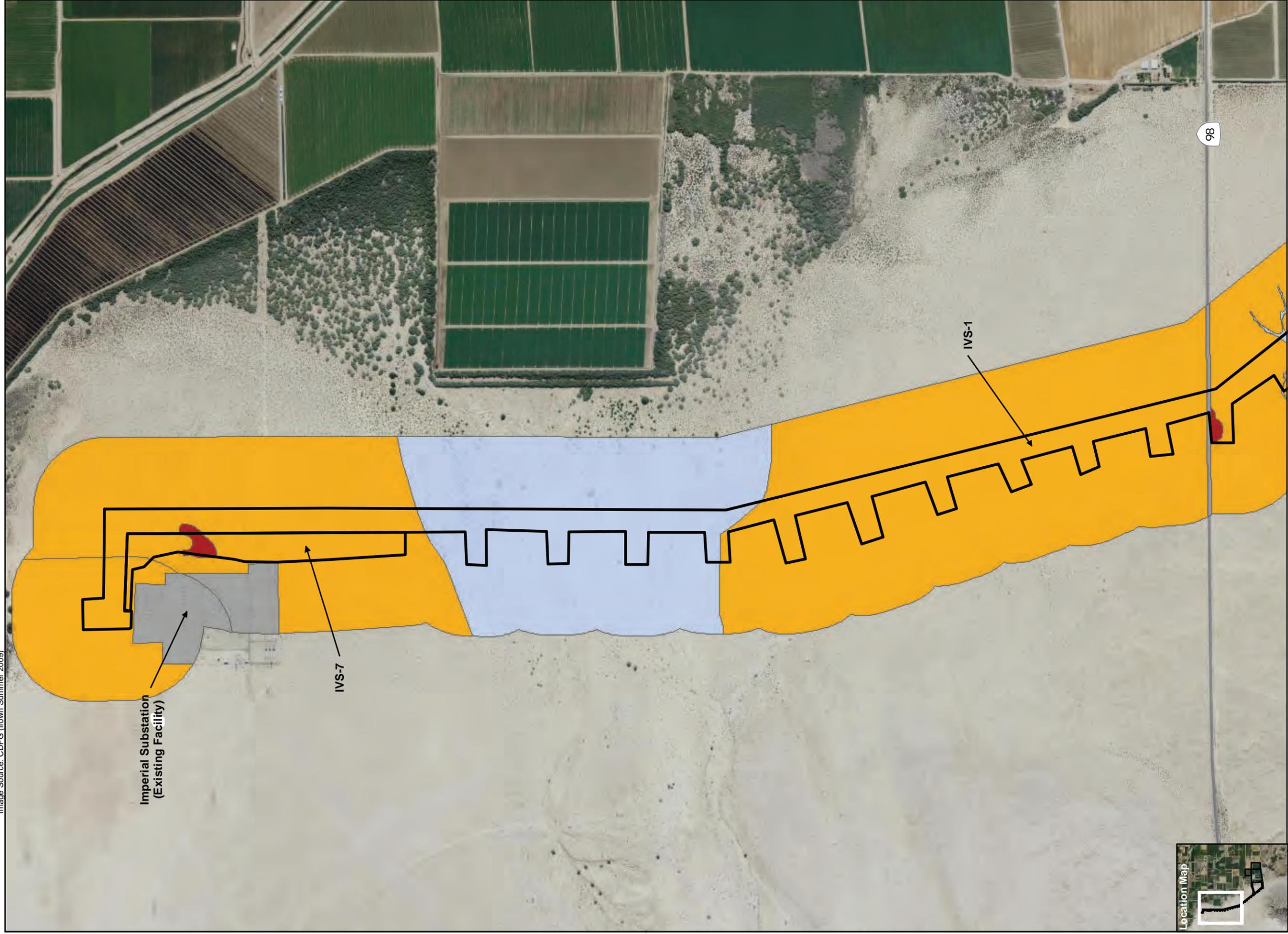
- | | | | |
|---|-------------------------------------|---|---|
|  | Solar Field (R-2) |  | Preferred Transmission Line Connector (IVS-3) |
|  | Reduced Solar Field (R-2) |  | Alternative A Transmission Line Extension (IVS-4) |
|  | Corner Parcel (IVS-6) |  | Alternative A Transmission Line Connector (IVS-5) |
|  | Preferred Transmission Line (IVS-1) |  | Substation Buffer (IVS-7) |



FIGURE 3

Imperial Solar Energy Center South Project Location

Image Source: CDFG (flown Summer 2009)



- Survey Area
- Vegetation Communities**
- Creosote Bush
- White Burr Sage Scrub
- Developed
- Desert Wash (Smoke Tree Woodland)
- Disturbed Land

FIGURE 4a
Vegetation Communities within the
Imperial Solar Energy Center South Project

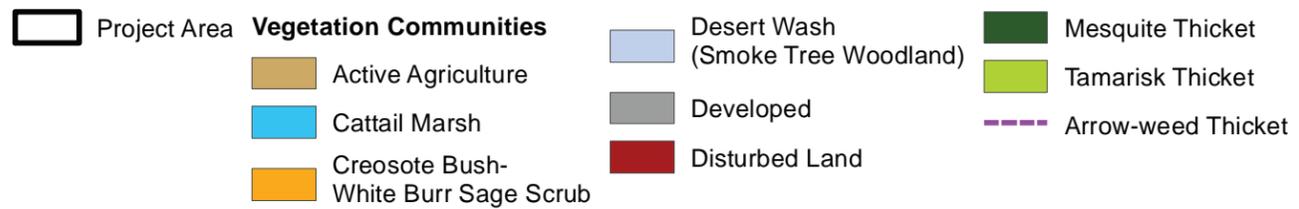
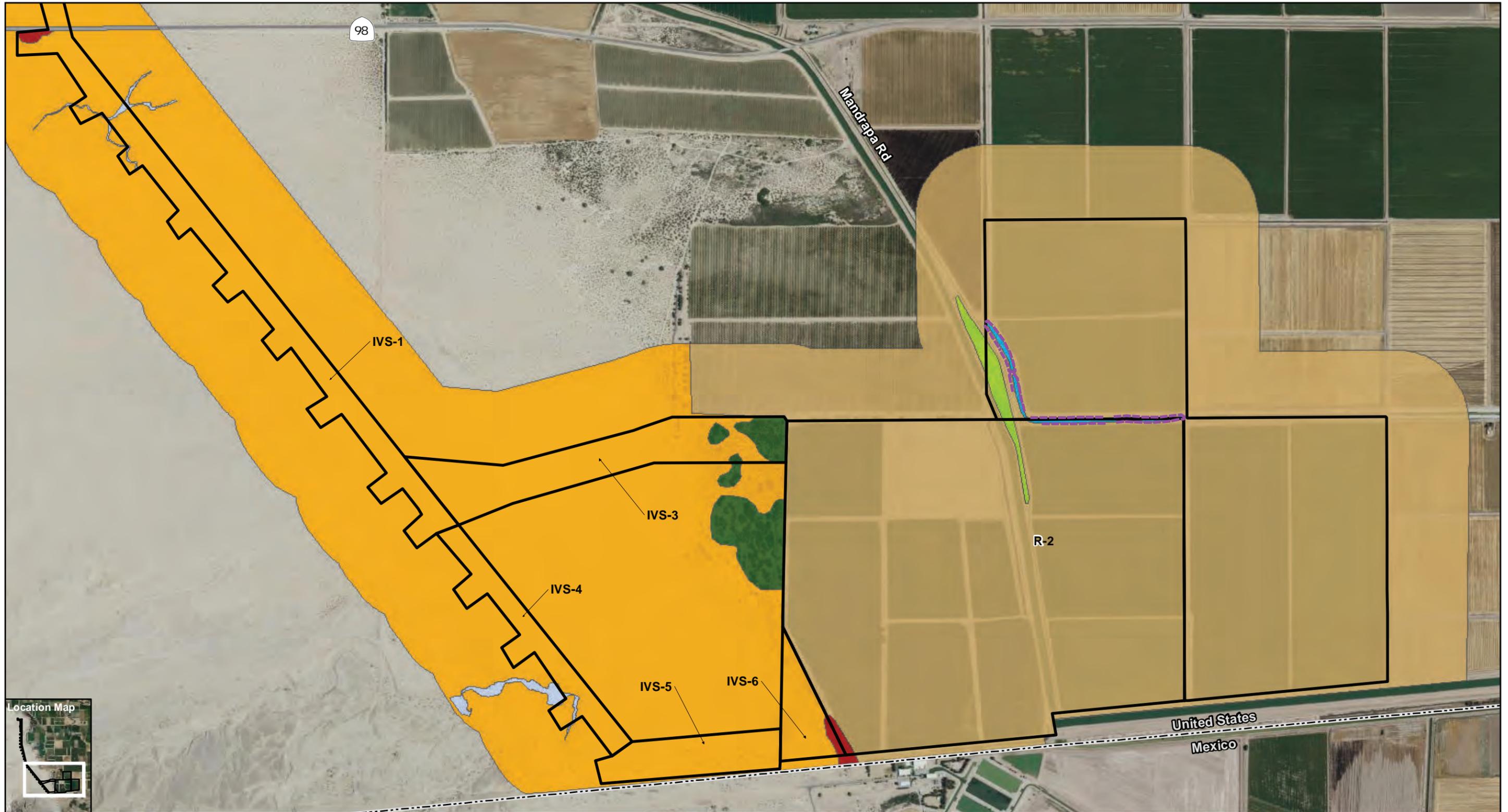


FIGURE 4b
Vegetation Communities within the Imperial Solar Energy Center South Project



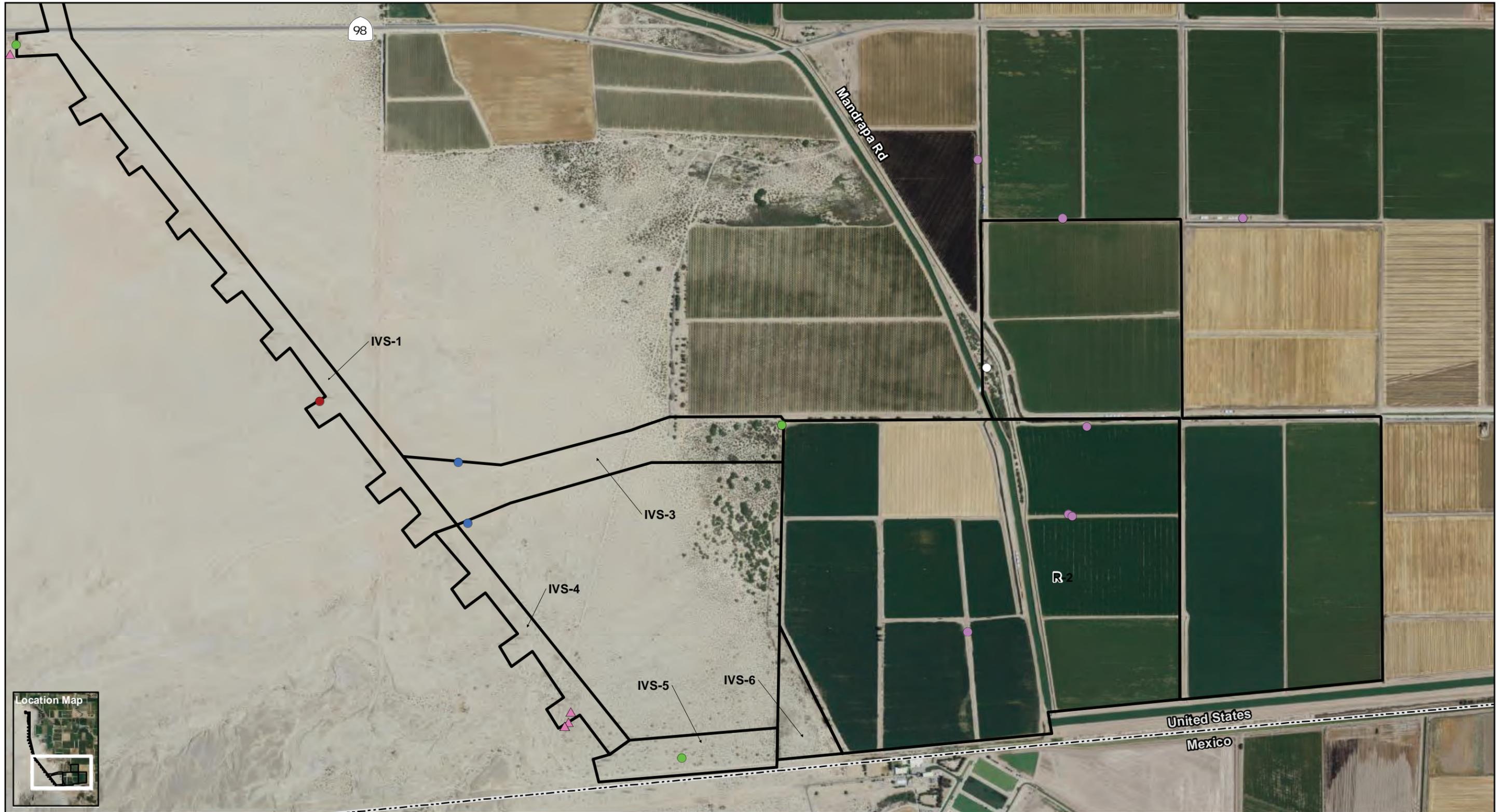
0 Feet 1,300

- Parish's Desert Thorn (*Lycium parishii*)
- Thurber's Pilostyles (*Pilostyles thurberi*)
- Wolf's Cholla (*Cylindropuntia wolffi*)

- Flat-tail Horned Lizard (*Phrynosoma mcallii*)
- Loggerhead Shrike (*Lanius ludovicianus*)
- Yellow Warbler (*Dendroica petechia*)

Survey Area Sensitive Plant and Wildlife Species

FIGURE 5a
Special Status Species within the
Imperial Solar Energy Center South Project



Survey Area **Sensitive Plant and Wildlife Species**

- Burrowing owl pair and active burrow (*Athene cunicularia hypugea*)
- Flat-tail Horned Lizard (*Phrynosoma mcallii*)
- Loggerhead Shrike (*Lanius ludovicianus*)

- Red-tailed Hawk Nest (*Buteo jamaicensis*)
- Yellow Warbler (*Dendroica petechia*)
- ▲ Parish's Desert Thorn (*Lycium parishii*)

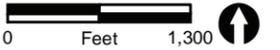
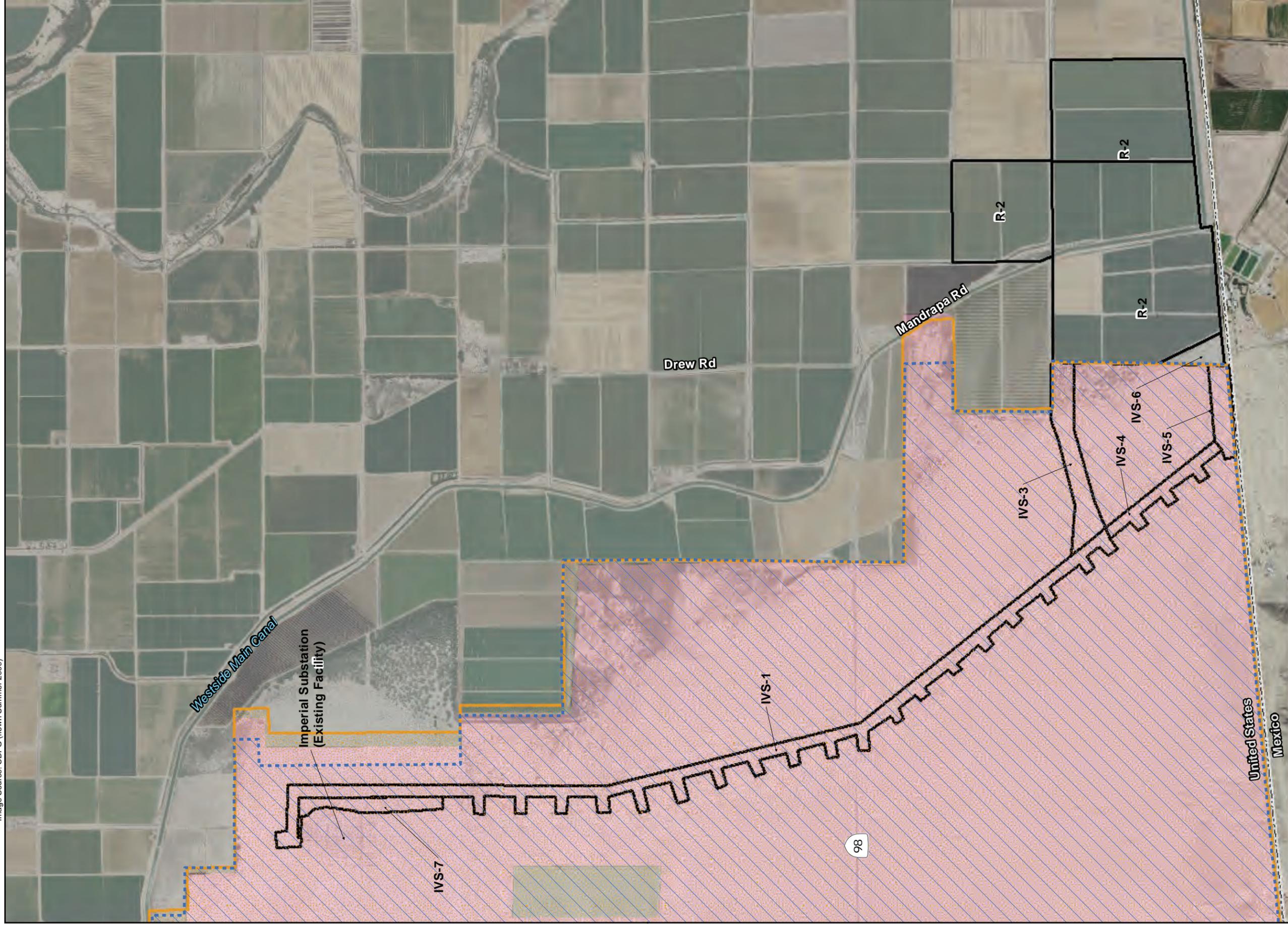


FIGURE 5b
Special Status Species within the
Imperial Solar Energy Center South Project



- Survey Area
- Flat-tail Horned Lizard Management Area
- Yuha Basin ACEC
- Private Land Ownership
- Bureau of Land Management



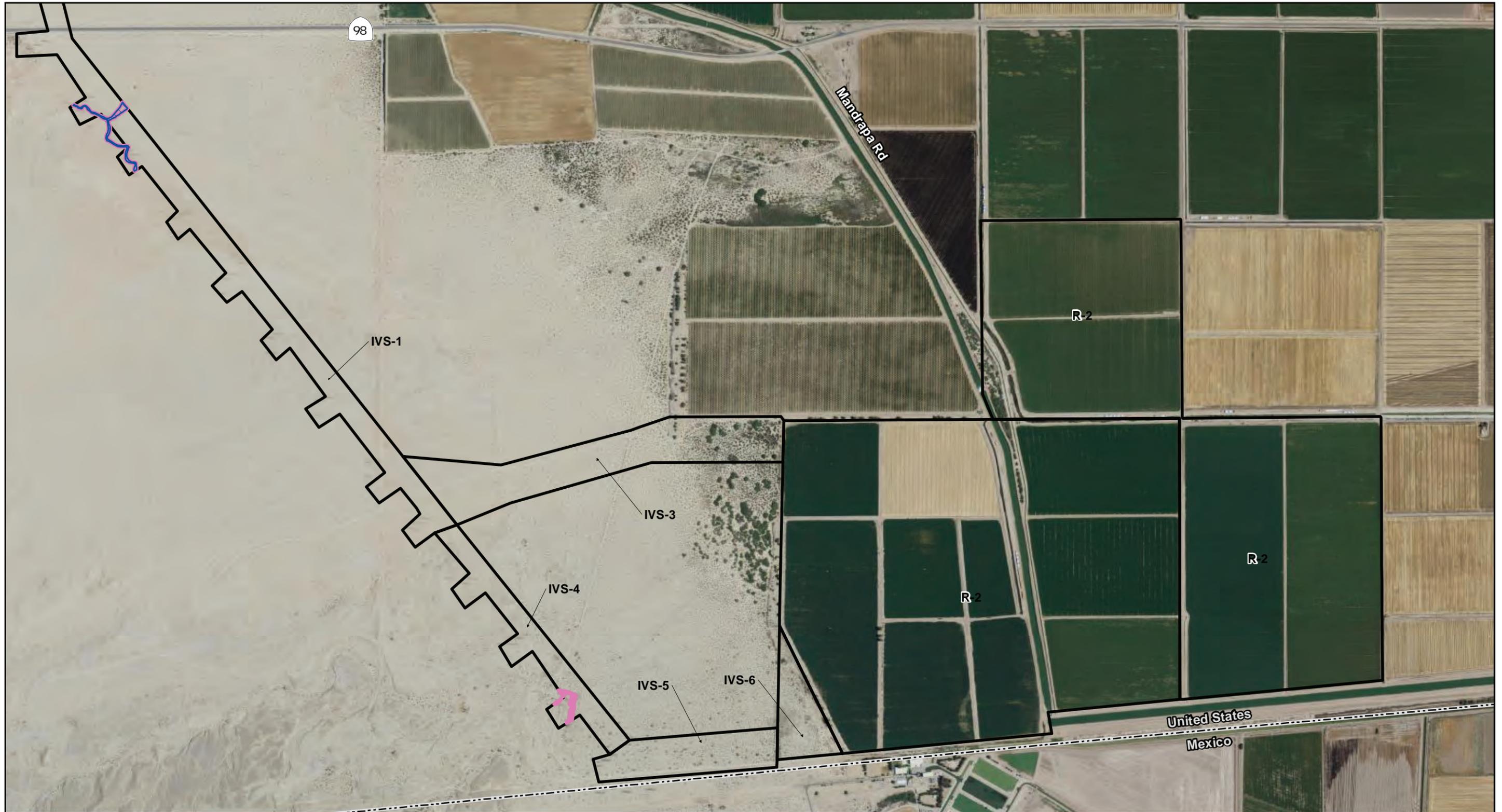
FIGURE 6
 Yuha Desert Flat-tail Horned Lizard Management Area
 in Relation to the Imperial Solar Energy Center South Project

Image Source: CDFG (flown Summer 2009)



- Survey Area
- ACOE Jurisdictional Resources
- Non-wetland water
- CDFG Jurisdictional Resources
- Riparian - Desert Wash Scrub
- Streambed

FIGURE 7a
Jurisdictional Resources within the
Imperial Solar Energy Center South Project



Survey Area
 ACOE Jurisdictional Resources
 CDFG Jurisdictional Resources
 Non-wetland water
 Riparian - Desert Wash Scrub



FIGURE 7b
 Jurisdictional Resources within the
 Imperial Solar Energy Center South Project

Image Source: CDFG (flown Summer 2009)

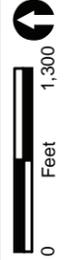
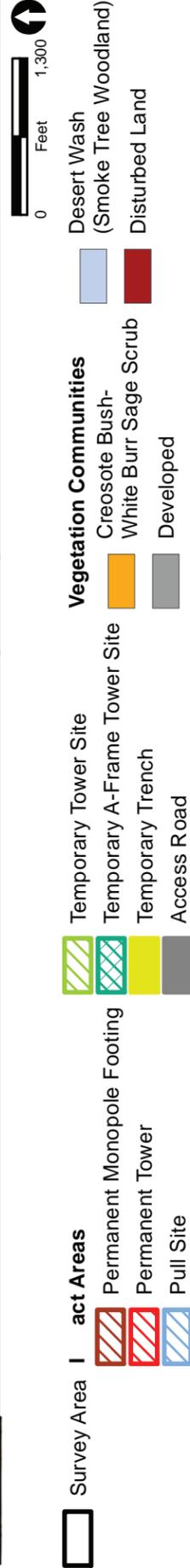
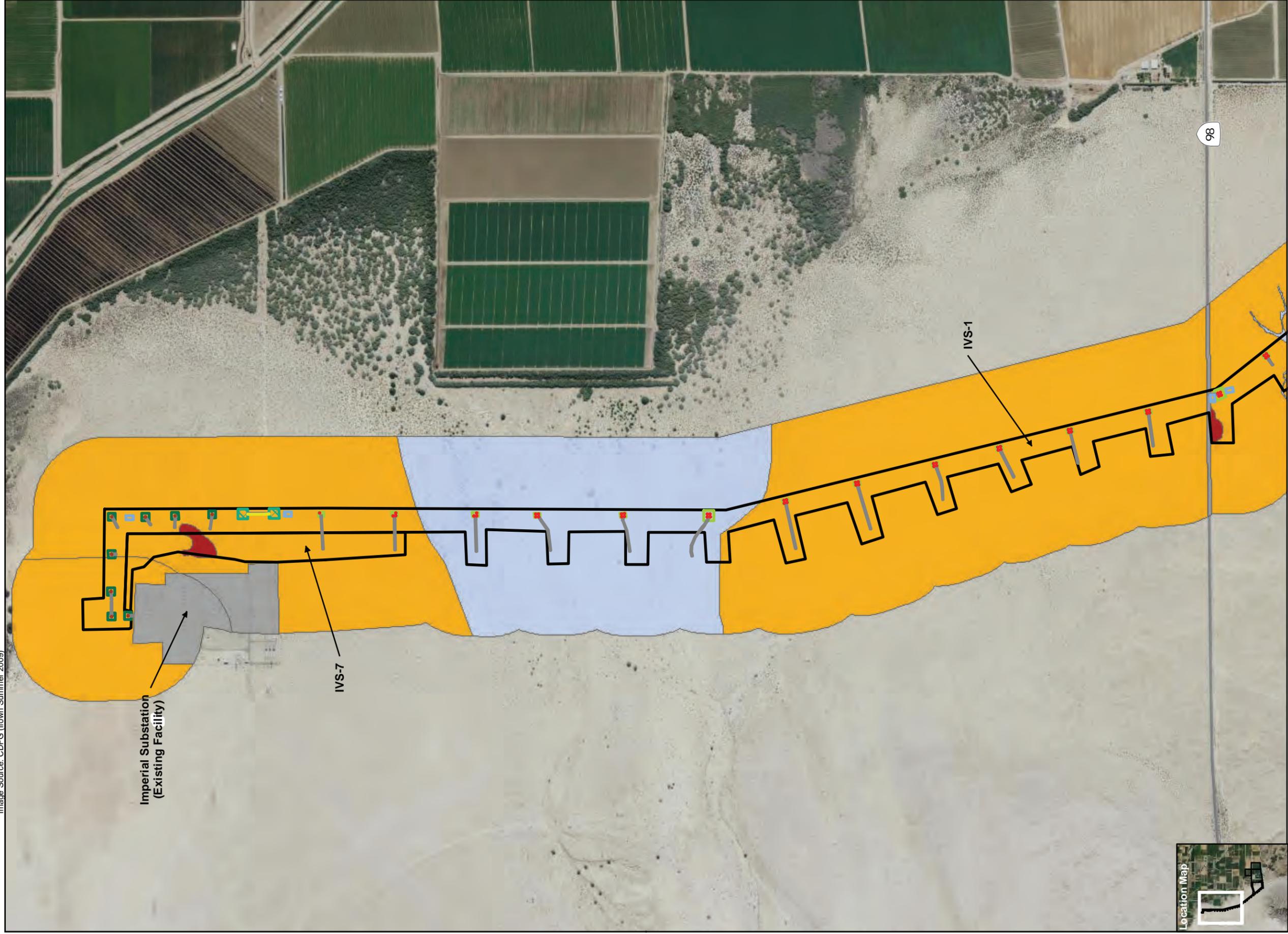


FIGURE 8a

Impacts to Vegetation Communities within the Imperial Solar Energy Center South Project

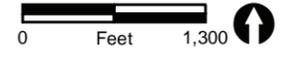
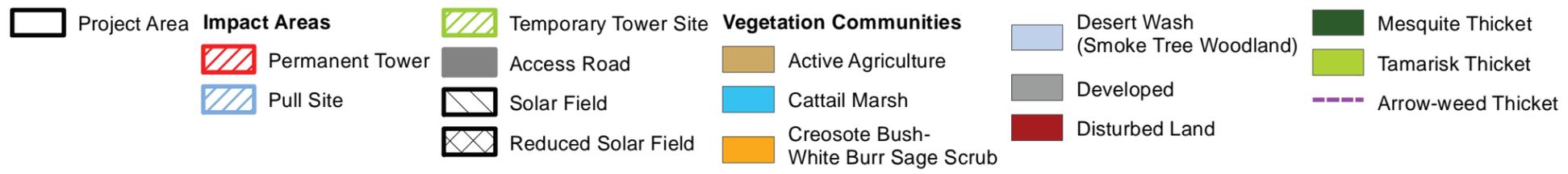
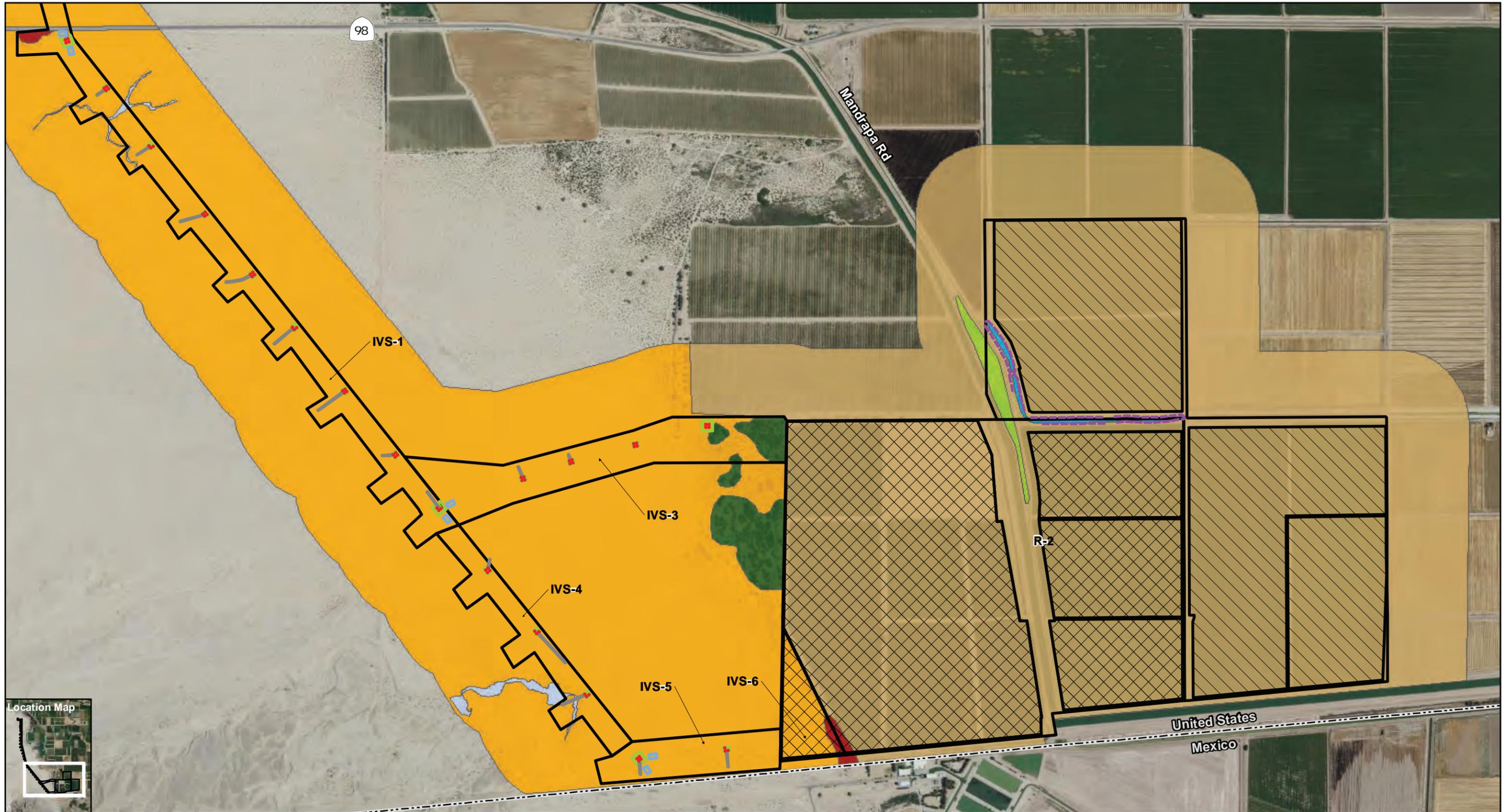


FIGURE 8b
Impacts to Vegetation Communities within the Imperial Solar Energy Center South Project



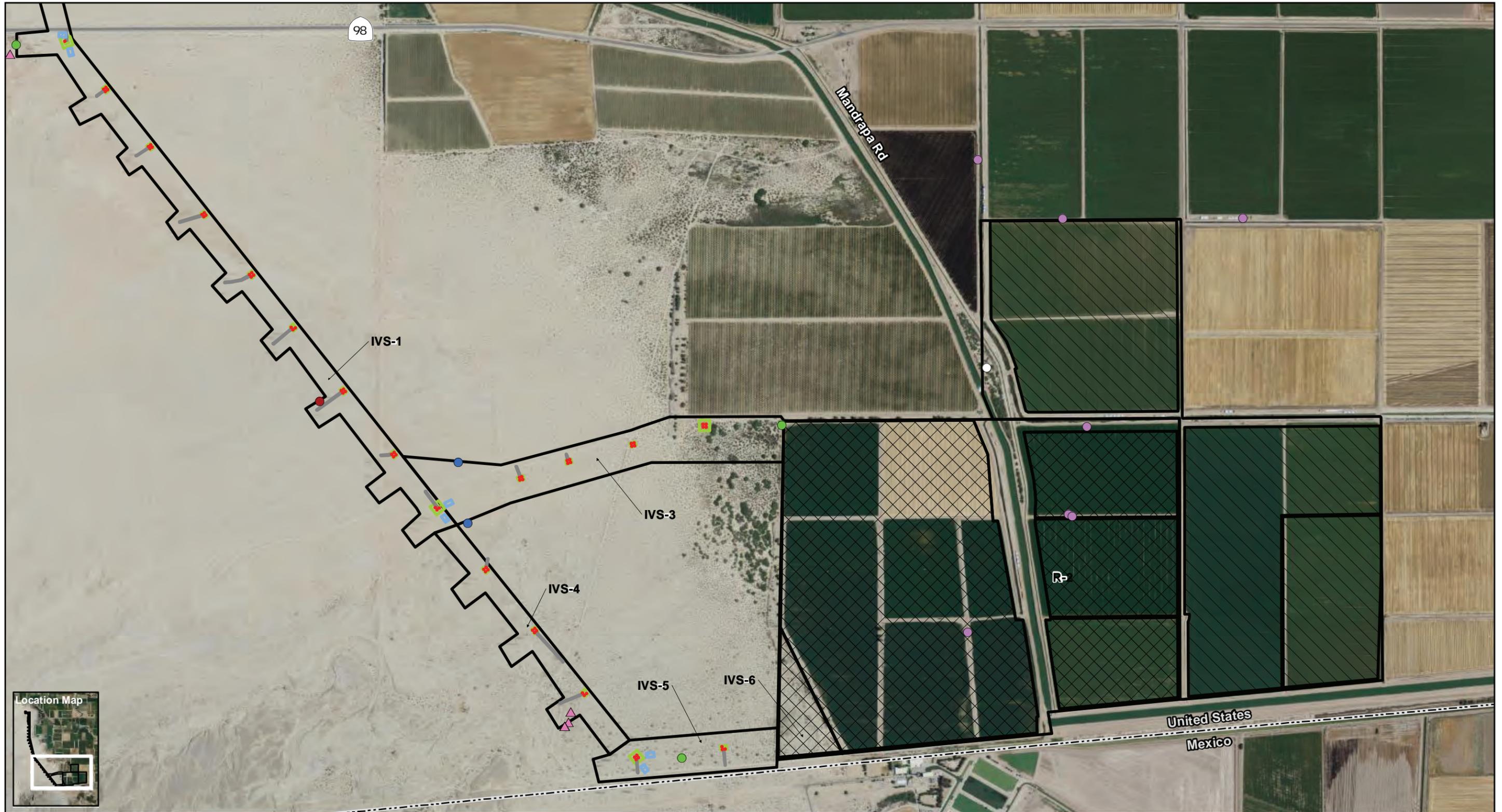
- Survey Area
- Sensitive Plant and Wildlife Species**
 - Flat-tail Horned Lizard (*Phrynosoma mcallii*)
 - Loggerhead Shrike (*Lanius ludovicianus*)
 - Yellow Warbler (*Dendroica petechia*)
 - ▲ Parish's Desert Thorn (*Lycium parishii*)
 - ▲ Thurber's Pilostyles (*Pilostyles thurberi*)
 - ▲ Wolf's Cholla (*Cylindropuntia wolffi*)

- Permanent Monopole Footing
- Permanent Tower
- Temporary Monopole Site
- Temporary Tower Site

- Temporary A-Frame Tower Site
- Pull Site
- Temporary Trench
- Access Road



FIGURE 9a
 Impacts to Special Status Species within the
 Imperial Solar Energy Center South Project



- | | | | | |
|-------------|----------------------|---------------------|--|---|
| Survey Area | Impact Areas | Pull Site | Sensitive Plant and Wildlife Species | Red-tailed Hawk Nest (<i>Buteo jamaicensis</i>) |
| | Permanent Tower | Access Road | Burrowing owl pair and active burrow (<i>Athene cunicularia hypugea</i>) | Yellow Warbler (<i>Dendroica petechia</i>) |
| | Temporary Tower Site | Solar Field | Flat-tail Horned Lizard (<i>Phrynosoma mcallii</i>) | Parish's Desert Thorn (<i>Lycium parishii</i>) |
| | | Reduced Solar Field | Loggerhead Shrike (<i>Lanius ludovicianus</i>) | |



FIGURE 9b
Impacts to Special Status Species within the
Imperial Solar Energy Center South Project

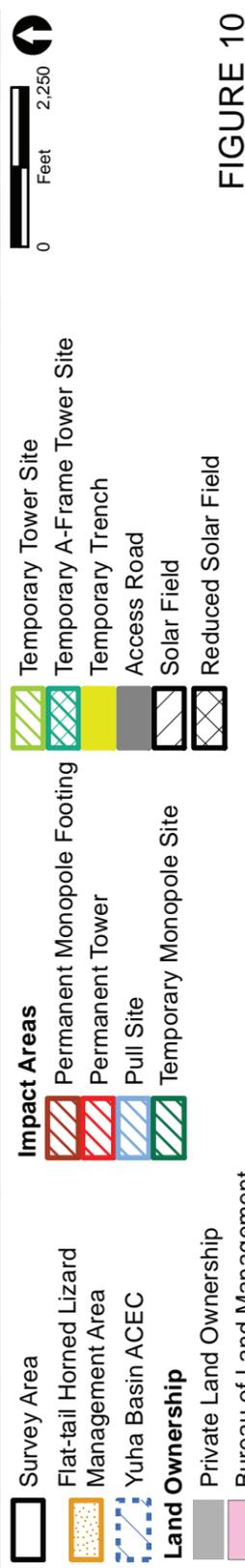
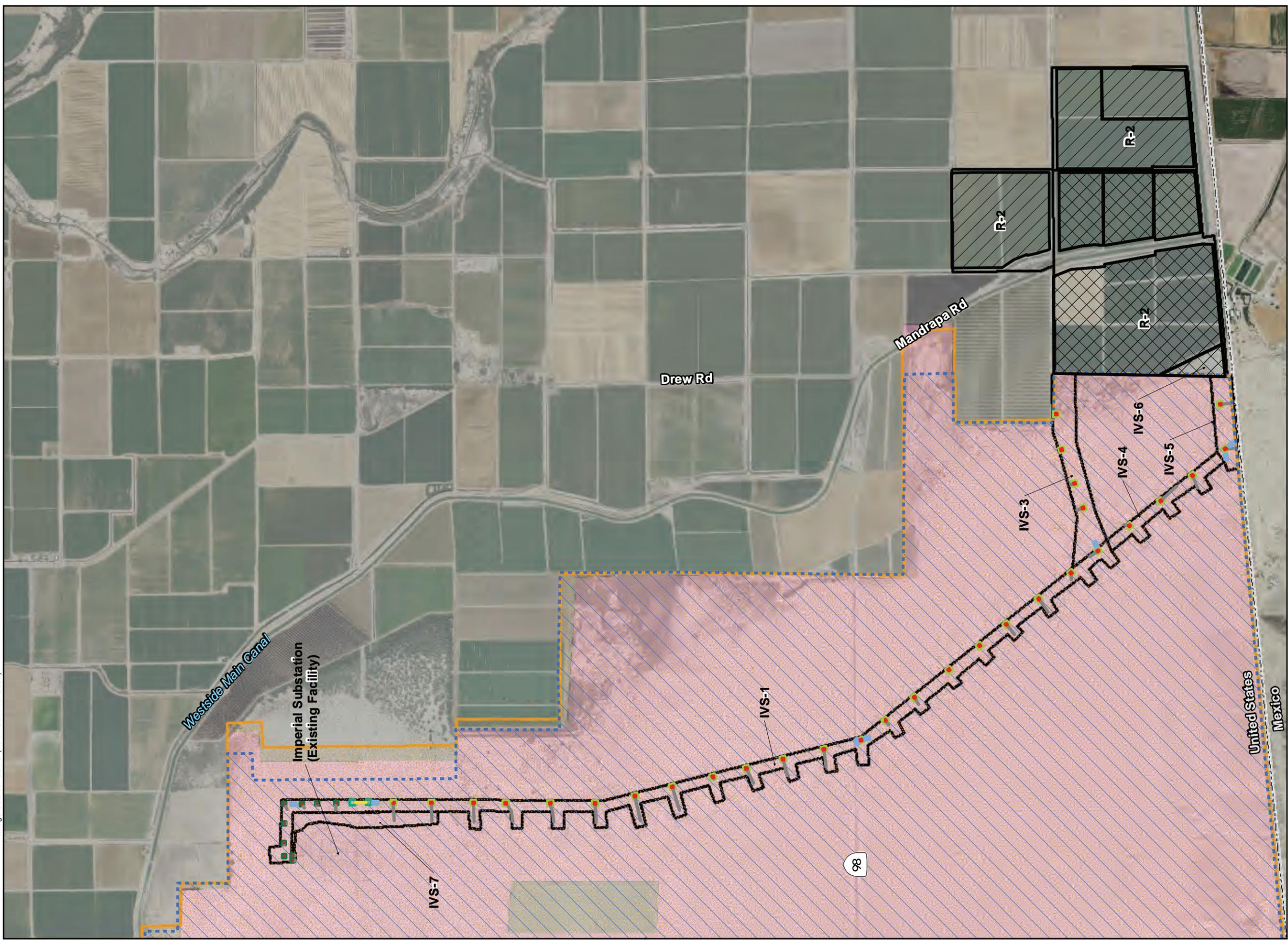


FIGURE 10
 Impacts to Yuba Desert Flat-tail Horned Lizard Management Area
 in Relation to the Imperial Solar Energy Center South Project

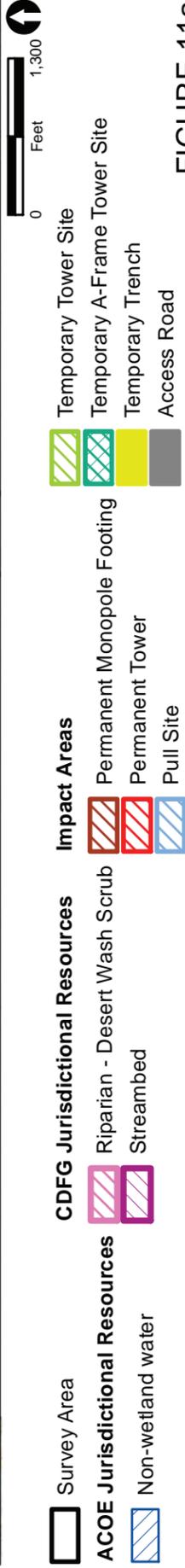
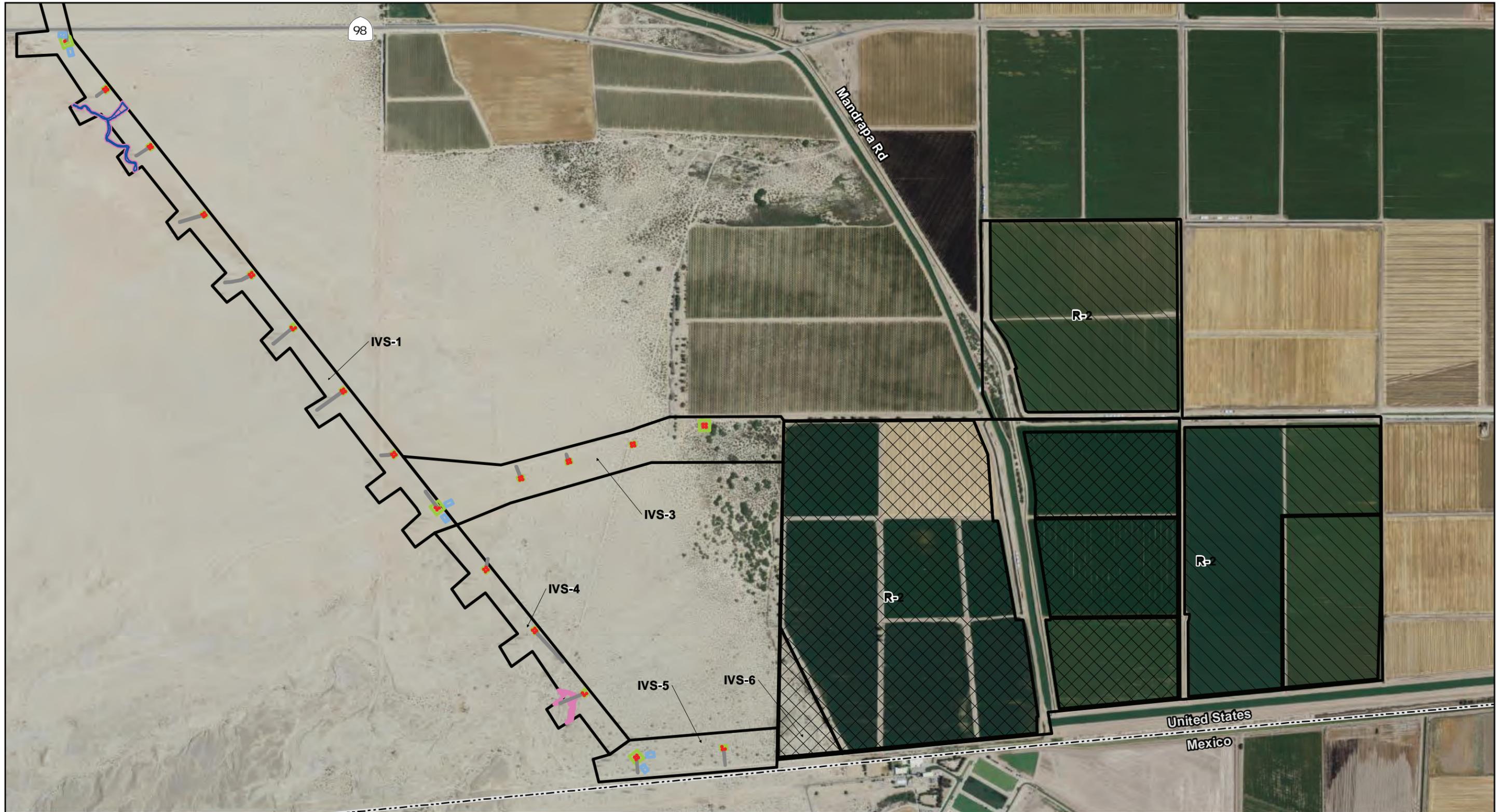


FIGURE 11a

Jurisdictional Resources within the Imperial Solar Energy Center South Project



Survey Area	Impact Areas	Temporary Tower Site
ACOE Jurisdictional Resources	Permanent Tower	Access Road
Non-wetland water	Pull Site	Solar Field
CDFG Jurisdictional Resources		Reduced Solar Field
Riparian - Desert Wash Scrub		

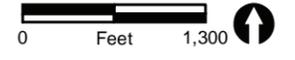


FIGURE 11b
Impacts to Jurisdictional Resources within the
Imperial Solar Energy Center South Project

ATTACHMENT 2

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN ISEC SOUTH PROJECT SURVEY AREA

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
GNETALES										
EPHEDRACEAE PHEDRA FAMILY										
<i>Ephedra trifurca</i>	three-fork ephedra	CBS	N		X	X	X			X
ANGIOSPERMS: DICOTS										
AMARANTHACEAE MARANTH FAMILY										
<i>Amaranthus palmeri</i>	Palmer's amaranth	AT	N	X						
ASTERACEAE UNFLOWER FAMILY										
<i>Ambrosia dumosa</i>	white burr sage	CBS, AG	N		X	X	X	X	X	X
<i>Baileya pauciradiata</i>	lax flower	CBS	N		X	X	X	X	X	X
<i>Bebbia juncea</i> ^A	sweetbush	DW	N		X					
<i>Chaenactis carophoclinia</i> var. <i>carphoclinia</i>	pebble pincushion	CBS	N				X			
<i>Chaenactis fremontii</i>	desert pincushion flower	CBS	N					X		
<i>Chaenactis serotina servioides</i>	pincushion flower	CBS	N							
<i>Dicoria canescens</i>	bugseed	DW	N			X	X			
<i>Encelia farinosa</i>	brittlebush, incienso	CBS	N		X					X
<i>Encelia frutescens</i>	rayless encelia	DW	N	X	X	X				
<i>Geraea canescens</i>	desert sunflower	CBS	N		X	X	X	X		
<i>Helianthus annuus</i>	common sunflower		N	X						
<i>Hymenoclea salsola</i>	cheese bush	DW	N		X					
<i>Isocoma acradenia</i> var. <i>eremophila</i>	alkali goldenbush	CBS	N			X				
<i>Lactuca serriola</i>	prickly lettuce	DW	I	X						
<i>Malacothrix glabrata</i>	desert dandelion	CBS	N			X				
<i>Palafoxia arida</i> var. <i>arida</i>	Spanish needles	CBS, DW	N		X	X	X	X		X
<i>Perityle emoryi</i>	rock daisy	CBS, DW	N		X					
<i>Pluchea sericea</i>	arrow weed	AT	N	X		X	X			
<i>Psathyrotes ramosissima</i>	turtleback	DW	N		X					
<i>Rafinesquia neomexicana</i>	desert chickory	CBS, DW	N		X	X				

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN ISEC SOUTH PROJECT SURVEY AREA (CONT.)

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Sonchus</i> sp.	sow thistle	DW	I					X		
BIGNONIACEAE	IGNONIA FAMILY									
<i>Chilopsis linearis</i> ssp. <i>arcuata</i>	desert-willow	DW	N	X	X	X				
BORAGINACEAE	ORAGE FAMILY									
<i>Cryptantha angustifolia</i>	narrow-leaved forget-me-not	CBS, DW	N		X	X	X	X	X	X
<i>Pectocarya recurvata</i>	comb-bur	CBS, DW	N							
<i>Tiquilia palmeri</i>	Palmer's tiquilia	CBS, DW	N		X	X	X	X		X
<i>Tiquilia plicata</i>	fanleaf crinklemat	CBS, DW	N		X	X	X	X		X
BRASSICACEAE (CRUCIFERAE)	MUSTARD FAMILY			X		X			X	
<i>Brassica tournefortii</i>	Sahara mustard	CBS, DW, AT	I	X	X	X	X	X	X	X
<i>Dytheria californica</i>	spectacle pod	CBS	N		X	X				
<i>Lepidium lasiocarpum</i>	desert peppergrass	CBS, AT	N		X		X			
<i>Sisymbrium irio</i>	London rocket	AG, CBS, DW	I	X		X				
CACTACEAE	ACTUS FAMILY									
<i>Cylindropuntia wolfii</i>	Wolf's cholla	DW	N		X					
CARYOPHYLLACEAE	INK FAMILY									
<i>Achyronychia cooperi</i>	frost mat	CBS, DW	N		X	X	X	X		X
CHENOPODIACEAE	GOOSEFOOT FAMILY									
<i>Atriplex canescens</i>	fourwing saltbush, shad-scale	CBS, DW	N		X	X	X	X		
<i>Atriplex hymenelytra</i>	desert holly	CBS, DW	N		X					
<i>Atriplex polycarpa</i>	desert saltbush	CBS, DW	N		X		X	X	X	
<i>Chenopodium murale</i>	nettle-leaved goosefoot	CBS	N			X				
<i>Salsola tragus</i>	Russian thistle	CBS	I						X	
<i>Suaeda moquinii</i>	desert seepweed	DW	N		X					
EUPHORBIACEAE	PURGE FAMILY			X				X		
<i>Chamaesyce micromera</i>	spurge	CBS, DW	N		X					
<i>Chamaesyce polycarpa</i>	sandmat	CBS, DW	N						X	X
<i>Croton californicus</i> var. <i>mohavensis</i>	desert croton	DW	N		X					
<i>Stillingia spinulosa</i>	broad-leaved stillingia	CBS	N		X					

**ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN ISEC SOUTH PROJECT SURVEY AREA (Cont.)**

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
FABACEAE (LEGUMINOSAE)	LEGUME FAMILY									
<i>Acacia greggii</i>	catclaw acacia	CBS	N						X	
<i>Astragalus palmeri</i>	Palmer's milkvetch	DW	N			X				
<i>Dalea mollissima</i>	silk dalea	DW	N			X				
<i>Lotus</i> sp.	lotus	DW	N	X	X		X			
<i>Lupinus arizonicus</i>	Arizona lupine		N		X					
<i>Olneya tesota</i>	ironwood	CBS	I					X	X	
<i>Prosopis glandulosa</i> var. <i>torreyana</i>	honey mesquite	CBS, DW, MT, TT	N			X				
<i>Psoralemmunus emoryi</i>	Emory's indigo bush	CBS, DW	N	X	X	X	X			X
<i>Psoralemmunus schottii</i>	indigo bush	CBS	N	X	X			X		
<i>Psoralemmunus spinosus</i>	smoke tree	DW	N		X					
GERANIACEAE	ERANIUM FAMILY									
<i>Erodium cicutarium</i>	redstem filaree	AG	I	X						
HYDROPHYLLACEAE	ATERLEAF FAMILY									
<i>Nama demissum</i>	purple mat	CBS, DW	N		X					
<i>Phacelia rotundifolia</i>	round-leaf phacelia	CBS	N		X					
KRAMERIACEAE G	HATANY FAMILY									
<i>Krameria grayi</i> W	Pima rhatany, purple-heather	CBS	N		X	X	X	X		
LAMIACEAE	INT FAMILY									
<i>Hyptis emoryi</i>	desert lavender	DW	N		X					
LOASACEAE	OASA FAMILY									
<i>Mentzelia albicaulis</i>	white stem stickleaf	CBS	N		X					
<i>Petalonyx thurberi</i> ssp. <i>thurberi</i>	sandpaper plant	DW	N		X					
MALVACEAE	ALLOW FAMILY									
<i>Eremalche rotundifolia</i>	desert five-spot	DW	N				X	X		
<i>Sphaeralcea ambigua</i>	globemallow	CBS, DW	N	X		X		X	X	
NYCTAGINACEAE	OUR O'CLOCK FAMILY									
<i>Abronia villosa</i> var. <i>villosa</i>	desert sand verbena	CBS, DW	N		X		X	X		X
ONAGRACEAE	VENING-PRIMROSE FAMILY									
<i>Camissonia boothii</i>	woody bottle washer	CBS, DW	N		X	X		X	X	X

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ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN ISEC SOUTH PROJECT SURVEY AREA (CONT.)

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Camissonia claviformis</i> spp. <i>peirsonii</i>	Peirson's browneyes	CBS, DW	N		X	X		X	X	X
<i>Oenothera deltooides</i>	dune primrose	CBS, DW	N		X	X	X			X
PAPAVERACEAE	OPPY FAMILY									
<i>Eschscholzia minutiflora</i>	little leaf gold poppy	CBS	N		X		X	X		
PLANTAGINACEAE	LANTAIN FAMILY									
<i>Plantago ovata</i>	Indian wheat	CBS, DW	N		X		X	X	X	X
POLEMONIACEAE	HLOX FAMILY									
<i>Langloisia setosissima</i> var. <i>setosissima</i> P	langloisia	CBS	N		X					
<i>Loeseliastrum mathewsii</i>	desert calico	CBS	N		X					
POLYGONACEAE	UCKWHEAT FAMILY									
<i>Chorizanthe brevicornu</i>	brittle spineflower	CBS	N			X	X			
<i>Chorizanthe rigida</i> B	rigid chorizanthe	CBS	N		X	X	X	X		
<i>Eriogonum deflexum</i>	skeleton weed	CBS, DW	N		X	X	X	X	X	X
<i>Eriogonum deserticola</i>	dune buckwheat	CBS, DW	N			X				
<i>Eriogonum inflatum</i>	desert trumpet	CBS, DW	N				X			
<i>Eriogonum thomsonii</i> B	Thomas's buckwheat	CBS, DW	N		X	X				X
PORTULACACEAE	URSELANE FAMILY									
<i>Calandrinia ambigua</i>	dead man's fingers	CBS	N		X					
RAFFLESIIACEAE	AFFLESIA FAMILY									
<i>Pilostyles thurberi</i>	Thurber's pilostyles	DW	N		X					
RESEDACEAE	IGNONETTE FAMILY									
<i>Oligomeris linifolia</i> P	narrowleaf oligomeris	CBS, DW	N		X	X	X	X		X
SOLANACEAE	IGHTSHADE FAMILY									
<i>Lycium parishii</i> / <i>L. brevipes</i> var. <i>brevipes</i> R	Parish's desert-thorn / desert-thorn	DW	N				X			
<i>Nicotiana clevelandii</i>	desert tobacco	CBS	N						X	
<i>Solanum elaeagnifolium</i>	white horse-nettle	AG	N	X						
TAMARICACEAE M	AMARISK FAMILY									
<i>Tamarix aphylla</i>	Athel tamarisk	DW, TT	I	X	X	X				
<i>Tamarix ramosissima</i> N	salt cedar, tamarisk	DW, TT	I	X	X	X	X			

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN ISEC SOUTH PROJECT SURVEY AREA (Cont.)

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
VISACEAE		ISTLETOE FAMILY								
<i>Phoradendron californium</i>	mistletoe	CBS	N					X	X	
ZYGOPHYLLACEAE		ALTROP FAMILY								
<i>Larrea tridentata</i>	creosote bush	CBS, DW	N		X	X	X	X	X	X
<i>Tribulus terrestris</i>	puncture vine	DW, AG	I	X	X					
ANGIOSPERMS: MONOCOTS										
LILIACEAE		ILY FAMILY								
<i>Hesperocallis unguiculata</i>	desert lily	DW	N		X	X	X		X	X
POACEAE (GRAMINEAE)		GRASS FAMILY								
<i>Aristida</i> sp.	three-awn	CBS	N		X					
<i>Arundo donax</i>	giant reed	AG	I	X						
<i>Avena fatua</i>	wild oat	AG	I	X						
<i>Cynodon dactylon</i>	Bermuda grass	AG, DW	I	X	X					
<i>Echinochloa</i> sp.	barnyard grass	AG	I	X						
<i>Phalaris minor</i>	Mediterranean canary grass	AG, DW	I	X	X					
<i>Pleuraphis [=Hilaria] rigida</i>	big galleta grass	DW, CBS	N		X	X	X	X		
<i>Polypogon monspeliensis</i>	annual beard grass, rabbit's foot grass	AG	I	X						
<i>Schismus barbatus</i>	Mediterranean grass	CBS, DW	I		X	X	X	X	X	X
<i>Sorghum halapense</i>	Johnson grass	AG	I	X						

HABITATS

AG = Agriculture
CBS = Creosote bush – white burr sage scrub
DW = Desert wash
MT = Mesquite thicket

ORIGIN

N = Native to locality
I = Introduced species from outside locality

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN ISEC SOUTH PROJECT SURVEY AREA (CONT.)

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ATTACHMENT 3

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
INVERTEBRATES (Nomenclature from Eriksen and Belk 1999; Milne and Milne 1980; Mattoni 1990; and Opler and Wright 1999)										
THERAPHOSIDAE	ARANTULAS									
<i>Aphonopelma chalcodes</i>	desert tarantula	CBS	U		B					
FORMICIDAE	NTS									
<i>Pogonomyrmex spp.</i>	Harvester ants	CBS	C		O	O	O	O	O	O
PIERIDAE ^T	HITES & SULPHURS									
<i>Pieris rapae</i>	cabbage white	CBS, DW	C		O	O	O	O	O	O
LYCAENIDAE	LUES, COPPERS, & HAIRSTREAKS									
<i>Brephidium exile</i> ^A	western pygmy blue	CBS	F					O	O	
<i>Icaricia acmon acmon</i>	Acmon blue	CBS	U						O	
NYMPHALIDAE ^W	RUSH-FOOTED BUTTERFLIES									
<i>Vanessa cardui</i> ^B	painted lady	CBS, DW	C		O	O	O	O	O	O
REPTILES (Nomenclature from Crother 2001 and Crother et al. 2003)										
GEKKONIDAE ^B	ECKOS									
<i>Coleonyx variegatus</i>	Western banded gecko	CBS	U		O		O			
IGUANIDAE	GUANID LIZARDS									
<i>Dipsosaurus dorsalis dorsalis</i>	Northern desert iguana	CBS	C	O	O	O	O	O	O	O

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA (CONT.)**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
PHRYNOSOMATIDAE		PHRYNOSOMATID LIZARDS								
<i>Callisaurus draconoides rhodostictus</i>	Common zebra-tailed lizard	CBS	C	O	O	O	O	O	O	O
<i>Phrynosoma mcallii</i>	flat-tailed horned lizard	CBS	U			O				
<i>Uta stansburiana</i> P	common side-blotched lizard	CBS	C	O	O	O	O	O	O	O
TEIIDAE		HIPTAIL LIZARDS								
<i>Aspidoscelis tigris tigris</i>	Great Basin tiger whiptail	CBS	U				O			
CROTALIDAE		ATTLESNAKES								
<i>Crotalus cerastes</i>	sidewinder	CBS	U				O			
BIRDS (Nomenclature from American Ornithologists' Union 1998 and Unitt 2004)				O						
PHASIANIDAE		PHEASANTS & GROUSE								
<i>Phasianus colchicus</i>	ring-necked pheasant (I)	AG, CM	U/ Y	O						
ODONTOPHORIDAE		NEW WORLD QUAIL								
<i>Callipepla gambelii gambelii</i>	Gambel's quail	CBS, MT, DW,	C/ Y	O	O	O	O	O	O	O
PHALACROCORACIDAE		ORMORANTS								
<i>Phalacrocorax auritus albociliatus</i> C	double-crested cormorant	F	U/ Y	O						
ARDEIDAE		ERONS & BITTERNS								
<i>Ardea alba</i>	great egret	AG, CM	C/ W	O						
<i>Ardea herodias</i>	great blue heron	F	F/ Y	O						
<i>Bubulcus ibis ibis</i>	cattle egret	AG	F/ W	O						
<i>Butorides virescens</i>	green heron	CM	U/ S	O						
<i>Egretta thula thula</i>	snowy egret	AG	F/ W	O						
<i>Ixobrychus exilis hesperis</i> H	western least bittern	AG	U/ S	O						

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH PROJECT SURVEY AREA (CONT.)**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Nycticorax nycticorax</i>	black-crowned night heron	CM	U/ Y	O						
CATHARTIDAE	EW WORLD VULTURES									
<i>Cathartes aura</i>	turkey vulture	F	U/ M, S	O	O					
ACCIPITRIDAE	AWKS, KITES, & EAGLES									
<i>Buteo jamaicensis</i>	red-tailed hawk	CBS	U/ Y				O			
FALCONIDAE	FALCONS & CARACARAS									O
<i>Falco sparverius</i>	American kestrel	AG	F/ Y	O	O					
<i>sparverius</i>				O						
RALLIDAE	RAILS, GALLINULES, & COOTS									
<i>Gallinula chloropus cachinnans</i>	common moorhen	AG, CM	F/ Y	O						
CHARADRIIDAE	APWINGS & PLOVERS									
<i>Charadrius vociferus vociferus</i>	killdeer	CBS	F/ Y	O	O					O
LARIDAE	ULLS, TERNS, & SKIMMERS									
<i>Hydroprogne caspia</i>	Caspian tern	F	U/S	O						
<i>Larus californicus</i>	California gull	F	F/ Y	O						
<i>Larus delawarensis</i>	ring-billed gull	F	U/ Y		O					O
RECURVIROSTRIDAE	STILTS & AVOCETS									
<i>Himantopus mexicanus</i>	black-necked stilt	AG, CM	F/ Y	O						
SCOLOPACIDAE	ANDPIPERS & PHALAROPES									
<i>Actitis macularius</i>	spotted sandpiper	AG,CM	F/ W, Y	O						
<i>Numenius americanus</i>	long-billed curlew	AG, CM	F/ W	O						
COLUMBIDAE	IGEONS & DOVES									
<i>Columba livia</i>	rock dove (I)	CBS	U/ Y	O	O					O

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA (CONT.)**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Columbina passerina pallescens</i>	common ground dove	AG	F/ Y	O						
<i>Streptopelia decaocto</i>	Eurasian collared dove	AG	F/ Y	O	O					O
<i>Zenaida asiatica mearnsi</i>	white-winged dove	CBS	U/ Y	O		O				
<i>Zenaida macroura marginella</i>	mourning dove	CBS, DW, MT, TT	C/ Y	O	O	O	O	O	O	O
CUCULIDAE	CUCKOOS & ROADRUNNERS									
<i>Geococcyx californianus</i>	greater roadrunner	CBS	F/ Y	O	O		O	O		
STRIGIDAE	TYPICAL OWLS									
<i>Athene cunicularia</i>	burrowing owl	AG	U/ Y, W	O						
<i>Bubo virginianus</i>	great horned owl	CBS	U/ Y				O		O	
CAPRIMULGIDAE	OATSUCKERS									
<i>Chordeiles acutipennis texensis</i>	lesser nighthawk	CBS	F/ S			O		O		
APODIDAE T	WIFTS									
<i>Aeronautes saxatalis</i>	white-throated swift	F	U/ Y	O						
TROCHILIDAE	UMMINGBIRDS									
<i>Archilochus alexandri</i>	black-chinned hummingbird	DW	U/ S		O					
<i>Calypte anna</i>	Anna's hummingbird	MT	F/ Y			O				
<i>Calypte costae</i>	Costa's hummingbird	MT	F/ S			O				
TYRANNIDAE H	TYRANT FLYCATCHERS									
<i>Contopus cooperi</i>	olive-sided flycatcher	DW	F/ S		O					
<i>Empidonax traillii</i>	willow flycatcher	TT	U/ S	O						
<i>Myiarchus cinerascens cinerascens</i>	ash-throated flycatcher	DW	F/ S				O			

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH PROJECT SURVEY AREA (CONT.)**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Sayornis nigricans semiatra</i>	black phoebe	CBS	F/ Y	O					O	
<i>Sayornis saya</i>	Say's phoebe	CBS, DW	C/ W		O	O	O	O	O	O
<i>Tyrannus verticalis</i>	western kingbird	DW	F/ S	O	O					O
LANIIDAE	HRIKES									
<i>Lanius ludovicianus</i>	loggerhead shrike	CBS	U/ Y	O	O	O	O	O	O	
CORVIDAE	ROWS, JAYS, & MAGPIES									
<i>Corvus brachyrhynchos hesperis</i>	American crow	CBS	F/ Y	O	O					O
<i>Corvus corax clarionensis</i>	common raven	CBS	F/ Y			O				
ALAUDIDAE	ARKS									
<i>Eremophila alpestris leucansiptila</i>	horned lark	CBS	F/ Y	O O	O	O	O	O	O O	O
HIRUNDINIDAE	WALLOWES									
<i>Hirundo rustica erythrogaster</i>	barn swallow	AG	U/ M	O						
<i>Petrochelidon pyrrhonota tachina</i>	cliff swallow	AG, MT	C/ S	O	O	O				
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow	AG	C/ S	O	O					
REMIZIDAE	ERDIN									
<i>Auriparus flaviceps acaciaram</i>	verdin	CBS, DW	C/ Y	O	O	O				
STURNIDAE	STARLINGS & MYNAS									
<i>Sturnus vulgaris</i>	European starling (I)	F	F/ Y	O				O		
SYLVIIDAE	NATCATCHERS									
<i>Poliophtila caerulea</i>	blue-gray gnatcatcher	DW	F/ Y		O	O				

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA (CONT.)**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence							
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7	
<i>Polioptila melanura</i>	black-tailed gnatcatcher	DW	F/ Y	O	O						
MIMIDAE	MOCKINGBIRDS & THRASHERS										
<i>Mimus polyglottos polyglottos</i>	northern mockingbird	CBS	F/ Y	O	O						O
<i>Toxostoma crissale</i>	crissal thrasher	TT, MT	U/ Y		O	O		O	O		
<i>Toxostoma lecontei lecontei</i>	Le Conte's thrasher	MT	U/ Y			O					
MOTACILLIDAE	CHIPPING SPARROWS & PIPITS										
<i>Anthus rubescens pacificus</i>	American pipit	F	U/ W			O					
PARULIDAE	WOOD WARBLERS										
<i>Dendroica coronata</i>	yellow-rumped warbler	CBS, DW, MT, AG	C/ W		O	O	O	O	O	O	O
<i>Dendroica nigrescens</i>	black-throated gray warbler	DW	U/ M				O				
<i>Dendroica petechia</i>	yellow warbler	DW, TT	U/ S	O	O						
<i>Geothlypis trichas</i>	common yellowthroat	TT, DW	C/ Y	O	O						
<i>Vermivora celata</i>	orange-crowned warbler	DW, TT	F/ Y	O	O						
<i>Wilsonia pusilla</i>	Wilson's warbler	DW, TT	F/ M	O	O						
EMBERIZIDAE	SPRING SPARROWS										
<i>Chondestes grammacus strigatus</i>	lark sparrow	DW	U/ Y		O						
<i>Melospiza melodia</i>	song sparrow	TT, AT	F/ Y	O							
<i>Pipilo aberti</i>	Abert's towhee	DW	U/ Y	O	O						
<i>Pipilo maculatus</i>	spotted towhee	CBS	F/ Y							O	
<i>Pooecetes gramineus</i>	vesper sparrow	CBS	U/ W	O							
<i>Zonotrichia leucophrys</i>	white-crowned sparrow	CBS	C/ W		O	O	O	O	O	O	O

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH PROJECT SURVEY AREA (CONT.)**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
CARDINALIDAE	CARDINALS & GROSBEAKS									
<i>Passerina caerulea salicaria</i>	blue grosbeak	TT, AT	U/ S	O						
ICTERIDAE	LACKBIRDS & NEW WORLD ORIOLES									
<i>Agelaius phoeniceus</i>	red-winged blackbird	AG, CM, DW	C/ Y	O	O					
<i>Icterus bullockii</i>	Bullock's oriole	TT, MT	F/ S	O						
<i>Molothrus ater</i>	brown-headed cowbird	CM, TT	F/ Y	O				O		
<i>Quiscalus mexicanus</i>	great-tailed grackle	AG, CM	F/ Y	O						
<i>Sturnella neglecta</i>	western meadowlark	AG, CM	C/ Y	O						
<i>Xanthocephalus xanthocephalus</i>	yellow-headed blackbird	AG, TT, CM	F/ W	O						
FRINGILLIDAE	INCHES									
<i>Carduelis psaltria hesperophilus</i>	lesser goldfinch	CBS, DW, MT, TT	C/ Y	O				O		O
<i>Carpodacus mexicanus frontalis</i>	house finch	AG, DW, TT, CBS	F/ Y	O	O				O	O
PASSERIDAE	OLD WORLD SPARROWS									
<i>Passer domesticus</i>	house sparrow (I)	AG	U/ Y	O						
MAMMALS (Nomenclature from Baker et al. 2003)										
MOLOSSIDAE	REE-TAILED BATS									
<i>Tadarida brasiliensis</i>	Mexican free-tailed bat	F	C		O		O			
LEPORIDAE	ABBITS & HARES									
<i>Lepus californicus deserticola</i>	desert black-tailed jackrabbit	CBS	F		T, S	T, S	T, S	O	T, S	T, S
<i>Sylvilagus audubonii</i>	desert cottontail	CBS	C		O	T, S, B				

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA (CONT.)**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence							
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7	
SCIURIDAE		QUIRRELS & CHIPMUNKS									
<i>Spermophilus tereticaudus</i>	round-tailed ground squirrel	CBS	C		T, S, B						
HETEROMYIDAE		POCKET MICE & KANGAROO RATS									
<i>Dipodomys spp.</i>	kangaroo rat	CBS	C		T, S, B						
<i>Dipodomys deserti deserti</i>	desert kangaroo rat	CBS	C				O	O			
MURIDAE		OLD WORLD MICE & RATS									
<i>Neotoma lepida lepida</i>	desert woodrat	CBS	U	O		D					
<i>Peromyscus sp.</i>	mouse	CBS	C		B, S						
CANIDAE		CANIDS									
<i>Canis latrans</i>	coyote	CBS	U						O		
<i>Urocyon cinereoargenteus</i>	common gray fox	CBS	U		T, S	T					
CERVIDAE		DEER									
<i>Odocoileus hemionus</i>	mule deer	CBS	U		S	T, S		S			

(I) = Introduced species

HABITAT C

AG = Agriculture
 moderate to
 AT = Arrow-weed thicket
 CM = Cattail marsh
 CBS = Creosote bush – white burr sage scrub
 DW = Desert wash
 F = Flying overhead
 MT = Mesquite thicket
 course
 OW = Open water (reservoirs, ponds, streams, lakes)

ABUNDANCE (based on Garrett and Dunn 1981)

C = Common to abundant; almost always encountered in proper habitat, usually in large numbers
 F = Fairly common; usually encountered in proper habitat, generally not in large numbers
 U = Uncommon; occurs in small numbers or only locally

SEASONALITY (birds only)

A = Accidental; species not known to occur under normal conditions; may be an off-migrant

ATTACHMENT 3

WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH PROJECT SURVEY AREA (CONT.)

TT = Tamarisk thicket

M = Migrant; uses site for brief periods of time, primarily during spring and fall months

S = Spring/summer resident; probable breeder on-site or in vicinity

T = Transient; uses site regularly but unlikely to breed on-site

V = Rare vagrant

W = Winter visitor; does not breed locally

Y = Year-round resident; probable breeder on-site or in vicinity

EVIDENCE OF OCCURRENCE

B = Burrow

C = Carcass/remains

D = Den site

O = Observed

S = Scat

T = Track

V = Vocalization

**ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA (CONT.)**

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Imperial Solar Energy Center South

Appendix I-1 a

Addendum to Biological Technical Report

Prepared by Recon Environmental, Inc.

November 17, 2010

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A Company of Specialists

November 17, 2010

Mr. Steve Johnson
CSOLAR Development, LLC
1044 N. 115th Street, Suite 400
Omaha, NE 68154

Reference: Solar Field Access Road Addendum to the Biological Technical Report for the Imperial Solar Energy Center South Project (RECON Number 5726B)

Dear Mr. Johnson:

This letter serves as an addendum to the *Biological Technical Report for the Imperial Solar Energy Center South Project*, prepared by RECON on October 15, 2010. This letter summarizes general biological surveys conducted for a newly proposed access road (IVS-8) added to the project after the initial biological surveys had been completed in the spring and summer of 2010.

CSOLAR Development, LLC proposes to construct a photovoltaic solar facility and associated transmission lines west of Calexico, California. The proposed Imperial Solar Energy Center South Project is located approximately 8 miles west of Calexico in Imperial County, California (Attachment 1: Figure 1). The proposed project includes a 927.6-acre solar field (R-2 and IVS-6) that is situated on the United States/Mexico border and a proposed 230-kilovolt transmission line route (IVS-1) adjacent to the existing 230-kilovolt transmission corridor that starts on the north side of the Imperial Valley Substation and wraps around the eastern side of the substation to run south for 5 miles (Preferred Alternative). The transmission line then runs east for 1 mile (IVS-3) to connect to the solar field. The proposed transmission corridor would consist of an approximately 83-acre (120-foot-wide) right-of-way along Bureau of Land Management (BLM)-administered lands, although most of these lands would not be subject to disturbance. An alternate transmission line extension (Alternative A) runs south from IVS-1 for 1 mile (IVS-4) and then east for 0.5 mile (IVS-5) to connect to the solar field. A second project alternative, Alternative B, includes a reduced solar field of 467.4 acres that connects to the Imperial Valley Substation via IVS-1 and IVS-3.

The newly proposed solar field access road (IVS-8) runs north from the solar field to State Route 98 along the western edge of the Westside Main Canal (see Attachment 1: Figures 2 and 3).

RECON conducted a general biological survey of the approximately 6.8-acre solar field access road corridor (IVS-8) on October 20, 2010. The 50-foot wide access road corridor is located immediately adjacent to the Westside Main Canal. The project area is found in Township 17 South, Range 12 East, Section 17; of the U.S. Geological Survey (USGS) Mount Signal quadrangle (USGS 1976; see Attachment 1: Figures 2 and 3).

1.0 SURVEY METHODS

A site visit was conducted on October 20, 2010 by RECON biologists Alex Fromer and Anna Bennett. The survey was conducted between 9:20 A.M. and 12:30 P.M. The air temperature was 68 degrees Fahrenheit, and wind speed ranged from 1 to 4 miles per hour with gusts to 7 miles per hours. Cloud cover during the survey was 35–80 percent. Vegetation communities were mapped on a 1-inch-equals-80-feet aerial photograph of the survey area. Animal species were observed directly or detected from calls, tracks, scat, nests, or other sign. Because the survey was performed during the day, nocturnal animals were identified by sign. All plant species observed within the survey area were also noted, and plants that could not be identified in the field were identified later using taxonomic keys.

Limitations to the compilation of a comprehensive floral checklist were imposed by seasonal factors, since many spring-blooming annual plants would not have been visible at the time of the survey. Floral nomenclature follows Baldwin et al. (2002) for common plants and California Native Plant Society (CNPS 2001) for sensitive plants, as updated by the Jepson Flora Project Jepson Online Interchange (2009). Zoological nomenclature is in accordance with the American Ornithologists' Union Checklist (1998) and Unitt (2004) for birds; with Baker et al. (2003) and Hall (1981) for mammals; and with Crother (2001) and Crother et al. (2003) for amphibians and reptiles.

2.0 SURVEY RESULTS

Elevations within the survey area range from 15 feet below mean sea level (MSL) to 65 feet above MSL. The IVS-8 survey corridor encompasses an existing dirt road, a soil berm adjacent to the road, and the vegetation to the west of the road that may be impacted during road widening.

2.1 Vegetation Communities and Land Cover Types

The vegetation communities observed within the survey area include disturbed/developed land, active agricultural fields, arrow weed (*Pluchea sericea*) thicket, and desert saltbush scrub. Table 1 shows the vegetation communities and land cover types that occur within IVS-8. Plant species observed are presented in Attachment 2.

TABLE 1
VEGETATION AND LAND COVER TYPES WITHIN THE ISEC SOLAR FIELD ACCESS ROAD (IVS-8)

Vegetation Community/Land Cover Types	Acreage
Desert saltbush scrub	0.1
Arrow weed thicket	0.3
Active agricultural fields	0.9
Disturbed/developed land	5.5
TOTAL	6.8

A narrow, linear strip of desert saltbush scrub dominated by big saltbush (*Atriplex lentiformis* spp. *lentiformis*) and four-wing saltbush (*A. canescens*) is present along the edges of the agricultural fields adjacent to IVS-8.

Approximately 0.3 acre of arrow weed thicket is present along the western edge of the IVS-8 solar field access road. A portion of this arrow weed thicket is a monoculture of arrow weed, while the northern patches of the arrow weed thicket contain scattered creosote (*Larrea tridentata*) bushes or tamarisk (*Tamarix ramosissima*) trees.

Active agricultural fields border the majority of IVS-8 and consist of alfalfa and orchard fields. The field at the northern section of the project area contains low-growing alfalfa (*Medicago sativa*), while the larger fields in the southern section primarily consist of citrus orchards.

The disturbed/developed land, which occupies 5.5 acres, consists of two parallel dirt access roads. One of the roadways is a large and actively used dirt road that runs directly adjacent to the Westside Main Canal to the east of the survey area. The second, smaller roadway runs parallel to the larger one, but is elevated approximately 4 feet above it and is separated by a steep slope.

2.2 Wildlife

Wildlife species observed on-site include those adapted to urban and developed areas. The most common bird species observed during the survey include black phoebe (*Sayornis nigricans*), Abert's towhee (*Pipilo aberti*), and black-tailed gnatcatcher (*Polioptila melanura*). Black phoebe was found throughout the project area, while Abert's towhee and black-tailed gnatcatcher were found mostly within arrow weed thicket and desert salt brush scrub. Gambel's quail (*Callipepla gambelii*) was observed within the arrow weed thicket. Horned lark (*Eremophila alpestris*), western meadow lark (*Sturnella neglecta*), and killdeer (*Charadrius vociferous*) made use of the agricultural fields adjacent to the northern section of IVS-8.

Several other bird species observed flying overhead include: cliff swallow (*Petrochelidon pyrrhonata*), mourning dove (*Zenaidura macroura*), turkey vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). A great egret (*Ardea alba*) was observed within the Westside Main Canal.

3.0 SENSITIVE BIOLOGICAL RESOURCES

3.1 Sensitive Vegetation Communities

Sensitive vegetation communities are those that are considered rare or sensitive based on the level of disturbance or habitat conversion within their range. Vegetation communities associated with wetland or riparian habitats are protected by state and federal regulations. Desert saltbush scrub and arrow weed thicket are both native plant communities considered sensitive by California Department of Fish and Game (CDFG).

3.2 Special Status and Priority Plant Species

No sensitive plant species were observed within IVS-8 during the general survey. Sensitive plant species with the potential to occur in the survey area are discussed in Attachment 3.

3.3 Sensitive Wildlife Species

No sensitive wildlife species were observed in IVS-8; however, several species have the potential to occur due to the presence of suitable habitat. Burrowing owl (*Athene cunicularia*) and flat-tailed horned lizard (*Phrynosoma mcallii*) are known to occur in the project vicinity and are discussed below. Detailed species accounts for all of the species that may have potential to occur can be found under the *Biological Technical Report for the Imperial Solar Energy Center South Project* (RECON 2010). Additional species with the potential to occur are discussed in Attachment 4.

Burrowing Owl

No burrowing owl or burrowing owl signs was observed within the IVS-8 survey area, but the berms surrounding the active agricultural lands provide suitable habitat for this species and it has a high potential to occur within the survey area.

Flat-tailed Horned Lizard

No flat-tailed horned lizard (FTHL) was observed within the IVS-8 survey corridor and none is expected to occur due to lack of suitable habitat.

The active agricultural fields within and adjacent to IVS-8 do not provide habitat for this species due to lack of appropriate vegetation, soils, and harvester ants.

The arrow weed thicket and desert saltbush scrub are both characterized by dense, shrubby vegetation, and within the survey area, vegetation cover is too dense to provide suitable FTHL habitat. Although these vegetation communities fall within the FTHL Yuha Desert Management Area (MA; FTHL ICC 2003), no FTHLs are expected to occur within the arrow weed thicket or the desert saltbush scrub.

3.4 Wetland and Non-wetland Jurisdictional Waters

An assessment of U.S. Army Corps of Engineers (ACOE) and CDFG jurisdictional resources was conducted on November 9, 2010 by a qualified delineator. The 0.3-acre arrow weed thicket within IVS-8 is primarily a monoculture of arrow weed and falls under the jurisdiction of CDFG as a riparian resource. This will be confirmed in coordination with CDFG.

No ACOE jurisdictional resources are present within the survey area. Although arrow weed, classified as a facultative wet (FACW) plant species, clearly dominates some of the vegetated area west of the road, there does not appear to be a direct hydrologic connection from the arrow weed to the Westside Main Canal. In general, the frontage road to the canal is at a higher relative elevation to both the canal to the east and the arrow weed scrub present to the west. In addition, a large berm (average height 3 ft from road elevation, max height 6 ft) runs along the western edge of the road, constraining any potential flow from the arrow weed scrub to the canal. Several erosive features and potential hydrologic indicators along the road and within the arrow weed scrub were investigated. All erosive features with a potential ordinary high water mark (OHWM)/cut banks persisted for a few feet before converting into sheet flow and draining away from the canal and into the arrow weed scrub at low points in the constructed berm to the west. The general topography and resultant sheet flow of the arrow weed scrub gently slopes toward the canal, but is constrained by the large, constructed berm. Surface cracking was observed at a low point adjacent to the berm within the native scrub where water likely collects during rain events, but no potential hydrologic connection to the canal (stream channel, surface flow, or culverts) was observed. The arrow weed scrub on the west side of the berm has likely formed as a result of the modification of natural drainage patterns by the constructed berm. No ACOE jurisdictional resources are present within the survey area, as no direct hydrologic connections to navigable waterways are present on the site,

4.0 IMPACTS

The proposed project includes the widening of an existing dirt access road on the west bank of the Westside Main Canal. The current road bed is approximately 20–30 feet wide, with an additional 10–20-foot-wide berm west of the road, comprising a corridor of disturbed land that is approximately 40 feet wide. The road bed will be extended to the edge of the 40-foot disturbance and will encroach slightly (up to 10 feet in width) into undisturbed land, if a cut/fill slope is needed to stabilize or level the road, totaling a 50-foot corridor.

As seen in Table 1, the total impact acreage for the proposed access road is 6.8 acres. Construction of IVS-8 will directly impact 5.5 acres of disturbed/developed land, 0.9 acre of active agricultural fields, 0.3 acre of arrow weed thicket, and 0.1 acre of desert saltbush scrub.

Impacts to desert saltbush scrub and arrow weed thicket, both native plant communities considered sensitive by CDFG, are considered significant and will require mitigation.

The active agricultural and disturbed/developed lands are not considered sensitive land cover types, and therefore, no mitigation would be required for impacts to these areas.

4.1 Special Status and Priority Plant Species

No rare or sensitive plant species were observed within the survey area; however, a focused rare plant survey would be required to confirm the presence or absence of rare plant species. Impacts to rare or sensitive plants may be considered significant and require mitigation.

4.2 Sensitive Wildlife

As shown in Attachment 3, sensitive wildlife species with the potential to occur within the survey area include CDFG Species of Special Concern such as burrowing owl, loggerhead shrike (*Lanius ludovicianus*), Crissal thrasher (*Toxostoma crissale*), and LeConte's thrasher (*T. lecontei*). Spring and fall avian migrants also have potential to forage within the arrow weed thicket and desert saltbush scrub vegetation. Impacts to these species would be considered significant and mitigation would be required.

4.3 Wetland and Non-wetland Jurisdictional Waters

Approximately 0.07 acre of the arrow weed thicket that will be impacted may be considered under the jurisdiction of ACOE and/or CDFG. A jurisdictional delineation will be required to confirm the presence and extent of jurisdictional resources. Impacts to jurisdictional resources would be considered significant and require mitigation.

5.0 MITIGATION

Mitigation is required for project impacts that are considered significant under the California Environmental Quality Act (CEQA), including impacts to sensitive or listed species and sensitive vegetation communities. Mitigation is intended to reduce the impacts to a level of less than significant.

5.1 Sensitive Vegetation Communities

Mitigation will be required for impacts to the desert saltbush scrub and arrow weed thicket at a 1:1 ratio, totaling 0.4 acre (0.1 saltbush scrub and 0.3 arrow weed thicket mitigation). Mitigation for these sensitive vegetation communities will be accomplished in concert with other mitigation for the ISEC South Project as described in the *Biological Technical Report for the ISEC South Project* (RECON 2010).

5.2 Special Status and Priority Plant Species

A focused rare plant survey will be conducted in the fall of 2010 and spring 2011 to determine the presence or absence of rare plant species. If any rare plants are observed within the footprint of the access road, mitigation will occur in the form of relocation, when appropriate, or included as part of the restoration palette for this impact. Restoration standards, including potential transplantation and other conservation measures, should be developed in coordination with the BLM and other state and/or federal agencies as appropriate.

5.3 Sensitive Wildlife

In order to avoid, minimize, and mitigate potential impacts to burrowing owl, loggerhead shrike, Crissal thrasher, LeConte's thrasher, and migratory bird species, mitigation will follow measures for these species as described in the *Biological Technical Report for the ISEC South Project* (RECON 2010).

5.4 Wetland and Non-wetland Jurisdictional Waters

Permanent impacts to the 0.3 acre of riparian habitat, under the jurisdiction of CDFG, would be mitigated at a minimum of a 1:1 ratio, and will occur in concert with mitigation as described in the *Biological Technical Report for the ISEC South Project* (RECON 2010).

Mr. Steve Johnson
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If you have any questions, please do not hesitate to contact me.

Sincerely,



Cheri A. Boucher
Senior Biologist

CAB:eab

Enc. Attachments

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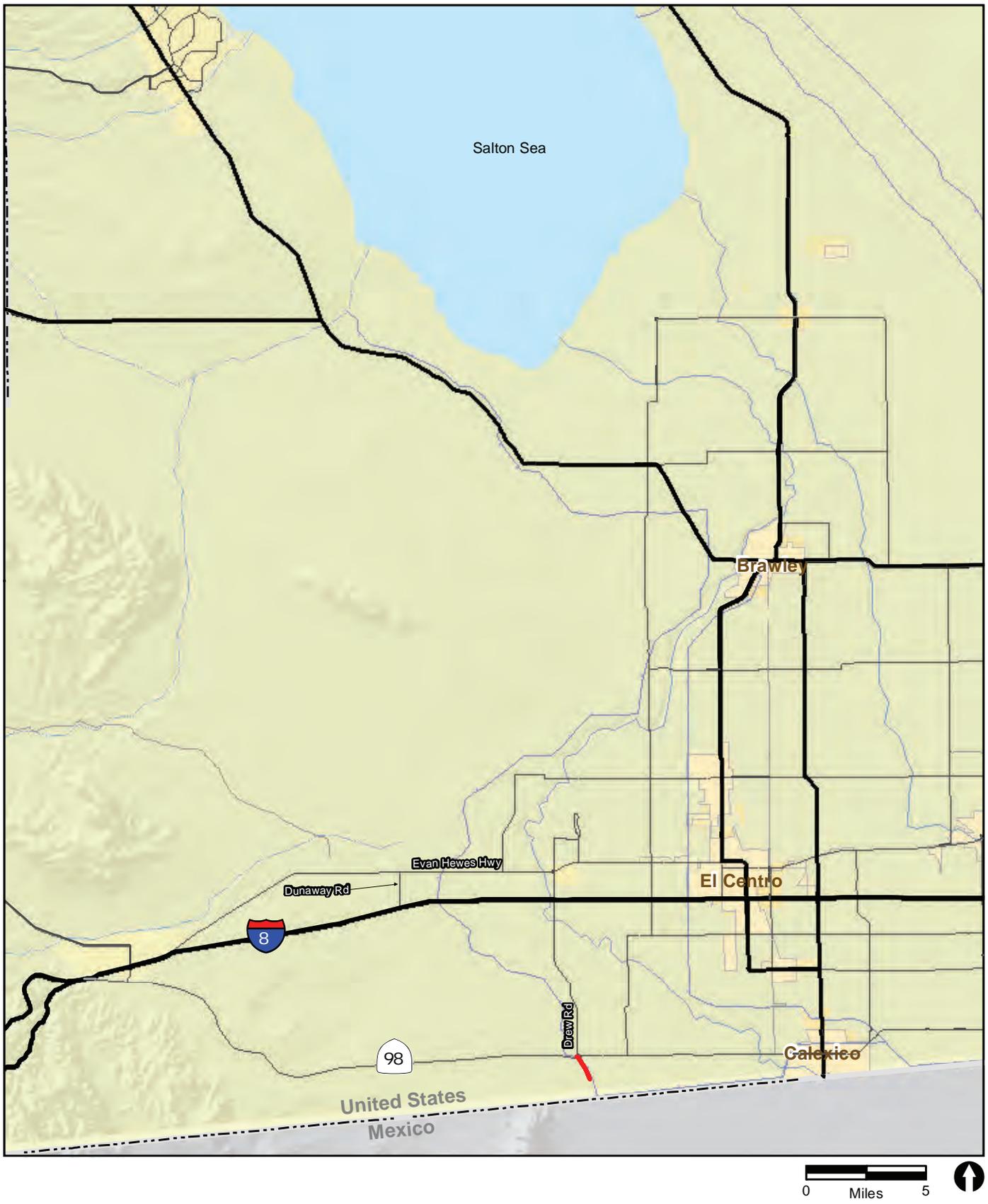
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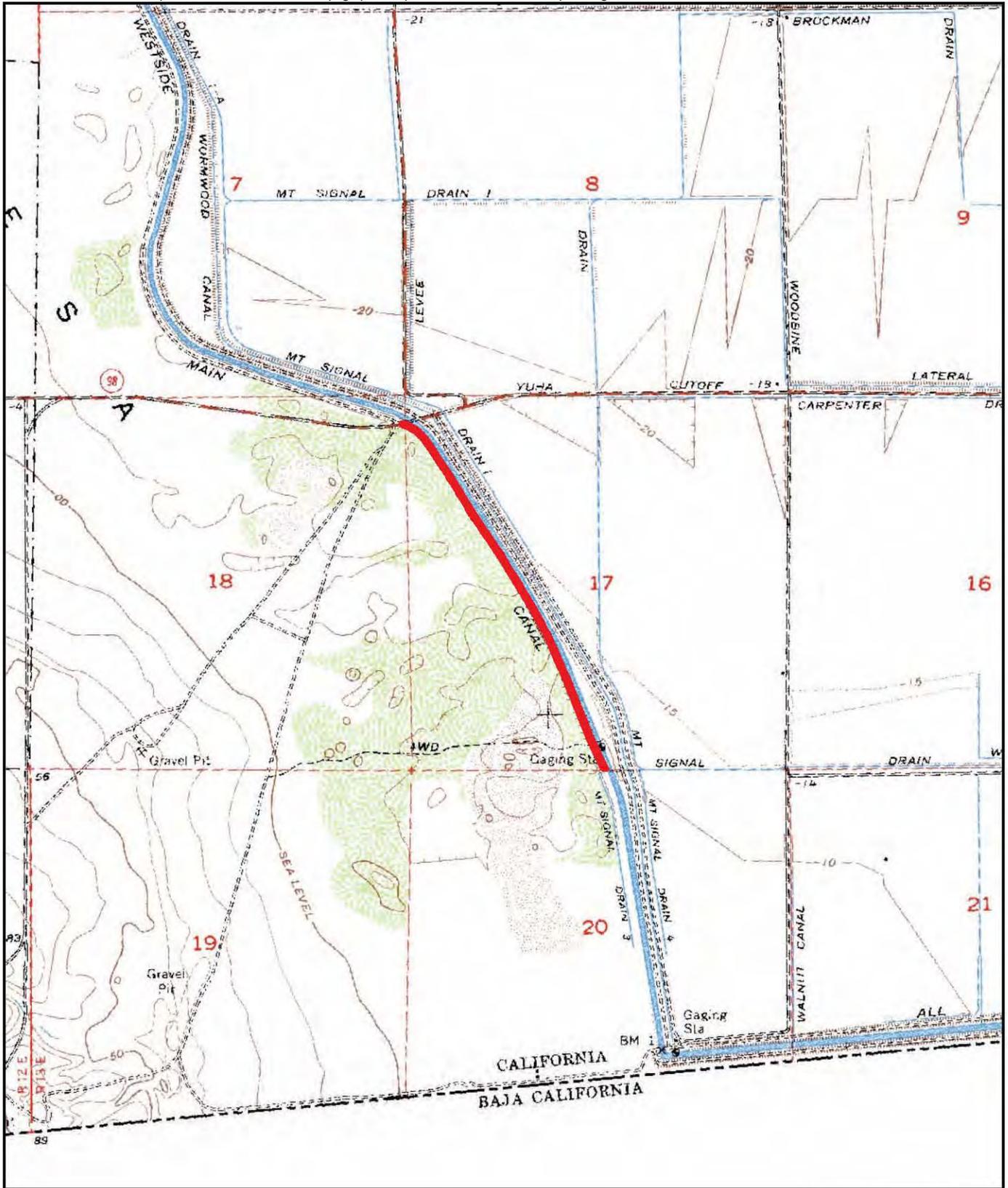
ATTACHMENT 1



 Project Area

FIGURE 1

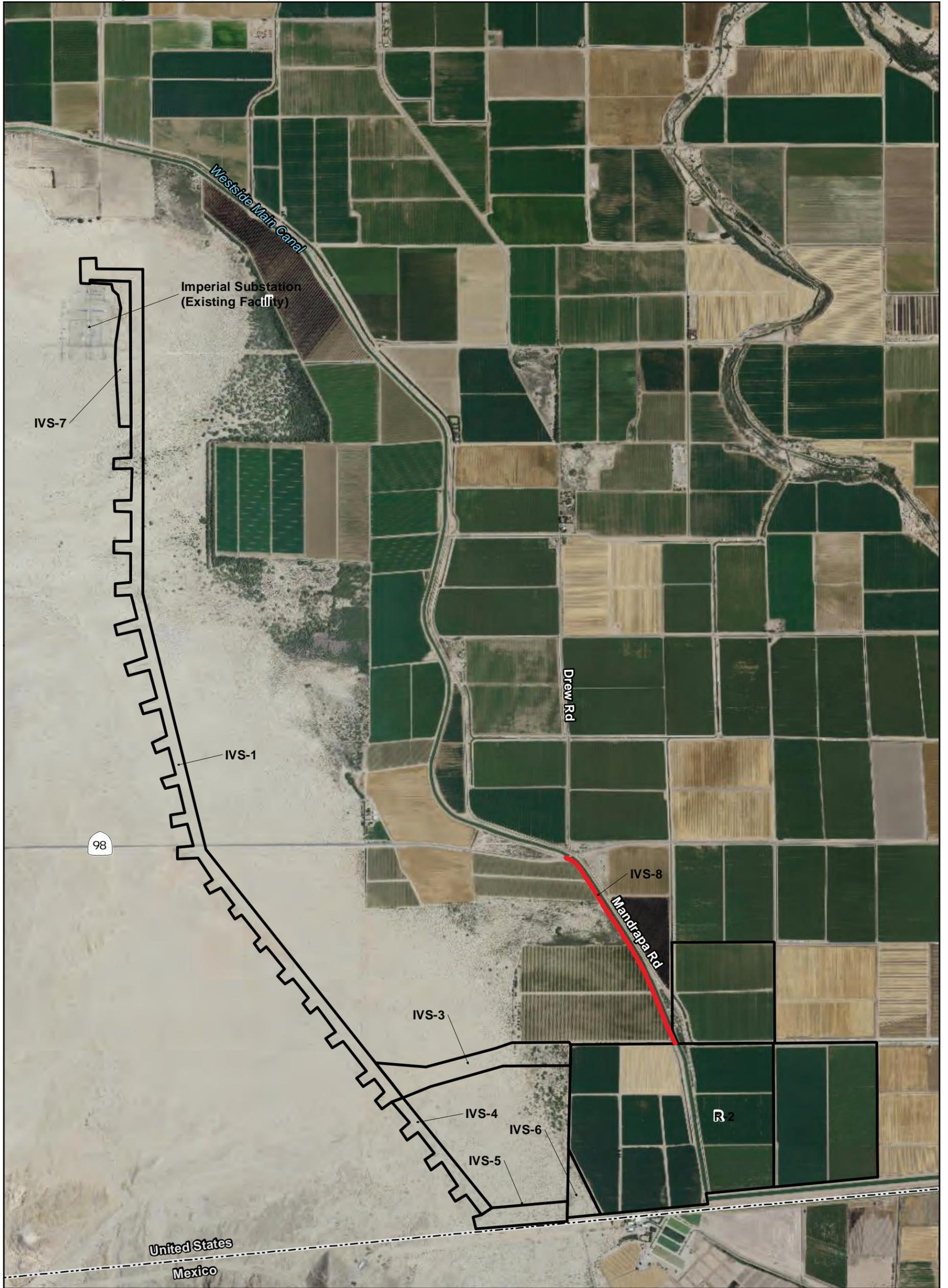
Regional Location of Solar Field Access Road for the ISEC South Project



 Project Area

FIGURE 2

Solar Field Access Road for the ISEC South Project on USGS Map



- IVS-8
- Other ISEC Project Components

0 Feet 2,250

FIGURE 3

Solar Field Access Road for the ISEC South Project on Aerial Photograph



- | | | |
|--|---|---|
|  IVS-8 |  Active Agriculture |  Disturbed Land |
|  Project Components |  Cattail Marsh |  Mesquite Thicket |
| |  Creosote Bush Scrub |  Tamarisk Thicket |
| |  Creosote Bush-White Burr Sage Scrub |  Arrowweed Thicket |



FIGURE 4
Vegetation Communities Within
Solar Field Access Road (IVS-8)
for the ISEC South Project



-  IVS-8
-  Project Components

Sensitive Plant and Wildlife Species

-  Burrowing owl pair and active burrow (*Athene cunicularia hypugea*)
-  Loggerhead Shrike (*Lanius ludovicianus*)
-  Yellow Warbler (*Dendroica petechia*)



FIGURE 5
Special Status Species Within
Solar Field Access Road (IVS-8)
for the ISEC South Project

ATTACHMENT 2

**ATTACHMENT 2
PLANT SPECIES OBSERVED**

Scientific Name	Common Name	Habitat	Origin
ANGIOSPERMS: DICOTS			
AMARANTHACEAE		AMARANTH FAMILY	
<i>Atriplex canescens</i> (Pursh) Nutt.	fourwing saltbush, shad-scale	DSS, AWT	N
<i>Atriplex lentiformis</i> (Torr.) S. Watson ssp. <i>lentiformis</i>	big saltbush	DSS, AWT	N
<i>Chenopodium murale</i> L.	nettle-leaved goosefoot	AG	I
<i>Suaeda nigra</i> (Torr.)	bush seepweed	DSS	N
ASTERACEAE		SUNFLOWER FAMILY	
<i>Dicoria canescens</i> A. Gray	desert twinbugs	DSS	N
<i>Isocoma acradenia</i> (Greene) Greene var. <i>eremophila</i> (Greene) G.L. Nesom	alkali goldenbush	AWT, CBS	N
<i>Lactuca serriola</i> L.	prickly lettuce	DSS	I
<i>Palafoxia arida</i> B.L. Turner & M. Morris var. <i>arida</i>	desert palafox	DSS, TT	N
<i>Pluchea sericea</i> (Nutt.) Coville	arrow weed	AWT, TT	N
BORAGINACEAE		BORAGE FAMILY	
<i>Cryptantha</i> sp.	cryptantha	AWT, CBS, TT	N
<i>Tiquilia plicata</i> (Torr.) A. T. Richardson	fan-leaved tiquilia	DSS, TT	N
FABACEAE (LEGUMINOSAE)		LEGUME FAMILY	
<i>Medicago sativa</i> L.	alfalfa	AG	I
<i>Prosopis glandulosa</i> var. <i>torreyana</i>	honey mesquite	AWT	N
<i>Psoralethamnus emoryi</i> (A. Gray) Rydb.	dyebush	AWT, TT	N
MALVACEAE		MALLOW FAMILY	
<i>Malva parviflora</i> L.	cheeseweed, little mallow	AG	I
PORTULACACEAE		PURSELANE FAMILY	
<i>Portulaca oleracea</i> L.	purslane	AG	I
TAMARICACEAE		TAMARISK FAMILY	
<i>Tamarix ramosissima</i> Ledeb.	saltcedar	AWT, TT	I
ZYGOPHYLLACEAE		CALTROP FAMILY	
<i>Larrea tridentata</i> (DC.) Coville	creosote bush	AWT, CBS, TT	N
<i>Tribulus terrestris</i> L.	puncture vine	AG	I

**ATTACHMENT 2
PLANT SPECIES OBSERVED (CONT.)**

Scientific Name	Common Name	Habitat	Origin
ANGIOSPERMS: MONOCOTS			
CYPERACEAE <i>Scirpus</i> sp.	SEDGE FAMILY bulrush	CBS	N
POACEAE (GRAMINEAE) <i>Cynodon dactylon</i> (L.) Pers.	GRASS FAMILY Bermuda grass	DSS, AG	I

SOURCES: Jepson Online Interchange <<http://ucjeps.berkeley.edu/interchange.html>> (2009); K. N. Brenzel (editor), *Sunset Western Garden Book* (Sunset Publishing, Menlo Park, CA, 2001); John P. Rebman and Michael G. Simpson, *Checklist of the Vascular Plants of San Diego County*, 4th ed. (San Diego Natural History Museum, San Diego, CA, 2006); USDA Plants Database <<http://plants.usda.gov/>> (2008).

HABITATS

AG = Agriculture
 AWT = Arrow Weed Thicket
 CBS = Creosote Bush Scrub
 DSS = Desert Saltbush Scrub
 TT = Tamarisk Thicket

ORIGIN

N = Native to locality
 I = Introduced species from outside locality

ATTACHMENT 3

ATTACHMENT 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE
IN THE ISEC SOUTH PROJECT SOLAR FIELD ACCESS ROAD SURVEY AREA

Family/Species	Federal /State Status	CNP S List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence
Amaranthaceae—Amaranth Family					
<i>Amaranthus watsonii</i> Watson's amaranth	-/-	4.3	-	Annual herb; blooms in spring; creosote bush scrub and wetlands.	Potential to occur along canals and ditches and within the arrow weed thicket within the survey area
Asclepiadaceae—Milkweed Family					
<i>Cynanchum utahense</i> Utah vine milkweed	-/-	4.3	-	Perennial herb; blooms April–June; creosote bush scrub; <3,281 ft.	Not expected to occur due to lack of suitable creosote scrub habitat.
Asteraceae—Sunflower Family					
<i>Chaenactis carphoclina</i> var. <i>peirsonii</i> Peirson's pincushion	-/-	1B.3	BLM Sensitive	Annual herb; blooms March–April; creosote bush scrub; <1,640 ft.	Not expected to occur due to lack of suitable habitat present.
<i>Helianthus niveus</i> ssp. <i>tephrodes</i> Algodones Dunes sunflower	-/CE	1B.2	BLM Sensitive	Perennial herb; blooms March–May; dunes; <328 ft	Not expected to occur. No suitable dune habitat is present within the survey area.
<i>Malperia tenuis</i> brown turbans	-/-	2.3	-	Annual herb; blooms April and Dec; Sonoran desert scrub; sandy areas and rocky slopes; <1,640 ft.	Not expected to occur. No suitable desert pavement habitat is present for this species.
<i>Palafoxia arida</i> var. <i>gigantea</i> giant Spanish needles	-/-	1B.3	BLM Sensitive	Dunes	Not expected to occur. No suitable dune habitat is present within the survey area. In addition, this perennial herb would have been observed during surveys.
<i>Xylorhiza cognata</i> Mecca aster	-/-	1B.2	BLM Sensitive	Perennial herb; blooms Jan–June; creosote bush scrub; canyons; 65–787 ft.	Not expected to occur. No suitable habitat present.

**ATTACHMENT 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR
OCCURRENCE IN THE ISEC SOUTH PROJECT
SOLAR FIELD ACCESS ROAD SURVEY AREA (Cont.)**

Family/Species	Federal /State Status	CNP S List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence
<i>Xylorhiza orcuttii</i> Orcutt's woody aster	-/-	1B.3	BLM Sensitive	Perennial herb; blooms March–April; creosote bush scrub; canyons; 65–984 ft.	Not expected to occur. No suitable habitat present.
Boraginaceae—Borage Family					
<i>Cryptantha costata</i> ribbed cryptantha	-/-	-	4.3	Annual herb; blooms Feb–May; creosote bush scrub, sandy soil; <1,640 ft.	Not expected to occur. No suitable habitat present.
<i>Cryptantha holoptera</i> winged cryptantha	-/-	-	4.3	Annual herb; blooms March–April; creosote bush scrub, sandy soil; 328–3,937 ft.	Not expected to occur. No suitable habitat present.
Brassicaceae—Mustard Family					
<i>Lyrocarpa coulteri</i> var. <i>palmeri</i> Coulter's lyrepod	-/-	-	4.3	Perennial herb; blooms April–Dec; creosote bush scrub; dry slopes, gravelly flats, and washes; <1,969 ft.	Not expected to occur. No suitable habitat present.
Cactaceae—Cactus Family					
<i>Cylindropuntia echinocarpa</i> [= <i>Opuntia wigginsii</i>] Wiggins' cholla	-/-	3.3	-	Shrub; creosote bush scrub.	Not expected to occur. This species would have been observed during general surveys.
<i>Cylindropuntia wolfii</i> [= <i>Opuntia wolfii</i>] Wolf's' cholla	-/-	4	-	Shrub; blooms April–May; Alluvial fans and rocky slope in Sonoran desert scrub.	Not expected to occur. This species would have been observed during general surveys.
Euphorbiaceae—Spurge Family					
<i>Chamaesyce abramsiana</i> Abram's sandmat	-/-	2.2	-	Annual herb; blooms Sept–Nov; creosote bush scrub; <656 ft.	Not expected to occur. No suitable habitat present.

ATTACHMENT 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR
OCCURRENCE IN THE ISEC SOUTH PROJECT
SOLAR FIELD ACCESS ROAD SURVEY AREA (Cont.)

Family/Species	Federal /State Status	CNP S List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence
Euphorbiaceae—Spurge Family (cont.)					
<i>Chamaesyce arizonica</i> Arizona sandmat	-/-	2.3	-	Perennial herb; blooms March–April; creosotebush scrub; <984 ft.	Not expected to occur. No suitable habitat present.
<i>Chamaesyce platysperma</i> flat-seeded spurge	-/-	1B.2	BLM Sensitive	Annual herb; blooms May; dunes & sandy areas; <328 ft.	Not expected to occur. No suitable habitat present.
<i>Croton wigginsii</i> Wiggins' croton	-/CR	2.2	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; dunes; <328 ft.	Not expected to occur. This perennial shrub would have been observed during general surveys.
<i>Ditaxis serrata</i> var. <i>californica</i> California ditaxis	-/-	3.2	-	Perennial herb; blooms April–Nov; creosote bush scrub; <656 ft.	Not expected to occur. This perennial herb would have been observed during general surveys.
<i>Tetradococcus hallii</i>	-/-	4.3	-	Shrub; blooms March–May; creosote bush scrub; rocky slopes and washes; <3,937 ft.	Not expected to occur. This perennial shrub would have been observed during general surveys.
Fabaceae—Legume Family					
<i>Astragalus crotolariae</i> Salton milkvetch	-/-	4.3	-	Perennial herb; blooms Jan–April; creosote bush scrub; 60–250 ft.	Not expected to occur. This perennial herb would have been observed during general surveys.
<i>Astragalus insularis</i> var. <i>harwoodii</i> Harwood's milkvetch	-/-	2.2	-	Annual herb; blooms Jan–May; desert dunes; open sandy flats or stony desert washes; mostly in creosote bush scrub.	Not expected to occur due to lack of suitable habitat.

**ATTACHMENT 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR
OCCURRENCE IN THE ISEC SOUTH PROJECT
SOLAR FIELD ACCESS ROAD SURVEY AREA (Cont.)**

Family/Species	Federal /State Status	CNP S List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence
Fabaceae—Legume Family (cont.)					
<i>Astragalus lentiginosus</i> var. <i>borreanus</i> Borrengo milkvetch	-/-	4.3	-	Annual herb; blooms March–May; creosote bush scrub, sandy areas; 98–820 ft.	Not expected to occur due to lack of suitable habitat.
<i>Astragalus magdalenae</i> var. <i>peirsonii</i> Peirson's milkvetch	PFE/CE	1B.2	BLM Sensitive	Perennial herb; blooms Dec–April; dunes; 164–656 ft.	Not expected to occur. There is no suitable dune habitat within the survey area. In addition, this perennial herb would have been observed within the survey area during general surveys.
<i>Lotus haydonii</i> pygmy lotus	-/-	1B.3	BLM Sensitive	Perennial herb; blooms March–June; creosote bush scrub; 1,969–3,937 ft.	Not expected to occur due to lack of suitable habitat. This perennial herb would have been observed during general surveys.
<i>Lupinus excubitis</i> var. <i>medius</i> Mountain Springs bush lupine	-/-	1B.4	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; desert washes; <3,281 ft.	Not expected to occur due to lack of suitable habitat. This perennial shrub would have been observed during general surveys.
<i>Parkinsonia microphylla</i> [= <i>Cercidium microphyllum</i>] yellow paloverde	-/-	4.3	-	Tree; blooms April–May; creosote bush scrub.	Not expected to occur. This tree would have been observed during general surveys.
Lamiaceae—Mint Family					
<i>Salvia greatae</i> lavender sage	-/-	1B.3	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; alluvial slopes; 98–787 ft.	Not expected to occur. This perennial shrub would have been observed during general surveys.
<i>Teucrium cubense</i> ssp. <i>depressum</i> small coastal germander	-/-	2.2	-	Annual herb; blooms March–May; creosote bush scrub, sandy areas; <797 ft.	Not expected to occur due to lack of suitable habitat.

**ATTACHMENT 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR
OCCURRENCE IN THE ISEC SOUTH PROJECT
SOLAR FIELD ACCESS ROAD SURVEY AREA (Cont.)**

Family/Species	Federal /State Status	CNP S List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence
Lennoaceae—Sand Food Family					
<i>Pholisma sonorae</i> sandfood	-/-	1B.2	BLM Sensitive	Perennial parasitic herb; blooms April–May; dunes; <656 ft.	Not expected to occur. There is no suitable dune habitat within the survey area.
Loasaceae—Blazing Star Family					
<i>Mentzelia hirsutissima</i> hairy stickleaf	-/-	2.3	-	Annual herb; blooms April–May; creosote bush scrub; washes, fans, and slopes; <1,969 ft.	Not expected to occur due to lack of suitable habitat.
<i>Mentzelia tridentata</i> dentate blazing star	-/-	1B.3	BLM Sensitive	Annual herb; blooms April–May; creosote bush scrub; 2,296–3,280 ft.	Not expected to occur due to lack of suitable habitat.
Malvaceae—Mallow Family					
<i>Horsfordia alata</i> pink velvet mallow	-/-	4.3	-	Shrub; blooms April and Nov–Dec; creosote bush scrub; rocky canyons and washes; 328–1,640 ft.	Not expected to occur. This perennial shrub would have been observed during general surveys.
<i>Horsfordia newberryi</i> Newberry's velvet mallow	-/-	4.3	-	Perennial herb; blooms March–April and Nov–Dec; creosote bush scrub; 328–2,625 ft.	Not expected to occur due to lack of suitable habitat. This perennial herb would have been observed during general surveys.
<i>Herrisantia crispa</i> bladder mallow	-/-	2.3	-	Annual or perennial herb; creosote bush scrub.	Not expected to occur due to lack of suitable habitat.
Martyniaceae—Unicorn Plant Family					
<i>Proboscidea althaeifolia</i> devil's claw	-/-	4.3	-	Perennial herb; blooms in fall; desert washes within creosote bush scrub; <3,281 ft.	Low potential due to the lack of desert wash vegetation. This perennial herb would have been observed during general surveys.

**ATTACHMENT 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR
OCCURRENCE IN THE ISEC SOUTH PROJECT
SOLAR FIELD ACCESS ROAD SURVEY AREA (Cont.)**

Family/Species	Federal /State Status	CNP S List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence
Nyctaginaceae—Four O'Clock Family					
<i>Mirabilis tenuiloba</i> slender lobed four o'clock	-/-	4.3	-	Perennial herb; blooms March–May; creosote bush scrub; rocky slopes; <1,640 ft.	Not expected to occur due to lack of suitable habitat. This perennial herb would have been observed during general surveys.
Onagraceae—Evening Primrose Family					
<i>Camissonia arenaria</i> Fortuna Range suncup	-/-	2.2	-	Annual or perennial herb; creosote bush scrub; rocky slopes; <1,411 ft.	Not expected to occur due to lack of suitable habitat.
Polemoniaceae—Phlox Family					
<i>Ipomopsis tenuifolia</i> slenderleaf skyrocket	-/-	2.3	-	Perennial herb; blooms March–May; creosote bush scrub; gravelly to rocky slopes and canyons; 328–3,937 ft.	Not expected to occur due to lack of suitable habitat.
Poaceae—Grass Family					
<i>Imperata brevifolia</i> satintail	-/-	2.1	-	Perennial grass; blooms Sept–May; creosote bush scrub; <1,640 ft.	Not expected to occur. This perennial rhizomatous grass would have been observed during general surveys.
Polemoniaceae—Phlox Family					
<i>Ipomopsis effusa</i> Baja California ipomopsis	-/-	2.1	-	Annual herb; alluvial fans.	Not expected to occur due to lack of suitable habitat.
Polygonaceae—Knotweed Family					
<i>Nemacaulis denudata</i> var. <i>gracilis</i> slender woolly heads	-/-	2.2	-	Annual herb; blooms March–May; dunes; <1,312 ft.	Not expected to occur due to lack of suitable habitat.

**ATTACHMENT 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR
OCCURRENCE IN THE ISEC SOUTH PROJECT
SOLAR FIELD ACCESS ROAD SURVEY AREA (Cont.)**

Family/Species	Federal /State Status	CNP S List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence
Rafflesiaceae—Rafflesia Family					
<i>Pilostyles thurberi</i> Thurber's pilostyles	-/-	4.3	-	Perennial herb (parasitic); blooms January; Sonoran desert scrub; sandy alluvial plains; <984 ft.	Low potential to occur. This parasite was not detected on any <i>Psorothamnus</i> spp. within the survey area.
Rhamnaceae—Buckthorn Family					
<i>Colubrinia californica</i>	-/-	2.3	-	Shrub; blooms April–May; creosote bush scrub; <3,281 ft.	Not expected to occur. This perennial shrub would have been observed during general surveys.
<i>Condalia globosa</i> var. <i>pubescens</i> spiny crucillo	-/-	4.2	-	Shrub; blooms March–April; creosote bush scrub; <3,281 ft.	Not expected to occur. This perennial shrub would have been observed during general surveys.
Selaginellaceae—Spikemoss Family					
<i>Selaginella eremophila</i> desert spike moss	-/-	2.2	-	Perennial fern; creosote bush scrub; shaded crevices and rocky places; <2,953 ft.	Not expected to occur due to lack of suitable habitat.
Solanaceae—Nightshade Family					
<i>Lycium parishii</i> Parish's desert thorn	-/-	2.3	-	Shrub; blooms March–April; Sonoran desert scrub; sandy–rocky slopes and canyons; <3,281 ft.	Not expected to occur. This perennial shrub would have been observed during general surveys.
Sterculiaceae—Cocoa Family					
<i>Ayenia compacta</i> desert ayenia	-/-	2.3	-	Perennial herb/shrub; blooms March–April; washes and dry rocky canyons; <1,640 ft.	Not expected to occur. This perennial herb would have been observed during general surveys.

**ATTACHMENT 3
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR
OCCURRENCE IN THE ISEC SOUTH PROJECT
SOLAR FIELD ACCESS ROAD SURVEY AREA (Cont.)**

FEDERAL LISTED PLANTS

PFE = Proposed Federally listed endangered

STATE-LISTED PLANTS

CE = State-listed endangered

CR = State-listed rare

CALIFORNIA NATIVE PLANT SOCIETY LISTS

1A = Species presumed extinct.

1B = Species rare, threatened, or endangered in California and elsewhere; eligible for state listing.

2 = Species rare, threatened, or endangered in California—but more common elsewhere; eligible for state listing.

3 = Species for which more information on distribution, endangerment, and/or taxonomic information is needed.

4 = A watch list of species of limited distribution, that need to be monitored for changes in population status.

BUREAU OF LAND MANAGEMENT

Sensitive = Identified as BLM sensitive

ATTACHMENT 4

**ATTACHMENT 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR
IN THE ISEC SOUTH SOLAR FIELD ACCESS ROAD SURVEY AREA (IVS-8)**

Species	Status		Habitat	Occurrence/Comments
	Federal/ State Status	BLM Status		
REPTILES (Nomenclature from Crother 2001 and Crother et al. 2003)				
GEKKONIDAE	GECKOS			
Switak's banded gecko <i>Coleonyx switaki</i>	ST	-	Rock outcrops on arid hillsides and canyons in desert scrub vegetation types.	Not expected to occur. There is no suitable rocky habitat for this species within the survey area.
IGUANIDAE	IGUANID LIZARDS			
Flat-tailed horned lizard <i>Phrynosoma mcalli</i>	FPT	Sensitive	Dunes and sandy flats of low desert.	Not expected to occur. The small amount of arrow weed thicket and desert saltbush scrub vegetation is too dense to provide suitable habitat for FTHL.
BIRDS (Nomenclature from American Ornithologists' Union 1998 and Unitt 1984)				
PELECANIDAE	PELICANS			
American white pelican (nesting colony) <i>Pelecanus erythrorhynchos</i>	CSC		Lagoons, bays, estuaries, freshwater ponds; inland lakes during spring migration. Migrant and winter visitor.	Not expected to nest within the survey area. While the adjacent canals and agricultural land may provide foraging habitat for this species, there is no suitable nesting habitat for this species within the survey area.
PHALACROCORACIDAE	CORMORANTS			
ARDEIDAE	HERONS & BITTERNs			
Great egret (rookery site) <i>Ardea alba</i>	*		Lagoons, bays, estuaries. Ponds and lakes in the coastal lowland. Winter visitor, uncommon in summer.	Observed foraging. No rookery sites observed, but potential to occur adjacent to the survey area.
Great blue heron (rookery site) <i>Ardea herodias</i>	*		Bays, lagoons, ponds, lakes. Non-breeding year-round visitor, some localized breeding.	No suitable habitat for rookery sites present, but potential to forage adjacent to the survey area.

**ATTACHMENT 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR
IN THE ISEC SOUTH SOLAR FIELD ACCESS ROAD SURVEY AREA (IVS-8) (Cont.)**

Species	Status		Habitat	Occurrence/Comments
	Federal/ State Status	BLM Status		
Green heron (breeding) <i>Butorides virescens</i>	*		Riparian woodland, lakes, ponds, brackish lagoons.	No suitable habitat for breeding present, but potential to forage adjacent to the survey area.
Snowy egret (rookery site) <i>Egretta thula thula</i>	*		Coastal waters and freshwater ponds and lakes. Winter visitor, summer resident. Localized breeding colonies.	No suitable habitat for rookery sites present, but potential to forage adjacent to the survey area.
Western least bittern <i>Ixobrychus exilis hesperis</i>	CSC		Brackish and freshwater marshes in the coastal lowland. Rare summer resident, rare in winter.	No suitable habitat for breeding present, but potential to forage adjacent to the survey area.
Black-crowned night heron (rookery site) <i>Nycticorax nycticorax</i>	*		Lagoons, estuaries, bayshores, ponds, and lakes. Often roost in trees. Year-round visitor. Localized breeding.	No suitable habitat for rookery sites present, but potential to forage adjacent to the survey area.
ACCIPITRIDAE	HAWKS, KITES, & EAGLES			
Cooper's hawk (nesting) <i>Accipiter cooperii</i>	CSC		Mature forest, open woodlands, wood edges, river groves. Parks and residential areas. Migrant and winter visitor.	Potential to nest and forage within large trees within the orchards.

ATTACHMENT 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR
IN THE ISEC SOUTH SOLAR FIELD ACCESS ROAD SURVEY AREA (IVS-8) (Cont.)

Species	Status		Habitat	Occurrence/Comments
	Federal/ State Status	BLM Status		
Golden eagle (nesting and wintering) <i>Aquila chrysaetos canadensis</i>	CSC, BEPA		Require vast foraging areas in grassland, broken chaparral, or sage scrub. Nest in cliffs and boulders. Uncommon resident.	Not expected to occur within the survey area. No known locations within 10 miles of the survey area and golden eagles have not been reported in El Centro or the surrounding area.
RALLIDAE	RAILS, GALLINULES, & COOTS			
Yuma clapper rail <i>Rallus longirostris yumanensis</i>	FE, ST		Marshland vegetation, dense cattail stands, bulrush, reeds. Resident.	Not expected to occur. No suitable cattail marsh vegetation is present within the survey area.
GRUIDAE	CRANES			
Greater sandhill crane (wintering) <i>Grus canadensis tabida</i>	ST		Prairies, fields, marshes.	Potential to winter and forage within the agricultural fields.
STRIGIDAE	TYPICAL OWLS			
Burrowing owl (burrow sites) <i>Athene cunicularia</i>	CSC	Sensitive	Grassland, agricultural land, coastal dunes. Require rodent burrows. Declining resident.	Potential to occur. This species is known to occur in the vicinity of the survey area and may burrow in the soil berms surrounding the agricultural fields.
TYRANNIDAE	TYRANT FLYCATCHERS			
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	FE/SE		Nesting restricted to willow thickets. Also occupies other woodlands. Rare spring and fall migrant. Extremely localized breeding.	May forage within the arrow weed thickets within the survey area during migration, but the thickets do not provide suitable nesting habitat.

ATTACHMENT 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR
IN THE ISEC SOUTH SOLAR FIELD ACCESS ROAD SURVEY AREA (IVS-8) (Cont.)

Species	Status		Habitat	Occurrence/Comments
	Federal/ State Status	BLM Status		
Vermilion flycatcher <i>Pyrocephalus rubinus flammeus</i>	CSC		Agricultural areas, parks, ponds, rivers. Rare fall and spring migrant, winter visitor, summer resident. Breeding rare.	Low potential to occur within arrow weed thickets.
LANIIDAE	SHRIKES			
Loggerhead shrike <i>Lanius ludovicianus</i>	CSC		Open foraging areas near scattered bushes and low trees.	High potential to forage and nest within the arrow weed thickets or orchards within the survey area.
VIREONIDAE	VIREOS			
Least Bell's vireo (nesting) <i>Vireo bellii pusillus</i>	FE/SE		Willow riparian woodlands. Summer resident.	May forage within the arrow weed thickets within the survey area during migration, but the thickets do not provide suitable nesting habitat.
MIMIDAE	MOCKINGBIRDS & THRASHERS			
Crissal thrasher <i>Toxostoma crissale</i>	CSC		Mesquite thickets in Borrego Springs area. Rare resident.	Potential to occur. May forage within the arrow weed thickets within the survey area.
LeConte's thrasher <i>Toxostoma lecontei lecontei</i>	CSC		Desert washes, creosote bush scrub. Uncommon resident.	Potential to occur. May forage within the arrow weed thickets within the survey area.
PARULIDAE	WOOD WARBLERS			
Yellow warbler (nesting) <i>Dendroica petechia</i>	CSC		Breeding restricted to riparian woodland. Spring and fall migrant, localized summer resident, rare winter visitor.	May forage within the arrow weed thickets within the survey area during migration, but the thickets do not provide suitable nesting habitat.

ATTACHMENT 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR
IN THE ISEC SOUTH SOLAR FIELD ACCESS ROAD SURVEY AREA (IVS-8) (Cont.)

Species	Status		Habitat	Occurrence/Comments
	Federal/ State Status	BLM Status		
Yellow-breasted chat (nesting) <i>Icteria virens auricollis</i>	CSC		Dense riparian woodland. Localized summer resident.	Not expected to occur. There is no suitable riparian woodland habitat within the survey for this species.
MAMMALS (Nomenclature from Jones et al. 1997 and Hall 1981)				
PHYLLOSTOMIDAE NEW WORLD LEAF-NOSED BATS				
California leaf-nosed bat <i>Macrotus californicus</i>	CSC	Sensitive	Low deserts. Caves, mines, buildings. Colonial. Migrational. Mostly near Colorado River in California.	Low potential to occur. May forage along the canal, but no roosting habitat is present.
VESPERTILIONIDAE VESPER BATS				
Pallid bat <i>Antrozous pallidus</i>	CSC	Sensitive	Arid deserts and grasslands. Shallow caves, crevices, rock outcrops, buildings, tree cavities. Especially near water. Colonial. Audible echolocation signal.	Low potential to occur. May forage along the canal, but no roosting habitat is present.
MOLOSSIDAE FREE-TAILED BATS				
Pocketed free-tailed bat <i>Nyctinomops femorosaccus</i>	CSC		Normally roost in crevice in rocks, slopes, cliffs. Lower elevations in San Diego and Imperial Counties. Colonial. Leave roosts well after dark.	Low potential to occur. May forage along the canal, but no roosting habitat is present.

**ATTACHMENT 4
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR
IN THE ISEC SOUTH SOLAR FIELD ACCESS ROAD SURVEY AREA (IVS-8) (Cont.)**

Species	Status		Habitat	Occurrence/Comments
	Federal/ State Status	BLM Status		
MUSTELIDAE	WEASELS, OTTERS, & BADGERS			
American badger <i>Taxidea taxus</i>	*		Grasslands, Sonoran desert scrub.	Not expected to occur. No suitable habitat present within the survey area.
FELIDAE	CATS			
Mountain lion <i>Felis concolor</i>	*		Many habitats.	Potential to forage in the survey area. Mountain lion scat observed approximately 6 miles northwest of the survey area. The survey area lacks suitable den sites for breeding.
BOVIDAE	CATTLE, ANTELOPE, GOATS, & SHEEP			
Peninsular bighorn sheep <i>Ovis canadensis nelsoni</i>	FE, ST, *	Sensitive	Open, rocky habitat, sparse vegetated desert slopes, rocky ridges. San Bernardinos and desert ranges.	Not expected to occur. There is no suitable rocky habitat for this species within the survey area and the site does not provide a likely corridor for foraging between the peninsular ranges.

(I) = Introduced species

STATUS CODES

Listed/Proposed

FE = Listed as endangered by the federal government
 FPE = Federally proposed endangered
 FPT = Federally proposed threatened
 FT = Listed as threatened by the federal government
 SE = Listed as endangered by the state of California
 ST = Listed as threatened by the state of California

Other

BEPA = Bald and Golden Eagle Protection Act
 CSC = California Department of Fish and Game species of special concern
 FC = Federal candidate for listing (taxa for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support proposals to list as endangered or threatened; development and publication of proposed rules for these taxa are anticipated)
 PSE = Proposed as endangered by the state of California
 * = Taxa listed with an asterisk fall into one or more of the following categories:

- Taxa considered endangered or rare under Section 15380(d) of CEQA guidelines
- Taxa that are biologically rare, very restricted in distribution, or declining throughout their range
- Population(s) in California that may be peripheral to the major portion of a taxon's range but which are threatened with extirpation within California
- Taxa closely associated with a habitat that is declining in California at an alarming rate (e.g., wetlands, riparian, old growth forests, desert aquatic systems, native grasslands)

Imperial Solar Energy Center South

Appendix I-1 b

Mountain Plover Amendment to the Biological Technical Report

Prepared by Recon Environmental, Inc.

February 14, 2011

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February 14, 2011

Mr. Steve Johnson
CSOLAR Development, LLC
1044 N. 115th Street, Suite 400
Omaha, NE 68154

Reference: Mountain Plover Amendment to the Biological Assessment for the Imperial Solar Energy Center South Project (RECON Number 5726B)

Dear Mr. Johnson:

This letter serves as an amendment to the *Biological Assessment for the Imperial Solar Energy Center South Project*, prepared by RECON in December 2010 and submitted to the El Centro Field Office of the Bureau of Land Management (BLM) on behalf of CSOLAR.

1.0 INTRODUCTION

CSOLAR Development, LLC proposes to construct a 200-megawatt photovoltaic solar facility and associated transmission lines west of Calexico, California, within the California Desert Conservation Area. Projects proposed on public lands in the California Desert Conservation Area must comply with the requirements of Section 7(a) of the Endangered Species Act (ESA). The BLM submitted the Biological Assessment (BA) for the proposed Imperial Valley Solar Energy Center (ISEC) South Project to the U.S. Fish and Wildlife Service (USFWS) in December 2010 to initiate Endangered Species Act (ESA) Section 7 formal consultation for three federally listed species and one proposed for listing, flat-tailed horned lizard (*Phrynosoma mcallii*). In January, 2011, the USFWS determined that the mountain plover (*Charadrius montanus*), a species proposed for federal listing, may winter in the project area and additional information was required to complete conferencing requirements for this species. This addendum to the December 2010 BA has been prepared to include existing conditions and impact analysis for the mountain plover.

2.0 PROJECT DESCRIPTION

2.1 Location

The proposed ISEC South is located approximately 8 miles west of Calexico in Imperial County, California (Figures 1 and 2). The Proposed Action footprint includes a 837.5-acre solar field that is situated on the U.S.–Mexico Border; a solar field's access road that runs north from the solar field to State Route 98; and a proposed 230-kilovolt (kV) transmission line route adjacent to the existing 230-kV transmission corridor that starts on the north side of the Imperial Valley Substation and wraps around the eastern side of the substation to run south for 5 miles (Figure 3). The transmission line then runs east for 1 mile to connect to the solar field.

2.2 Action Area

Under the implementing regulations for Section 7(a)(2) of the federal ESA, the action area is defined as the reach of direct and indirect effects, as well as the analysis area for this opinion. This includes off-site use areas such as access roads.

The general action area for the ISEC South Project includes the project components and a 1000-foot buffer surrounding those project components, as shown on Figure 3, in order to provide a thorough discussion regarding project effects both within and adjacent to the project footprint. Additionally, the action area specific to mountain plover is expanded to include the entire agricultural complex surrounding El Centro, spanning from the U.S.–Mexico Border north to the Salton Sea (Figure 4), in order to adequately discuss the agricultural fields as winter foraging habitat for this species.

2.3 Proposed Action

The Proposed Action consists of two primary components: 1) the construction and operation of the ISEC South photovoltaic (PV; solar power) facility and its associated access road, and 2) the construction and operation of the electrical transmission lines that would connect from the solar power facility to the existing Imperial Valley Substation. The electricity generation process associated with the Proposed Action would utilize solar PV technology to convert sunlight directly into electricity. As part of the project, the PV facility would interconnect to the utility grid at the 230-kV side of the Imperial Valley Substation via an approximately 5-mile-long transmission line. The proposed right-of-way for the electrical transmission line corridor would be 120 feet wide. The BA for the ISEC South Project contains additional details of the solar facility and transmission components.

Estimated Disturbance Area

As shown in Attachment 1, a total of 819.2 acres of active agricultural fields are expected to be impacted during construction of the Proposed Action, including 818.3 acres within the proposed solar field and an additional 0.9 acre of impact due to road improvements on the access road leading to the solar field from State Route 98. These fields provide suitable habitat for mountain plover during portions of the crop rotation schedule when the soil is disturbed and vegetation is under 25 centimeters (<9.84 inches) in height, such as when the fields have been freshly tilled; crops have been recently planted or harvested; or fields have been recently burned in preparation for the next crop.

Resource Avoidance and Impact Minimization Measures

The Proposed Action includes minimization and mitigation measures designed to avoid and minimize direct and indirect harm or injury of federally listed and proposed listed species and their habitat, and to compensate for unavoidable direct and indirect effects resulting from project construction and operations and maintenance (O&M).

1. Speed limits along all transmission access roads and within the solar field should not exceed 15 miles per hour during construction and O&M. Transmission access for O&M activities shall be kept to the minimum necessary for operations. This limited access is designed to prevent wildlife mortality.
2. An Avian and Bat Protection Plan (ABPP) will be prepared and approved by BLM and USFWS, prior to groundbreaking activities, which will outline conservation measures for construction and O&M activities that might reduce potential impacts to bird populations. The conservation measures in the ABPP will include:

- Minimizing disturbance to vegetation to the extent practicable.
 - Clearing vegetation outside of the breeding season. If construction occurs between February 1 and September 15, a qualified biologist shall conduct a pre-construction clearance survey for nesting birds in suitable nesting habitat that occurs within the proposed area of impact. Pre-construction nesting surveys will identify any active migratory birds (and other sensitive non-migratory birds) nests. Direct impact to any active migratory bird nest should be avoided.
 - Minimize wildfire potential.
 - Minimize activities that attract prey and predators.
 - Control of non-native plants
 - Apply Avian Power Line Interaction Committee design guidelines for overhead utilities (2006) by incorporating recommended or other methods that enhance the visibility of the lines to avian species.
 - Preparation of a Raven Control Plan that avoids introducing water and food resources in the area surrounding the solar field
 - Minimize noise
 - Minimize use of outdoor lighting
 - Implement post-construction avian monitoring that will incorporate a Wildlife Mortality Reporting Program
3. A Wildlife Mortality Reporting Program will be prepared and approved by BLM prior to groundbreaking activities, and implemented during O&M of the solar facility. This plan calls for identification and reporting of any dead or injured animals observed by personnel conducting O&M activities within the solar field and along the transmission line. An appropriate reporting format for dead or injured wildlife observed within the solar field and along the transmission line will be developed in coordination with the USFWS and the BLM. In addition, reporting of any dead or injured avian species found along the transmission line will follow the existing USFWS Bird Fatality/Injury Reporting Program ([https:// birdreport.fws.gov/](https://birdreport.fws.gov/)).
 4. Prior to ground-disturbing activities, an individual shall be designated and approved by the USFWS and BLM as a Designated Biologist* (i.e., field contact representative). A Designated Biologist will be designated for the period during which on-going construction and post-construction monitoring and reporting by an approved biologist is required, such as annual reporting on habitat restoration. Biological Monitor(s) will assist the Designated Biologist in conducting pre-construction surveys and monitoring mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities.
 5. Prior to project initiation, a Worker Education Awareness Program (WEAP) will be developed and implemented, and will be available in both English and Spanish. Wallet-sized cards summarizing this information will be provided to all construction,

* A qualified Designated Biologist must have (1) a Bachelor's degree with an emphasis in ecology, natural resource management, or related science; (2) 3 years of experience in field biology or a current certification of a nationally recognized biological society such as The Ecological Society of America or the Wildlife Society; (3) previous experience with applying terms and conditions of a biological opinion; and (4) an appropriate permit and/or training if conducting focused or protocol surveys for listed or proposed species.

operation, and maintenance personnel. The education program will include the following aspects:

- Biology and status of the mountain plover
 - Protection measures designed to reduce potential impacts to the species
 - Function of flagging designating authorized work areas
 - Reporting procedures to be used if a mountain plover is encountered in the field
 - Driving procedures and techniques for commuting and driving on to the project site to prevent mortality of all wildlife species on roads
6. In the event that continuing agricultural practices on the solar fields are impractical after installation of the solar panels, the vegetation underneath the panels will be maintained as a short grass habitat that could support foraging activities for mountain plover. The timing and formula of any herbicide used for control of weeds will be in accordance with the proposed project's Weed Management Plan, which conforms to resource agency guidelines and standards designed to minimize impacts to sensitive biological resources. Specifically, herbicides should be applied to any agricultural fields outside of the mountain plover over-wintering season of November through February.

3.0 ENVIRONMENTAL BASELINE

Summary environmental baseline data for the Proposed Action area are presented here, including specific biological conditions relating to mountain plover. More detailed environmental baseline data can be found in the BA for the ISEC South Project.

3.1 Survey Methods

RECON conducted surveys within the solar field, solar field access road, and transmission right-of-way to catalogue biological resources in April, May, June, July, and November 2010. As discussed in the BA, surveys included a general biological survey, rare plant surveys, a protocol nesting season survey for burrowing owl (*Athene cunicularia*), a protocol nesting season survey for southwestern willow flycatcher (*Empidonax traillii extimus*), and a preliminary delineation for jurisdictional resources. The general survey area for most of the surveys (survey area) was 1,291.8 acres and included the following:

- R-2: ISEC South Solar Field (927.6 acres)
- IVS-1: Preferred Transmission Line—300-foot corridor (120-foot ROW + 90-foot survey buffer; 236.5 acres)
- IVS-3: Transmission Line Extension—500-foot corridor (120-foot ROW + 190-foot survey buffer; 68.5 acres)
- IVS-6: Solar Field Corner Parcel (18.9 acres)
- IVS-7: Substation Buffer (33.5 acres)
- IVS-8 Solar Field Access Road—50-foot-wide corridor (6.8 acres)

Since the preparation of the BA, winter avian point count survey (Appendix A at the end of this addendum)), and a protocol survey for wintering mountain plover have been conducted.

Mountain plover survey

On January 18, 2011, USFWS provided the *Interim—Survey Guidance for Wintering Mountain Plover (Charadrius montanus) in the Imperial Valley* (USFWS 2011), in order to provide guidance on conducting presence/absence surveys and determining winter population numbers for mountain plover. RECON biologist Gavin Bieber and Jake Mohlmann of Adventure Birding conducted surveys, in accordance with the Interim Survey Guidance from January 29 through February 8, 2011. The Interim Survey Guidance calls for three directed searches at least five days apart, using spotting scopes or binoculars to survey from observation points throughout all suitable habitat within the survey area. The Interim Survey Guidance defines suitable habitat as “abandoned, idle and active agricultural fields with bare ground or vegetation shorter than 25 centimeters (9.84 inches)”. No more than 600 acres per biologist per 8-hour day (<75 acres/hour) were surveyed. Survey personnel, dates, times, weather conditions, and acreage surveyed are detailed in Table 1; Attachment 2 provides a habitat assessment of vegetation conditions in each field within the survey area prior to the three surveys; and Attachment 3 provides a complete list of avian species observed/detected during the surveys.

**TABLE 1
MOUNTAIN PLOVER WINTER PROTOCOL SURVEY DATES AND CONDITIONS**

Date	Surveyor	Acres Surveyed	Beginning Conditions	Ending Conditions	Acres per Hour per Person
1/29/11	Gavin Bieber Jake Mohlmann	871	8:00 A.M.; 58°F; 2–3 mph; 0% cover	1:45 P.M.; 80°F; 0–2 mph; 0% cover	75
2/03/11	Gavin Bieber Jake Mohlmann	871	8:00 A.M.; 45°F; 3–5 mph; 0% cover	3:00 P.M.; 56°F; 1–3 mph; 0% cover	62
2/09/11	Gavin Bieber Jake Mohlmann	871	8:00 A.M.; 60°F; 2–3 mph; 0% cover	3:00 P.M.; 77°F; 1–2 mph; 0% cover	62

^oF = degrees Fahrenheit; mph = miles per hour; % = percent

Approximately 871 acres of agricultural fields were surveyed both within the proposed solar field (461 acres) and within a 1000-foot buffer of the solar fields (410 acres). As seen on Figure 5, vegetation on all fields west of the Westside Main Canal exceeded the 9.84-inch height for surveying and were excluded from the survey. Two fields to the east of the Westside Main canal were excluded as well due to vegetative height. As seen in Attachment 2, an additional two fields were excluded east of the canal during the third survey, as the vegetation had grown taller than the 9.84-inch survey height. Most of the vegetation adjacent to the proposed solar field access road (IVS-8) was excluded from the surveys; two of the three agricultural fields are orchards, and one area containing dense arrow weed thickets and creosote bush scrub was also excluded.

No mountain plovers were detected within the survey area during the surveys.

3.2 Existing Biological Conditions

The proposed solar field consists primarily of active agricultural land, while the southwest corner of the solar field is native desert habitat. The solar field is bisected by the Westside Main Canal (a south to north running canal), which brings water to the large agricultural complex surrounding El Centro. The entire south end of the proposed solar field abuts the U.S.–Mexico Border. Three existing 230 kV transmission lines and an associated dirt access road run parallel to each other going southeast from the Imperial Valley Substation to the U.S.–Mexico border.

The 1,291.8-acre survey area for biological surveyed conducted in 2010 is located in the Yuha Basin of the Colorado Desert between agricultural fields to the east and open desert to the west, as well as within active agricultural lands, including Rositas, Niland, Carsitas, Glenbar, Imperial,

Indio–Vint, and Meloland soils (Natural Resources Conservation Service 2006, 2010). These soils are primarily found on flat basin floors and are formed from clay, silt, and sandy alluvium materials.

As seen on Figures 6a–b, eight vegetation communities were mapped within the survey area: creosote bush–white burr sage scrub, desert saltbush scrub, desert wash (smoke tree woodland mix), cattail marsh, arrow weed thicket, mesquite thicket, tamarisk thicket, and active agricultural fields. A small amount of disturbed and developed land is also present within the survey area.

The 916.5 acres of active agricultural fields encompass the majority of the proposed ISEC South solar field. A crop history report for these fields was requested from the Imperial Valley Agricultural Commission’s office by CSOLAR, but was not provided. An interview with the two landowners, Joe Collace to the west of the Westside Main Canal and Curt Corda to the east of the Westside Main Canal, yielded information regarding recent plantings (Corda pers. com. 2011; Collace pers. com. 2011).

Wheat is currently planted to the west of the canal, and height of these crops exceeded the 9.84-inch height for suitable mountain plover habitat, at the time of the survey. Recently, the fields were fallow from June 30, 2009 to July 31, 2010; wheat, alfalfa, sweet corn, and asparagus have also been grown in these fields within the last 10 years (Collace pers. com. 2011).

To the east of the canal, wheat, alfalfa, Bermuda grass, freshly burned fields, and Sudan grass (*Sorghum bicolor*) are currently present. These fields were primarily under 9.84 inches tall at the time of the survey, as detailed in Attachment 4. The wheat and alfalfa are typically over 10 inches in height during 50 percent of their growth period from November to April, while the Sudan grass grows to be 8 feet in height and is planted on the fields 4 to 8 months of the year. Sugar beets, cotton, wheat, Sudan grass, alfalfa, Bermuda grass, and Kleingrass have all been planted on these fields in the last 30 years (Corda pers. com. 2011).

Water Resources

The action area is located in the desert of southeastern California, an area marked by long, hot summers and meager rainfall. Surface water in the extended vicinity of the action area includes the Salton Sea, the Colorado River, and the Gulf of California. Other than canals that carry Colorado River water to the Imperial Valley, water resources in the immediate vicinity of the action area are limited.

Water is diverted from the Colorado River into the All-American Canal at the Imperial Dam. Flow proceeds in a westerly direction, and smaller distribution canals carry water from the canal into the Imperial Valley and Coachella Valley (Imperial Irrigation District 2006). Along the U.S.–Mexico Border, adjacent to the proposed solar field, All-American Canal makes a 90-degree turn north and becomes the Westside Main Canal, which flows north through Imperial Valley, bisecting the ISEC South solar field, and into the Salton Sea. Smaller irrigation channels distribute water from the two main canals through the agricultural complex surrounding El Centro, including the agricultural fields within the proposed ISEC South solar field. These smaller irrigation channels may be dry or contain water depending on the water requirements of individual fields.

3.3 Status of Mountain Plover within the Action Area

On June 29, 2010 USFWS reinstated the December 5, 2002, proposed rule to list the mountain plover as threatened under the ESA (USFWS 2010). Prior to this reinstatement, the 2002 proposed rule to list the species was withdrawn on September 9, 2003 (68 FR 53083), including the proposal to list the species as threatened in conjunction with a proposed special 4(d) rule. Mountain plover is also a state species of special concern. No critical habitat has been designated for the mountain plover, and none is proposed. This species is also listed under the Migratory Bird Treaty Act (MBTA) of 1918 and therefore protected from “take.”

A member of the family Charadriidae, the mountain plover is small terrestrial shorebird which averages 8 inches in length. Mountain plovers are light brown above and white below, and are distinguished from other plovers by the lack of a contrasting dark breast band. Mountain plovers are migratory, wintering in California, southern Arizona, Texas, and Mexico, and breeding primarily in Colorado and Montana from April through June. Breeding also occurs in Arizona, Utah, Wyoming, Nebraska, Kansas, Oklahoma, Texas, and New Mexico. The Sacramento, San Joaquin, and Imperial valleys of California are thought to support the greatest number of wintering mountain plovers (USFWS 2010).

Throughout their range, mountain plovers are found within sparsely vegetated areas such as xeric shrublands, shortgrass prairie, and barren agricultural fields, but rarely near water. They are a diurnal species, foraging during daylight hours for ants, beetles, and crickets, and grasshoppers with a series of short runs and stops.

Mountain plovers nest in areas with short vegetation and bare ground, including near livestock watering tanks. Nests are constructed as a depression in the ground and lined with organic debris in areas with at least 30-percent bare ground and with nearby conspicuous objects such as rocks or forb clumps. Vegetation at nest sites is typically less than 4 inches in height and slope is less than 5 percent. Nest sites are typically dominated by needle-and-thread (*Sitpa comata*), blue gamma (*Bouteloua gracilis*), buffalo grass (*Buchloe dactyloides*), plains prickly pear cactus (*Opuntia polyacantha*), June grass (*Koeleria cristata*), and sagebrush (*Artemisia* sp.; USFWS 1999). Mountain plovers have historically nested on black-tailed prairie dog (*Cynomys ludovicianus*) towns. Clutch size ranges from 1–4 eggs.

Mountain plovers use non-breeding (wintering) habitats that are similar to those they use on breeding grounds: heavily grazed pastures, burned fields, fallow fields, and tilled fields (Hunting *et al.* 2001 as cited in Andres and Stone 2009; Knopf and Wunder 2006 as cited in Andres and Stone 2009). Mountain plovers were historically associated with kangaroo rat (*Dipodomys*) precincts and California ground squirrel (*Spermophilus beecheyi*) colonies within the Central Valley of California (U.S. Fish and Wildlife Service 2003 as cited in Andres and Stone 2009). In California's Imperial Valley, they preferentially use alfalfa fields that have been harvested and grazed by domestic sheep, as well as Bermuda grass fields that have been burned post-harvest (Wunder and Knopf 2003 as cited in Andres and Stone 2009).

Mountain plovers are considered to have been historically common in western and central Kansas; between Fort Supply, Oklahoma, and Dodge City, Kansas; western South Dakota; and they may have bred in northern Mexico (USFWS 1999). Information from the Breeding Bird Survey and Christmas Bird Count data shows a decline in the mountain plover at a rate of 2.7–2.8 percent per year from 1966 to 2007, although the data are characterized as having deficiencies (Andres and Stone 2009).

Threats to the mountain plover include loss of habitat due to conversion of grasslands to urban and active agricultural uses in their breeding grounds, prairie dog control, domestic livestock management; human disturbance during the nesting season; grasshopper control measures; use of pesticides; and other land uses throughout their range (USFWF 1999). Specific conservation issues for the mountain plover in the Imperial Valley include the variable nature of agricultural crops; although cultivated fields are abundant in the Central and Imperial Valleys, only proportions may be suitable in any given year (Andres and Stone 2009). Economic forces in any given year dictate crop selection and livestock operations, which can positively or negatively affect Mountain Plover habitat (Andres and Stone 2009).

Because mountain plovers are relatively tolerant of disturbance, human intrusion and disturbance have not been identified as major winter conservation threats, although response varies for individual birds (Andres and Stone 2009). Mountain plovers have been described as extremely tolerant of machinery, including off-road vehicles, tractors, and military aircraft (Andres and Stone

2009). Plovers will quickly leave roost areas when approached by walking humans (Knopf and Wunder 2006 as cited in Andres and Stone 2009).

Occurrence within the Action Area

Mountain plovers are known to over-winter in the Imperial Valley, foraging within the large agricultural complex that surrounds El Centro and spans from Mexico to the Salton Sea. In 2009, the Imperial County Agricultural Crop and Livestock Report (Imperial County 2009) reported approximately 353,128 acres of field crops to be grown within this large agricultural complex, including primarily alfalfa hay, Bermuda grass hay, Kleingrass hay, pastured crops, Sudan grass hay, and wheat. An additional 62,237 acres of primarily alfalfa and Bermuda grass were grown as seed crops (Imperial County 2010), totaling over 415,365 acres of alfalfa and grass crops. Additional grass crop fields are present south of the border in Mexico. As discussed previously, mountain plovers forage in the fields at various stages of the crop rotation, including when soils are freshly tilled prior to planting; when the crops are young and vegetative growth is still under 25 centimeters in height; after the crops have been harvested, and short stubble is present; and after the fields have been burned to prepare them for the next crop.

As the crops and rotation schedules on any given field often differ from year to year, the amount of foraging habitat available to mountain plover at any specific time period also differs from year to year. Given the constraints of available crop rotation history, information provided by the landowners, and examination of the current conditions of the fields, a conservative approach to estimating potential available habitat within the proposed solar field was taken. Assuming that any given crop/field is suitable as foraging habitat for 50 percent of the wintering months of November through February—either providing habitat after being planted until it grows over 9.84 inches, or after the crops have been harvested and/or burned mid-winter in preparation for a spring crop—we estimate that approximately 459 of the 916.5 acres would be available as moderate to highly suitable foraging habitat within the proposed solar field at any given time during winter.

A study conducted in 1999 by the Point Reyes Bird Observatory catalogued the avifauna using the Salton Sea and surrounding agricultural complex (Shuford et al. 2000). In 1999, the study counted approximately 2,486 mountain plovers in the Imperial Valley in February, 2,790 in November, and 3,758 in December. The mean number for these three surveys represents about 30–38 percent of the species' estimated population of 8,000–10,000 individuals (anonymous 1999 as cited in Shuford et al. 2000). On prior surveys across the California wintering range, the 2,072 and 755 mountain plovers recorded in the Imperial Valley in 1994 and 1998, respectively, represented 61 and 35 percent of the totals of 3,390 and 2,179 individuals found statewide (B. Barnes as cited in California Department of Fish and Game [CDFG] unpubl. data; K. Hunting as cited in Shuford et al. 2000). The higher totals in the Imperial Valley in 1999 are thought to reflect an increase in observer coverage there over prior years rather than a population increase (Shuford et al. 2000). In 1999, plovers were distributed widely over the Imperial Valley with no consistent areas of concentration (Figure 7), presumably reflecting the shifting availability of suitable fields with the temporal and spatial variation in cultivation practices (Shuford et al. 2000). Concentrations of plovers in a relatively few sites in February 1999 appeared to reflect a preference by plovers for burned fields at that season (Shuford et al. 2000). As seen in Figure 7, the study shows various sized flocks foraging throughout this agricultural complex during the winter months surveyed, including a large assemblage (>250 individuals) observed adjacent to the proposed solar field in the month of February 1999.

A more recent survey, coordinated by the Natural History Museum of Los Angeles County (NHMLAC), was conducted throughout the Imperial Valley on January 21–23, 2011. This survey recorded 877 mountain plovers within approximately 20 percent of the 23 search areas; no mountain plovers were detected south of Interstate 8 (K. Molina, pers. comm. 2011). This study shows a marked decline in population numbers from previous surveys coordinated by the

NHMLAC in 2007 (which yielded 4,687 birds within 86 percent of areas surveyed), and 2008 (which yielded 2,955 birds within 74 percent of the search areas).

This decline in population numbers does not appear to relate directly to the amount of foraging habitat available in the Imperial Valley. As seen in Table 1, the acreage of agricultural fields fluctuated by tens of thousands of acres between 2005 and 2009, but the fluctuations in acreage remained within ±15 percent of the average acreage every year (Imperial County 2006, 2007, 2008, 2009, 2010). The population numbers of mountain plover decreased from 2007 to 2008 (K. Molina, pers. comm. 2011), while the acreage of field crops increased from 2007 to 2008.

**TABLE 1
AGRICULTURAL CROP HISTORY FOR 2005–2009 IN THE IMPERIAL VALLEY**

Year	Field Crop (acres)	Seed Crop (acres)	Total (acres)	Estimated Habitat Available During Winter Months (50% of Total)	Variation From Prior Year	Variation From Average
2009	353,128	62,237	415,365	207,683	(30,759)	7,279
2008	412,335	64,547	476,882	238,441	31,583	23,480
2007	352,156	61,561	413,717	206,859	(11,179)	8,103
2006	361,383	74,691	436,074	218,037	14,249	3,076
2005	351,866	55,711	407,577	203,789		11,173
Average	366,174	63,749	429,923	214,962		10,622

Source: Imperial County (2006–2010)

Notes:

- Variation in acres of estimated foraging habitat varies year by year by 10,000 to 30,000 acres.
- Total estimated foraging habitat is stable or evenly trending up.

Site specific Surveys

In order to provide more detailed information regarding the immediate use by mountain plover of the ISEC South proposed solar fields, RECON conducted a USFWS protocol survey of the fields from January 29 to February 8, 2011. As seen in Figure 5, approximately 461 acres of agricultural fields within the proposed solar field met the suitability criteria for foraging mountain plovers (Photographs 1–4), approximately 200 acres of which were freshly burned during the mountain plover survey. No mountain plovers were observed or detected during the surveys.

4.0 EFFECTS OF THE PROPOSED ACTION ON MOUNTAIN PLOVER

The BA for the ISEC South Project contains impacts analysis for the additional species covered under the assessment.

Direct Effects

Mortality

The risk of death or injury to mountain plover as a result of construction of the Proposed Action is unlikely for the following reasons:

- As this species is not expected to nest within the action area, there is no risk of destroying nests or eggs, harming chicks, or discouraging parents from returning to the nest.

- The species is naturally evasive and will readily move out of harms way to avoid construction activities.

The mountain plover is a protected species under the MBTA. As such, it is unlawful to kill this species. Therefore the project applicant must avoid killing mountain plover and employ avoidance measures necessary to avoid killing or injuring any mountain plover. The ABPP discussed in Section 2.3 includes measures designed to minimize disturbance to all avian species during construction, including measures to prevent take of MBTA-protected birds during grading of the agricultural fields.

Disturbance

Light and noise from heavy equipment during construction is not expected to adversely modify the behavioral patterns of foraging mountain plover. Work will be conducted primarily during daylight hours; however, if it becomes necessary to conduct work at night, lighting will be needed for worker safety. This lighting will be directed toward the interior of the solar field in order to minimize effects to mountain plover that may be resting in adjacent fields. However, mountain plover is a diurnal species and is not expected to be active at night. Noise from construction of the solar field may exceed 60 dB(A) for a distance of up to 1,280 feet outside of the solar field perimeter. Minimization and avoidance measures to reduce potential noise effects to avian species will be implemented following the ABPP as discussed in Section 2.3.4, including timing construction to minimize effects to avian species. Because the mountain plover is relatively tolerant of disturbance on its wintering grounds, the brief amounts of time plovers may forage within any given field within the vicinity of the project area, and the implementation of impact avoidance and minimization measures, disturbance to mountain plover from noise and lighting would be unlikely.

The O&M activities of the Proposed Action are unlikely to affect mountain plovers that may be foraging in the solar field during the winter. As discussed in Sections 2.3.1.7 and 2.3.1.11 of the BA, any noise and lighting during operations will be minimal and directed toward the interior of the solar field, where the operations facilities are located. General O&M activities that may be conducted within the ISEC South solar field include equipment inspection and/or repairs, solar panel washing, weed abatement activities, and security guard duties involving the use of motor vehicles. Regular solar module washing (six times a year for concentrating PV [CPV] and one to two times a year for PV) requires water truck access on designated access road between the panels (or CPV trackers) and a high-powered sprayer or hose. As the plovers will not be nesting in the fields, they will be able to readily move out of harm's way, and while their foraging activities may be very temporarily disrupted, these O&M activities are not expected to affect the overall behavioral patterns of mountain plovers within the action area. As the mountain plover is only active during daylight hours, no collisions within the proposed transmission lines, solar panels, or other facility structures are anticipated, as they will be visible, and therefore avoidable, when mountain plover will be actively moving in and around the vicinity. In addition, Avian Power Line Interaction Committee (APLIC) measures to avoid and minimize potential collisions (APLIC 2006) will be detailed in the ABPP for implementation. Therefore, O&M activities would have an insignificant or discountable effect on mountain plover foraging within or adjacent to the solar field.

Habitat Loss

During construction activities, an estimated temporary loss of approximately 460 acres of foraging habitat will occur; however, this temporary habitat loss will be buffered by the over 207,000 acres of suitable foraging habitat within the Imperial Valley agricultural complex (50 percent of the 415,365 acres of field crops available in the Imperial Valley agricultural complex). The 460 acres of temporary habitat loss is approximately 0.2 percent of the overall 207,000 acres estimated to be available at any given time for foraging within the action area. A temporary loss of 0.2 percent of potentially suitable foraging habitat is a *de minimis* or discountable loss of mountain plover's forage resources in the Imperial Valley.

No permanent loss of foraging habitat for mountain plover is anticipated. After construction activities, the existing Bermuda grass to the east of the canal will be allowed to re-sprout within the solar field, underneath and surrounding the solar panels. The Bermuda grass will then be maintained as needed in order to maintain a vegetation height under 8 inches; this will both provide foraging habitat for wintering mountain plover, while maintaining vegetative cover for dust control underneath the panels. To the west of the canal, grasses such as salt grass (*Distichlis spicata*) or purple three awn (*Aristida purpurea*) may be seeded and maintained in a similar fashion to the Bermuda grass in order to provide suitable foraging habitat for mountain plover and meet dust control requirements for the Imperial Valley. In addition, these species are native and would not introduce new invasive exotic plants into the adjacent native desert.

Indirect Effects

Large avian predators such as ravens (genus *Corvus*), loggerhead shrikes (*Lanius ludovicianus*), and prairie falcon (*Falco mexicanus*) may be drawn to the solar field due to the increase in food sources such as garbage cans and nesting/perching areas such as the perimeter fence. This potential increase in avian predators may indirectly affect mountain plover within and adjacent to the solar field, but this effect would be minimized by implementation of the Raven Control Plan discussed in Section 2.3.

No indirect effects to mountain plover due to herbicide use is anticipated. The timing and formula of any herbicide used for control of weeds will be in accordance with the proposed project's Weed Management Plan, which conforms to resource agency standards to minimize impacts to sensitive biological resources. Specifically, herbicides should be applied to any agricultural fields outside of the mountain plover over-wintering season of November through February.

5.0 CUMULATIVE IMPACTS

Cumulative impacts include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this BA.

As discussed in the BA for the ISEC South Project, all of the proposed or approved projects anticipated in the Imperial Valley have a federal nexus and are subject to Section 7 consultation with USFWS; therefore, these projects are not considered in the cumulative effects analysis for the Proposed Action.

Given the amount of suitable mountain plover foraging habitat available within the action area, the Proposed Action does not significantly contribute to the cumulative effects to mountain plover within the action area.

6.0 CONCLUSION

The Proposed Action's construction activities may have direct and indirect effects to mountain plover winter foraging habitat. However, with the impact avoidance and minimization measures outlined for mountain plover, the Proposed Action may affect, but is not likely to adversely affect, mountain plover in the Imperial Valley. The temporary impact to potential foraging habitat within the action area is insignificant compared to the potential foraging habitat available to the mountain plover in the Imperial Valley.

The BA for the ISEC South Project contains conclusions about the additional species covered under the assessment.

Mr. Steve Johnson
Page 12
February 14, 2011

If you have any questions, please do not hesitate to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Cheri A. Boucher". The signature is written in a cursive style with a large initial "C" and "B".

Cheri A. Boucher
Senior Biologist

CAB:eab

Enc. Attachments

7.0 REFERENCES CITED

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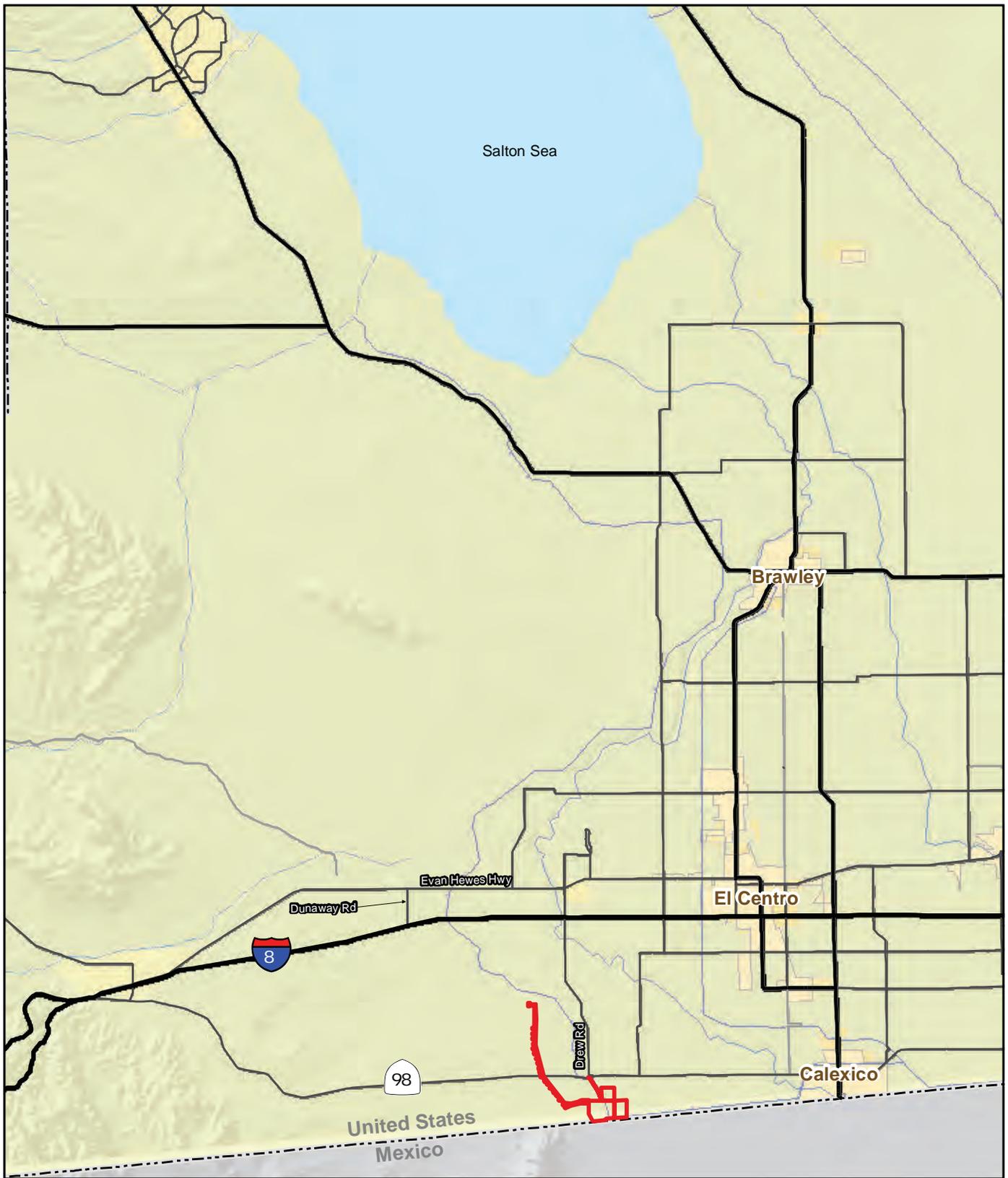
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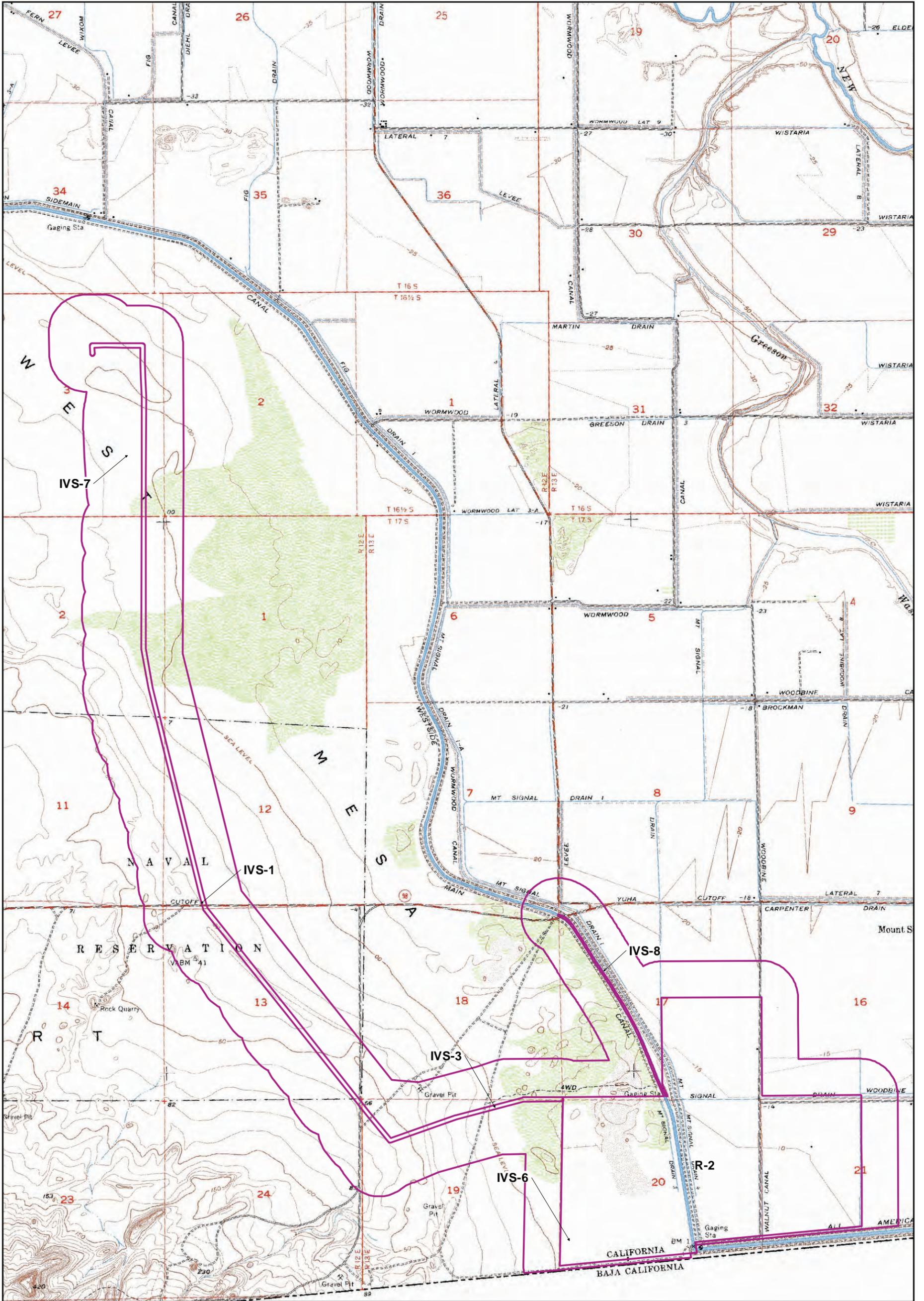
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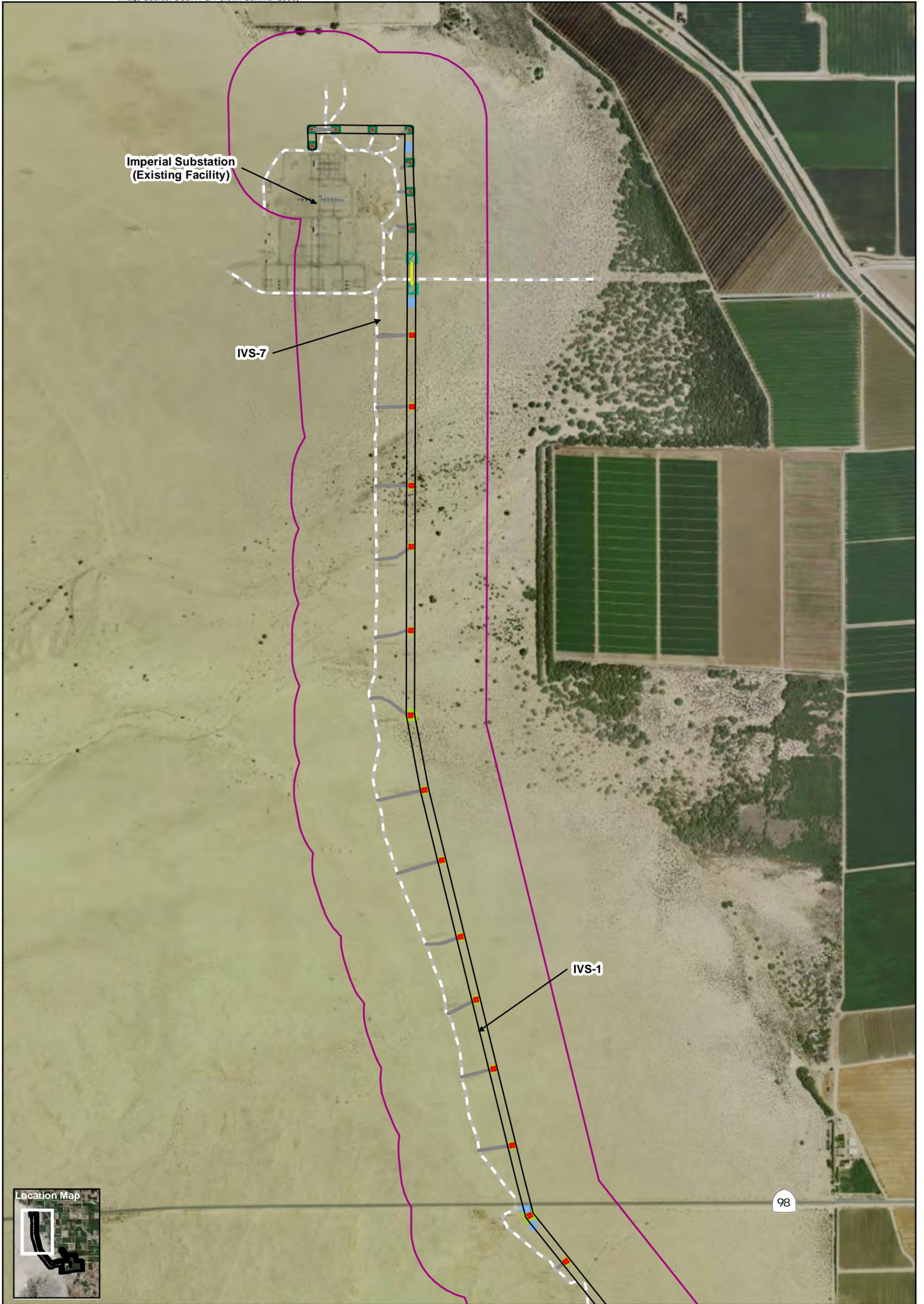
 Project Area



□ Action Area

FIGURE 2

Location of Imperial Solar Energy Center South Project on USGS Map



- Action Area
- Transmission Line ROW (IVS-1 & IVS-3)
- Existing Roads

- Project Footprint**
- Permanent Monopole Footing
 - Permanent Tower
 - Pull Site
 - Temporary Monopole Site

- Temporary Tower Site
- Temporary A-Frame Tower Site
- Temporary Trench
- Access Road

0 Feet 1,300

FIGURE 3a
Proposed Project Components for the
Imperial Solar Energy Center South Project

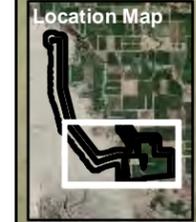
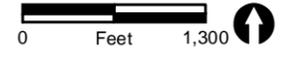
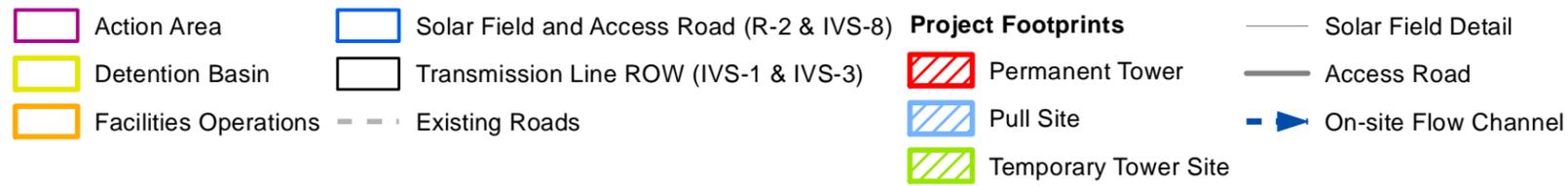
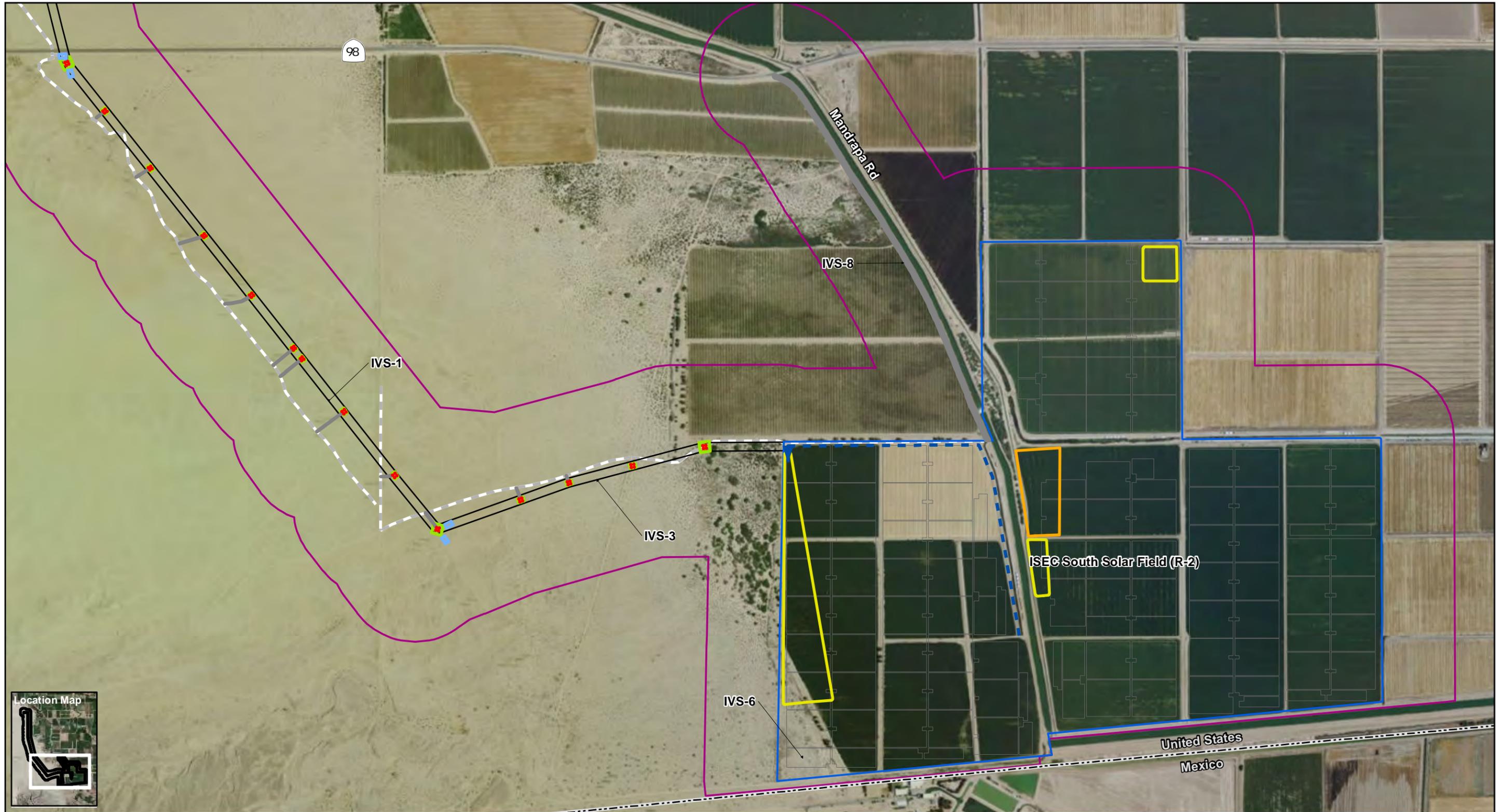


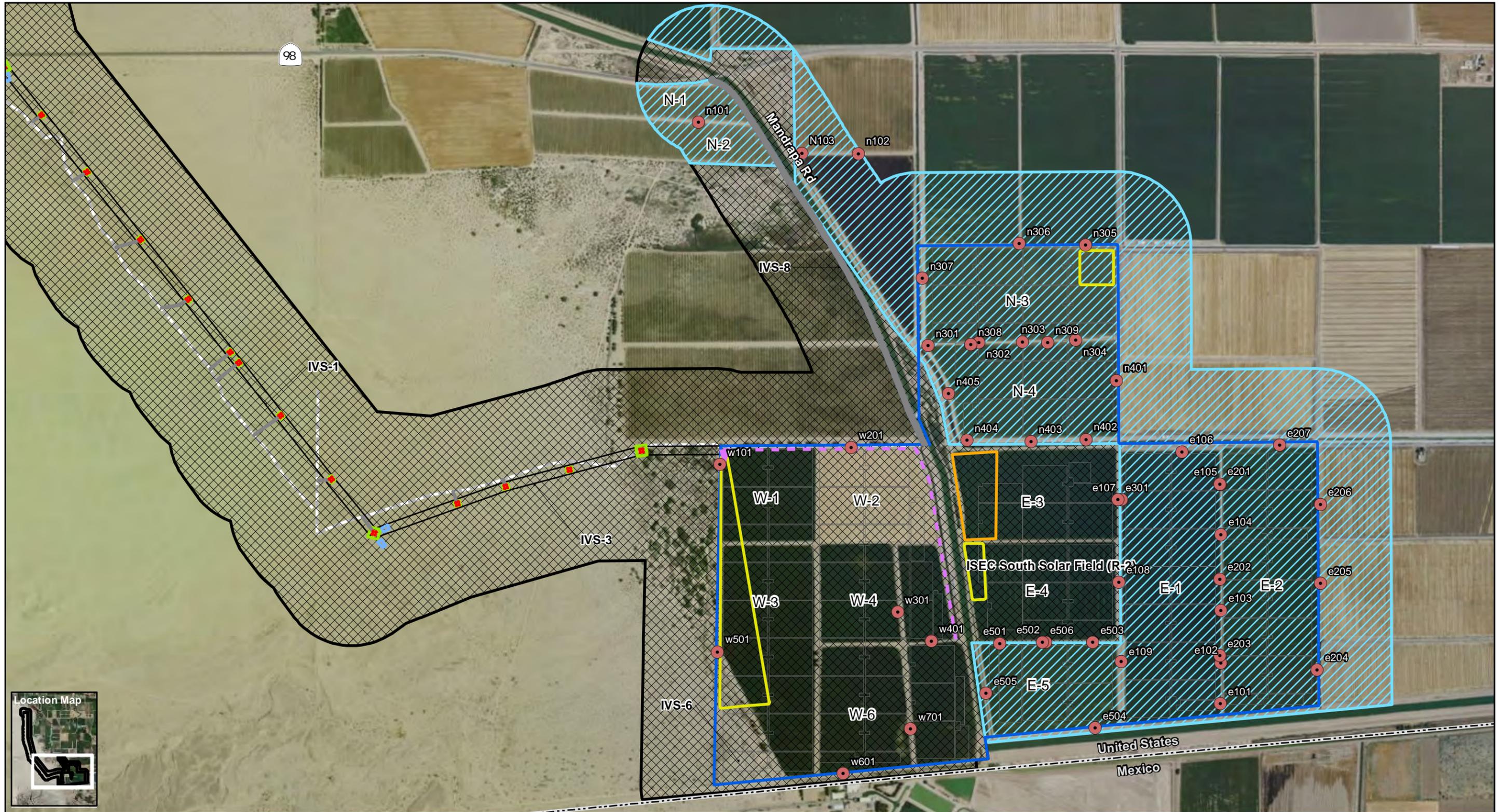
FIGURE 3b
Proposed Project Components for the
Imperial Solar Energy Center South Project



 Action Area

FIGURE 4

Action Area for Mountain Plover on the Imperial Solar Energy Center South Project



Plover Survey

- Suitable Mountain Plover Habitat
- Excluded from Surveys
- Habitat Assessment/Observation Points

Project Footprints

- Permanent Tower
- Pull Site
- Temporary Tower Site

- Detention Basin

- Facilities Operations
- Solar Field and Access Road (R-2 & IVS-8)
- Transmission Line ROW (IVS-1 & IVS-3)
- Existing Roads

- Solar Field Detail
- Access Road
- On-site Flow Channel

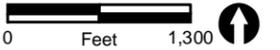
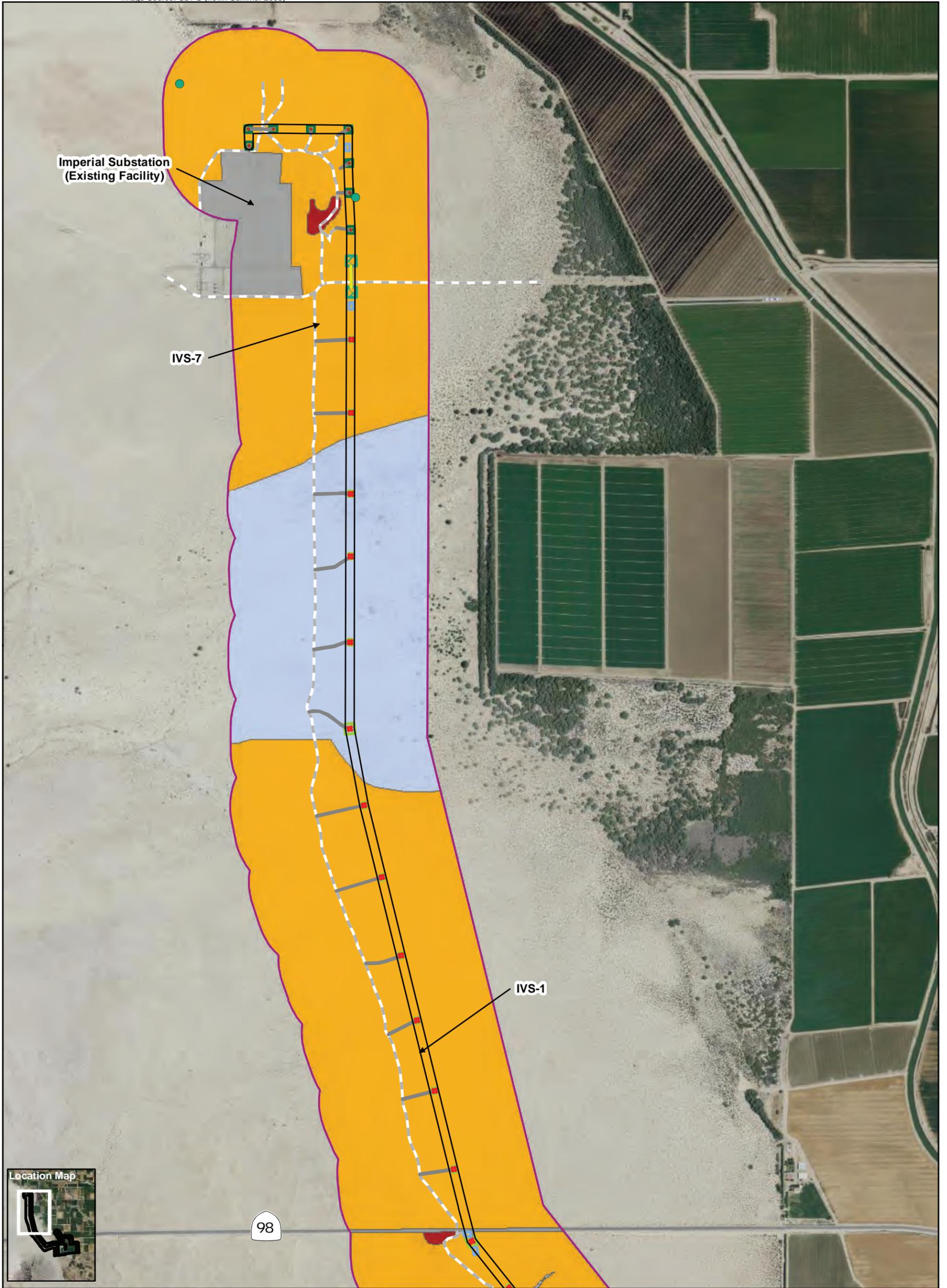


FIGURE 5
Habitat Assessment for Mountain Plover Surveys
on the Imperial Solar Energy Center South Project



- Action Area
- Transmission Line ROW (IVS-1 & IVS-3)
- Existing Roads
- Project Footprint**
- Permanent Monopole Footing
- Permanent Tower

- Pull Site
- Temporary Monopole Site
- Temporary Tower Site
- Temporary A-Frame Tower Site
- Temporary Trench
- Access Road

- Sensitive Plant and Wildlife Species**
- Flat-tail Horned Lizard (*Phrynosoma mcallii*)

- Vegetation Communities**
- Creosote Bush-White Burr Sage Scrub
 - Developed
 - Desert Wash (Smoke Tree Woodland)
 - Disturbed Land

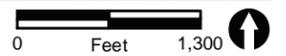
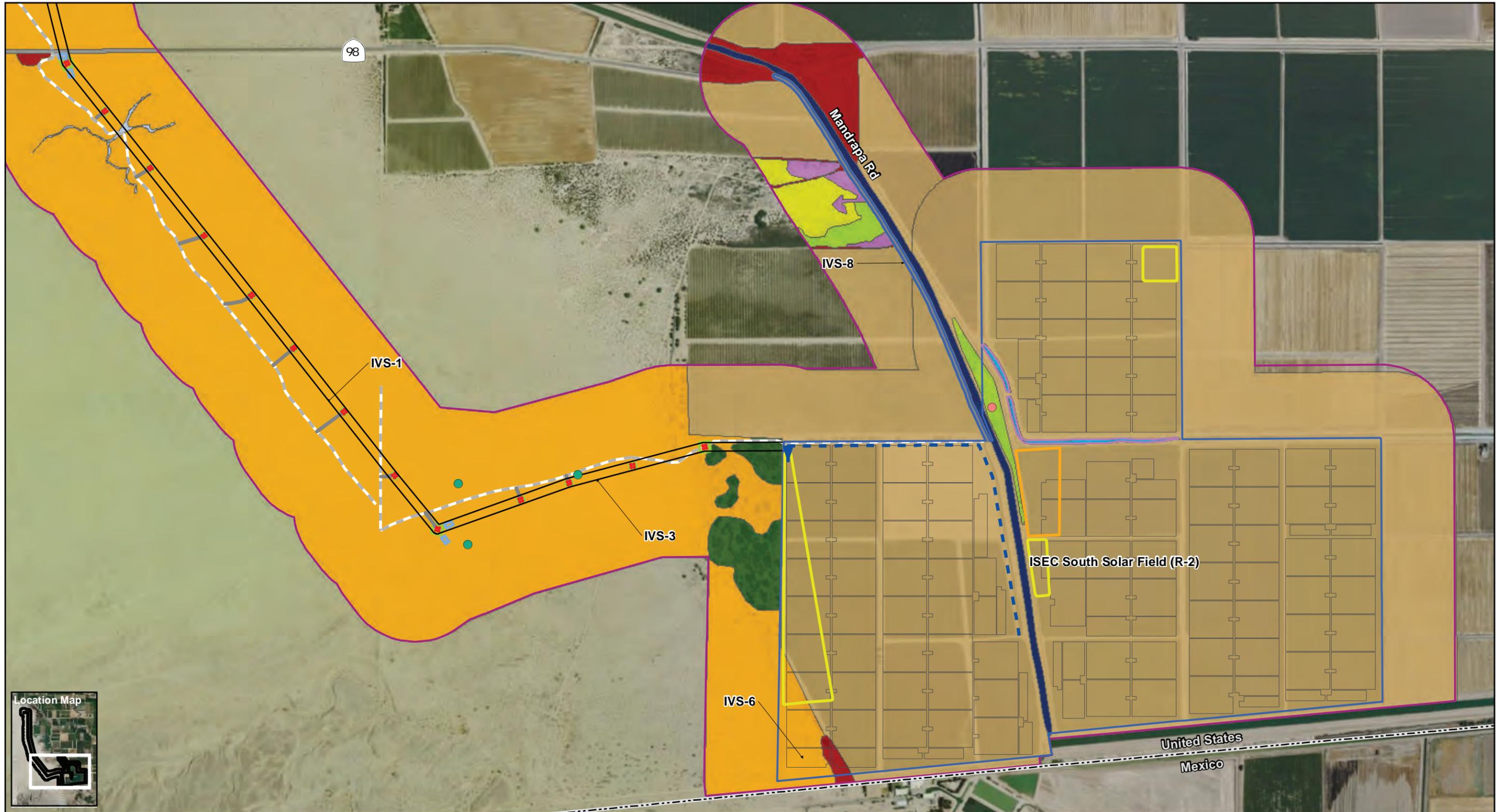


FIGURE 6a
Biological Resources within the Imperial Solar Energy Center South Project



- Action Area
- Detention Basin
- Facilities Operations
- Solar Field and Access Road (R-2 & IVS-8)
- Transmission Line ROW (IVS-1 & IVS-3)
- Existing Roads

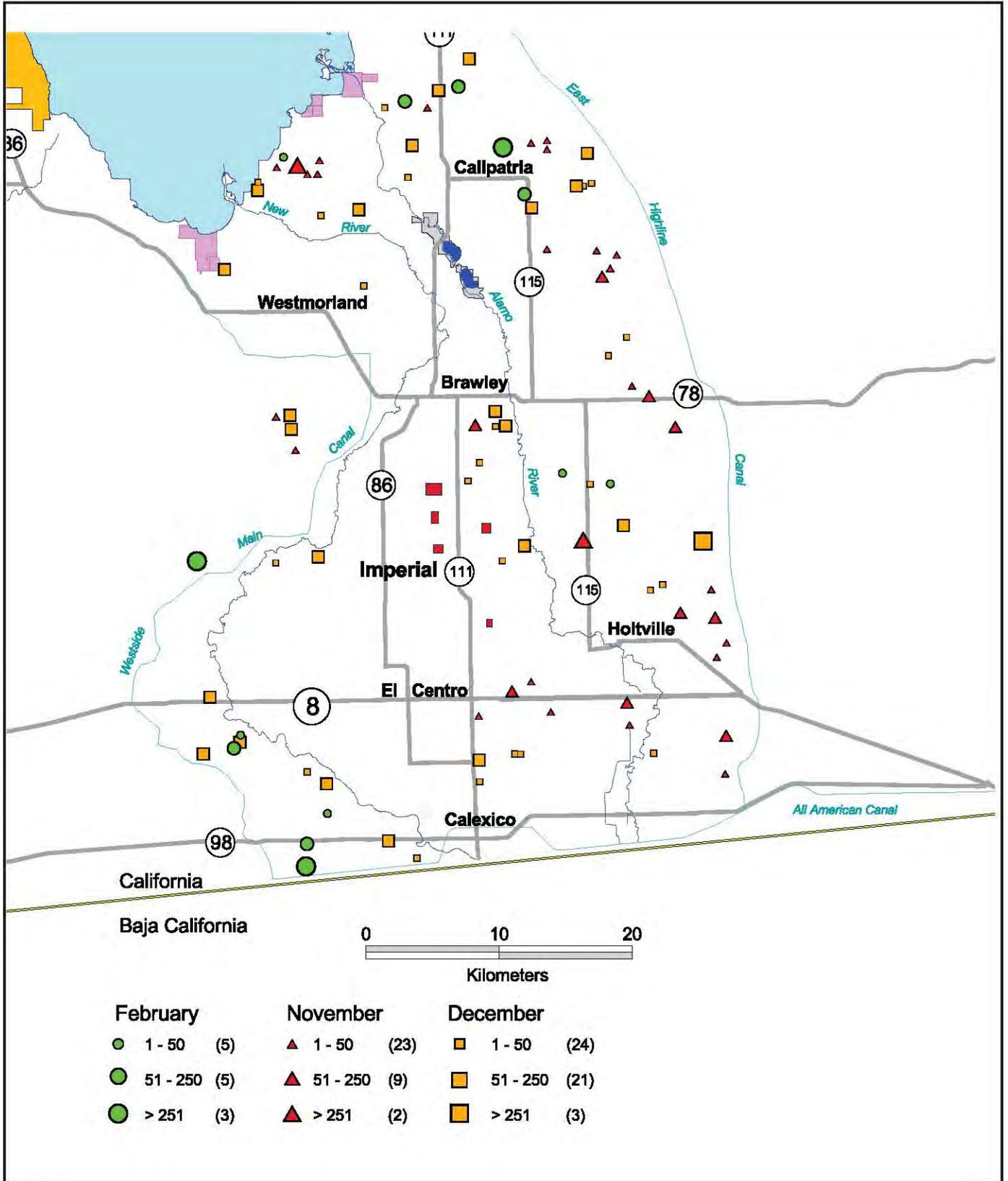
- Project Footprints**
- Permanent Tower
 - Pull Site
 - Temporary Tower Site
 - Solar Field Detail
 - Access Road
 - On-site Flow Channel

- Sensitive Plant and Wildlife Species**
- Flat-tail Horned Lizard (*Phrynosoma mcallii*)
 - Foraging Willow Flycatcher (*Empidonax traillii*)
- Vegetation Communities**
- Active Agriculture
 - Cattail Marsh

- Creosote Bush Scrub
- Creosote Bush-White Burr Sage Scrub
- Desert Saltbush Scrub
- Desert Wash (Smoke Tree Woodland)
- Developed
- Disturbed Land
- Mesquite Thicket
- Tamarisk Thicket
- Arrowweed Thicket
- Open Water



FIGURE 6b
Biological Resources within the
Imperial Solar Energy Center South Project



Not to Scale 

FIGURE 7

Known Locations of Mountain Plover in Action Area



PHOTOGRAPH 1
Field E-1, Facing East



PHOTOGRAPH 2
Field E-2, Facing North



PHOTOGRAPH 3
Field N-1, Facing South



PHOTOGRAPH 4
Field E-3, Facing South. Excluded from Surveys.

ATTACHMENT 1

**ATTACHMENT 1
PROPOSED IMPACTS FOR THE ISEC SOUTH PROJECT**

Project Component	Solar Field Impact (acres)	Transmission Line Impact (acres)	Total (acres)
Permanent Impacts			
Solar Field (R-2 + IVS-6)			
AA	818.3		818.3
CBS	16.8		16.8
DL	2.4		2.4
Solar Field Total	837.5		837.5
Solar Field Access Road (IVS-8)			
DSS	0.1		0.1
AT	0.3		0.3
AA	0.9		0.9
DL	5.5		5.5
Solar Field Access Road Total	6.8		6.8
Transmission Line (IVS-1 + IVS-3)			
--Access roads**			
CBS		2.2	2.2
DW		0.6	0.6
Access Road Total		2.8	2.8
--Monopole footings			
CBS		<0.1	<0.1
--Lattice tower footings*			
CBS		<0.1	<0.1
DW		<0.1	<0.1
Lattice Tower Footings Total		<0.1	<0.1
Transmission Line Total		2.8	2.8
<i>Permanent Impacts Total</i>	<i>844.3</i>	<i>2.8</i>	<i>847.1</i>
Temporary Impacts			
Transmission Line (IVS-1 + IVS-3)			
--Pullsite--CBS			
		0.8	0.8
--Monopole work areas			
CBS		1.7	1.7
--Lattice tower work areas*			
CBS		4.0	4.0
DW		0.8	0.8
Lattice Tower Work Area Total		4.8	4.0
--Trench			
CBS		<0.1	<0.1
<i>Temporary Impacts Total</i>	<i>-</i>	<i>7.3</i>	<i>7.3</i>
Total Project Impacts		844.3	10.1
			854.4

AA = active agriculture

AT = arrow weed thicket

DL = disturbed land

DSS = desert saltbush scrub

DW = desert wash

CBS = creosote bush–white burr sage scrub

* Includes A-frame structures

**12-foot-wide spur roads extending from the existing transmission access roads.

ATTACHMENT 2

**ATTACHMENT 2
HABITAT ASSESSMENT FOR WINTERING MOUNTAIN PLOVER SURVEYS ON THE
ISEC SOUTH PROJECT**

Field	Survey Date	Vegetation Height (inches)	Habitat Description	Included / Excluded from Survey
Survey 1				
N1	January 29, 2011	3–8"	Crop grass	Included
N2	January 29, 2011	6–13"	Crop alfalfa	Included
N3	January 29, 2011	0–4"	Freshly burned, sparse new growth	Included
N4	January 29, 2011	1–5"	Short, dry grass with green shoots (bermuda grass)	Included
E1	January 29, 2011	2–5"	Short grass (bermuda grass)	Included
E2	January 29, 2011	0–1"	Very fresh burn	Included
E3	January 29, 2011	10–17"	Medium-tall alfalfa	Excluded
E4	January 29, 2011	11–20"	Medium-tall alfalfa	Excluded
E5	January 29, 2011	0–4"	Short, dry grass (bermuda grass)	Included
W1	January 29, 2011	15–18"	Broad-bladed grass	Excluded
W2	January 29, 2011	9–16 "	Broad-bladed grass	Excluded
W3	January 29, 2011	11–14"	Broad-bladed grass	Excluded
W4	January 29, 2011	15–19"	Broad-bladed grass	Excluded
W5	January 29, 2011	10–17"	Broad-bladed grass	Excluded
W6	January 29, 2011	16–22"	Broad-bladed grass	Excluded
W7	January 29, 2011	10–13"	Broad-bladed grass	Excluded
Survey 2				
N1	February 3, 2011	>9"	Dense grass cover	Excluded
N2	February 3, 2011	>9"	Dense wilted alfalfa	Excluded
N3	February 3, 2011	0–4"	Recent burn, some new growth	Included
N4	February 3, 2011	1–4"	Short, dry grass with new growth	Included
E1	February 3, 2011	2–8"	Short, dry grass	Included
E2	February 3, 2011	0–1"	Freshly burned	Included
E3	February 3, 2011	10–18"	Alfalfa	Excluded
E4	February 3, 2011	12–15"	Alfalfa	Excluded
E5	February 3, 2011	0–1"	Freshly burned	Included
W1	February 3, 2011	12–20"	Dense, tall grass	Excluded
W2	February 3, 2011	10–16"	Dense, tall grass	Excluded
W3	February 3, 2011	9–17"	Dense, tall grass	Excluded
W4	February 3, 2011	16–22"	Dense, tall grass	Excluded
W5	February 3, 2011	9–15"	Dense, tall grass	Excluded
W6	February 3, 2011	19–21"	Dense, tall grass	Excluded
W7	February 3, 2011	10–19"	Dense, tall grass	Excluded
Survey 3				
N1	February 9, 2011	9.5–17"	Dense, tall grass	Excluded
N2	February 9, 2011	9.5–12.5"	Alfalfa	Excluded
N3	February 9, 2011	0–4"	Burned with short new growth	Included
N4	February 9, 2011	0"	Fresh burn	Included
E1	February 9, 2011	1–6"	Short dry grass	Included
E2	February 9, 2011	0–2"	Fresh burn	Included
E3	February 9, 2011	2–9"	Freshly mowed alfalfa	Included
E4	February 9, 2011	2–8"	Freshly mowed alfalfa	Included
E5	February 9, 2011	0–3"	Fresh burn	Included
W1	February 9, 2011	16–25"	Dense, tall grass	Excluded
W2	February 9, 2011	12–19"	Dense, tall grass	Excluded
W3	February 9, 2011	11–20"	Dense, tall grass	Excluded
W4	February 9, 2011	15–26"	Dense, tall grass	Excluded
W5	February 9, 2011	10–16"	Dense, tall grass	Excluded
W6	February 9, 2011	15–25"	Dense, tall grass	Excluded
W7	February 9, 2011	13–18"	Dense, tall grass	Excluded

ATTACHMENT 3

**ATTACHMENT 3
BIRD SPECIES OBSERVED/DETECTED DURING THE
MOUNTAIN PLOVER WINTERING SURVEYS FOR THE ISEC SOUTH PROJECT**

Scientific Name	Common Name	Survey Date		
		January 29, 2011	February 3, 2011	February 9, 2011
ANATIDAE	DUCKS, GEESE, & SWANS			
<i>Anas acuta</i>	northern pintail		X	
<i>Anas platyrhynchos platyrhynchos</i>	mallard	X	X	
PELECANIDAE	PELICANS			
<i>Pelecanus erythrorhynchos</i>	American white pelican			X
PHALACROCORACIDAE	CORMORANTS			
<i>Phalacrocorax auritus albociliatus</i>	double-crested cormorant	X	X	X
ARDEIDAE	HERONS & BITTERNs			
<i>Ardea alba</i>	great egret	X	X	X
<i>Ardea herodias</i>	great blue heron	X	X	X
<i>Bubulcus ibis ibis</i>	cattle egret	X	X	X
<i>Butorides virescens</i>	green heron	X	X	X
<i>Egretta thula thula</i>	snowy egret	X	X	X
THRESKIORNITHIDAE	IBISES			
<i>Plegadis chihi</i>	white-faced ibis			X
CATHARTIDAE	NEW WORLD VULTURES			
<i>Cathartes aura</i>	turkey vulture	X	X	X
ACCIPITRIDAE	HAWKS, KITES, & EAGLES			
<i>Buteo jamaicensis</i>	red-tailed hawk	X	X	X
<i>Accipiter striatus velox</i>	sharp-shinned hawk			X
<i>Circus cyaneus hudsonius</i>	northern harrier	X	X	X
<i>Pandion haliaetus</i>	osprey	X	X	X
FALCONIDAE	FALCONS & CARACARAS			
<i>Falco peregrinus anatum</i>	peregrine falcon		X	
<i>Falco sparverius sparverius</i>	American kestrel	X	X	X
RALLIDAE	RAILS, GALLINULES, & COOTS			
<i>Fulica americana americana</i>	American coot		X	X
<i>Porzana carolina</i>	sora		X	
CHARADRIIDAE	LAPWINGS & PLOVERS			
<i>Charadrius vociferus vociferus</i>	killdeer		X	
RECURVIROSTRIDAE	STILTS & AVOCETS			

ATTACHMENT 3
BIRD SPECIES OBSERVED/DETECTED DURING THE
MOUNTAIN PLOVER WINTERING SURVEYS FOR THE ISEC SOUTH PROJECT (CONT.)

Scientific Name	Common Name	Survey Date		
		January 29, 2011	February 3, 2011	February 9, 2011
<i>Himantopus mexicanus</i>	black-necked stilt		X	
SCOLOPACIDAE	SANDPIPERS & PHALAROPES			
<i>Numerius americanus</i>	long-billed curlew	X	X	
<i>Gallinago delicata</i>	Wilson's snipe			X
<i>Phalaropus lobatus</i>	red-necked phalarope	X		X
<i>Tringa melanoleuca</i>	greater yellowlegs		X	
LARIDAE	GULLS, TERNS, & SKIMMERS			
<i>Hydroprogne caspia</i>	Caspian tern	X	X	
<i>Larus delawarensis</i>	ring-billed gull	X	X	X
COLUMBIDAE	PIGEONS & DOVES			
<i>Columbina passerina</i>	common ground dove	X	X	X
<i>Streptopelia decaocto</i>	Eurasian collared-dove			X
<i>Zenaida macroura marginella</i>	mourning dove	X	X	X
CUCULIDAE	CUCKOOS & ROADRUNNERS			
<i>Geococcyx californianus</i>	greater roadrunner	X		X
STRIGIDAE	TYPICAL OWLS			
<i>Athene cunicularia hypugaea</i>	western burrowing owl	X	X	X
TYRANNIDAE	TYRANT FLYCATCHERS			
<i>Sayornis nigricans semiatra</i>	black phoebe	X	X	X
<i>Sayornis saya</i>	Say's phoebe	X	X	X
LANIIDAE	SHRIKES			
<i>Lanius ludovicianus</i>	loggerhead shrike	X	X	X
CORVIDAE	CROWS, JAYS, & MAGPIES			
<i>Corvus corax clarionensis</i>	common raven	X	X	X
ALAUDIDAE	LARKS			
<i>Eremophila alpestris</i>	horned lark	X	X	X
HIRUNDINIDAE	SWALLOWS			
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow		X	
<i>Tachycineta bicolor</i>	tree swallow	X		
REMIZIDAE	VERDIN			
<i>Auriparus flaviceps acaciarum</i>	verdin	X	X	X

**ATTACHMENT 3
BIRD SPECIES OBSERVED/DETECTED DURING THE
MOUNTAIN PLOVER WINTERING SURVEYS FOR THE ISEC SOUTH PROJECT (CONT.)**

Scientific Name	Common Name	Survey Date		
		January 29, 2011	February 3, 2011	February 9, 2011
TROGLODYTIDAE	WRENS			
<i>Cistothorus palustris</i>	marsh wren	X	X	X
<i>Salpinctes obsoletus obsoletus</i>	rock wren			X
SYLVIIDAE	GNATCATCHERS			
<i>Polioptila caerulea</i>	blue-gray gnatcatcher		X	X
<i>Polioptila melanura</i>	black-tailed gnatcatcher	X	X	X
STURNIDAE	STARLINGS & MYNAS			
<i>Sturnus vulgaris</i>	European starling (I)			
MOTACILLIDAE	WAGTAILS & PIPITS			
<i>Anthus rubescens pacificus</i>	American pipit	X	X	X
PARULIDAE	WOOD WARBLERS			
<i>Dendroica coronata</i>	yellow-rumped warbler	X	X	X
<i>Geothlypis trichas</i>	common yellowthroat	X	X	X
<i>Vermivora celata</i>	orange-crowned warbler	X	X	X
EMBERIZIDAE	EMBERIZIDS			
<i>Chondestes grammacus strigatus</i>	lark sparrow			X
<i>Melospiza lincolnii</i>	Lincoln's sparrow		X	
<i>Melospiza melodia</i>	song sparrow	X		X
<i>Passerculus sandwichensis nevadensis</i>	savannah sparrow	X	X	X
<i>Pipilo aberti</i>	Abert's towhee	X	X	X
<i>Pooecetes gramineus</i>	vesper sparrow	X		
<i>Spizella breweri</i>	Brewer's sparrow	X		
<i>Zonotrichia leucophrys</i>	white-crowned sparrow	X		
ICTERIDAE	BLACKBIRDS & NEW WORLD ORIOLES			
<i>Agelaius phoeniceus</i>	red-winged blackbird	X	X	
<i>Sturnella neglecta</i>	western meadowlark	X	X	X
PASSERIDAE	OLD WORLD SPARROWS			
<i>Passer domesticus</i>	house sparrow (I)			X

Nomenclature from American Ornithologists' Union 1998 and Unitt 2004

APPENDIX A

1927 Fifth Avenue
San Diego, CA 92101-2358
P 619.308.9333 F 619.308.9334
www.recon-us.com

525 W. Wetmore Rd., Suite 111
Tucson, AZ 85705
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1412 W. 6th ½ Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184



A Company of Specialists

January 17, 2011

Mr. Andrew Trouette
Natural Resource Specialist
Bureau of Land Management
El Centro Field Office
1661 S. 4th Street
El Centro, CA 92243

Reference: Survey Results for Winter 2010 Avian Point-counts for the Imperial Solar Energy Center South Project (RECON Number 5726)

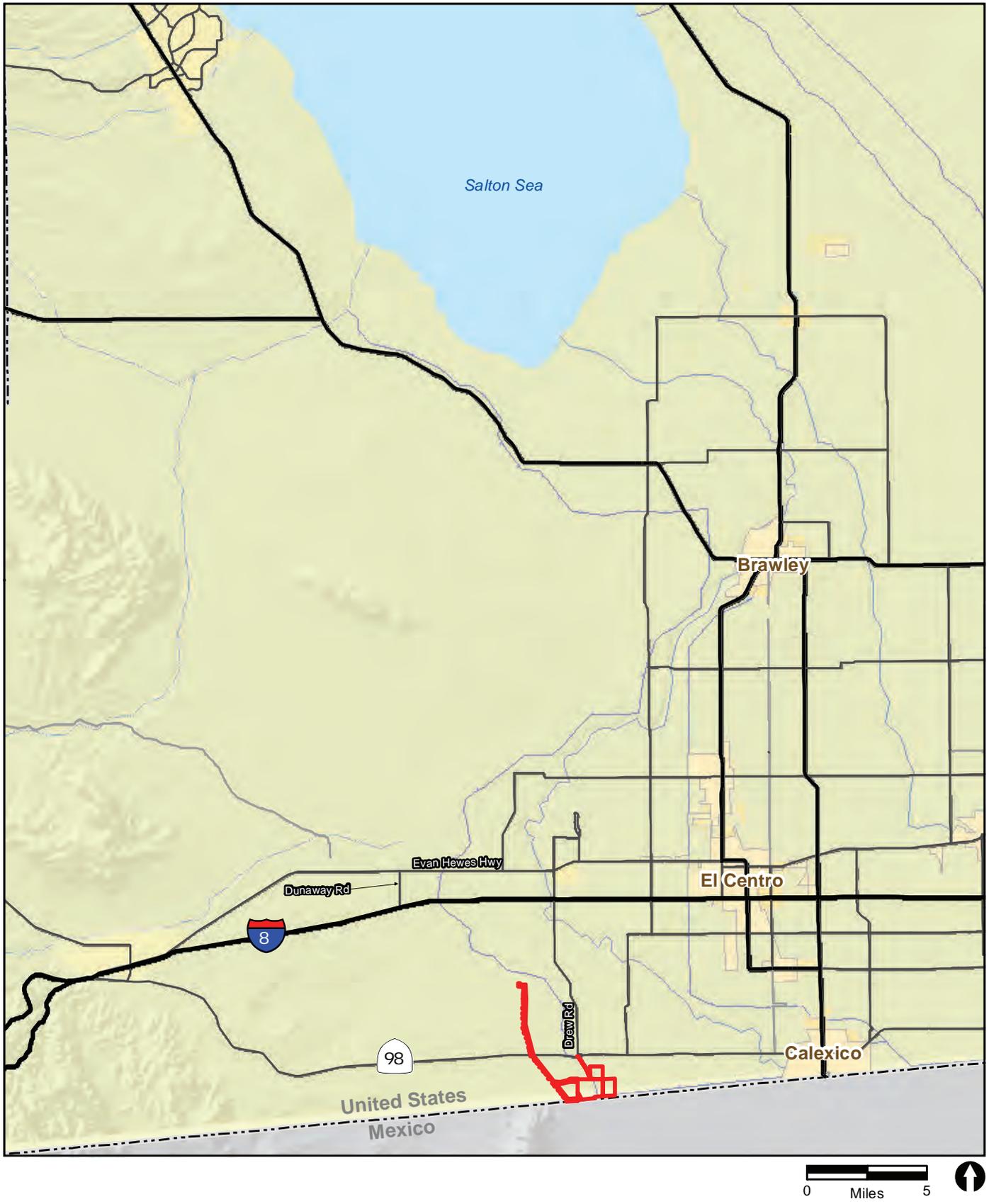
Dear Mr. Trouette:

This letter describes the results of the winter 2010 avian point-count surveys conducted on the 927.6-acre solar field of the Imperial Solar Energy Center (ISEC) South Project (Figures 1 and 2). Eight point-counts were conducted along one transect within the proposed solar field (R-2) (see Figure 2), concentrating on areas where there were likely to be birds, such as canals, washes, trees, etc.

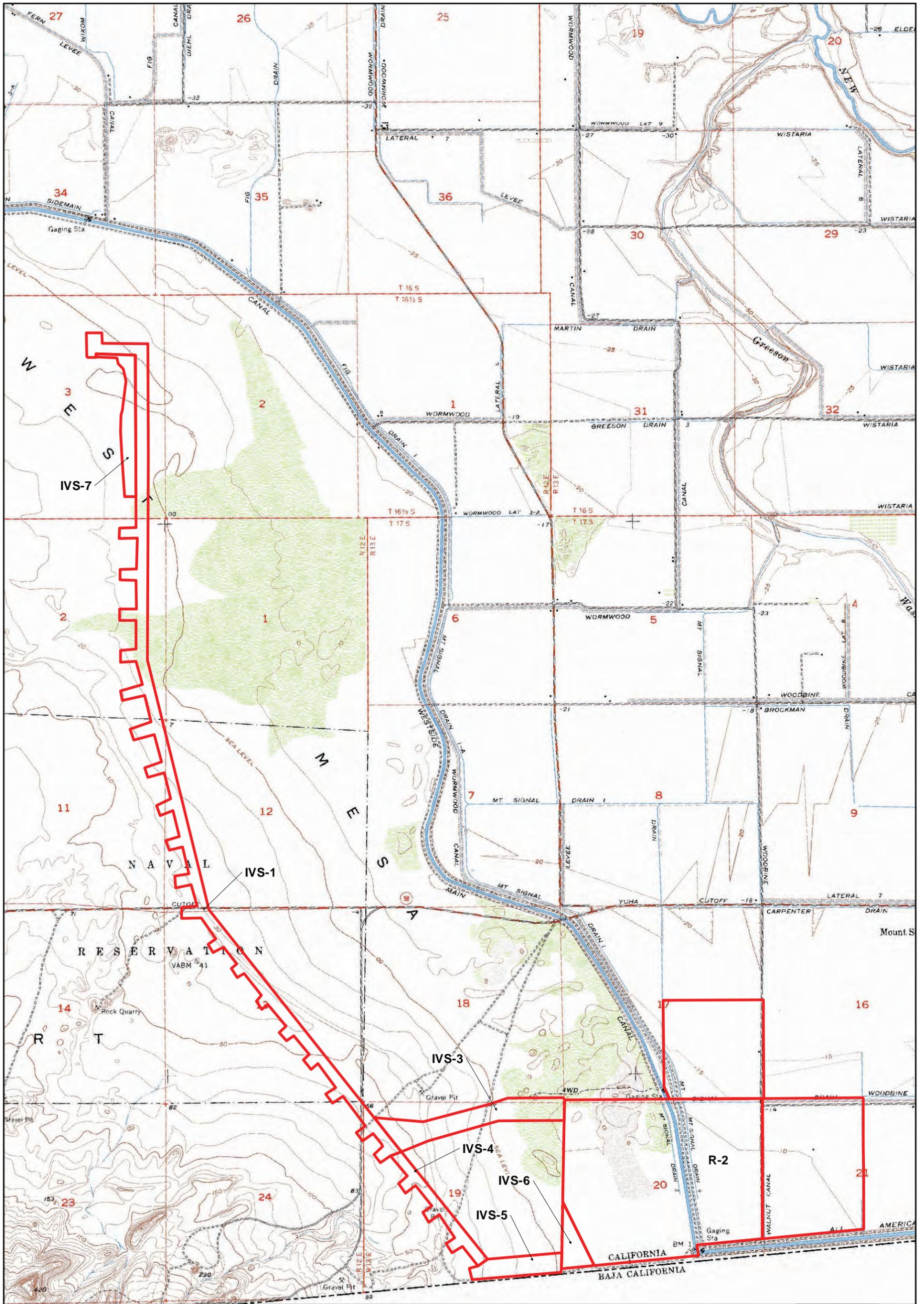
Methods

RECON biologists Cheri Bouchér, Gavin Bieber, and Beth Procsal conducted the point-count surveys for four weeks in December 2010. The surveys were conducted in accordance with Bureau of Land Management (BLM) Solar Facility Point-count Protocol (BLM 2009). Per these survey guidelines, two surveyors conducted point-count surveys along a 1,750-meter transect, which contained eight point-count locations spaced at least 250 meters apart (Figure 3). As Point-count Survey Location 18 was originally located within an active agricultural field (RECON 2010), this point-count survey was conducted along the access road, approximately 160 feet east of the designated point in order to avoid trampling of the agricultural field. Point-count Location 21 was originally placed within the open water of the Westside Main Canal (RECON 2010); therefore, the survey was conducted on the west bank of the canal, approximately 50 feet to the east.

Each point-count location shown on Figure 3 was surveyed for 10 minutes, within a 100-meter radius of the point. Each transect was surveyed once per week for 4 weeks, between sunrise and up 4 hours after sunrise, with an extension to 11 A.M., if temperatures were not too warm (BLM 2009). Survey dates, times, and weather conditions are provided in Table 1, and field data forms are found in Attachment 1.



 Imperial Solar Energy Center South Project Area



Project Area

FIGURE 2
Imperial Solar Energy Center South
Project Location on USGS Map

**TABLE 1
AVIAN POINT-COUNT SURVEY EFFORT AND CONDITIONS
ISEC SOUTH PROJECT**

12/8/10	G. Bieber, C. Bouchér	6:50 A.M.; 46°F; wind 0 mph; 0% cc	9:00 A.M.; 65°F; wind 0 mph; 0% cc
12/15/10	G. Bieber, B. Procsal	6:50 A.M.; 68° F, wind 4-7 mph; 35% cc	9:20 A.M.; 72° F, wind 4-7 mph, with gusts to 15-20; 80% cc
12/22/10	G. Bieber, B. Procsal	6:47 A.M.; 54°F; wind 1-2 mph; 95% cc	8:40 A.M.; 54°F; wind 3-6 mph; 100% cc
12/29/10	G. Bieber, C. Bouchér	6:57 A.M.; 49°F; wind 2-4 mph; 90% cc	9:07 A.M.; 62°F; wind 2-4 mph; 100% cc

¹ Times are in Daylight Savings Time; °F = degrees Fahrenheit; mph = miles per hour; % = percent; cc = cloud cover

Existing Conditions

As listed in Table 2, and shown Figure 3, six vegetation communities were mapped within the solar field survey area, including creosote bush-white burr sage scrub, cattail marsh, arrow weed thicket, tamarisk thicket, open water, and active agricultural fields. Vegetation community classifications follow *A Manual of California Vegetation* (Sawyer et al. 2009). Under *A Manual of California Vegetation*, vegetation communities are classified by the dominant or co-occurring species, and are referred to as alliances. A small amount of disturbed and developed land is also present within the survey area. Table 2 below lists the acreage of each vegetation community.

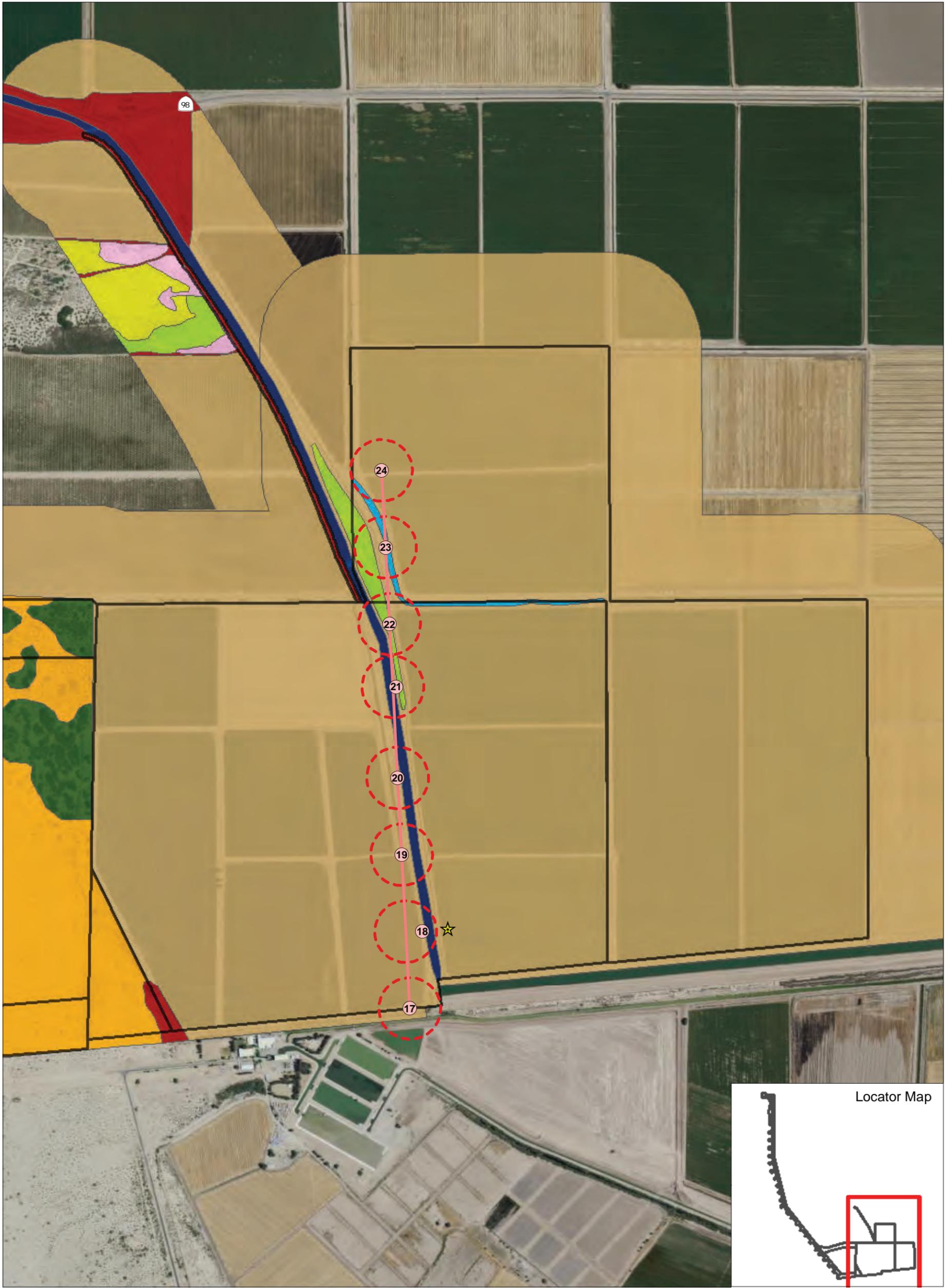
**TABLE 2
VEGETATION COMMUNITIES/LAND COVER TYPES WITHIN ISEC SOUTH PROJECT
SOLAR FIELD SURVEY AREA**

Creosote bush– white burr sage scrub	0.3
Cattail marsh	2.8
Arrow weed thicket	1.0
Open water	2.0
Tamarisk thicket	5.8
Active agricultural fields	914.5
Disturbed/developed land	1.2
TOTAL	927.6

Survey Results

All bird species observed or detected by vocalizations during the surveys are noted in Attachment 2. Species observed during the survey but outside of the 100-meter buffer for any point are listed as incidental observations.

The point-count survey locations that were situated closest to open water, including Locations 17, 18, 19, 21, 22, and 23, yielded the highest bird counts; ranging from 30 to 35 species. These locations also supported arrow-weed (*Pluchea sericea*) thickets and mesquite trees, which provided foraging and shelter opportunities for birds. Point-count Survey Locations 20 and 24 had the lowest number of bird species, ranging from 26 to 28. Although Location 20 is near open water, this site lacked the vegetation and trees as the locations listed above. Point-count Location 24 was surrounded by active agricultural fields, which provides foraging areas but little shelter.



Project Area
 Survey Area
 Transect

Point Count Location
★ Peregrin Falcon

Vegetation Communities

Active Agriculture
 Cattail Marsh
 Creosote Bush Scrub
 Creosote Bush-White Burr Sage Scrub

Desert Saltbush Scrub
 Desert Wash (Smoke Tree Woodland)
 Developed
 Disturbed Land
 Mesquite Thicket

Tamarisk Thicket
 Arrowweed Thicket
 Open Water

0 Feet 1,000

Locator Map

FIGURE 3

Avian Point Count Locations for the ISEC Solar South Project

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Birds commonly observed during the surveys included great egret (*Ardea alba*), snowy egret (*Egretta thula thula*), red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius sparverius*), mourning dove (*Zenaida macroura marginella*), loggerhead shrike (*Lanius ludovicianus*), black phoebe (*Sayornis nigricans semiatra*), horned lark (*Eremophila alpestris*), yellow-rumped warbler (*Dendroica coronata*), and western meadowlark (*Sturnella neglecta*).

The active agricultural fields offer foraging opportunities for many shore bird species such as long-billed curlew (*Numenius americanus*), lesser yellowlegs (*Tringa flavipes*), and greater yellowlegs (*Tringa melanoleuca*). In addition, several large flocks of horned larks were observed within the agricultural fields and along the dirt access roads.

The mesquite thickets along the canal edges provided foraging habitat and shelter for large flocks of wintering yellow-rumped warblers and white-crowned sparrows. This shrubby type of vegetation is the preferable habitat for this small sparrow species within the survey area, and provides foraging habitat and shelter.

Turkey vultures (*Cathartes aura*), red-tailed hawks, and northern harriers (*Circus cyaneus hudsonius*) were commonly observed foraging over the open agricultural fields. One state-listed raptor species, peregrine falcon (*Falco peregrinus anatum*), was observed flying within the vicinity of Point-count Location 18 (see Figure 3). This same bird was later observed perching on an electrical pole outside the 100-meter buffers of Locations 17 and 18, and foraging within the nearby fields.

One wintering sora (*Porzana carolina*) was detected by vocalization at Point-count Location 23 within the cattail (*Typha*) marsh.

In addition to the species observed within the point-count survey areas, a number of birds were observed incidentally including several winter migrants previously unrecorded during various biological surveys for this project. These include western grebe (*Aechmophorus occidentalis*), white-faced ibis (*Plegadis chihi*), and greater sandhill crane (*Grus canadensis tabida*).

The winter point-count surveys within the R-2 & IVS-6 survey areas added 28 new bird species to the wildlife list for the ISEC South Project. Attachment 3 presents the updated wildlife species list based on the results of this winter point-count survey. A majority of these additional species reflect wintering bird species that are using the habitats available within the survey area during over-wintering or migratory stop-overs.

If you have any questions concerning this notification letter, please contact Cheri Bouch er or me.

Sincerely,



Beth Procsal
Biologist

EAP:eab

cc: Donna Clinton, BLM, El Centro Field Office
Robert Ferrara, LightSource Renewables, LLC
Paul Whitworth, LightSource Renewables, LLC

Attachments (3)

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2009 Solar Facility Point-count Protocol. March.

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2010 Winter 2010 Avian Point-counts for the Imperial Solar Energy Center South and West Projects. November.

Sawyer, J. O., and T. Keeler-Wolf, and Evens.

2009 *A Manual of California Vegetation*. California Native Plant Society. Sacramento.

ATTACHMENTS

ATTACHMENT 1

Date 15 Dec 10 Survey # 2 Job # 5726

OBSERVER EAP w/GRB

Start Time 654 Start Temp 68° Start Wind 4-7 St. Clid. Cov. 35%
 End Time 913 End Temp 73° End Wind 4-6 End Clid. Cov. 80%

w/quats to 8

POINT #

24	23	22	21	20	19	18	17
----	----	----	----	----	----	----	----

Start Time

654	710	737	753	814	830	848	903
BUOW	SORA	SSHA	GRRO	SAVS	BLPH	BEVE	BLPH
SAPH	EUST	NOHA	LESA	BLPH	SAVS	RB6U	RB6W
WEME	LOSH	AMBI	YRWA	TUVU	DCCR	DCCR	TUVU
BLPH	GBHE	YRWA	TRSW	WEME	TUVU	BLPH	CORA
LOSH	VERD	NOEL	ABTO	YRWA	AMKE	SAVS	YRWA
GREG	GREG	LOSH	CORA	RTAA	NOHA	SAPH	KILL
COYE	BLPH	WEME	LOSH	LESA	GRYE	PEFA	NOSH
TRBW	AMKE	BLPH	HOLA	ABTO	YRWA	WEME	RODO
AMPI	ABTO	SNEG	TUVU	NDHA	SAPH	AMKE	MODO
YRWA	COYE	GBHE	BLPH	GREG	GREG	NOHA	SPSA
RWBL	OCWA	HOLA	SAVS	CORA	LEVE	YRWA	HOLA
MERL	SNEG	MODO	AMKE	HOLA	LESA	SPSA	DCCR
		ABTO	WEME	AMPI		YRWA	CORA
		LESA	Gull sp.			GRYE	GREG
			RCBT			TUVU	
		+ myrtle	SPSA			HOLA	
		subspecies					
		of YRWA					
			3-5			quats	
			mph			up to	
			w/ quats			20 mph	
			to 8				

Notes And Incidental Species Sighted

NOHA WEME SAVS AMCO
 HOLA BEKI
 TUVU

ATTACHMENT 2

**ATTACHMENT 2
BIRD SPECIES OBSERVED/DETECTED ON THE
WINTER AVIAN POINT COUNT SURVEYS FOR THE ISEC SOUTH PROJECT**

Scientific Name	Common Name	Point Count Location								Seasonality
		17	18	19	20	21	22	23	24	
ANATIDAE	DUCKS, GEESE, & SWANS									
<i>Anas clypeata</i>	northern shoveler	X								W
<i>Anas platyrhynchos platyrhynchos</i>	mallard	X	X							Y
<i>Branta canadensis</i>	Canada goose				X					W
<i>Chen caerulescens caerulescens</i>	snow goose †									W
<i>Chen rossii</i>	Ross' goose †									W
PHASIANIDAE	PHEASANTS & GROUSE									
<i>Phasianus colchicus</i>	ring-necked pheasant (I)	X			X					Y
PODICIPEDIDAE	GREBES									
<i>Aechmophorus occidentalis</i>	western grebe †									Y
PHALACROCORACIDAE	CORMORANTS									
<i>Phalacrocorax auritus albociliatus</i>	double-crested cormorant	X	X	X	X	X			X	W
ARDEIDAE	HERONS & BITTERNs									
<i>Ardea alba</i>	great egret	X	X	X	X	X	X	X	X	Y
<i>Ardea herodias</i>	great blue heron	X	X	X	X	X	X			Y
<i>Bubulcus ibis ibis</i>	cattle egret	X		X		X		X		Y
<i>Egretta thula thula</i>	snowy egret	X	X	X	X	X	X	X		Y
THRESKIORNITHIDAE	IBISES									
<i>Plegadis chihi</i>	white-faced ibis †									W
CATHARTIDAE	NEW WORLD VULTURES									
<i>Cathartes aura</i>	turkey vulture	X	X	X	X	X	X	X	X	Y

ATTACHMENT 2
BIRD SPECIES OBSERVED/DETECTED ON THE
WINTER AVIAN POINT COUNT SURVEYS FOR THE ISEC SOUTH PROJECT (continued)

Scientific Name	Common Name	Point Count Location								Seasonality
		17	18	19	20	21	22	23	24	
ACCIPITRIDAE	HAWKS, KITES, & EAGLES									
<i>Accipiter cooperii</i>	Cooper's hawk	X						X		Y
<i>Accipiter striatus velox</i>	sharp-shinned hawk						X	X		W
<i>Buteo jamaicensis</i>	red-tailed hawk	X	X	X	X	X	X	X	X	Y
<i>Buteo regalis</i>	ferruginous hawk					X	X			W
<i>Circus cyaneus hudsonius</i>	northern harrier		X	X	X	X	X	X	X	Y
FALCONIDAE	FALCONS & CARACARAS									
<i>Falco columbarius</i>	merlin								X	W
<i>Falco peregrinus anatum</i>	peregrine falcon		X							W
<i>Falco sparverius sparverius</i>	American kestrel	X	X	X	X	X	X	X	X	Y
RALLIDAE	RAILS, GALLINULES, & COOTS									
<i>Fulica americana americana</i>	American coot						X			W
<i>Porzana carolina</i>	sora							X		W
GRUIDAE	CRANES									
<i>Grus canadensis tabida</i>	greater sandhill crane †									W
CHARADRIIDAE	LAPWINGS & PLOVERS									
<i>Charadrius vociferus vociferus</i>	killdeer	X		X				X		Y
RECURVIROSTRIDAE	STILTS & AVOCETS									
<i>Himantopus mexicanus</i>	black-necked stilt	X		X						Y
SCOLOPACIDAE	SANDPIPERS & PHALAROPES									
<i>Actitis macularius</i>	spotted sandpiper	X	X			X				Y
<i>Calidris minutilla</i>	least sandpiper			X	X	X				W
<i>Numenius americanus</i>	long-billed curlew		X						X	W
<i>Tringa flavipes</i>	lesser yellowlegs			X						M
<i>Tringa melanoleuca</i>	greater yellowlegs		X	X						M

ATTACHMENT 2
BIRD SPECIES OBSERVED/DETECTED ON THE WINTER AVIAN POINT
COUNT SURVEYS FOR THE ISEC SOUTH PROJECT
(continued)

Scientific Name	Common Name	Point Count Location								Seasonality
		17	18	19	20	21	22	23	24	
LARIDAE	GULLS, TERNS, & SKIMMERS									
<i>Hydroprogne caspia</i>	Caspian tern			X	X					W
<i>Larus californicus</i>	California gull		X							W
<i>Larus delawarensis</i>	ring-billed gull	X	X	X	X	X	X		X	W
<i>Larus philadelphia</i>	Bonaparte's gull	X								W
COLUMBIDAE	PIGEONS & DOVES									
<i>Columba livia</i>	rock dove (I)	X	X							Y
<i>Streptopelia decaocto</i>	Eurasian collared-dove	X	X				X	X		Y
<i>Zenaida macroura marginella</i>	mourning dove	X	X	X	X	X	X	X	X	Y
CUCULIDAE	CUCKOOS & ROADRUNNERS									
<i>Geococcyx californianus</i>	greater roadrunner					X				Y
STRIGIDAE	TYPICAL OWLS									
<i>Athene cunicularia hypugaea</i>	western burrowing owl	X	X	X					X	Y, W
ALCEDINIDAE	KINGFISHERS									
<i>Megaceryle alcyon</i>	belted kingfisher	X	X					X		W
PICIDAE	WOODPECKERS & SAPSUCKERS									
<i>Colaptes auratus</i>	northern flicker					X	X			W
TYRANNIDAE	TYRANT FLYCATCHERS									
<i>Sayornis nigricans semiatra</i>	black phoebe	X	X	X	X	X	X	X	X	Y
<i>Sayornis saya</i>	Say's phoebe	X	X	X	X		X	X	X	W
LANIIDAE	SHRIKES									
<i>Lanius ludovicianus</i>	loggerhead shrike	X	X	X	X	X	X	X	X	Y
CORVIDAE	CROWS, JAYS, & MAGPIES									
<i>Corvus corax clarionensis</i>	common raven	X	X	X	X	X		X	X	Y

ATTACHMENT 2
BIRD SPECIES OBSERVED/DETECTED ON THE
WINTER AVIAN POINT COUNT SURVEYS FOR THE ISEC SOUTH PROJECT (continued)

Scientific Name	Common Name	Point Count Location								Seasonality
		17	18	19	20	21	22	23	24	
ALAUDIDAE	LARKS									
<i>Eremophila alpestris</i>	horned lark	X	X	X	X	X	X	X	X	Y
HIRUNDINIDAE	SWALLOWS									
<i>Tachycineta bicolor</i>	tree swallow		X			X		X	X	W
REMIZIDAE	VERDIN									
<i>Auriparus flaviceps acaciarum</i>	verdin							X	X	Y
TROGLODYTIDAE	WRENS									
<i>Thryomanes bewickii</i>	Bewick's wren			X	X					W
<i>Troglodytes aedon parkmanii</i>	house wren							X		W
REGULIDAE	KINGLETS									
<i>Regulus calendula calendula</i>	ruby-crowned kinglet					X		X		W
SYLVIIDAE	GNATCATCHERS									
<i>Polioptila melanura</i>	black-tailed gnatcatcher					X	X	X		Y
STURNIDAE	STARLINGS & MYNAS									
<i>Sturnus vulgaris</i>	European starling (I)	X	X	X		X	X	X	X	Y
MOTACILLIDAE	WAGTAILS & PIPITS									
<i>Anthus rubescens pacificus</i>	American pipit	X	X	X	X	X	X		X	W
PARULIDAE	WOOD WARBLERS									
<i>Dendroica coronata</i>	yellow-rumped warbler	X	X	X	X	X	X	X	X	W
<i>Geothlypis trichas</i>	common yellowthroat		X		X		X	X	X	Y
<i>Vermivora celata</i>	orange-crowned warbler	X				X	X	X		Y
EMBERIZIDAE	EMBERIZIDS									
<i>Melospiza melodia</i>	song sparrow	X			X		X	X		Y
<i>Passerculus sandwichensis nevadensis</i>	savannah sparrow		X	X	X	X	X			W
<i>Pipilo aberti</i>	Abert's towhee	X	X		X	X	X	X	X	Y

ATTACHMENT 2
BIRD SPECIES OBSERVED/DETECTED ON THE WINTER AVIAN POINT
COUNT SURVEYS FOR THE ISEC SOUTH PROJECT
(continued)

Scientific Name	Common Name	Point Count Location								Seasonality
		17	18	19	20	21	22	23	24	
<i>Spizella breweri</i>	Brewer's sparrow †									W
<i>Zonotrichia leucophrys</i>	white-crowned sparrow			X		X		X		W
ICTERIDAE	BLACKBIRDS & NEW WORLD									
	ORIOLES									
<i>Agelaius phoeniceus</i>	red-winged blackbird	X	X		X	X		X	X	Y
<i>Sturnella neglecta</i>	western meadowlark	X	X	X	X	X	X	X	X	Y
FRINGILLIDAE	FINCHES									
<i>Carduelis psaltria hesperophilus</i>	lesser goldfinch		X							Y
<i>Carpodacus mexicanus frontalis</i>	house finch								X	Y

BIRDS (Nomenclature from American Ornithologists' Union 1998 and Unitt 2004)

X = Species detected/observed
 † = Incidental sightings

SEASONALITY (birds only)

M= Migrant; uses site for brief periods of time, primarily during spring and fall months
 W= Winter visitor; does not breed locally
 Y= Year-round resident; probable breeder on-site or in vicinity

ATTACHMENT 3

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
INVERTEBRATES (Nomenclature from Eriksen and Belk 1999; Milne and Milne 1980; Mattoni 1990; and Opler and Wright 1999)										
THERAPHOSIDAE	TARANTULAS									
<i>Aphonopelma chalcodes</i>	desert tarantula	CBS	U		B					
FORMICIDAE	ANTS									
<i>Pogonomyrmex spp.</i>	Harvester ants	CBS	C		O	O	O	O	O	O
PIERIDAE	WHITES & SULPHURS									
<i>Pieris rapae</i>	cabbage white	CBS, DW	C		O	O	O	O	O	O
LYCAENIDAE	BLUES, COPPERS, & HAIRSTREAKS									
<i>Brephidium exile</i>	western pygmy blue	CBS	F					O	O	
<i>Icaricia acmon acmon</i>	Acmon blue	CBS	U						O	
NYMPHALIDAE	BRUSH-FOOTED BUTTERFLIES									
<i>Vanessa cardui</i>	painted lady	CBS, DW	C		O	O	O	O	O	O
REPTILES (Nomenclature from Crother 2001 and Crother et al. 2003)										
GEKKONIDAE	GECKOS									
<i>Coleonyx variegatus</i>	Western banded gecko	CBS	U		O		O			
IGUANIDAE	IGUANID LIZARDS									
<i>Dipsosaurus dorsalis dorsalis</i>	Northern desert iguana	CBS	C	O	O	O	O	O	O	O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
PHRYNOSOMATIDAE	PHRYNOSOMATID LIZARDS									
<i>Callisaurus draconoides rhodostictus</i>	Common zebra-tailed lizard	CBS	C	O	O	O	O	O	O	O
<i>Phrynosoma mcallii</i>	flat-tailed horned lizard	CBS	U			O				
<i>Uta stansburiana</i>	common side-blotched lizard	CBS	C	O	O	O	O	O	O	O
TEIIDAE	WHIPTAIL LIZARDS									
<i>Aspidoscelis tigris tigris</i>	Great Basin tiger whiptail	CBS	U		O		O			
CROTALIDAE	RATTLESNAKES									
<i>Crotalus cerastes</i>	sidewinder	CBS	U		O		O			
BIRDS (Nomenclature from American Ornithologists' Union 1998 and Unitt 2004)										
ANATIDAE	DUCKS, GEESE, & SWANS									
<i>Anas clypeata</i>	northern shoveler	OW	U/W	O						
<i>Anas platyrhynchos platyrhynchos</i>	mallard	OW	U/ Y	O						
<i>Branta canadensis</i>	Canada goose	AG	U/W	O						
<i>Chen caerulescens caerulescens</i>	snow goose	AG	U/W	O						
<i>Chen rossii</i>	Ross' goose	AG	U/W	O						
PHASIANIDAE	PHEASANTS & GROUSE									
<i>Phasianus colchicus</i>	ring-necked pheasant (I)	AG, CM	U/Y	O						
PODICIPEDIDAE	GREBES									
<i>Aechmophorus occidentalis</i>	western grebe	OW	U/Y	O						
ODONTOPHORIDAE	NEW WORLD QUAIL									

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Callipepla gambelii gambelii</i>	Gambel's quail	CBS, MT, DW,	C/Y	O	O	O	O	O	O	O
PHALACROCORACIDAE	CORMORANTS									
<i>Phalacrocorax auritus albociliatus</i>	double-crested cormorant	F	U/Y	O						
ARDEIDAE	HERONS & BITTERNS									
<i>Ardea alba</i>	great egret	AG, CM	C/Y	O						
<i>Ardea herodias</i>	great blue heron	F	F/Y	O						
<i>Bubulcus ibis ibis</i>	cattle egret	AG	F/Y	O						
<i>Butorides virescens</i>	green heron	CM	U/S	O						
<i>Egretta thula thula</i>	snowy egret	AG	F/Y	O						
<i>Ixobrychus exilis hesperis</i>	western least bittern	AG	U/S	O						
<i>Nycticorax nycticorax</i>	black-crowned night heron	CM	U/Y	O						
THRESKIORNITHIDAE	IBISES									
<i>Plegadis chihi</i>	white-faced ibis	AG	U/W							
CATHARTIDAE	NEW WORLD VULTURES									
<i>Cathartes aura</i>	turkey vulture	F	U/Y	O	O					
ACCIPITRIDAE	HAWKS, KITES, & EAGLES									
<i>Accipiter cooperii</i>	Cooper's hawk	MT	U/Y	O						
<i>Accipiter striatus velox</i>	sharp-shinned hawk	MT, F	F/W	O						
<i>Buteo jamaicensis</i>	red-tailed hawk	CBS	U/Y	O	O		O			
<i>Buteo regalis</i>	ferruginous hawk	F	U/W	O						
<i>Circus cyaneus hudsonius</i>	northern harrier	AG, F	C/Y	O						
FALCONIDAE	FALCONS & CARACARAS									O
<i>Falco columbarius</i>	merlin	F	F/W	O						
<i>Falco peregrinus anatum</i>	peregrine falcon	F	U/W	O						

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Falco sparverius sparverius</i>	American kestrel	AG	F/Y	O	O					
RALLIDAE	RAILS, GALLINULES, & COOTS									
<i>Fulica americana americana</i>	American coot	OW	U/W	O						
<i>Gallinula chloropus cachinnans</i>	common moorhen	AG, CM	F/Y	O						
<i>Porzana carolina</i>	sora	CM	U/W	V						
GRUIDAE	CRANES									
<i>Grus canadensis tabida</i>	greater sandhill crane	AG	U/W	O						
CHARADRIIDAE	LAPWINGS & PLOVERS									
<i>Charadrius vociferus vociferus</i>	killdeer	CBS	F/Y	O	O					O
LARIDAE	GULLS, TERNS, & SKIMMERS									
<i>Hydroprogne caspia</i>	Caspian tern	F	U/S	O						
<i>Larus californicus</i>	California gull	F	F/Y	O						
<i>Larus delawarensis</i>	ring-billed gull	F	U/Y	O	O					O
<i>Larus philadelphia</i>	Bonaparte's gull	F	U/W	O						
RECURVIROSTRIDAE	STILTS & AVOCETS									
<i>Himantopus mexicanus</i>	black-necked stilt	AG, CM	F/Y	O						
SCOLOPACIDAE	SANDPIPERS & PHALAROPES									
<i>Actitis macularius</i>	spotted sandpiper	AG,CM	F/Y	O						
<i>Calidris minutilla</i>	least sandpiper		F/W	O						
<i>Numerius americanus</i>	long-billed curlew	AG, CM	F/W	O						
<i>Tringa flavipes</i>	lesser yellowlegs	AG	U/M	O						
<i>Tringa melanoleuca</i>	greater yellowlegs	AG	U/M	O						

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
COLUMBIDAE	PIGEONS & DOVES									
<i>Columba livia</i>	rock dove (I)	CBS	U/Y	O	O					O
<i>Columbina passerina pallescens</i>	common ground dove	AG	F/Y	O						
<i>Streptopelia decaocto</i>	Eurasian collared dove	AG	F/Y	O	O					O
<i>Zenaida asiatica mearnsi</i>	white-winged dove	CBS	U/Y	O		O				
<i>Zenaida macroura marginella</i>	mourning dove	CBS, DW, MT, TT	C/Y	O	O	O	O	O	O	O
CUCULIDAE	CUCKOOS & ROADRUNNERS									
<i>Geococcyx californianus</i>	greater roadrunner	CBS	F/Y	O	O		O	O		
STRIGIDAE	TYPICAL OWLS									
<i>Athene cunicularia</i>	burrowing owl	AG	U/Y, W	O						
<i>Bubo virginianus</i>	great horned owl	CBS	U/Y				O		O	
ALCEDINIDAE	KINGFISHERS									
<i>Megaceryle alcyon</i>	belted kingfisher	AT, OW	F/W	O						
PICIDAE	WOODPECKERS & SAPSUCKERS									
<i>Colaptes auratus</i>	northern flicker	MT	U/W	O						
CAPRIMULGIDAE	GOATSUCKERS									
<i>Chordeiles acutipennis texensis</i>	lesser nighthawk	CBS	F/S		O	O		O		

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
APODIDAE	SWIFTS									
<i>Aeronautes saxatalis</i>	white-throated swift	F	U/Y	O						
TROCHILIDAE	HUMMINGBIRDS									
<i>Archilochus alexandri</i>	black-chinned hummingbird	DW	U/S		O					
<i>Calypte anna</i>	Anna's hummingbird	MT	F/Y			O				
<i>Calypte costae</i>	Costa's hummingbird	MT	F/S			O				
TYRANNIDAE	TYRANT FLYCATCHERS									
<i>Contopus cooperi</i>	olive-sided flycatcher	DW	F/S		O					
<i>Empidonax traillii</i>	willow flycatcher	TT	U/S	O						
<i>Myiarchus cinerascens cinerascens</i>	ash-throated flycatcher	DW	F/S		O		O			
<i>Sayornis nigricans semiatra</i>	black phoebe	CBS	F/Y	O					O	
<i>Sayornis saya</i>	Say's phoebe	CBS, DW	C/W	O	O	O	O	O	O	O
<i>Tyrannus verticalis</i>	western kingbird	DW	F/S	O	O					O
LANIIDAE	SHRIKES									
<i>Lanius ludovicianus</i>	loggerhead shrike	CBS	U/Y	O	O	O	O	O	O	
CORVIDAE	CROWS, JAYS, & MAGPIES									
<i>Corvus brachyrhynchos hesperis</i>	American crow	CBS	F/Y	O	O					O
<i>Corvus corax clarionensis</i>	common raven	CBS	F/Y	O	O	O				O
ALAUDIDAE	LARKS									
<i>Eremophila alpestris leucansiptila</i>	horned lark	CBS	F/Y	O	O	O	O	O	O	O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
HIRUNDINIDAE	SWALLOWS									
<i>Hirundo rustica erythrogaster</i>	barn swallow	AG	U/M	O						
<i>Petrochelidon pyrrhonota tachina</i>	cliff swallow	AG, MT	C/S	O	O	O				
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow	AG	C/S	O	O					
<i>Tachycineta bicolor</i>	tree swallow	F	F/W	O						
REMIZIDAE	VERDIN									
<i>Auriparus flaviceps acaciaram</i>	verdin	CBS, DW	C/Y	O	O	O			O	
TROGLODYTIDAE	WRENS									
<i>Thryomanes bewickii</i>	Bewick's wren	MT	U/W	V						
<i>Troglodytes aedon parkmanii</i>	house wren	AT	U/W	O						
REGULIDAE	KINGLETS									
<i>Regulus calendula calendula</i>	ruby-crowned kinglet	MT	U/ W	O						
STURNIDAE	STARLINGS & MYNAS									
<i>Sturnus vulgaris</i>	European starling (I)	F	F/Y	O						
SYLVIIDAE	GNATCATCHERS									
<i>Polioptila caerulea</i>	blue-gray gnatcatcher	DW	F/W	V	O	O				
<i>Polioptila melanura</i>	black-tailed gnatcatcher	DW	F/Y	O	O					
MIMIDAE	MOCKINGBIRDS & THRASHERS									
<i>Mimus polyglottos polyglottos</i>	northern mockingbird	CBS	F/Y	O	O					O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Toxostoma crissale</i>	crissal thrasher	TT, MT	U/Y		○	○		○	○	
<i>Toxostoma lecontei lecontei</i>	Le Conte's thrasher	MT	U/Y			○				
MOTACILLIDAE	WAGTAILS & PIPITS									
<i>Anthus rubescens pacificus</i>	American pipit	F	U/W	○		○				
PARULIDAE	WOOD WARBLERS									
<i>Dendroica coronata</i>	yellow-rumped warbler	CBS, DW, MT, AG	C/W	○	○	○	○	○	○	○
<i>Dendroica nigrescens</i>	black-throated gray warbler	DW	U/M		○		○			
<i>Dendroica petechia</i>	yellow warbler	DW, TT	U/S	○	○					
<i>Geothlypis trichas</i>	common yellowthroat	TT, DW	C/Y	○						
<i>Vermivora celata</i>	orange-crowned warbler	DW, TT	F/Y	○	○					
<i>Wilsonia pusilla</i>	Wilson's warbler	DW, TT	F/M	○	○					
EMBERIZIDAE	EMBERIZIDS									
<i>Chondestes grammacus strigatus</i>	lark sparrow	DW	U/Y		○					
<i>Melospiza melodia</i>	song sparrow	TT, AT	F/Y	○						
<i>Passerculus sandwichensis nevadensis</i>	savannah sparrow	TT	F/W							
<i>Pipilo aberti</i>	Abert's towhee	DW	U/Y	○	○					
<i>Pipilo maculatus</i>	spotted towhee	CBS	F/Y	○					○	
<i>Poocetes gramineus</i>	vesper sparrow	CBS	U/W	○						
<i>Spizella breweri</i>	Brewer's sparrow		U/W	○						
<i>Zonotrichia leucophrys</i>	white-crowned sparrow	CBS	C/W	○	○	○	○	○	○	○
CARDINALIDAE	CARDINALS & GROSBEAKS									

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence							
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7	
<i>Passerina caerulea salicaria</i>	blue grosbeak	TT, AT	U/S	O							
ICTERIDAE	BLACKBIRDS & NEW WORLD ORIOLES										
<i>Agelaius phoeniceus</i>	red-winged blackbird	AG, CM, DW	C/Y	O	O					O	
<i>Icterus bullockii</i>	Bullock's oriole	TT, MT	F/S	O							
<i>Molothrus ater</i>	brown-headed cowbird	CM, TT	F/Y	O							
<i>Quiscalus mexicanus</i>	great-tailed grackle	AG, CM	F/Y	O							
<i>Sturnella neglecta</i>	western meadowlark	AG, CM	C/Y	O							
<i>Xanthocephalus xanthocephalus</i>	yellow-headed blackbird	AG, TT, CM	F/Y	O							
FRINGILLIDAE	FINCHES										
<i>Carduelis psaltria hesperophilus</i>	lesser goldfinch	CBS, DW, MT, TT	C/Y	O			O	O			O
<i>Carpodacus mexicanus frontalis</i>	house finch	AG, DW, TT, CBS	F/Y	O	O					O	O
PASSERIDAE	OLD WORLD SPARROWS										
<i>Passer domesticus</i>	house sparrow (I)	AG	U/Y	O							
MAMMALS (Nomenclature from Baker et al. 2003)											
MOLOSSIDAE	FREE-TAILED BATS										
<i>Tadarida brasiliensis</i>	Mexican free-tailed bat	F	C		O		O				
LEPORIDAE	RABBITS & HARES										
<i>Lepus californicus deserticola</i>	desert black-tailed jackrabbit	CBS	F		T, S	T, S	T, S	O	T, S	T, S	
<i>Sylvilagus audubonii</i>	desert cottontail	CBS	C		O	T, S, B					

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/Seasonality (Birds Only)	Evidence of Occurrence							
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7	
SCIURIDAE	SQUIRRELS & CHIPMUNKS										
<i>Spermophilus tereticaudus</i>	round-tailed ground squirrel	CBS	C		T, S, B						
HETEROMYIDAE	POCKET MICE & KANGAROO RATS										
<i>Dipodomys spp.</i>	kangaroo rat	CBS	C		T, S, B						
<i>Dipodomys deserti deserti</i>	desert kangaroo rat	CBS	C		O		O	O			
MURIDAE	OLD WORLD MICE & RATS (I)										
<i>Neotoma lepida lepida</i>	desert woodrat	CBS	U			D					
<i>Peromyscus sp.</i>	mouse	CBS	C		B, S						
CANIDAE	CANIDS										
<i>Canis latrans</i>	coyote	CBS	U				O		O		
<i>Urocyon cinereoargenteus</i>	common gray fox	CBS	U		T, S	T					
CERVIDAE	DEER										
<i>Odocoileus hemionus</i>	mule deer	CBS	U		S	T, S		S			

(I) = Introduced species

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO ISEC SOUTH
PROJECT SURVEY AREA—MARCH TO DECEMBER 2010 (CONT.)

HABITAT

AG = Agriculture
AT = Arrow-weed thicket
CM = Cattail marsh
CBS = Creosote bush–white burr sage scrub
DW = Desert wash
F = Flying overhead
MT = Mesquite thicket
OW = Open water (reservoirs, ponds, streams, lakes)
TT = Tamarisk thicket

EVIDENCE OF OCCURRENCE

B = Burrow
C = Carcass/remains
D = Den site
O = Observed
S = Scat
T = Track
V = Vocalization

ABUNDANCE (based on Garrett and Dunn 1981)

C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
F = Fairly common; usually encountered in proper habitat, generally not in large numbers
U = Uncommon; occurs in small numbers or only locally

SEASONALITY (birds only)

M = Migrant; uses site for brief periods of time, primarily during spring and fall months
S = Spring/summer resident; probable breeder on-site or in vicinity
W = Winter visitor; does not breed locally
Y = Year-round resident; probable breeder on-site or in vicinity

Imperial Solar Energy Center South

Appendix I-2

Spring 2010 Rare Plant Survey Report

Prepared by Recon Environmental, Inc.

July 23, 2010



Imperial Solar Energy Center South Spring 2010 Rare Plant Survey Report



Submitted to

CSOLAR Development, LLC
1044 N. 115th Street, Suite 400
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Attention: Steve Johnson

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A:	Special Status Plant Species Observed or with the Potential for Occurrence in the Imperial Solar Energy Center South Project Survey Area
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Executive Summary

CSOLAR Development, LLC proposes to construct a photovoltaic (PV) solar facility and associated transmission lines west of Calexico, California. The proposed Imperial Solar Energy Center (ISEC) South Project is located approximately 8 miles west of Calexico in Imperial County, California (Figure 1). The proposed project includes a 837.5-acre solar field (R-2 and IVS-6) that is situated on the U.S.–Mexico Border; and a proposed 230-kilovolt (kV) transmission line route (IVS-1) adjacent to the existing 230-kV transmission corridor that starts on the north side of the Imperial Valley Substation and wraps around the eastern side of the substation to run south for 5 miles. The transmission line then runs east for 1 mile (IVS-3) to connect to the solar field. An alternate transmission line extension runs south from IVS-1 for 1 mile (IVS-4) and then east for 0.5 mile (IVS-5) to connect to the solar field.

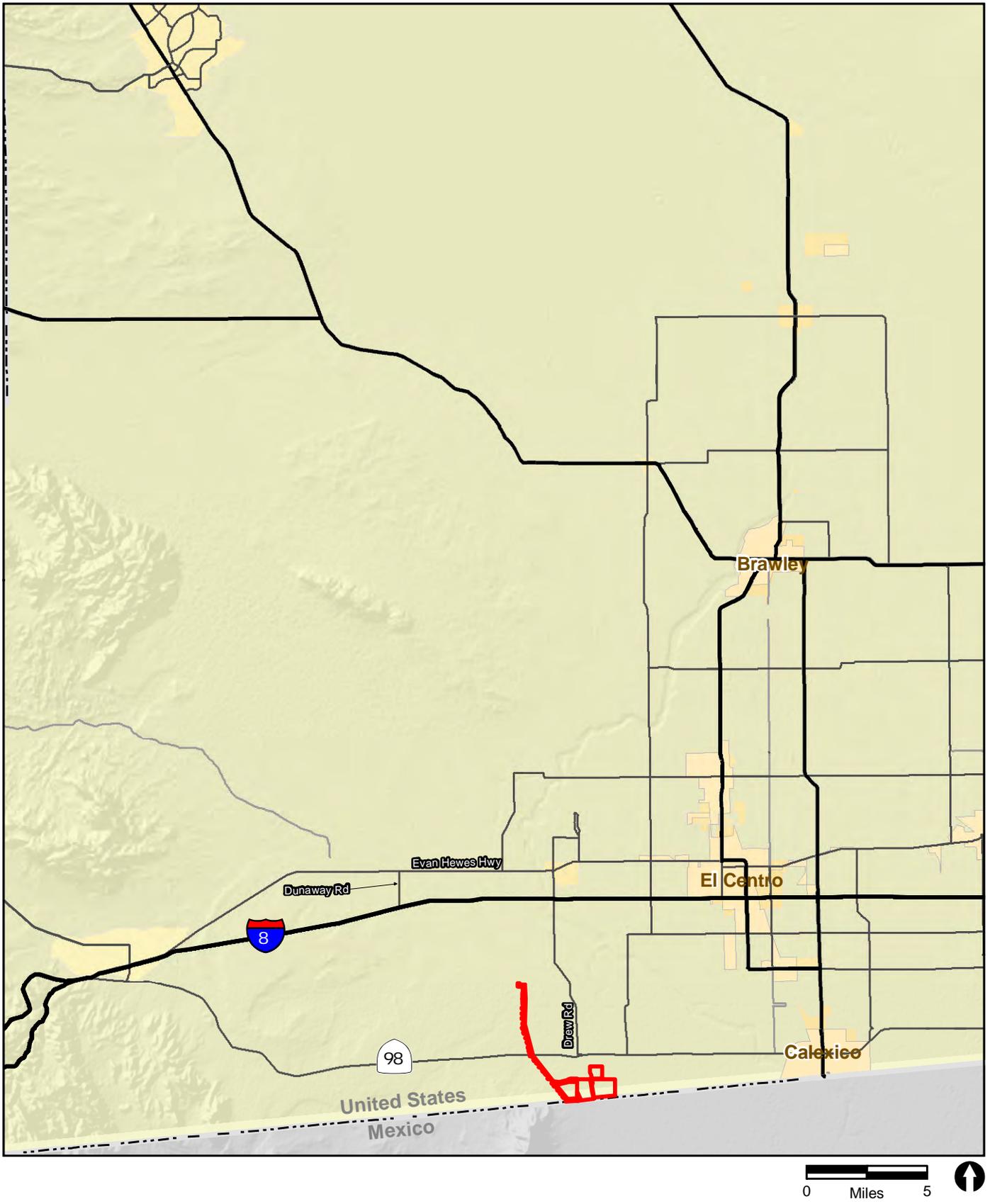
Rare plant surveys were conducted during the spring of 2010 within the proposed solar field and transmission routes. The 1,353.3-acre survey area is located in a Colorado Desert lowland between agricultural fields to the east, open desert to the west, and Mount Signal to the southwest.

Four vegetation communities were mapped within the survey area, including creosote bush–white burr sage scrub, desert wash, mesquite thicket, and active agricultural fields. A small amount of disturbed and developed land is also present within the survey area.

Three priority plant species were observed within the survey area during spring rare plant surveys: Wolf's cholla (*Cylindropuntia wolfii*), Thurber's pilostyles (*Pilostyles thurberi*), and Parish's desert thorn (*Lycium parishii*). These species should be avoided where practicable. If impact is unavoidable, individual plants should be relocated, when appropriate, or included as part of the restoration palette for temporary or permanent impacts. Restoration standards, including potential transplantation and other conservation measures, should be developed in coordination with the Bureau of Land Management and other state and/or federal agencies as appropriate.

1.0 Introduction

This Rare Plant Survey Report documents the methods and results of Spring 2010 surveys for rare plants within the Imperial Solar Energy Center (ISEC) South Project Area.



 Project Area

1.1 Location

CSOLAR Development, LLC proposes to construct a photovoltaic (PV) solar facility and associated transmission lines west of Calexico, California. The proposed ISEC South is located approximately 8 miles west of Calexico in Imperial County, California (see Figure 1). The proposed project includes a 837.5-acre solar field (R-2 and IVS-6) that is situated on the U.S.–Mexico Border and a proposed 230-kilovolt (kV) transmission line route (IVS-1) adjacent to the existing 230-kV transmission corridor that starts on the north side of the Imperial Valley Substation and wraps around the eastern side of the substation to run south for 5 miles. The transmission line then runs east for 1 mile (IVS-3) to connect to the solar field. An alternate transmission line extension runs south from IVS-1 for 1 mile (IVS-4) and then east for 0.5 mile (IVS-5) to connect to the solar field (Figures 2 and 3).

The project area is found in: Township 16 ½ South, Range 12 East, Section 3; Township 17 South, Range 12 East, portions of Section 2, 11, 12, 13, 19, and 24; of the U.S. Geological Survey (USGS) Mount Signal quadrangle (USGS 1976; see Figures 2 and 3).

1.2 Project Description

The proposed PV solar facility consists of a ground-mounted PV solar power-generating system capable of producing approximately 200 megawatts of electricity. For purposes of this analysis, it is assumed that temporary and/or permanent impact will occur within the entire 837.5-acre proposed solar field site. Construction impact associated with the solar field consists of use of heavy equipment, on-site cement mixing, and deliveries of equipment. Minimal cut and fill grading would be required.

The project would also construct a single-circuit, 230-kV transmission line (IVS-1) extending from the north side of the existing Imperial Valley Substation (Substation) to south approximately 5 miles and then east for 1 mile (IVS-3) to the Imperial Solar Energy Center South (Figures 2 and 3). The transmission line support structures would consist of steel lattice towers and steel monopoles from the project site to just south of the Substation, where steel A-frame structures would be used for each transmission line to allow the crossing of the Southwest Power Link. The BLM right-of-way (ROW) required for this transmission project would be 120 feet wide and total approximately 83 acres. However, as shown below, the project disturbance footprint would be substantially smaller. The transmission support structures would be erected on the center line of the 120-foot ROW. The towers would be spaced approximately 900 to 1,150 feet apart (600 to 800 feet apart for monopoles) and would be roughly in line with the existing lines' towers in an east–west direction. It is planned for each support structure to be capable of carrying two electrical circuits. One circuit would be added as part of this project, and the second circuit could be added at a later date. The electrical circuit consists of three phases with one unbundled conductor making up each phase. The towers would be anchored to concrete foundations

at each of the four corners at the base of the tower. The tower base dimensions would range from approximately 30 feet by 30 feet for suspension towers to 40 feet by 40 feet for the deflection and dead-end towers.

2.0 Survey Methods

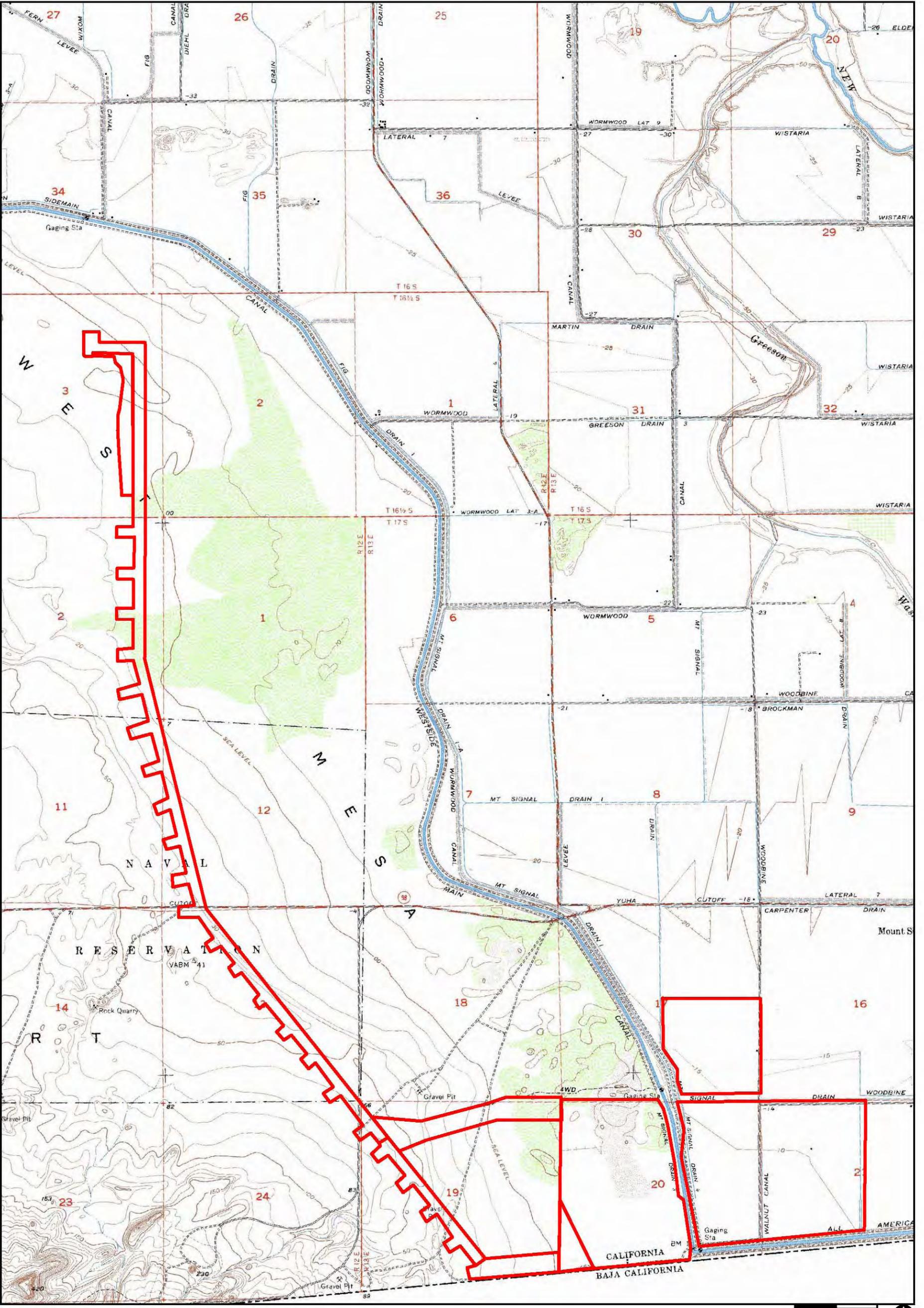
The 1,353.3-acre survey area includes the following project components:

- R-2: ISEC South Solar Field (927.6 acres)
- IVS-1: Preferred Transmission Line—300-foot corridor (120-foot ROW + 90-foot survey buffer; 236.5 acres)
- IVS-3: Transmission Line Extension—500-foot corridor (120-foot ROW + 190-foot survey buffer; 68.5 acres)
- IVS-4: Alternative Transmission Line—300-foot corridor (120-foot ROW + 90-foot survey buffer; 39.1 acres)
- IVS-5: Alternative Transmission Line Extension—500-foot corridor (120-foot ROW + 190-foot survey buffer; 29.2 acres)
- IVS-6: R-2 Corner Parcel (18.9 acres)
- IVS-7: Substation Buffer (33.5 acres)

Data regarding rare plants with the potential to occur within the project area were obtained through a literature review of applicable reference materials and through field surveys.

2.1 Literature Review

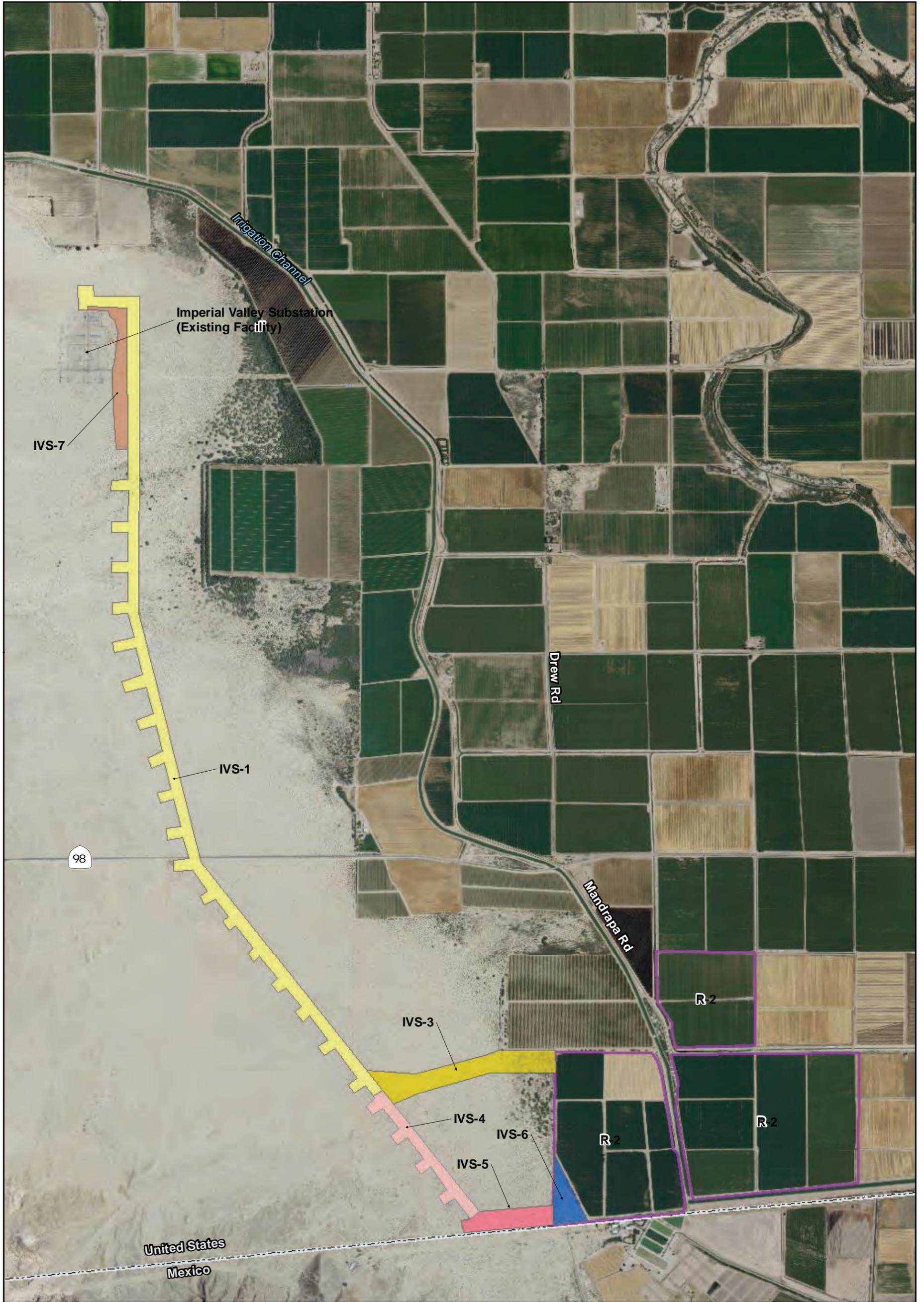
Determination of the potential occurrence for listed, sensitive, or noteworthy species is based upon known ranges and habitat preferences for the species (State of California 2010a and 2010b; CNPS 2001; Reiser 2001), species occurrence records from the California Natural Diversity Database (CNDDDB; State of California 2010b), the Bureau of Land Management (BLM) Special Status plant and wildlife species website (BLM 2010), and species occurrence records from other sites in the vicinity of the survey area. Additional resources that were consulted included the Biological Technical Report for Imperial Valley to La Rosita 230-kV Line, Imperial Valley, California (RECON 2001) and the *Early Spring 2010 Botanical Surveys for Imperial Valley Solar* (URS 2010).



 Project Area

FIGURE 2

Project Location on USGS Map



Project Components

-  IV South Project Area (R-2)
-  Transmission Line (IVS-1)
-  Transmission Line Connector (IVS-3)
-  Transmission Line Extension (IVS-4)
-  Transmission Line Connector (IVS-5)
-  Corner Parcel (IVS-6)
-  Substation Buffer (IVS-7)

0 Feet 2,250

FIGURE 3

Overview of the Imperial Solar Energy Center South

A list of all potential listed, sensitive, or noteworthy species was compiled based on the above-referenced resources (Appendix A). This list served as the basis for the rare plant surveys, and the likelihood of occurrence based on habitat requirements and suitability of habitat within the survey area was evaluated (Appendix A). Prior to fieldwork, a project-specific field guide was developed, and a library of botanical resources was gathered to assist biologists in the identification of these species.

2.2 Focused Rare Plant Survey

Botanical surveys of the 1,353.3-acre project area were conducted by qualified RECON biologists during the Spring of 2010 to map vegetation communities, inventory species present at the time of the survey, and assess the presence or potential for occurrence of sensitive and priority plant species within the project area. Two surveys were conducted: a complete survey designed to cover 100 percent of the [non-active agriculture] project area in March–April 2010 and a follow-up intuitive controlled survey in May 2010. The surveys included a directed search for special status plants that would have been apparent during the time of the surveys. Rare plant surveys followed the *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009).

All plant species observed within the project area were recorded, and plants that could not be identified in the field were collected for identification with taxonomic keys. Floral nomenclature follows Baldwin et al. (2002) for common plants and California Native Plant Society (CNPS 2001) for sensitive plants (as updated by the Jepson Flora Project Jepson Online Interchange [2010]). Vegetation communities were mapped in accordance with California Department of Fish and Game guidelines (CDFG 2009) on a 1-inch-equals-350-foot color aerial photograph taken in the Summer of 2009 (Figures 4a and 4b).

2.2.1 Complete Survey (March–April 2010)

A complete floristic survey, as defined in the *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009), was conducted within the survey area between March 24 and May 11, 2010. Survey transects were conducted by two biologists walking roughly parallel transects approximately 15–30 meters apart, depending on topography and homogeneity of vegetation in the area. Biologists had overlapping fields of vision at this distance, resulting in very thorough survey coverage. Survey routes (aka “track logs”) and locations of rare plants were mapped using a Trimble Geographical Positioning System (GPS) with sub-meter accuracy (Appendix B). Survey details are presented below in Table 1.

Each surveyor recorded field notes that included all plant species encountered, habitat type, and any unique descriptive features of the survey area. In addition, Native Species Field Survey Forms were submitted to CNDDDB for each rare taxon occurrence. These field notes and CNDDDB forms have been submitted to the BLM under separate cover.

2.2.2 Directed Survey (May 2010)

This second spring survey followed the “Intuitive Controlled Survey” protocol (BLM 2009) in order to further investigate habitats that were identified during the primary focused survey as having a higher potential for the presence of special status species. This survey included a focused and intensive survey in uplands with rocky cobble substrates and washes and provided an opportunity to make additional species identifications based on phenological characters that were not present during the initial survey.

Survey details are presented below in Table 1.

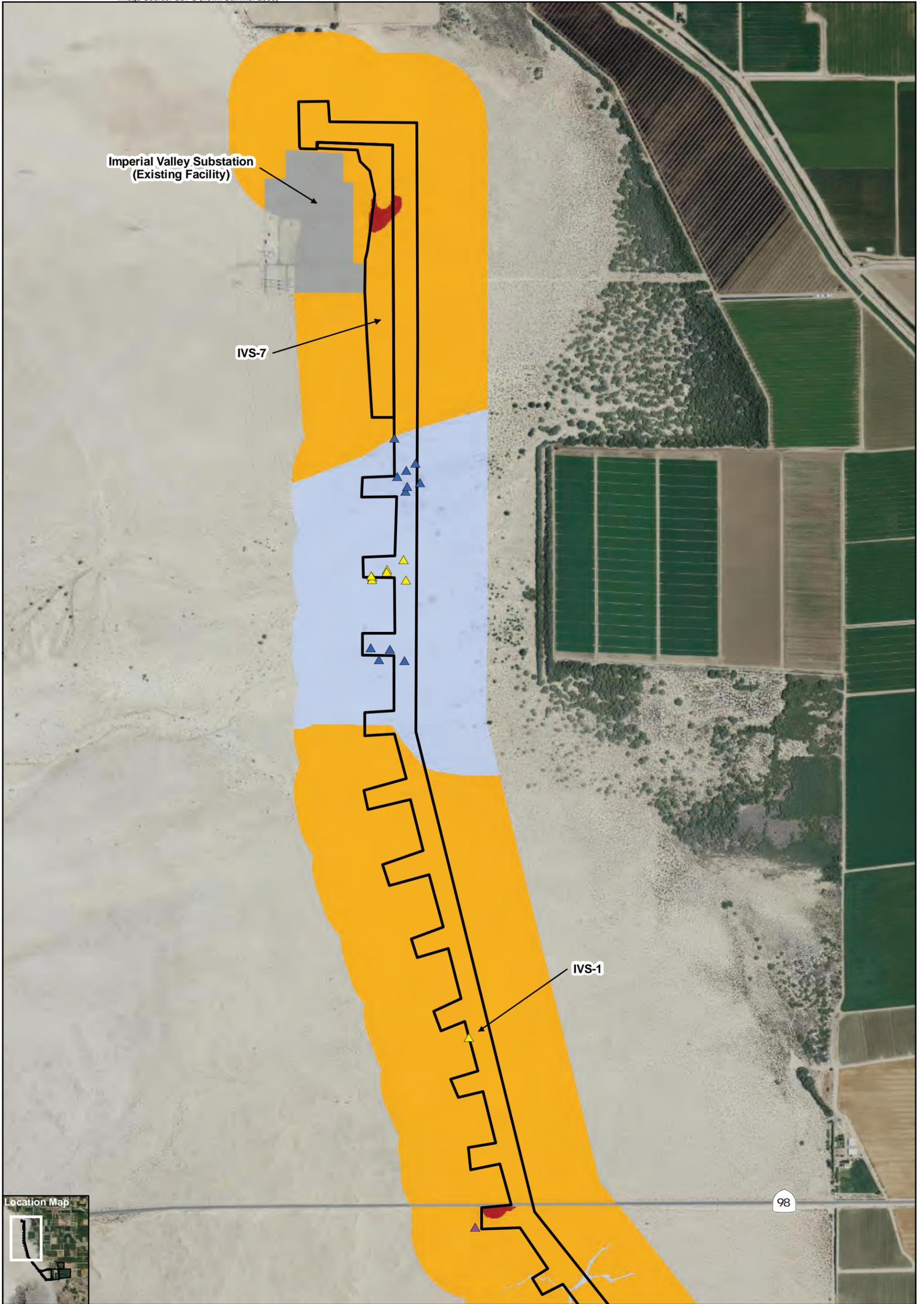
2.3 Qualifications of Field Personnel

BLM requires that personnel conducting rare plant surveys meet a minimum set of qualifications, including strong plant identification skills and familiarity with the flora and natural vegetation communities of the survey area. Resumes for RECON personnel who conducted the rare plant surveys are included in Appendix C.

3.0 Existing Conditions

3.1 Topography and Soils

The 1,353.3-acre survey area is located in the Yuha Basin of the Colorado Desert between agricultural fields to the east and Mount Signal to the southwest, as well as within active agricultural lands. Alluvial fans and washes run through the transmission survey areas at various locations, flowing northeast from Mount Signal to enter the Westside Main Canal that skirts the edge of the active agricultural fields until bisecting the proposed solar field. The proposed solar field comprises active agricultural fields (see R-2 on Figure 4b). The upland topography between the washes is relatively flat, with sparse vegetation and sand that ranges from soft and rolling to flat and compact. Elevation of the survey area ranges from sea level to 60 feet above mean sea level (USGS 1976). There are seven major soil types found within the survey area: Rositas, Niland, Carsitas, Glenbar, Imperial, Indio–Vint, and Meloland soils (NRCS 2006, 2010), presented below.

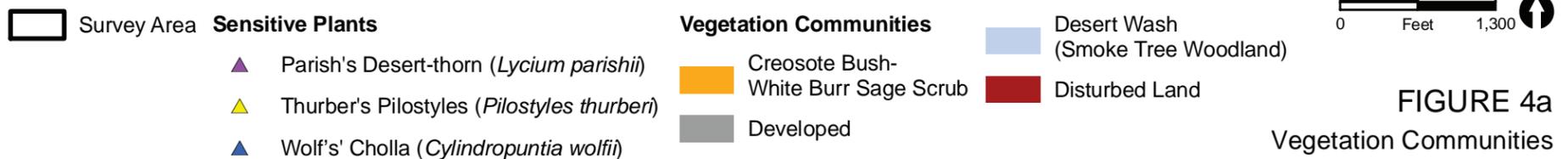


Imperial Valley Substation
(Existing Facility)

IVS-7

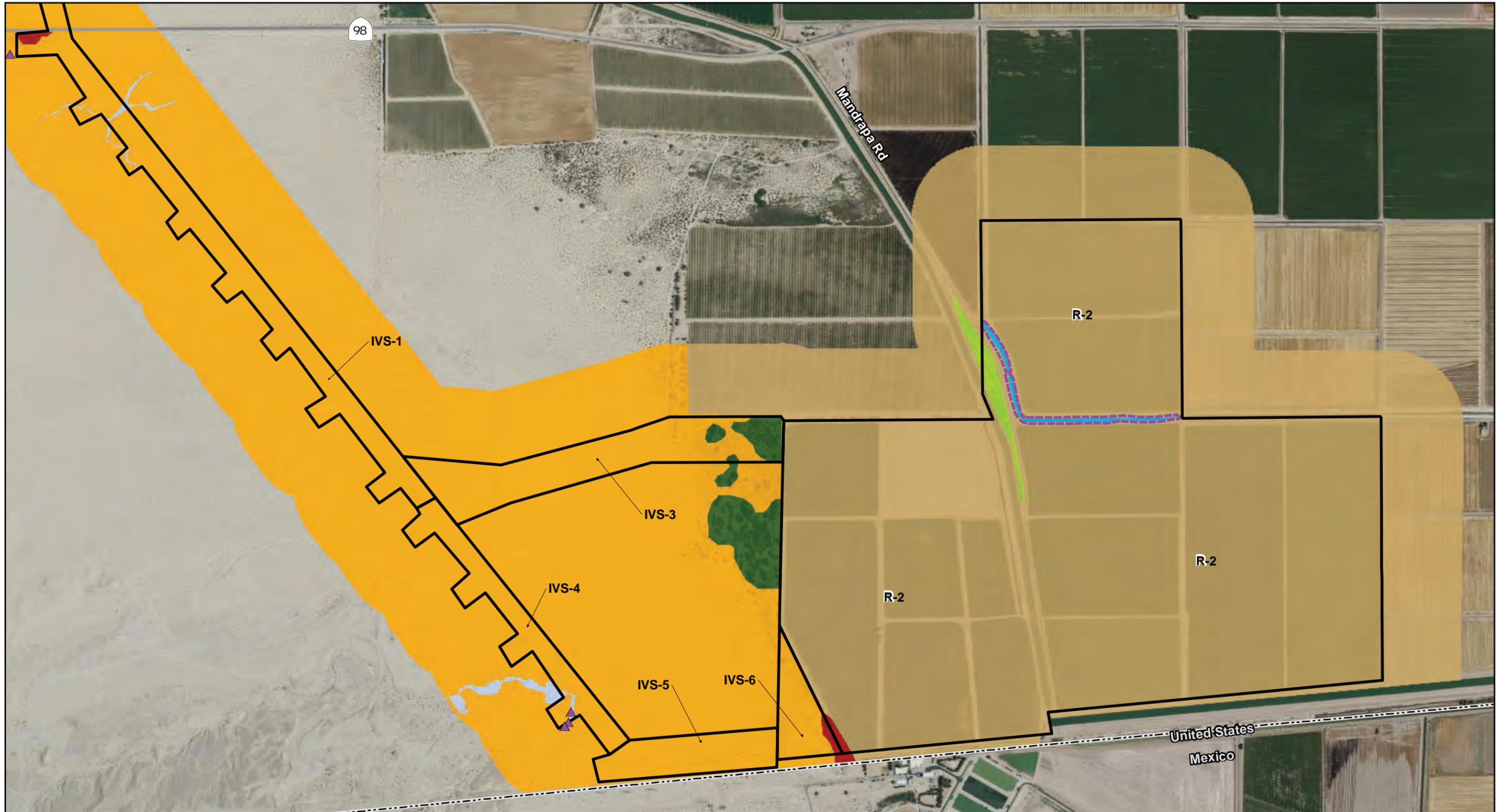
IVS-1

98



0 Feet 1,300

FIGURE 4a
Vegetation Communities
and Rare Plant Locations within the
Imperial Solar Energy Center South Survey Area



Survey Area

Sensitive Plants

▲ Parish's Desert-thorn (*Lycium parishii*)

Vegetation Communities

Active Agriculture

Cattail Marsh

Creosote Bush-White Burr Sage Scrub

Desert Wash (Smoke Tree Woodland)

Developed

Disturbed Land

Mesquite Thicket

Tamarisk Thicket

Arrow-weed Thicket



FIGURE 4b
Vegetation Communities
and Rare Plant Locations within the
Imperial Solar Energy Center South Survey Area

**TABLE 1
SURVEY DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS WITHIN THE IMPERIAL SOLAR ENERGY CENTER SOUTH
PROJECT SURVEY AREA**

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
03/24/2010	ALL	N/A	Vegetation mapping, general biological survey	Cheri Bouchér Carianne Campbell	8:00 A.M.; 50°F; winds 7–10 mph; 0% cloud cover	4:15 P.M.; 80°F; winds 0–4 mph; 0% cloud cover	N/A
03/30/2010	IVS-6	21	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Karyl Palmer	1:00 P.M.; 82°F; winds 3–5 mph; 10% cloud cover	2:00 P.M.; 80°F; winds 7–13 mph; 10% cloud cover	7
03/30/2010	ALL	N/A	Vegetation mapping, general biological survey	Cheri Bouchér Carianne Campbell Karyl Palmer	2:00 P.M.; 80°F; winds 7–13 mph; 10% cloud cover	5:00 P.M.; 77°F; winds 5–10 mph; 5% cloud cover	N/A
04/06/2010	IVS-5	29	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Gerry Scheid Peter Dolan	2:30 P.M.; 77°F; winds 2–5 mph; <5 % cloud cover	3:30 P.M.; 82°F; winds 7–10 mph; <5 % cloud cover	7.3
04/07/2010	ALL	N/A	Vegetation mapping, general biological survey	Cheri Bouchér Carianne Campbell	2:00 P.M.; 78°F; winds 3–7 mph; 0% cloud cover	4:00 P.M.; 78°F; winds 5–7 mph; 2% cloud cover	N/A
04/08/2010	IVS-3	68	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	9:00 A.M.; 74°F; winds 0–1 mph; 0% cloud cover	12:30 P.M.; 84°F; winds 2–4 mph; 0% cloud cover	4.8
04/08/2010	IVS-4	39	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	1:00 P.M.; 84°F; winds 0–1 mph; 0% cloud cover	3:00 P.M.; 84°F; winds 0–1 mph; 0% cloud cover	4.9
04/08/2010	IVS-1	38	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	3:00 P.M.; 84°F; winds 0–1 mph; 0% cloud cover	4:15 P.M.; 84°F; winds 0–2 mph; 0% cloud cover	7.6

TABLE 1
SURVEY DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS WITHIN THE IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
04/09/2010	IVS-1	221	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	8:00 A.M.; 65°F; winds 0–1 mph; 0% cloud cover	1:00 P.M.; 89°F; winds 2–4 mph; 0% cloud cover	11.1
04/13/2010	IVS-1	45	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	9:00 A.M.; 68°F; winds 2–5 mph; 0% cloud cover	12:00 P.M.; 74°F; winds 2–6 mph; 0% cloud cover	7.5
04/13/2010	IVS-1/ IVS-7	65	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	1:00 P.M.; 75°F; winds 2–5 mph; 0% cloud cover	4:00 P.M.; 79°F; winds 2–5 mph; 0% cloud cover	10.8
04/14/2010	IVS-7	55	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	2:30 P.M.; 78°F; winds 2–4 mph; 50% cloud cover	4:30 P.M.; 82°F; winds 2–4 mph; 50% cloud cover	13.75
05/11/2010	R-2	N/A	General biological survey	Cheri Bouchér Carianne Campbell	7:00 A.M.; 62°F; winds 25–30 mph; 5% cloud cover	9:00 A.M.; 64°F; winds 25–30 mph; 5% cloud cover	-
05/11/2010	IVS-1, IVS-5	30	Rare Plant Survey #2	Cheri Bouchér Carianne Campbell	9:00 A.M.; 64°F; winds 25–30 mph; 5% cloud cover	12:30 P.M.; 72°F; winds 25–30 mph; 1% cloud cover	4.28

°F = degrees Fahrenheit; mph = miles per hour; % = percent

- Rositas soils are sandy soils found on flat basin floors and formed from mixed alluvium or sandy eolian material typically found on dunes and sand sheets (NRCS 2010). Rositas soils are the dominant soils along the transmission corridors.
- Niland gravelly sand occurs on basin floors, and its parent material consist of alluvium derived from mixed sources. This soil occurs in small sections within IVS-1.
- Carsitas gravelly sand occurs on basin floors, and is formed from alluvium derived from granite. This soil is the dominant soil within the southern-most mile of IVS-1 and IVS-4.
- Glenbar Complex soils are found on flat basin floors and are formed from mixed alluvium. These soils are found in portions of the active agricultural fields.
- Imperial soils are silty clay soils found on flat basin floors and consist of clayey alluvium derived from mixed sources and/or clayey lacustrine deposits. These soils are found in portions of the active agricultural fields.
- Indio–Vint complex is made primarily of Indio and Vint soils, both of which are found on flat basin floors and formed from mixed alluvium or sandy eolian material. These soils are found in portions of the active agricultural fields.
- Meloland soils are fine sands found on flat basin floors and formed from mixed alluvium or sandy eolian material. These soils are found in portions of the active agricultural fields.

3.2 Vegetation

Vegetation in the project area was mapped to the association level according to *A Manual of California Vegetation* (Sawyer et al. 2009). As shown in Figure 4, five vegetation communities/land cover types were mapped within the survey area, including creosote bush–white burr sage scrub, desert wash (smoke tree woodland mix), mesquite thicket, active agricultural fields, and a small amount of disturbed and developed land. Table 2 below lists the acreage of each vegetation community and land cover type in relation to the project components.

TABLE 2
VEGETATION COMMUNITIES/LAND COVER TYPES WITHIN THE IMPERIAL SOLAR
ENERGY CENTER SOUTH PROJECT SURVEY AREA

Vegetation Community/ Land Cover Type	R-2 (acres)	IVS-1 (acres)	IVS-3 (acres)	IVS- 4 (acres)	IVS-5 (acres)	IVS-6 (acres)	IVS-7 (acres)	Total (acres)
Creosote bush– white burr sage scrub	0.3	189.8	60.0	38.5	29.2	17.5	31.3	366.6
Desert wash	-	44.6	-	0.6	-	-	-	45.2
Cattail marsh	2.8	-	-	-	-	-	-	2.8
Arrow weed thicket	1.0	-	-	-	-	-	-	1.0
Mesquite thicket	-	-	8.1	-	-	-	-	8.1
Tamarisk thicket	5.8	-	-	-	-	-	-	5.8
Active agricultural fields	916.5	-	0.4	-	-	-	-	916.9
Disturbed/ developed land	1.2	2.1	-	-	-	1.4	2.2	6.9
TOTAL	927.6	236.5	68.5	39.1	29.2	18.9	33.5	1,353.3

Creosote bush–white burr sage scrub is the dominant vegetation community within the transmission line corridors in the survey area, and accounts for 369 acres (28 percent of the survey area). This native vegetation alliance is dominated by creosote bush (*Larrea tridentata*) and white burr sage (*Ambrosia dumosa*) with relatively sparse vegetative cover and flat topography. A number of annual species were observed during the spring surveys that provided an herbaceous layer between shrubs (Photograph 1). These species include desert sunflower (*Geraea canescens*), desert sand verbena (*Abronia villosa* var. *villosa*), Peirson’s browneyes (*Camissonia claviformis* ssp. *peirsonii*), pebble pincushion (*Chaenactis carophoclinea* var. *carophoclinea*), pincushion flower (*C. stevioides*), desert cambess (*Oligomeris linifolia*), narrow-leaved forget-me-not (*Crypthantha angustifolia*), and Mediterranean grass (*Schismus barbata*). A stand of ironwood trees (*Olneya tesota*) is clustered within the creosote bush–white burr sage scrub vegetation in IVS-5, along the U.S.–Mexico border (Photograph 2).



PHOTOGRAPH 1
IVS-1: Creosote–Burr Sage Scrub



PHOTOGRAPH 2
IVS-5: Creosote–Burr Sage Scrub with Stand
of Ironwood Trees along International Border

A number of **desert washes** flow northeast through the transmission corridors from Mount Signal into the Westside Main Canal. These washes are braided with the main flow channels primarily lacking in vegetation, while the sandbars and banks support the **smoke tree woodland** vegetation alliance (Photograph 3). The areas dominated by smoke tree woodland support a number species, including rayless encelia (*Encelia frutescens*), sweetbush (*Bebbia juncea*), individual honey mesquite trees (*Prosopis glandulosa*) and tamarisk trees (*Tamarix aphylla*), scattered saltbush shrubs, a moderate-to-sparse cover of big galleta grass (*Pleuraphis rigida*), and sparse creosote bush and white burr sage.



PHOTOGRAPH 3
IVS-1: Smoketree Woodland Alliance



PHOTOGRAPH 4
Irrigation Channel with Cattail Marsh and
Tamarisk along Banks

A small amount of **cattail marsh** was present in one of the irrigation channels between agricultural fields (Photograph 4). While broad-leaved cattail (*Typha domingensis*) was the dominant species in this vegetation alliance, tamarisk was also present throughout.

Arrow weed (*Pluchea sericea*) has established along the edges of the irrigation canal in many locations, forming 5- to 10-foot-deep **arrow weed thickets**. These thickets largely exclude other plant species, but weedy, invasive species such as sow thistle (*Sonchus* sp.), Sahara mustard (*Brassica tournifortii*), and London rocket (*Sisymbrium irio*) grow along the banks in between the arrow weed thickets.

A small **mesquite thicket**, dominated by honey mesquite, is present along the eastern edge of the IVS-3 corridor, adjacent to an irrigation ditch. Creosote bush and Mormon tea shrubs are present in between the honey mesquite trees. A larger mesquite thicket is present outside of the survey area along the western boundary of the IV South solar field.

As seen in Figure 4b, a large **tamarisk thicket** is present adjacent to the agricultural fields. Tamarisk thickets are dominated by tamarisk trees and shrubs (*Tamarix* spp.). Honey mesquite trees are interspersed within tamarisk, but not in great enough number for this vegetation to be considered a mesquite thicket.

The entire R-2 survey area contains **active agricultural fields** for a total of 888 acres.

Natural vegetation has been removed for vehicle parking and driving immediately south of State Route 98 within IVS-1, adjacent to the Substation within IVS-7, and in the southeast corner of IVS-6. These areas contain little to no vegetation and are classified as **disturbed land**.

3.2.1 Vegetation Communities Adjacent to the Survey Area

The Westside Main Canal, as well as other agricultural irrigation channels, runs adjacent to and in between the agricultural fields. The channels that are unvegetated but holding water are classified as **open water**.

3.3 Precipitation Patterns Preceding Survey

Precipitation in the Imperial Valley is very low. Table 3 summarizes precipitation data from the El Centro 2 SSW (042713) weather station for the period of 1932–2009. The annual average for that period was 2.67 inches, with low monthly rainfall (0.4 inch or

less) nearly evenly distributed throughout the months with a period of extreme aridity (0.1 inch or less) between the months of April–July.

Precipitation patterns heavily influence the spring annual flora of the Colorado Desert. The annual mean precipitation for 2009 was extremely low (0.59 inch; 22% of average). This very low-rainfall year was immediately followed by a particularly wet spring, when 3.1 inches (116% of the annual mean) were recorded between January and March 2010. As a result, there is reasonable assurance that the species observed during the Spring 2010 survey effort reflect a relatively complete picture of the spring annual flora present within the project area.

**TABLE 3
MONTHLY PRECIPITATION (INCHES) FOR EL CENTRO 2 SSW (042713) WEATHER
STATION**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2009	0	0.4	0	0	0	0	0	0	0	0	0	0.2	0.59
2010	2.1	0.4	0.6	-	-	-	-	-	-	-	-	-	3.1
Mean (1932– 2009)	0.4	0.4	0.2	0.1	0	0	0.1	0.3	0.3	0.3	0.2	0.4	2.67

Source: WRCC 2010

4.0 Survey Results

4.1 General Floristics

A total of 99 plant species, representing 32 plant families, were identified within the project area. Of this total, 82 (83 percent) are native to southern California and 17 (17 percent) are non-native, introduced species. A complete list of plant species observed in the survey is found in Table 4. Floral nomenclature follows Baldwin et al. (2002) for common plants and California Native Plant Society (CNPS 2001) for sensitive plants (as updated by the Jepson Flora Project Jepson Online Interchange [2010]).

4.2 Special Status Plant Species

There are a number of special status plant species that are known from the vicinity of the project area. Appendix A lists all species known from the vicinity that are listed by the federal or state government as threatened or endangered, or are listed as sensitive by BLM, along with a more detailed analysis of the potential of these species to occur in the survey area. Locations of special status plant species found during the surveys are presented in Figure 4.

TABLE 4
PLANT SPECIES OBSERVED WITHIN THE IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
GNETALES										
EPHEDRACEAE	PHEDRA FAMILY									
<i>Ephedra trifurca</i>	three-fork ephedra	CBS	N		X	X	X			X
ANGIOSPERMS: DICOTS										
AMARANTHACEAE	MARANTH FAMILY									
<i>Amaranthus palmeri</i>	Palmer's amaranth	AT	N	X						
ASTERACEAE ^E	UNFLOWER FAMILY									
<i>Ambrosia dumosa</i>	white burr sage	CBS, AG	N		X	X	X	X	X	X
<i>Baileya pauciradiata</i>	lax flower	CBS	N		X	X	X	X	X	X
<i>Bebbia juncea</i> ^A	sweetbush	DW	N		X					
<i>Chaenactis carophoclinia</i> var. <i>carphoclinia</i>	pebble pincushion	CBS	N				X			
<i>Chaenactis fremontii</i>	desert pincushion flower	CBS	N					X		
<i>Chaenactis stevioides</i>	pincushion flower	CBS	N							
<i>Dicoria canescens</i>	bugseed	DW	N			X	X			
<i>Encelia farinosa</i>	brittlebush, incienso	CBS	N		X					X
<i>Encelia frutescens</i>	rayless encelia	DW	N	X	X	X				
<i>Geraea canescens</i>	desert sunflower	CBS	N		X	X	X	X		
<i>Helianthus annuus</i>	common sunflower		N	X						
<i>Hymenoclea salsola</i>	cheese bush	DW	N		X					
<i>Isocoma acradenia</i> var. <i>eremophila</i>	alkali goldenbush	CBS	N				X			
<i>Lactuca serriola</i>	prickly lettuce	DW	I	X						
<i>Malacothrix glabrata</i>	desert dandelion	CBS	N			X				
<i>Palafoxia arida</i> var. <i>arida</i>	Spanish needles	CBS, DW	N		X	X	X	X		X
<i>Perityle emoryi</i>	rock daisy	CBS, DW	N		X					
<i>Pluchea sericea</i>	arrow weed	AT	N	X		X	X			
<i>Psathyrotes ramosissima</i>	turtleback	DW	N		X					
<i>Rafinesquia neomexicana</i>	desert chickory	CBS, DW	N		X	X				
<i>Sonchus</i> sp.	sow thistle	DW	I					X		

X

X

TABLE 4
PLANT SPECIES OBSERVED WITHIN THE IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
ANGIOSPERMS: DICOTS (CONT.)										
BIGNONIACEAE	IGNONIA FAMILY									
<i>Chilopsis linearis</i> ssp. <i>arcuata</i>	desert-willow	DW	N		X					
BORAGINACEAE	ORAGE FAMILY									
<i>Cryptantha angustifolia</i>	narrow-leaved forget-me-not	CBS, DW	N		X	X	X	X	X	X
<i>Pectocarya recurvata</i>	comb-bur	CBS, DW	N							
<i>Tiquilia palmeri</i>	Palmer's tiquilia	CBS, DW	N		X	X	X	X		X
<i>Tiquilia plicata</i>	fanleaf crinklemat	CBS, DW	N		X	X	X	X		X
BRASSICACEAE (CRUCIFERAE)	MUSTARD FAMILY			X		X			X	
<i>Brassica tournefortii</i>	Sahara mustard	CBS, DW, AT	I	X	X	X	X	X	X	X
<i>Dytheria californica</i>	spectacle pod	CBS	N		X	X				
<i>Lepidium lasiocarpum</i>	desert peppergrass	CBS, AT	N		X		X			
<i>Sisymbrium irio</i>	London rocket	AG, CBS, DW	I	X		X				
CACTACEAE	ACTUS FAMILY									
<i>Cylindropuntia wolfii</i>	Wolf's cholla	DW	N		X					
CARYOPHYLLACEAE	INK FAMILY									
<i>Achyronychia cooperi</i>	frost mat	CBS, DW	N		X	X	X	X		X
CHENOPODIACEAE	OOSEFOOT FAMILY									
<i>Atriplex canescens</i>	fourwing saltbush, shad-scale	CBS, DW	N		X	X	X	X		
<i>Atriplex hymenelytra</i>	desert holly	CBS, DW	N		X					
<i>Atriplex polycarpa</i>	desert saltbush	CBS, DW	N		X		X	X	X	
<i>Chenopodium murale</i>	nettle-leaved goosefoot	CBS	N			X				
<i>Salsola tragus</i>	Russian thistle	CBS	I						X	
<i>Suaeda moquinii</i>	desert seepweed	DW	N		X					
				X				X		

TABLE 4
PLANT SPECIES OBSERVED WITHIN THE IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
ANGIOSPERMS: DICOTS (CONT.)										
EUPHORBIACEAE	PURGE FAMILY									
<i>Chamaesyce micromera</i>	spurge	CBS, DW	N		X					
<i>Chamaesyce polycarpa</i>	sandmat	CBS, DW	N						X	X
<i>Croton californicus</i> var. <i>mohavensis</i>	desert croton	DW	N		X					
<i>Stillingia spinulosa</i>	broad-leaved stillingia	CBS	N		X					
FABACEAE (LEGUMINOSAE)	LEGUME FAMILY									
<i>Acacia greggii</i>	catclaw acacia	CBS	N						X	
<i>Astragalus palmeri</i>	Palmer's milkvetch	DW	N			X				
<i>Dalea mollissima</i>	silk dalea	DW	N			X				
<i>Lotus</i> sp.	lotus	DW	N	X	X		X			
<i>Lupinus arizonicus</i>	Arizona lupine		N		X					
<i>Olneya tesota</i>	ironwood	CBS	I					X	X	
<i>Prosopis glandulosa</i> var. <i>torreyana</i>	honey mesquite	CBS, DW, MT, TT	N			X				
<i>Psoralea argemone</i>	Emory's indigo bush	CBS, DW	N	X	X	X	X			X
<i>Psoralea schottii</i>	indigo bush	CBS	N	X	X			X		
<i>Psoralea spinosa</i>	smoke tree	DW	N		X					
GERANIACEAE	ERANIUM FAMILY									
<i>Erodium cicutarium</i>	redstem filaree	AG	I	X						
HYDROPHYLLACEAE	ATERLEAF FAMILY									
<i>Nama demissum</i>	purple mat	CBS, DW	N		X					
<i>Phacelia rotundifolia</i>	round-leaf phacelia	CBS	N		X					
KRAMERIACEAE G	HATANY FAMILY									
<i>Krameria grayi</i> W	Pima rhatany, purple-heather	CBS	N		X	X	X	X		
LAMIACEAE	INT FAMILY									
<i>Hyptis emoryi</i>	desert lavender	DW	N		X					

R

M

TABLE 4
PLANT SPECIES OBSERVED WITHIN THE IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
ANGIOSPERMS: DICOTS (CONT.)										
LOASACEAE	OASA FAMILY									
<i>Mentzelia albicaulis</i>	white stem stickleaf	CBS	N		X					
<i>Petalonyx thurberi</i> ssp. <i>thurberi</i>	sandpaper plant	DW	N		X					
MALVACEAE	ALLOW FAMILY									
<i>Eremalche rotundifolia</i>	desert five-spot	DW	N				X	X		
<i>Sphaeralcea ambigua</i>	globemallow	CBS, DW	N	X		X		X	X	
NYCTAGINACEAE	OUR O'CLOCK FAMILY									
<i>Abronia villosa</i> var. <i>villosa</i>	desert sand verbena	CBS, DW	N		X		X	X		X
ONAGRACEAE	VENING-PRIMROSE FAMILY									
<i>Camissonia boothii</i>	woody bottle washer	CBS, DW	N		X	X		X	X	X
<i>Camissonia</i> <i>naviformis</i> spp. <i>peirsonii</i>	Peirson's browneyes	CBS, DW	N		X	X		X	X	X
<i>Oenothera deltoidea</i>	dune primrose	CBS, DW	N		X	X	X			X
PAPAVERACEAE	OPPY FAMILY									
<i>Eschscholzia minutiflora</i>	little leaf gold poppy	CBS	N		X		X	X		
PLANTAGINACEAE	LANTAIN FAMILY									
<i>Plantago ovata</i>	Indian wheat	CBS, DW	N		X		X	X	X	X
POLEMONIACEAE	HLOX FAMILY									
<i>Langloisia setosissima</i> var. <i>setosissima</i>	langloisia	CBS	N		X					
<i>Loeseliastrum mathewsii</i>	desert calico	CBS	N		X					
POLYGONACEAE	UCKWHEAT FAMILY									
<i>Chorizanthe brevicornu</i>	brittle spineflower	CBS	N			X	X			
<i>Chorizanthe rigida</i>	rigid chorizanthe	CBS	N		X	X	X	X		
<i>Eriogonum deflexum</i>	skeleton weed	CBS, DW	N		X	X	X	X	X	X
<i>Eriogonum deserticola</i>	dune buckwheat	CBS, DW	N			X				
<i>Eriogonum inflatum</i>	desert trumpet	CBS, DW	N				X			
<i>Eriogonum thomasi</i>	Thomas's buckwheat	CBS, DW	N		X	X				X

TABLE 4
PLANT SPECIES OBSERVED WITHIN THE IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
ANGIOSPERMS: DICOTS (CONT.)										
PORTULACACEAE	URSELANE FAMILY									
<i>Calandrinia ambigua</i>	dead man's fingers	CBS	N		X					
RAFFLESIAACEAE	AFFLESIA FAMILY									
<i>Pilostyles thurberi</i>	Thurber's pilostyles	DW	N		X					
RESEDACEAE	IGNONETTE FAMILY									
<i>Oligomeris linifolia</i> P	narrowleaf oligomeris	CBS, DW	N		X	X	X	X		X
SOLANACEAE	IGHTSHADE FAMILY									
<i>Lycium parishii</i> / <i>L. brevipes</i> var. <i>brevipes</i> R	Parish's desert-thorn / desert-thorn	DW	N				X			
<i>Nicotiana clevelandii</i>	desert tobacco	CBS	N						X	
<i>Solanum elaeagnifolium</i>	white horse-nettle	AG	N	X						
TAMARICACEAE M	AMARISK FAMILY									
<i>Tamarix aphylla</i>	Athel tamarisk	DW, TT	I	X	X	X				
<i>Tamarix ramosissima</i> N	salt cedar, tamarisk	DW, TT	I	X	X	X	X			
VISCACEAE	ISTLETOE FAMILY									
<i>Phoradendron californium</i>	mistletoe	CBS	N					X	X	
ZYGOPHYLLACEAE	ALTROP FAMILY									
<i>Larrea tridentata</i> T	creosote bush	CBS, DW	N		X	X	X	X	X	X
<i>Tribulus terrestris</i>	puncture vine	DW, AG	I	X	X					

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TABLE 4
PLANT SPECIES OBSERVED WITHIN THE IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Scientific Name	Common Name	Habitat	Origin	R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
ANGIOSPERMS: MONOCOTS										
LILIACEAE	ILY FAMILY									
<i>Hesperocaulis undulata</i>	desert lily	DW	N		X	X	X		X	X
POACEAE (GRAMINEAE)	GRASS FAMILY									
<i>Aristida</i> sp.	three-awn	CBS	N		X					
<i>Arundo donax</i>	giant reed	AG	I	X						
<i>Avena fatua</i>	wild oat	AG	I	X						
<i>Cynodon dactylon</i>	Bermuda grass	AG, DW	I	X	X					
<i>Echinochloa</i> sp.	barnyard grass	AG	I	X						
<i>Phalaris minor</i>	Mediterranean canary grass	AG, DW	I	X	X					
<i>Pleuraphis [=Hilaria] rigida</i>	big galleta grass	DW, CBS	N		X	X	X	X		
<i>Polypogon monspeliensis</i>	annual beard grass, rabbit's foot grass	AG	I	X						
<i>Schismus barbatus</i>	Mediterranean grass	CBS, DW	I		X	X	X	X	X	X
<i>Sorghum halapense</i>	Johnson grass	AG	I	X						

HABITATS

AG = Agriculture
CBS = Creosote bush – white burr sage scrub
DW = Desert wash
MT = Mesquite thicket

ORIGIN

N = Native to locality
I = Introduced species from outside locality

4.2.1 Federally Listed Species

Based on the literature review, one federally threatened plant species, Peirson's milkvetch (*Astragalus magdalena* var. *peirsonii*), was identified as having the potential to occur within the survey area. Critical habitat has been designated [and revised] for this species in the Algodones Dunes (USFWS 2008), which are located approximately 50 miles east of the project area. This species was not observed during focused spring rare plant surveys and is not expected to occur based on elevation and lack of dune habitat, and range restrictions (see Appendix A).

4.2.2 State-listed Species

There were three state-listed species identified during the literature review as having the potential to occur within the survey area: Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*), Wiggins' croton (*Croton wigginsii*), and Peirson's milkvetch (see Appendix A). These species were not observed during focused spring rare plant surveys and are not expected to occur within the survey area based on elevation and the lack of suitable habitat.

4.2.3 BLM Sensitive Species

BLM sensitive species include all species currently on California Native Plant Society (CNPS) List 1B as well as others that are designated by the California BLM State Director. Several BLM sensitive species were identified as having the potential to occur within the survey area (see Appendix A). These species were not observed during focused spring rare plant surveys and either have a low potential to occur or are not expected to occur within the survey area based on elevation and the lack of suitable habitat.

4.2.4 Priority Plant Species

Priority plant species are rare, unusual, or key species that are not considered sensitive by BLM or listed as threatened and endangered. Priority plant species are specifically plants that are included on the CNPS Lists 2–4. A number of priority plant species have the potential to occur within the survey area based on presence of species within the vicinity of the area (State of California 2010b) or based on the presence of suitable habitat (Appendix A).

Three priority plant species were observed within the survey area during spring rare plant surveys, including Wolf's cholla (*Cylindropuntia wolfii*), Thurber's pilostyles (*Pilostyles thurberi*), and Parish's desert thorn (*Lycium parishii*). These species are discussed below and locations are shown in Figures 4a–b.

Wolf's cholla (*Opuntia wolfii*). Wolf's cholla is a CNPS (2001) List 4 species. This generally erect cylindrical cactus (Cactaceae family) grows up to 6 feet tall and bears pale purple-brown flowers with red-purple filaments in April and May. The range of Wolf's cholla is limited to the western edge of the Sonoran desert in Imperial and San Diego counties and Baja California (Baldwin et al. 2002; CNPS 2001). It occurs in creosote-bush scrub between elevations of 1,000 and 3,300 feet, where it can be locally common. Typical microhabitat for Wolf's cholla is on alluvial fans, rocky slopes, or dry places above the valley floor (Baldwin et al. 2002; Reiser 2001). This cactus is reported from San Felipe Valley, Vallecito Canyon, Jacumba, Sentenac Canyon, and Mountain Springs Grade (Reiser 2001). *Opuntia wolfii* was formerly considered a variety of silver cholla (*O. echinocarpa*), but can be distinguished from it by having the terminal stem segment longer than 8 inches and tubercles more than three times longer than they are wide (Baldwin et al. 2002).



PHOTOGRAPHS 5a and 5b
IVS-1: Wolf's Cholla with Characteristic Upright Growth Form (Left) and
Flowers with Red-Purple Anther Filaments (Right)

Nine Wolf's cholla were observed within the braided wash channel system south of the Substation within IVS-1 (Figure 4a; Photographs 5a–b). These plants were scattered in the desert wash (smoketree woodland alliance) vegetation community. Two additional individuals were recorded adjacent to the survey area in the same vicinity. This species was in bloom during the survey period and was positively identified based on its upright growth form (see Photograph 5a) and red-purple anther filaments (see Photograph 5b).

Thurber's pilostyles (*Pilostyles thurberii*). Thurber's pilostyles is a CNPS List 4 species. It is a perennial stem-parasite in the Rafflesia family (Rafflesiaceae) that shows only its flowers and bracts on the stem of its host plant. The brown or maroon flowers are less than 1/10 inch across and bloom in January. The host plant is indigo bush (*Psorothamnus* spp.), usually Emory's indigo bush (*P. emoryi*). While Emory's indigo

bush occurs in both the southern Mojave and Sonoran deserts, in California Thurber's pilostyles is limited to the southern Sonoran Desert in Riverside, San Diego, and Imperial counties, where it occurs in open desert scrub at elevations below 1,000 feet. Thurber's pilostyles also occurs in Baja California and as far east as Texas (Baldwin et al. 2002).

Thurber's pilostyles was observed on six Emory's indigo bush shrubs located within the desert wash in IVS-1 south of the Substation (Photograph 6).



PHOTOGRAPH 6
IVS-1: Thurber's Pilostyles Parasitizing
Emory's Indigobush



PHOTOGRAPH 7
IVS-4: Parish's Desert-thorn

Parish's desert-thorn (*Lycium parishii*). Parish's desert-thorn is a CNPS List 2 species. It is an intricately branched spiny shrub in the Nightshade family (Solanaceae) that may grow 10 feet tall (Photograph 7) and produces purplish tubular flowers in March and April (Munz 1973). Parish's desert-thorn is found from Sonora, Mexico, and Arizona to Riverside, Imperial, and eastern San Diego counties; it is thought to be extirpated from the San Bernardino Valley (Munz 1974; CNPS 2001). The habitat for Parish's desert-thorn is sandy to rocky slopes in creosote-bush desert scrub at elevations below 3,300 feet. It may have occurred in coastal scrub habitat as well (CNPS 2001).

The desert-thorn plants that were observed in the survey area and vicinity (Figures 4a–b) exhibited intermediate morphological characteristics between *L. parishii* and *L. brevipes*. Flowers were observed (on individual and separate plants) with four and five petals, which is characteristic of *L. brevipes*. However, the plants were very intricately branched, which is characteristic of *L. parishii*, as opposed to spreading branches, as in *L. brevipes*. Due to the number of floristic characteristics in common with *L. parishii*, we have treated this species as *L. parishii*.

Two Parish's desert-thorn plants were observed along the desert wash within IVS-4. An additional six were recorded adjacent to IVS-4 and IVS-1.

5.0 Potential Project Impacts and Recommended Mitigation

Three priority plant species were observed within the survey area during spring rare plant surveys, including Wolf's cholla, Thurber's pilostyles, and Parish's desert thorn (see Figures 4a–b).

These species should be avoided where practicable. If impacts are unavoidable, individual plants should be relocated, when appropriate, or included as part of the restoration palette for temporary or permanent impacts. Restoration standards, including potential transplantation and other conservation measures should be developed in coordination with the BLM and other state and/or federal agencies as appropriate.

7.0 Additional Surveys Recommended

Although the majority of the special status plant species that have the potential to occur within the survey area would have been apparent during the Spring 2010 survey effort, there are a few species which would not, such as Abram's sandmat (*Chamaesyce abramsiana*) and devil's claw (*Proboscidea althaeifolia*), which actively grow and bloom in the late summer and fall (see Appendix A). An additional rare plant survey is planned for Fall 2010 in order to search for these species. This survey will follow the "Intuitive Controlled Survey" protocol (BLM 2009) to target the habitats in which these species would be found, if present.

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APPENDICES

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APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR
OCCURRENCE IN THE
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APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Amaranthaceae—Amaranth Family											
<i>Amaranthus watsonii</i> Watson's amaranth	-/-	4.3	-	Annual herb; blooms in spring; creosote bush scrub and wetlands.	Potential to occur along canals and ditches within the survey area	Not expected to occur. No suitable wetland habitat within the survey area.					
Asclepiadaceae—Milkweed Family											
<i>Cynanchum utahense</i> Utah vine milkweed	-/-	4.3	-	Perennial herb; blooms April–June; creosote bush scrub; <3,281 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
Asteraceae—Sunflower Family											
<i>Chaenactis carphoclina</i> var. <i>peirsonii</i> Peirson's pincushion	-/-	1B.3	BLM Sensitive	Annual herb; blooms March–April; creosote bush scrub; <1,640 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused surveys.					
<i>Helianthus niveus</i> ssp. <i>tephrodes</i> Algodones Dunes sunflower	-/CE	1B.2	BLM Sensitive	Perennial herb; blooms March–May; dunes; <328 ft	Not expected to occur. No suitable dune habitat is present within the survey area.	In addition, this perennial herb would have been observed during spring focused surveys.					

APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Asteraceae—Sunflower Family (cont.)</i>											
<i>Malperia tenuis</i> brown turbans	-/-	2.3	-	Annual herb; blooms April and Dec; Sonoran desert scrub; sandy areas and rocky slopes; <1,640 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. Not observed within the survey area during spring focused rare plant surveys. No suitable desert pavement habitat is present for this species.					
<i>Palafoxia arida</i> var. <i>gigantea</i> giant Spanish needles	-/-	1B.3	BLM Sensitive	Dunes	Not expected to occur.	No suitable dune habitat is present within the survey area. In addition, this perennial herb would have been observed during spring focused surveys.					
<i>Xylorhiza cognata</i> Mecca aster	-/-	1B.2	BLM Sensitive	Perennial herb; blooms Jan–June; creosote bush scrub; canyons; 65–787 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
<i>Xylorhiza orcuttii</i> Orcutt's woody aster	-/-	1B.3	BLM Sensitive	Perennial herb; blooms March–April; creosote bush scrub; canyons; 65–984 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					

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SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
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Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Boraginaceae - Borage Family											
<i>Cryptantha costata</i> ribbed cryptantha	-/-	-	4.3	Annual herb; blooms Feb–May; creosote bush scrub, sandy soil; <1,640 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused surveys.					
<i>Cryptantha holoptera</i> winged cryptantha	-/-	-	4.3	Annual herb; blooms March–April; creosote bush scrub, sandy soil; 328–3,937 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused surveys.					
Brassicaceae—Mustard Family											
<i>Lyrocarpa coulteri</i> var. <i>palmeri</i> Coulter's lyrepod	-/-	-	4.3	Perennial herb; blooms April–Dec; creosote bush scrub; dry slopes, gravelly flats, and washes; <1,969 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					

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SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Cactaceae—Cactus Family											
<i>Cylindropuntia echinocarpa</i> [= <i>Opuntia wigginsii</i>] Wiggins' cholla	-/-	3.3	-	Shrub; creosote bush scrub.	Not expected to occur. No suitable habitat present.	Not expected to occur. This species would have been observed during focused rare plant surveys.					
<i>Cylindropuntia wolfii</i> [= <i>Opuntia wolfii</i>] Wolf's' cholla	-/-	4	-	Shrub; blooms April–May; Alluvial fans and rocky slope in Sonoran desert scrub.	Not expected to occur. This species would have been observed during focused rare plant surveys.	Observed. A total of 9 individuals were observed within the survey area in desert wash vegetation.	Not expected to occur. This species would have been observed during focused rare plant surveys.				
Euphorbiaceae—Spurge Family											
<i>Chamaesyce abramsiana</i> Abram's sandmat	-/-	2.2	-	Annual herb; blooms Sept–Nov; creosote bush scrub; <656 ft.	Not expected to occur. No suitable habitat present.	Potential to occur. This annual herb would not have been detectable during the spring focused surveys.					

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IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Euphorbiaceae—Spurge Family (cont.)											
<i>Chamaesyce arizonica</i> Arizona sandmat	-/-	2.3	-	Perennial herb; blooms March–April; creosotebush scrub; <984 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
<i>Chamaesyce platysperma</i> flat-seeded spurge	-/-	1B.2	BLM Sensitive	Annual herb; blooms May; dunes & sandy areas; <328 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused surveys.					
<i>Croton wigginsii</i> Wiggins' croton	-/CR	2.2	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; dunes; <328 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
<i>Ditaxis serrata</i> var. <i>californica</i> California ditaxis	-/-	3.2	-	Perennial herb; blooms April–Nov; creosote bush scrub; <656 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					

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IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Euphorbiaceae—Spurge Family (cont.)											
<i>Tetracoccus hallii</i>	-/-	4.3	-	Shrub; blooms March–May; creosote bush scrub; rocky slopes and washes; <3,937 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
Fabaceae—Legume Family											
<i>Astragalus crotolariae</i> Salton milkvetch	-/-	4.3	-	Perennial herb; blooms Jan–April; creosote bush scrub; 60–250 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during focused rare plant surveys.					
<i>Astragalus insularis</i> var. <i>harwoodii</i> Harwood's milkvetch	-/-	2.2	-	Annual herb; blooms Jan–May; desert dunes; open sandy flats or stony desert washes; mostly in creosote bush scrub.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					

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SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Fabaceae—Legume Family (cont.)											
<i>Astragalus lentiginosus</i> var. <i>borreganus</i> Borrego milkvetch	-/-	4.3	-	Annual herb; blooms March–May; creosote bush scrub, sandy areas; 98–820 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
<i>Astragalus magdalena</i> var. <i>peirsonii</i> Peirson's milkvetch	FT/CE	1B.2	BLM Sensitive	Perennial herb; blooms Dec–April; dunes; 164–656 ft.	Not expected to occur.	There is no suitable dune habitat within the survey area. In addition, this perennial herb would have been observed within the survey area during focused rare plant surveys.					
<i>Lotus haydonii</i> pygmy lotus	-/-	1B.3	BLM Sensitive	Perennial herb; blooms March–June; creosote bush scrub; 1,969–3,937 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This perennial herb would have been observed during spring focused surveys.					
<i>Lupinus excubitis</i> var. <i>medius</i> Mountain Springs bush lupine	-/-	1B.4	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; desert washes; <3,281 ft.	Not expected to occur.	This perennial shrub would have been observed during focused rare plant surveys.					

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IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Fabaceae—Legume Family (cont.)											
<i>Parkinsonia microphylla</i> [= <i>Cercidium microphyllum</i>] yellow paloverde	-/-	4.3	-	Tree; blooms April–May; creosote bush scrub.	Not expected to occur. This tree would have been observed during focused rare plant surveys.						
Lamiaceae—Mint Family											
<i>Salvia greatae</i> lavender sage	-/-	1B.3	BLM Sensitive	Shrub; blooms March–April; creosote bush scrub; alluvial slopes; 98–787 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						
<i>Teucrium cubense</i> ssp. <i>depressum</i> small coastal germander	-/-	2.2	-	Annual herb; blooms March–May; creosote bush scrub, sandy areas; <797 ft.	Not expected to occur.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					
Lennoaceae—Sand Food Family											
<i>Pholisma sonora</i> sandfood	-/-	1B.2	BLM Sensitive	Perennial parasitic herb; blooms April–May; dunes; <656 ft.	Not expected to occur. There is no suitable dune habitat within the survey area. In addition, this species would have been observed within the survey area during spring focused rare plant surveys.						

APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Loasaceae—Blazing Star Family											
<i>Mentzelia hirsutissima</i> hairy stickleaf	-/-	2.3	-	Annual herb; blooms April–May; creosote bush scrub; washes, fans, and slopes; <1,969 ft.	Not expected to occur. No suitable habitat present.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					
<i>Mentzelia tridentata</i> dentate blazing star	-/-	1B.3	BLM Sensitive	Annual herb; blooms April–May; creosote bush scrub; 2,296–3,280 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					
Malvaceae—Mallow Family											
<i>Horsfordia alata</i> pink velvet mallow	-/-	4.3	-	Shrub; blooms April and Nov–Dec; creosote bush scrub; rocky canyons and washes; 328–1,640 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.						

APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Malvaceae—Mallow Family (cont.)											
<i>Horsfordia newberryi</i> Newberry's velvet mallow	-/-	4.3	-	Perennial herb; blooms March–April and Nov–Dec; creosote bush scrub; 328–2,625 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring rare plant focused surveys.					
<i>Herrisantia crispa</i> bladder mallow	-/-	2.3	-	Annual or perennial herb; creosote bush scrub.	Not expected to occur. No suitable habitat.	Low potential to occur. This species would have been observed during spring rare plant focused surveys.					
Martyniaceae—Unicorn Plant Family											
<i>Proboscidea althaeifolia</i> devil's claw	-/-	4.3	-	Perennial herb; blooms in fall; desert washes within creosote bush scrub; <3,281 ft.	Not expected to occur. No suitable habitat.	Potential to occur in desert wash habitat within the survey area.	Low potential due to the lack of desert wash vegetation.	Potential to occur in desert wash habitat within the survey area.	Low potential to occur due to the lack of desert wash vegetation.		

APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Nyctaginaceae - Four O'Clock Family											
<i>Mirabilis tenuiloba</i> slender lobed four o'clock	-/-	4.3	-	Perennial herb; blooms March–May; creosote bush scrub; rocky slopes; <1,640 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring rare plant focused surveys.					
Onagraceae—Evening Primrose Family											
<i>Camissonia arenaria</i> Fortuna Range suncup	-/-	2.2	-	Annual or perennial herb; creosote bush scrub; rocky slopes; <1,411 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This herb would have been observed during spring rare plant focused surveys.					
Polemoniaceae—Phlox Family											
<i>Ipomopsis tenuifolia</i> slenderleaf skyrocket	-/-	2.3	-	Perennial herb; blooms March–May; creosote bush scrub; gravelly to rocky slopes and canyons; 328–3,937 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring rare plant focused surveys.					

APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Poaceae—Grass Family											
<i>Imperata brevifolia</i> satintail	-/-	2.1	-	Perennial grass; blooms Sept–May; creosote bush scrub; <1,640 ft.	Not expected to occur. This perennial rhizomatous grass would have been observed during focused rare plant surveys.						
Polemoniaceae—Phlox Family											
<i>Ipomopsis effusa</i> Baja California ipomopsis	-/-	2.1	-	Annual herb; alluvial fans.	Not expected to occur. No suitable habitat.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					
Polygonaceae—Knotweed Family											
<i>Nemacaulis denudata</i> var. <i>gracilis</i> slender woolly heads	-/-	2.2	-	Annual herb; blooms March–May; dunes; <1,312 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This annual herb would have been observed during spring focused rare plant surveys.					

APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence							
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7	
Rafflesiaceae—Rafflesia Family												
<i>Pilostyles thurberi</i> Thurber's pilostyles	-/-	4.3	-	Perennial herb (parasitic); blooms January; Sonoran desert scrub; sandy alluvial plains; <984 ft.	Not expected to occur. No suitable habitat.	Detected on 6 Emory's indigo bush shrubs within the survey area.	Potential to occur. This parasite was not detected on any <i>Psorothamnus</i> spp. within the survey area.					
Rhamnaceae—Buckthorn Family												
<i>Colubrinia californica</i>	-/-	2.3	-	Shrub; blooms April–May; creosote bush scrub; <3,281 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.							
<i>Condalia globosa</i> var. <i>pubescens</i> spiny crucillo	-/-	4.2	-	Shrub; blooms March–April; creosote bush scrub; <3,281 ft.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.							

APPENDIX A
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (CONT.)

Family/Species	Federal /State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence						
					IV South (R-2)	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
Selaginellaceae—Spikemoss Family											
<i>Selaginella eremophila</i> desert spike moss	-/-	2.2	-	Perennial fern; creosote bush scrub; shaded crevices and rocky places; <2,953 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring focused rare plant surveys.					
Solanaceae—Nightshade Family											
<i>Lycium parishii</i> Parish's desert thorn	-/-	2.3	-	Shrub; blooms March–April; Sonoran desert scrub; sandy–rocky slopes and canyons; <3,281 ft.	Not expected to occur. No suitable habitat.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.	Observed. 2 shrubs were observed within desert wash habitat.	Not expected to occur. This perennial shrub would have been observed during focused rare plant surveys.			
Sterculiaceae—Cocoa Family											
<i>Ayenia compacta</i> desert ayenia	-/-	2.3	-	Perennial herb/shrub; blooms March–April; washes and dry rocky canyons; <1,640 ft.	Not expected to occur. No suitable habitat.	Low potential to occur. This perennial herb would have been observed during spring focused rare plant surveys.					

See notes on next page.

FEDERAL LISTED PLANTS

FE = Federally listed endangered

STATE-LISTED PLANTS

CE = State-listed endangered
CR = State-listed rare

CALIFORNIA NATIVE PLANT SOCIETY LISTS

- 1A = Species presumed extinct.
- 1B = Species rare, threatened, or endangered in California and elsewhere; eligible for state listing.
- 2 = Species rare, threatened, or endangered in California but more common elsewhere; eligible for state listing.
- 3 = Species for which more information on distribution, endangerment, and/or taxonomic information is needed.
- 4 = A watch list of species of limited distribution, that need to be monitored for changes in population status.

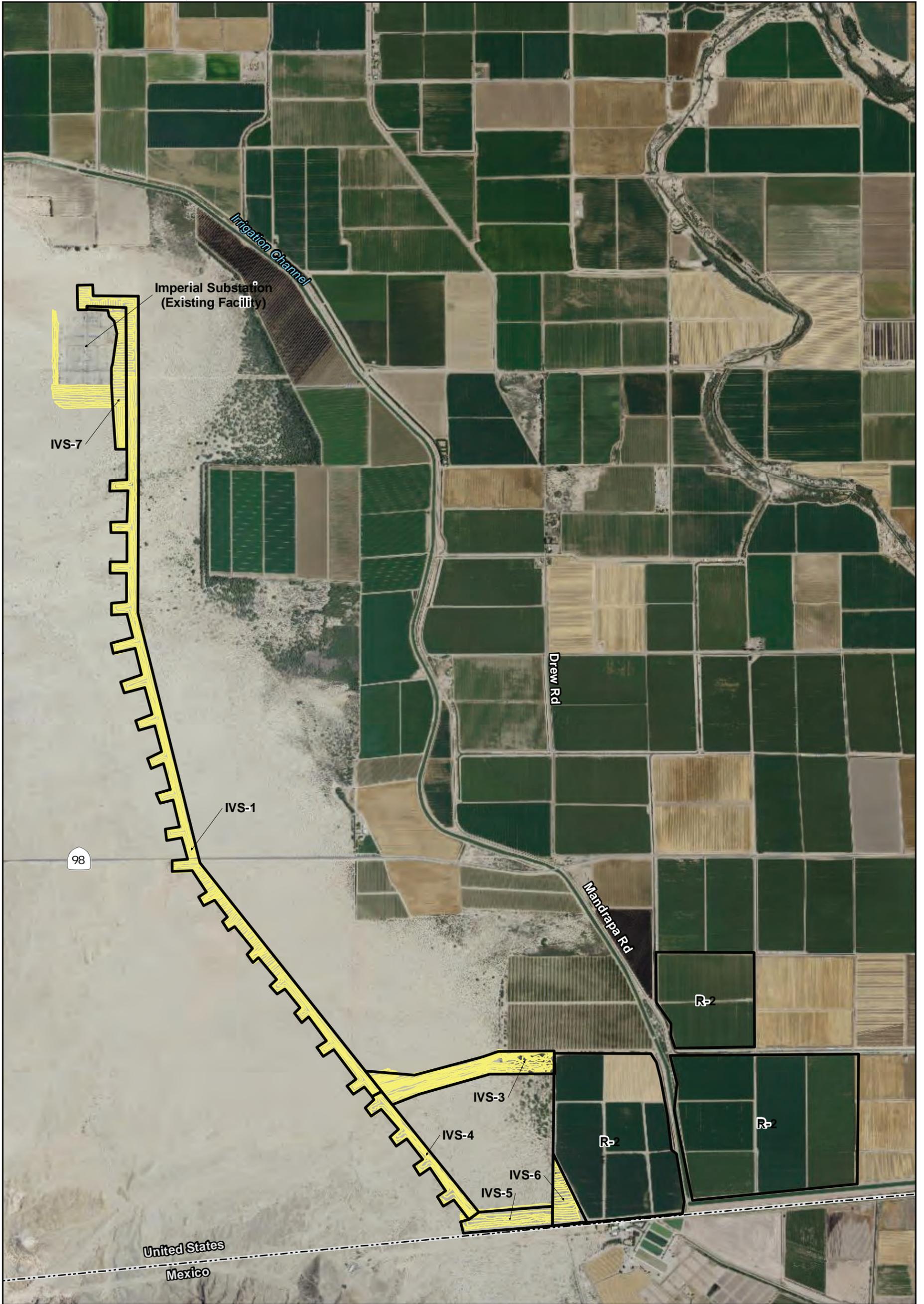
BUREAU OF LAND MANAGEMENT

Sensitive = Identified as BLM sensitive

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APPENDIX B
TRACK LOG

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0 Feet 2,250

- Survey Area
- Track Logs

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APPENDIX C
RESUMES FOR FIELD PERSONNEL

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Carianne Funicelli Campbell

Vegetation Ecologist



Highlights

- ✓ Excellent relationships with local, state, and federal resource and regulatory agencies
- ✓ Knowledge of ESA and NEPA
- ✓ Design and implementation of habitat restoration projects

Experience:

11 years

Education:

Bachelor of Arts, Botany,
Prescott College 1998

Awards:

Prescott College Desert
Star 2002

Permits:

USFWS Permit #TE-797665 to conduct focused surveys and nest monitoring under supervision for California Coastal Gnatcatcher, Least Bell's Vireo Nest Monitoring, Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, Southwestern willow Flycatcher, and Pacific Pocket Mouse.

USFWS Permit #TE-103480 for conduct independent surveys for Cactus Ferruginous Pygmy-Owl, Desert Tortoise, Chiricahua leopard frog and Sonora tiger salamander

Experience Summary

Ms. Campbell specializes in developing vegetation ecology methodologies, designing habitat restoration projects, and completing NEPA and Endangered Species Act (ESA) documents for a variety of federal, state, and local agencies. Ms. Campbell has extensive experience surveying and documenting plant species and communities in Arizona, New Mexico, Colorado, Nevada, and California. She makes appropriate native plant landscaping recommendations, prepares native plant preservation plans, designs habitat restoration projects including maintenance and monitoring plans, and communicates findings with various clients and natural resource agencies on a project-specific level.

Shell Canyon Mine Expansion Area Rare Plant Survey, Ocotillo, CA

Ms. Campbell conducted Fall 2009 and Spring 2010 surveys for rare plants at this 14-acre mine expansion site in the Lower Colorado River subdivision of the Sonoran Desert.

BLM Yuma Field Office Draft and Final Resource Management Plan (RMP) and Draft Environmental Impact Statement (EIS), Yuma, AZ

Ms. Campbell provided document review support and comment resolution during the production of this document, with particular attention to Chapter 3, Affected Environment. She attended an Interdisciplinary Team Meeting and provided input focused on vegetation resources. In addition, she developed a database to analyze nearly 1,500 public comments and identify public concerns for the BLM to address in the Final RMP/EIS.

Algodones Dunes Threatened and Endangered Plant Survey, CA

Ms. Campbell was a project biologist for a rare plant survey on the Algodones Dunes for the Imperial Irrigation District. She located dozens of individuals of rare plants, including sand food, Peirson's milkvetch, Algodones Dunes sunflower, Wiggin's croton, and giant Spanish needle.

Certifications/Trainings:

OSHA HAZWOPER, 40-Hour Certification, April 2003 and 8-hour Refresher, April 2004

Basic Wetland Delineation Training, July 2005

USFWS Biological Assessment Workshop, October 2005

Master Watershed Steward Training, Fall 2005

TxDOT Pre-certification for Protected Species Determination (Habitat) and Biological Surveys

Affiliations:

Arizona Native Plant Society, Board of Directors (2003 – 2005) and Conservation Chair (2003 – 2007)

Arizona Association of Environmental Professionals

Society for Ecological Restoration

Tucson Audubon Society Conservation Committee (2009 – present)

The Eglinton Preserve Road Restoration, North Las Vegas, NV

Ms. Campbell is working with the The Nature Conservancy to restore approximately 20 acres of upland and wash habitat directly impacted by illegal off-highway vehicle (OHV) use at The Eglinton Preserve (Preserve), located in the Upper Las Vegas Wash in North Las Vegas, Nevada. The restoration plan includes detailed specifications for all aspects of project implementation (including site preparation, topsoil and gravel salvage, biological crust salvage, seed collection and plant propagation, invasive species management, and installation) as well as maintenance and monitoring programs. Disturbance levels in the restoration areas range from minimal to extreme, and restoration prescriptions vary accordingly. Special site considerations include the presence of sensitive natural resources, including rare plants, paleontological resources, and desert tortoise habitat.

Riparian Plant Identification Handbook, Pima County, AZ

Ms. Campbell developed a Riparian Plant Identification Handbook for Pima County Regional Flood Control District (PCRFCDD). The guide included 50 common perennial plants of riparian areas in Pima County, and was intended to assist non-botanists, specifically PCRFCDD personnel, in the field assessment of riparian habitat mitigation implementation through proper identification of native and non-native species.

Invasive Species Management Program for the Marana Habitat Conservation Plan, Marana, AZ

RECON is preparing this HCP to support the Town of Marana's (Town) application to the USFWS for an Incidental Take Permit in conformance with Section 10(a)(1)(B) of the Federal ESA. The HCP will commit the Town to implement certain conservation actions that will avoid, minimize, and/or mitigate the impacts on specified species that could occur as a result of planned urban development and associated capital improvement projects expected to occur within the Town over the next 25 years. As part of the HCP implementation documentation, Ms. Campbell developed an Invasive Species Management Program for the planning area.

Biological Monitoring and Habitat Restoration Plan for the Lukeville Border Fence Project, Organ Pipe Cactus National Monument, AZ

Ms. Campbell served as project manager for the biological monitoring and restoration planning portion of this border fence project that traverses approximately five miles of environmentally sensitive lands at Organ Pipe Cactus National Monument. The USFWS Biological Opinion also requires 86 acres of Organ Pipe Cactus National Monument be restored as off-site mitigation for impact of the project on habitat and food plants for the lesser long-nosed bat. Ms. Campbell worked closely with NPS personnel to prepare the restoration plan for this effort.

Visitor Center Landscape Rehabilitation, Carlsbad Caverns National Park, Carlsbad, NM

Ms. Campbell served as the project manager for the installation of an underground irrigation system and over 2,000 native plants at the entrance of the new visitor center. Several mature plants were salvaged from areas using hand tools and large machinery as appropriate. The project occurred in an area of high visitor traffic, requiring frequent professional contact.

Cactus Forest Loop Road Revegetation, Saguaro National Park, Tucson, AZ

Ms. Campbell orchestrated the revegetation of over 100 sites after a repaving project at Saguaro National Park. The project involved the planting of over 3,000 salvaged and seed-grown native plants in a manner to match the surrounding landscape as closely as possible. Areas were hand-broadcast with locally-collected seed and plant materials were carefully tracked, including repeat photography, so that National Park Service (NPS) staff can continue to monitor the sites over time. Ms. Campbell prepared and implemented a project specific health and safety plan, and served as the project manager and health and safety officer.

Selected Papers and Presentations

Desert Horticulture Conference, 13th Annual Conference, May 2004. Threats to Urban Saguaros. Joint presentation with E. A. Pierson.
Desert Horticulture Conference, 15th Annual Conference, May 2006. Invasive Horticultural Plants. Joint presentation with B. Worthington and T. Bean.

Ecological Society of America, 87th Annual Meeting, August 2002. "Survival evaluation of transplanted saguaros in an urban

housing development and golf course development.” Tucson, Arizona.

Funicelli, C.S., P.J. Anning, and D.S. Turner. 2001. Long-term vegetation monitoring at Saguaro National Park: a decade of change. Technical Report No. 70, USGS Biological Resource Division, University of Arizona. 53 pp.

Harris, L.K., E.A. Pierson, C.S. Funicelli, W.W. Shaw, S. Morales, K. Hutton, and J. Ashbeck. 2004. Long-term study of preserved and transplanted saguaros in an urban housing and golf course development. *Desert Plants* 20(1): 33 – 42.

Southwestern Vegetation Management Association, 2006 Annual Conference, November 2006. Grow Native: Don't Plant a Pest. Casa Grande, Arizona.

Turner, D.S. and C.S. Funicelli. 2004. Demographic changes and epidermal browning in two protected populations of saguaro cactus (*Carnegiea gigantea*). *Desert Plants* 20(1): 16 – 23.

Rosen, P.C. and C.S. Funicelli. 2009. Conservation of Urban Amphibians in Tucson. Part I. *Sonoran Herpetologist* 22(10): 106 - 110.

Rosen, P.C. and C.S. Funicelli. 2009. Conservation of Urban Amphibians in Tucson. Part II. *Sonoran Herpetologist* 22(11): 118 - 122.

Hanson, M., D. Siegel, C. Funicelli, and A. Olsson. 2009. Sonoran Desert Weedwackers: A Model for Controlling the Spread of Invasive Grasses. In Van Devender, T.F., F.J. Espinosa-Garcia, B.L. Harper-Lore, and T. Hubbard (eds). *Invasive Plants on the Move: Controlling Them in North America*. Based on Presentations from Weeds Across Borders 2006 Conference in Hermosillo, Mexico, May 25-29, 2006. Arizona-Sonora Desert Museum, Tucson, Arizona.

Cheri Bouchér

Senior Biologist



Experience Highlights

- ✓ Project management
- ✓ Knowledge of local biological resources
- ✓ Biological mitigation site monitoring

Experience:

13 years

Education:

B.S. Environmental Resource Management/Range Ecology, Arizona State University

Permits:

USFWS Permit #TE-797665 to independently conduct surveys for Cactus Ferruginous Pygmy-Owl, Coastal California Gnatcatcher, Quino Checkerspot Butterfly, Vernal Pool Branchiopods, Endangered Vernal Pool and Upland Plants; under supervision for Coastal California Gnatcatcher and Least Bell's Vireo nest monitoring, Southwestern Willow Flycatcher and nest monitoring, Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, and Pacific Pocket Mouse

CDFG Scientific Collecting Permit #006137 for Insects, Rodents/Small Mammals, Reptiles/Amphibians

Experience Summary

Ms. Bouchér manages large and small scale biological resource projects, including the identification of sensitive biological resources in the field, the evaluation of project impacts on sensitive biological resources in accordance with CEQA and NEPA, and coordination with resource agencies to ensure efficient project compliance and approval. She conducts general biological assessments; vegetation mapping; focused surveys for endangered, threatened, and sensitive species; and monitoring in a variety of habitats in southern California. She has specific experience in botany, mammalogy, and ornithology, and has performed biological resource monitoring in a variety of habitats including desert habitats in southern California, Nevada, and Arizona.

SDG&E Sunrise Powerlink Species Surveys, San Diego and Imperial County, CA

SDG&E proposed to construct new 120-mile 500kV and 230kV electric transmission line between the existing Imperial Valley Substation and Sycamore Canyon Substation. RECON is conducted several of the plant and wildlife species surveys for this project. Ms. Bouchér is the task manager for the focused rare plant surveys, including Cleveland National Forester's sensitive species.

Mission to San Miguel 230-kV Transmission Line #2 Project, San Diego County, CA

Ms. Bouchér was RECON's lead biologist on this project and conducted general vegetation mapping, presence/absence coastal California gnatcatcher surveys, focused plant surveys, and focused fairy shrimp surveys. In addition, she updated technical reports in support of an environmental assessment for this 35-mile project in San Diego County. A portion of this project crosses Mission Trails Regional Park.

Borrego Airport Biological Survey, Borrego Springs, CA

Ms. Bouchér conducted biological surveys at the Borrego Valley Airport, on an approximately 18-acre parcel located immediately west of the Borrego Valley Airport and five airport improvement locations within the airport. Two

Certifications:

Certified for Flat-Tailed Horned Lizard Surveys, BLM

Annual Desert Tortoise Surveying, Monitoring, and Handling Techniques Workshop, Desert Tortoise Council

Affiliations:

Member, California Native Plant Society (CNPS)

vegetation communities were mapped on-site, including desert saltbush scrub and mesquite bosque. Based on the survey results, a biological resources letter report was prepared outlining the biological impacts for the proposed airport improvements.

SDG&E 230-kV Transmission Line Rebundling Project, San Diego, CA

Ms. Bouch r conducted flat-tail horned lizard (FTHL) surveys and monitoring during rebundling of a 230 kV transmission line from the Imperial Valley Substation to the U.S./Mexico border in Imperial County. The project consisted of replacing the wire on an existing electrical transmission line. As a monitor, Ms. Bouch r assisted SDG&E in avoiding direct impacts to the FTHL and minimizing impacts to the FTHL habitat.

All American Canal Rare Plant and Bird Habitat Assessments, Imperial County, CA

Ms. Bouch r participated in rare plant survey on the Algodones Dunes for the Imperial Irrigation District. She located dozens of individuals of rare plants, including sand food, Peirson's milkvetch, Algodones Dunes sunflower, Wiggin's croton, and giant Spanish needle. She also conducted a habitat assessment for 16 target sensitive bird species within the project boundary of the preferred alignment of the All-American Canal Lining Project. The project area is east of El Centro in Imperial County, California. The habitat assessment consisted of inspecting the vegetation communities, topography, and substrate present within the proposed impact area for the project. Focus species for the habitat assessment included least Bell's vireo, southwestern willow flycatcher, and western burrowing owl.

Iron/Manganese Potable Water Treatment Plant, MCB Camp Pendleton, CA

Ms. Bouch r conducted focused surveys for the federally listed threatened CAGN and various sensitive plant species in accordance with USFWS protocol on this fifty-acre site.

Biological Studies on the Desert Bighorn Sheep Habitat Along the Colorado River, AZ

For the Arizona Game & Fish Department/USFWS Imperial and Cibola Wildlife Refuges, Ms. Bouch r conducted biological studies on the desert bighorn sheep habitat along the Colorado River in southwestern Arizona. The studies focused on feral burrow use of vegetation in the desert bighorn sheep habitat.

Mike Nieto

Project Biologist/Botanist



Experience Highlights

- ✓ Conducts botanical and wildlife surveys
- ✓ Knowledge of local biological resources
- ✓ Vernal Pool wetland delineation
- ✓ Rare plant surveys
- ✓ Arroyo Toad Monitoring
- ✓ Bullfrog control on the Santa Margarita River

Experience

10 years

Education

B.S., General Biology,
University of California
San Diego, 2000

Permits/ Trainings

**Wetland Delineation
Training (WTI)**

**Arid West Supplement
Seminar (WTI)**

**Native Grass
Identification (RSABG)**

**Rare Plants of
Cismontane Southern
California (RSABG)**

**SDNHM Native Plant
Identification
Workshops
(Boraginacea,
Euphorbiacea)**

Affiliations:

California Native Plant
Society (CNPS)

Experience Summary

Mr. Nieto is a biologist on RECON's Agency team. He conducts habitat assessments, monitoring, and general surveys in a variety of habitats in southern California. Mr. Nieto specializes in botany, wetland assessments, and herpetology. In addition, he has experience mapping vegetation and sensitive species habitats, monitoring construction activities, and preparing biological technical documentation.

2009 Rare Plant Survey Report for the SDG&E Sunrise Powerlink Project, San Diego and Imperial County, CA

Survey coordination, implementation, and report of CNPS List 1B and 2 rare plants along 120 linear mile transmission line project. Rare plants ranged from Sonoran desert to cismontane foothills.

Draft 2009 Rare Plant Report for the Mountain Springs Grade Segment of the SDG&E Sunrise Powerlink Project, Jacumba, CA

Survey and reporting of CNPS List 1B and 2 rare plants within desert transitional scrub at the Mountain Springs Grade.

Draft 2009 Weed Control Plan for the Environmentally Superior Southern Route of the SDG&E Sunrise Powerlink Project, San Diego and Imperial Counties, CA

Survey coordination, implementation, and report of Cal-IPC moderate and high weeds along 120 linear mile transmission line project. Weed study ranged from Sonoran desert to cismontane foothills.

SDG&E Preactivity Survey Reports (PSR), San Diego, CA

Completed nine SDG&E PSRs in San Diego County.

Environmental Constraints Report for West and Northwest Areas of Montgomery Field Airport, San Diego, CA

Analysis of biological resources and recommendations within a vernal pool complex on a public airfield. City of San Diego.

Jurisdictional Delineation Report for Montgomery Field, San Diego, CA

Vernal pool delineation and classification on a public airfield. City of San Diego.

Draft Biological Technical Report for the MYF Localizer Project at Montgomery Field, San Diego, CA

Impact analysis and mitigation plan for vernal pools and San Diego Fairy Shrimp on Montgomery airfield.

Alvarado Court Sewer Pipe Crossing Accelerated Revegetation/Erosion Control Plan, San Diego, CA

Plan to revegetation urban canyon following sewer replacement. City of San Diego.

Letter Report for the Biological Resources Monitoring for the Borrego Valley Improvement Sites, San Diego, CA

Construction monitoring report for airfield improvements in Borrego Valley. County of San Diego.

Arroyo Toad Monitoring, MCB Camp Pendleton, CA

Mark-Release-Recapture (MRR) studies on Santa Margarita River, MCB Camp Pendleton. Construction monitoring, pit fall trap and drift fence installation, Passive Integrated Transponder (PIT) tag installation.

Gerry Scheid

Senior Biologist/Permitting Specialist



Highlights

- ✓ Expertise in wetland delineations, and USACE and CDFG permitting
- ✓ Excellent relationships with resource and regulatory agencies
- ✓ Understanding of local biological resources

Experience

27 years

Education

M.S., Ecology, San Diego State University, 1986

B.S., Biology, Arizona State University, 1979

Permits/ Certifications & Trainings

USFWS Permit # TE-797665 to independently collect Endangered Vernal Pool and Upland Plants; under supervision for Coastal California Gnatcatcher and vernal pool branchiopod surveys

CDFG Scientific Collector's Permit for Rare and Endangered Plants

County of San Diego Approved CEQA Consultants List - Biological Resources

Wetland Delineation in Southern California Training, Southern California Chapter of The Wildlife Society

Arid West Supplement Training, Wetland Training Institute

Experience Summary

Mr. Scheid specializes in wetlands issues, conducts jurisdictional wetland delineations according to U.S. Army Corps of Engineers (USACE) methodologies, and has assisted clients in securing project approvals from USACE under nationwide permits and individual permits under Section 404 of the Clean Water Act, CDFG under Section 1600 of the Fish and Game Code, and from the Regional Water Quality Control Board under Section 401 of the Clean Water Act. He plays a major role in all phases of the permit process, from the preparation of biological assessments as part of Section 7 consultations with the USFWS, to preparing permit applications, and negotiating with state and federal agencies.

Mr. Scheid has delineated wetlands and atypical wetlands according to USACE methods, including using the recent interim supplement for the arid west, assessed USACE jurisdiction over non-wetland waters of the U.S. using the significant nexus analysis, and prepared mitigation plans according to USACE guidelines. He maintains an excellent working and negotiating relationship with regulatory staff, and his field surveys, delineations, maps, applications, and written documents are well respected.

Sunrise Powerlink Rare Plants Surveys, San Diego, CA

SDG&E proposed to construct a new electric transmission line between the existing Imperial Valley Substation and Sycamore Canyon Substation and other related system modifications. The entire project traverses approximately 120 miles between the El Centro area of Imperial County and southwestern San Diego County. Mr. Scheid is conducting rare plant surveys at designated locations along the route.

Superior Ready Mix Rock Fall Wetland Delineation, San Diego

This project involved an accidental rock fall that resulted in impacts to the San Diego River and City of San Diego sewer line at the Superior Ready Mix quarry in Mission Gorge. Mr. Scheid conducted biology resource surveys and a wetland delineation, and prepared the associated technical reports. Mr. Scheid prepared after the fact permits (i.e., 404, 401, 1603, Section 7 ESA) and

negotiated with the resource agencies. A mitigation plan for the creation and restoration of riparian wetland habitats on the San Diego River was also prepared. San Diego.

Wetland Delineation for MILCON P-010/030, MCB Camp Pendleton, CA

Mr. Scheid conducted a jurisdictional wetland and waters of the U.S. delineation on the Santa Margarita River according to USACE Guidelines for alternative alignments of a proposed levee and spur dikes. Mr. Scheid used the hydrogeomorphic model (HGM) to derive the relative habitat values to be used in the envelopment of mitigation options.

RiverPark Project, San Diego, CA

This proposed project was the redevelopment of a sand/rock quarry to a mixed-use (i.e., residential, commercial, open space) located adjacent to the San Diego River. Mr. Scheid conducted biological resource surveys, wetland resource surveys, focused sensitive species surveys, and prepared the report.

Santa Margarita Creek Wetland Delineation, MCB Camp Pendleton, CA

Mr. Scheid conducted a comprehensive wetland delineation along levees of Santa Margarita Creek to be used in the subsequent 404 permitting process.

Town and Country Hotel Parking Lot Expansion, San Diego, CA

Mr. Scheid conducted biological resource surveys and wetland delineation for the parking lot expansion at the Town and County Hotel located adjacent to the San Diego River. The project involved coordination with the resource agencies and City Attorney's office.

As-Needed Consultant Services, Padre Dam Municipal Water District

Mr. Scheid has provided expertise in wetlands and permitting assistance on several task orders under RECON's as-needed environmental services contract with the District. Specific projects include 401, 404 and 1601 permits for Willow Grove Sewer Line project; 401, 404 and 1601 permits for Harbison Canyon Pipeline; and 1601 and 401 permits for Dunbar Lane Water Main Extension.

El Camino Real Road Widening, San Diego, CA

The proposed project was the widening of a two lane segment of El Camino Real Road to four lanes. Mr.

Scheid completed a wetland delineation, prepared the report, and prepared the biological resources report.

Wildcat Canyon Road Enhancement Wetland Delineation, San Diego, CA

The proposed project was the widening of Wildcat Canyon Road to improve traffic conditions along this county road. Mr. Scheid completed a wetland delineation, prepared the report, and assisted with impact analysis for the biological resources report.

Calavera Hills Master Plan Phase II Wetland Delineation and Permits, San Diego, CA

Mr. Scheid prepared applications for a Section 404 permit from the USACE, a 1601/1603 Streambed Alteration Agreement from the CDFG, and a State Water Quality Certification (Section 401) from the Regional Water Quality Control Board.

Black Mountain Ranch/Santa Luz Wetland Delineation and Permits, San Diego, CA

Mr. Scheid prepared a 404 permit application that included a 404(b)(1) guidelines alternatives analysis and a 1603 Streambed Alteration Agreement application package.

Calleguas Creek Biology/Wetlands Update, San Diego, CA

Mr. Scheid provided technical assistance in negotiations with the resource agencies pursuant to the Section 404 permit and 1603 agreements.

Calavera Hills Master Plan and Detention Basins Wetland Delineation and Permits, San Diego, CA

Mr. Scheid prepared permit applications for a Section 404 permit from the USACE, a 1601/1603 Streambed Alteration Agreement from the CDFG, and a State Water Quality Certification (Section 401) from the Regional Water Quality Control Board.

SR-125 South Biology Studies and Wetland Delineation, San Diego, CA

Mr. Scheid mapped vegetation and surveyed for sensitive plant species along the alignment, including directed searches for the Otay tarplant. For the Citizen's Advisory Committee alignment, he delineated wetland boundaries of vernal pools south of Sweetwater Reservoir and at various creek locations along the alignment in accordance with USACE methods.

Peter Dolan

Biologist



Experience Highlights

- ✓ Conducts general plant and wildlife surveys and focused surveys for rare species
- ✓ Skilled in identification of general and rare plants
- ✓ Knowledge of local biological resources

Experience:

9 years

Education:

M.S. Plant Ecology,
Georgia Southern
University, 2002

B.S., Biology, Salisbury
State University,
Maryland, 1998

Permits/ Trainings:

Building Geodatabases,
ESRI, Redlands, Ca 2007

Native Grass and Oak
Identification Workshop
(RSABG), 2008

SDNHM Native Plant
Identification Workshop
(Boraginacea), 2008

Southwestern Willow
Flycatcher Workshop,
Kern River Research
Center, 2009

Experience Summary

Mr. Dolan is a biologist on RECON's Federal Team. He specializes in habitat restoration and his responsibilities include habitat assessment; mitigation and restoration planning; and restoration implementation, maintenance, and monitoring. Mr. Dolan develops conceptual upland, wetland, and species-specific mitigation plans that include grading, irrigation, and planting, as well as enhancement, monitoring, and maintenance activities. He assists in conducting general biological surveys including rare plant, invasive weed mapping, herpetological, avian, mammal, and botanical surveys. Mr. Dolan also assists in conducting wetland delineations according to USACE, CDFG, California Coastal Commission, City of San Diego, and County of San Diego protocols.

SDG&E Sunrise Powerlink Rare Plant Surveys

Mr. Dolan conducted rare plant surveys in support of the San Diego Gas & Electric Sunrise Powerlink project. Mr. Dolan specifically conducted surveys in desert transition habitat to Sonoran desert flatlands within the Inkopah grade east of Ocotillo, CA and in chaparral near Alpine, CA.

City of El Centro Fire Department and Park Development Site, El Centro, CA

Mr. Dolan surveyed for sensitive plants, mapped vegetation communities, and recorded general wildlife and plant species on 6 acres within the City of El Centro, proposed for the development of a new fire station and public park.

Vegetation Surveys for the BLM Kingman District Field Office, Kingman, AZ

Mr. Dolan provided botanical and plant utilization surveys in assistance for management decisions by BLM Kingman District Field Office grazing allotment and natural resource land managers. Mr. Dolan conducted rare plant surveys with the BLM Arizona state botanist within BLM Kingman District Field Office region and independently reorganized and digitally categorized herbarium collections encompassing the Sonoran, Colorado Plateau, and Mojave desert regions for the BLM Kingman District Field Office.

Permits/ Trainings continued:

USFWS Permit #TE-797665 under supervision for Least Bell's Vireo nest monitoring, California gnatcatcher surveys and nest monitoring, San Bernardino kangaroo rat surveys, Pacific pocket mouse surveys, and Quino checkerspot butterfly surveys

USFWS Permit #TE-134338 under supervision to conduct surveys for Quino checkerspot butterfly

Affiliations:

California Native Plant Society, 2009

Society for Ecological Restoration California Chapter, 2007

International Erosion Control Association, 2005

Georgia Coastal Plain Native Plant Society, 2002

Georgia Plant Conservation Alliance, 2002

Mr. Dolan implemented a protocol for both local and interagency collaboration concerning the documentation, monitoring, and disposal of invasive species.

EI Portrero Prescribed Burn Fuels Management NEPA EA and Habitat Assessment for SKR, BLM Palm Springs-South Coast Field Office, CA

Mr. Dolan conducted biological surveys in support of the EI Portrero fuels modification project to reduce the unwanted effects of wildfires on targeted areas and resources within the BLM Palm Springs-South Coast field Office area.

Survey work included vegetation mapping, general plant and wildlife surveys, rare plant survey, and habitat assessments for SKR and burrowing owl.

Gavilan Hills Management NEPA EA and Habitat Assessment for SKR, BLM Palm Springs-South Coast Field Office, CA

Mr. Dolan is providing general biological surveys and habitat assessments in support of the Gavilan Hills Fuels modification project to reduce the unwanted effects of wildfires on targeted areas and resources within the BLM Palm Springs-South Coast Field Office area.

Natural Land Community and Ecological System Identification Surveys for the Nevada portion of the Southwest Regional Gap Analysis Project (SWReGAP)

Mr. Dolan conducted vegetation and land cover classification surveys throughout the state of Nevada. Vegetation surveys ranged throughout the Mojave, Great Basin, and Eastern Sierra Nevada. Backcountry survey coverage included the Alta Toquima, Arc Dome, Jarbidge, Mt. Rose, and Ruby Mountain Wilderness Areas.

Restoration Projects Coordinator, Ft. Irwin, CA

Prior to joining RECON, Mr. Dolan served as Restoration Projects Coordinator at Ft. Irwin for five years. He provided technical support to plan and execute land restoration projects involving revegetation, road stabilization, hydrologic diversions, water bars, sediment basins, critical area stabilization, seeding, monitoring and other associated conservation measurements to improve land conditions. He assessed rehabilitation project requirements ranging from heavy earth moving equipment to basic logistical needs. Mr. Dolan also provided support necessary to maintain compliance with regulatory issues effecting Land Rehabilitation and Maintenance (LRAM) projects such as federal, state and local sedimentation laws, NEPA, OSHA, and EPA.

Beth Procsal

Biologist



Highlights

- ✓ Knowledge of local biological resources
- ✓ Threatened and Endangered Species surveys and monitoring

Experience:

7 years

Education:

B. S. Biological Sciences,
San Diego State
University

Permits/Trainings:

USFWS Permit #TE-797665 to conduct surveys and nest monitoring independently for California Coastal Gnatcatcher, and under supervision for Southwestern Willow Flycatcher, Quino Checkerspot, and Least Bell's Vireo nest monitoring, Stephens' Kangaroo Rat, San Bernardino Kangaroo Rat, and Pacific Pocket Mouse surveys

Southwestern Willow Flycatcher Workshop, Kern River Research Center, 2007

SDG&E NCCP Training

Affiliations:

Member, San Diego Audubon Society

Member, American Ornithological Union

Experience Summary

Ms. Procsal is responsible for conducting habitat assessments, monitoring, vegetation mapping, and focused surveys for endangered, threatened, and sensitive species in a variety of habitats in southern California. She prepares biological technical reports to document findings and uses GPS to map vegetation and sensitive species habitats.

Ms. Procsal also has experience with Monitoring Avian Productivity and Survivorship (MAPS) during the 2002 and 2003 field seasons. As a bird bander with the USGS – MAPS Program, she assisted in setting up and taking down nets, removing birds from the nets, banding birds, and identifying bird species. She also processed birds caught in the nets collecting age, sex, reproductive status, and morphometric data.

Ms. Procsal's representative project experience includes:

- Raptor Nest Survey for the Castlerock Development, San Diego, CA
- Otay Generating Plant Project Western Burrowing Owl and Coastal California Gnatcatcher Surveys, San Diego, CA
- SDG&E Access for Switch Replacement, P95709, Del Mar, Construction Monitoring
- USGS – MAPS Program, De Luz and Santa Margarita locations
- Waterfowl Foraging Study Evaluating the Relationship Between Diet Type and Length of Diving Intervals, San Diego, CA
- Tracking Study to Determine if Coyotes (*Canis latrans*) Still Live in San Diego Urban Canyons, San Diego, CA
- Coastal California Gnatcatcher Surveys, MCAS Miramar, CA
- USACE San Luis River Arroyo Toad Surveys, CA
- Western Burrowing Owl Protocol Surveys, Christensen Ranch, Riverside, CA

- Least Bell's Vireo and Southwestern Willow Flycatcher Surveys, Naval Base, San Diego, CA
- Arroyo Toad Surveys at San Vicente Creek, Ramona, CA
- Least Bell's Vireo and Coastal California Gnatcatcher Surveys, Canyon Crest Project, Oceanside, CA
- Santa Ana River Alignment Least Bell's Vireo Surveys, Riverside, CA
- Light-footed Clapper Rail Protocol surveys, MCB Camp Pendleton, CA
- Superior Ready Mix Project Least Bell's Vireo and Coastal California Gnatcatcher Surveys protocol surveys, San Diego, CA
- Carmel Valley Neighborhood 10 Project Coastal California Gnatcatcher Protocol Surveys, San Diego, CA
- Lawson Valley Road Bridge Project Arroyo Toad Protocol Surveys, Jamul, CA
- Sycamore Landfill Project Coastal California Gnatcatcher Protocol Surveys, Santee, CA
- Sorrento Valley Point Sewer Plant Project Coastal California Gnatcatcher Protocol Surveys, San Diego, CA
- El Camino Real Road Widening Project Coastal California Gnatcatcher Protocol Surveys, San Diego, CA
- Natural Resources Inventory Point Count Surveys Naval Base, San Diego, CA
- San Elijo Lagoon Nature Center CSS Planting Plan Project Coastal California Gnatcatcher Protocol Surveys, San Diego, CA
- Greenfield Village (formally California Terraces Unit 13 & 14) Biological Construction Monitoring, San Diego, CA
- Bella Lago Biological Construction Monitoring, Chula Vista, CA
- Pacific Highlands Ranch Mitigation and Revegetation Monitoring, San Diego, CA
- Shaw Lorenz Biological Construction Monitoring, San Diego, CA
- Carmel Valley Neighborhood 10 Project Mitigation and Revegetation Monitoring, San Diego, CA

Karyl Palmer

Environmental Analyst

Highlights

- ✓ NEPA experience
- ✓ Conducts acoustical and air quality studies
- ✓ Knowledge of applicable regulations

Experience:

2 year

Education:

Master of Science in Environmental Engineering, National University, La Jolla, CA 2006

B. A. Marine Science, University of San Diego, CA, 2002

Permits/Certifications:

San Diego REBRAC - Cuyamaca College, OSHA 40 Hour Hazwoper Certification and OSHA 8 Hour Refresher Training, 2007 & 2008

Affiliations:

San Diego Coastkeeper, Water Monitoring Training, 2008

Association of Environmental Professionals, San Diego Chapter, Student Member, 2004-2005

Association of Environmental Professionals Fall 2004 CEQA Basic Workshop

Experience Summary

As an environmental analyst, Ms. Palmer prepares CEQA and NEPA compliance documents for large- and small-scale projects throughout southern California. She is responsible for document preparation, research, issue analysis, report writing, and client coordination. She prepares accurate and thorough environmental documents within the limits of the project budget and schedule.

Representative Projects:

- ◆ San Luis Rey River Stream Bioassessment Surveys, San Diego County, CA
- ◆ San Luis Rey River Population Monitoring and Vegetation Use Data Collection, San Diego County, CA
- ◆ San Luis Rey River Flood Conveyance Mowing Biological Monitoring, San Diego County, CA
- ◆ Adaptive Habitat Management Plan for the San Luis Rey River, San Diego County, CA
- ◆ San Mateo Creek Restoration Project at the Marine Corps Base Camp Pendleton, San Diego County, CA
- ◆ Talega Creek Restoration Project at the Marine Corps Base Camp Pendleton, San Diego County, CA
- ◆ Draft Environmental Initial Study Raw Water Pump Station Upgrades and Slope Stabilization Project, San Diego County, CA
- ◆ Pre-activity Survey Reports in Support of SDG&E's Natural Communities Conservation Plan for Various Operations and Maintenance Activities
- ◆ Noise Analysis for the Tavern Road Drainage Improvement Project, San Diego, CA
- ◆ Integrated Natural Resources Management Plan for Naval Air Facility El Centro, El Centro, CA
- ◆ Air Quality Analysis for the Final Negative Declaration for the Whitegates I Reservoir Demolition Project, Riverside, CA
- ◆ Noise Analysis for the Final Negative Declaration for the Whitegates I Reservoir Demolition Project, Riverside, CA

- ◆ Air Quality Analysis For Final Mitigated Negative Declaration for the City of Riverside, Expanded Gage Exchange Project, Riverside, CA
- ◆ Noise Analysis For Final Mitigated Negative Declaration for the City of Riverside, Expanded Gage Exchange Project, Riverside, CA
- ◆ Air Quality Analysis for the Alvarado Apartments Project, San Diego, CA
- ◆ Environmental Assessment for the Dulzura Fuel Break; Bureau of Land Management, San Diego County, CA
- ◆ BLM South Coast Resource Management Plan/EIS, Southern California
- ◆ Draft EIR for Tiered Winery Zoning Ordinance Amendment , San Diego, CA

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Imperial Solar Energy Center South

Appendix I-3

Burrowing Owl Nesting Season Surveys

Prepared by Recon Environmental, Inc.

April 5, 2011

1927 Fifth Avenue
San Diego, CA 92101-2357
P 619.308.9333 F 619.308.9334
www.recon-us.com

525 W. Wetmore Rd., Suite 111
Tucson, AZ 85705
P 520.325.9977 F 520.293.3051

1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184



A Company of Specialists

April 5, 2011

Mr. Steve Johnson
CSOLAR Development, LLC
1044 N. 115th Street, Suite 400
Omaha, NE 68154

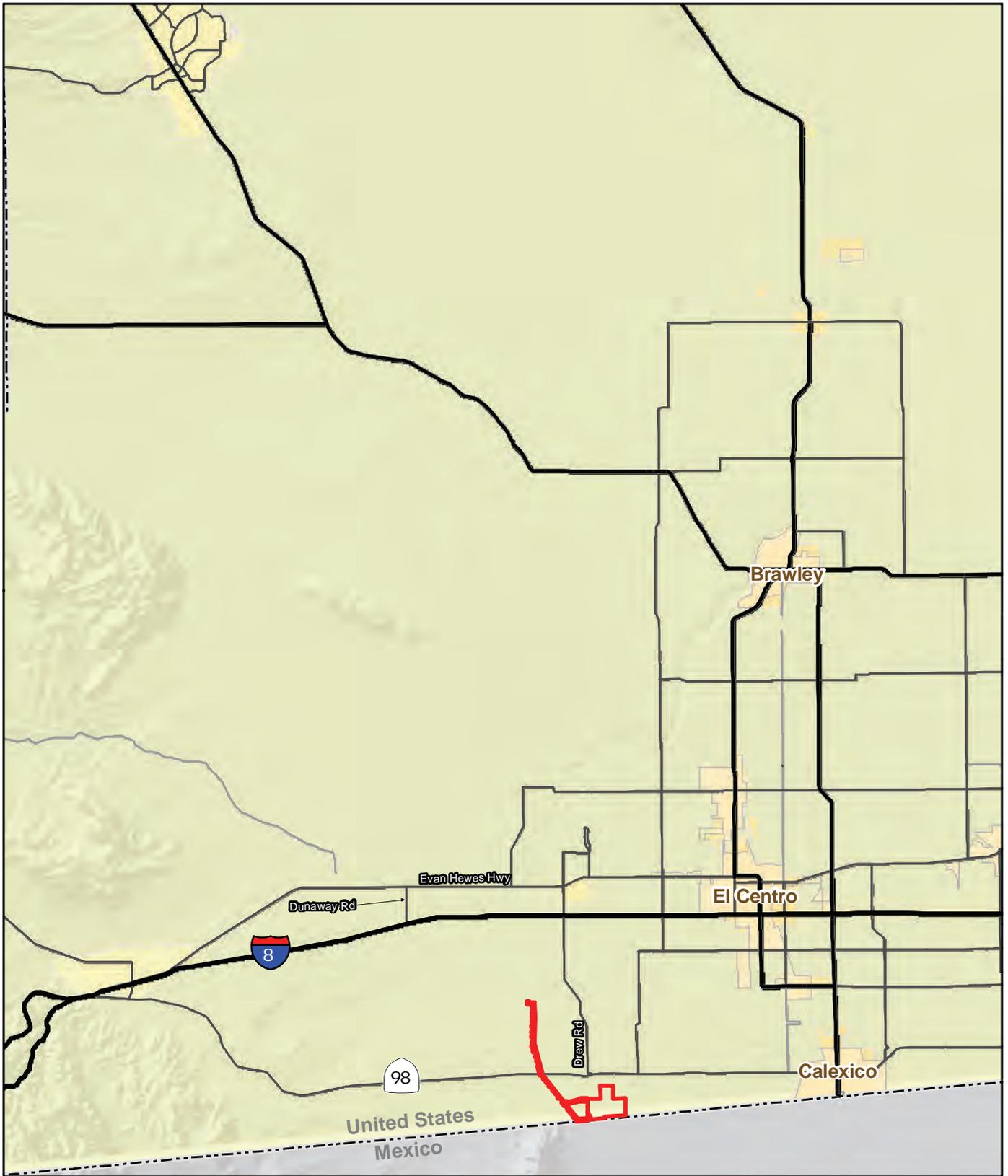
Reference: Post-Survey Results for Burrowing Owl Nesting Season Surveys for the
Imperial Solar Energy Center South Project (RECON Number 5726B)

Dear Mr. Johnson:

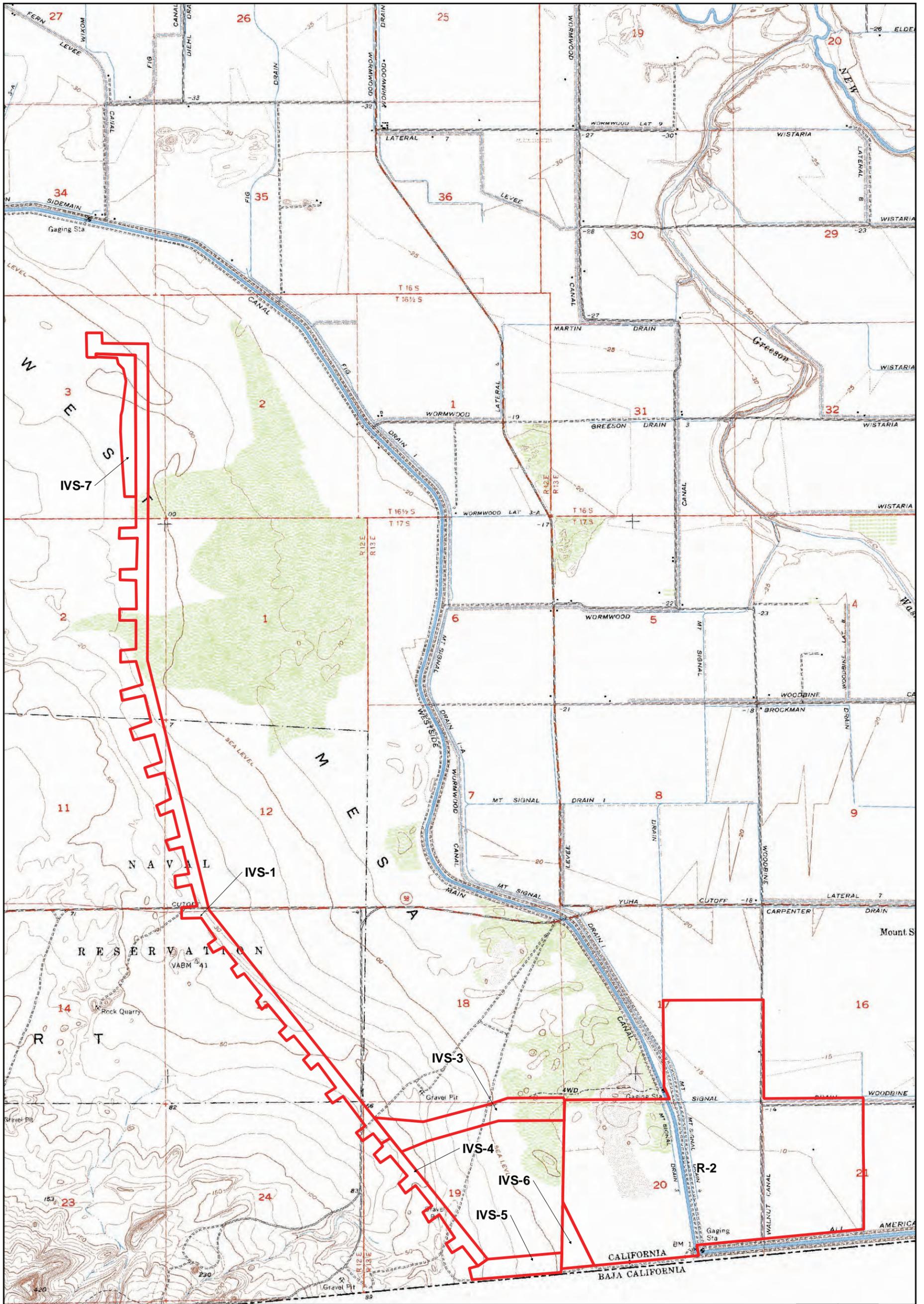
This letter summarizes the results of the 2010 nesting season surveys for burrowing owl (*Athene cunicularia*) conducted within the Imperial Solar Energy Center (ISEC) South Project survey area. CSOLAR Development, LLC proposes to construct a photovoltaic (PV) solar facility and associated transmission lines west of Calexico, California. The proposed ISEC South Project is located approximately 8 miles west of Calexico in Imperial County, California (Figure 1). The proposed project includes an 837.5-acre solar field (R-2 and IVS-6) that is situated on the U.S./Mexico Border and a proposed 230-kV transmission line route (IVS-1) adjacent to the existing 230-kV transmission corridor that starts on the north side of the Imperial Valley Substation and wraps around the eastern side of the substation to run south for 5 miles. The transmission line then runs east for one mile (IVS-3) to connect to the solar field. An alternate transmission line extension runs south from IVS-1 for 1 mile (IVS-4) and then runs east for 0.5 mile (IVS-5) to connect to the solar field (Figures 2 and 3). The proposed transmission corridor would consist of an approximately 83-acre (120-foot-wide) right-of-way along Bureau of Land Management (BLM) land, although most of this land would not be subject to disturbance.

The project area is found in Township 16 ½ South, Range 12 East, Section 3; Township 17 South, Range 12 East, portions of Section 2, 11, 12, 13, 19, and 24 of the U.S. Geological Survey (USGS) Mount Signal quadrangle (USGS 1976; see Figures 2 and 3).

RECON conducted burrowing owl protocol nesting season surveys within suitable habitat in accordance with the 1993 California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993). Phase I, Phase II, and Phase III were conducted to determine the presence or absence of the species within and adjacent to the proposed project area.



 Project Area

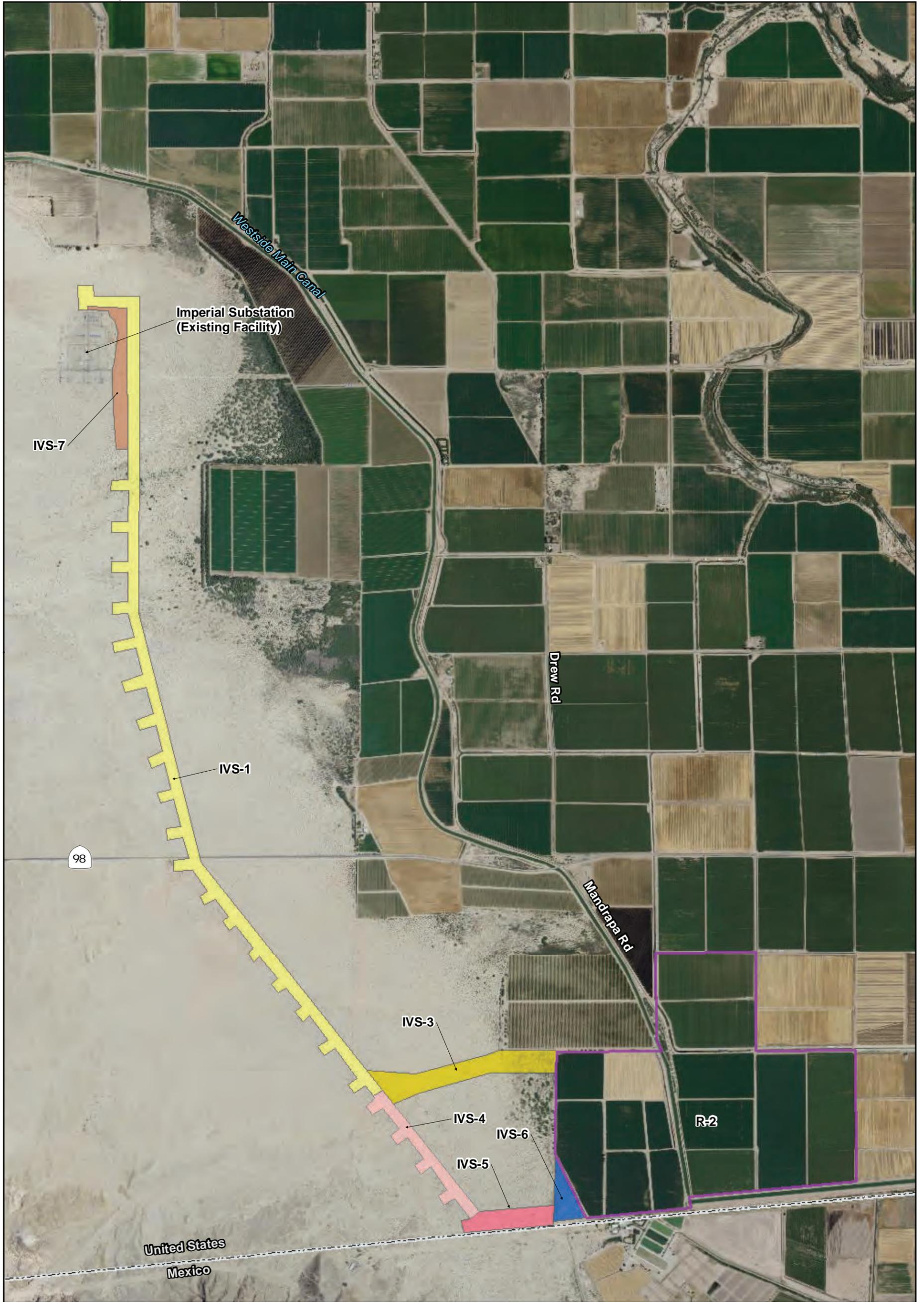


Project Area

0 Feet 2,250

FIGURE 2

Project Location on USGS Map



Project Components

-  IV South Project Area (R-2)
-  Transmission Line (IVS-1)
-  Transmission Line Connector (IVS-3)
-  Transmission Line Extension (IVS-4)
-  Transmission Line Connector (IVS-5)
-  Corner Parcel (IVS-6)
-  Substation Buffer (IVS-7)

0 Feet 2,250

FIGURE 3

Overview of the Imperial Solar Energy Center South Project

Four active burrowing owl burrows and their associated burrowing owls were detected during the survey in soil berms adjacent to the agricultural fields within the ISEC South proposed solar field. In addition, two active burrowing owl burrows were observed just outside of the survey area, within 1000 feet of the proposed solar field.

Methods

RECON biologists Cheri Bouch er and Carianne Funicelli Campbell conducted Phase I and II surveys for burrowing owl in accordance with the guidelines developed by the California Burrowing Owl Consortium (CBOC 1993). The Phase I habitat assessment and Phase II burrow surveys for burrowing owl were conducted in conjunction with general biological surveys and rare plant surveys for the project in March, April, and May 2010.

The habitat assessment and burrow surveys identified 1,039 acres of suitable habitat for burrowing owl within and adjacent to the project components. These survey areas are shown on Figures 4a and 4b and include:

- IVS-1 Transmission Line—500-foot survey buffer from the center line of the 4.8-mile corridor (466 acres)
- IVS-3 Transmission Line Connector—500-foot survey buffer from the center line of the 0.95-mile corridor (75 acres).
- IVS-4 Transmission Line Extension—500-foot survey buffer from the center line of the 0.8-mile corridor (133 acres)
- IVS-5 Transmission Line Connector—500-foot survey buffer from the center line of the 0.4-mile corridor (41 acres).
- IVS-6 Corner Parcel and 500-foot survey buffer (43 acres)
- IVS-7 Imperial Valley Substation buffer (53 acres)
- R-2 ISEC South Solar Field and 500-foot survey buffer—berms and irrigation culverts only within active agricultural fields (228 acres).

Phase III, a focused nesting season burrowing owl survey, was conducted by RECON from June 1 through July 15, 2010. The focused nesting season survey consisted of four 100-percent visual coverage surveys within the suitable burrowing owl habitat identified during the Phase I and II surveys. These pedestrian surveys were conducted by walking transects within the survey area that allow for 100-percent visual coverage of the ground surface. The distance between transect center lines did not exceed 30 meters and was reduced if necessary to account for differences in terrain, vegetation, density, and ground surface visibility. Surveyors walked at a speed not to exceed 15 acres per hour per surveyor. All suitable habitat within survey area was surveyed from 2 hours before sunset to 1 hour after, or from 1 hour before sunrise to 2 hours after (CBOC 1993). All burrowing owl burrows, sign, and individual locations were recorded using a Trimble GeoXH2 global positioning system (GPS) unit. All wildlife species observed during the surveys were noted.

Each project component was surveyed every 1.5 to 2 weeks for a total of four site visits. Survey dates, times, and weather conditions are provided in Attachment A.

Phase I and II: Habitat Assessment and Burrow Surveys

A burrowing owl habitat assessment was conducted on March 24 and 30, and April 7, 2010 within and adjacent to the proposed solar field and transmission corridors. This habitat assessment was conducted in conjunction with vegetation mapping and general biological surveys for the proposed project.

As seen in Attachment A, burrow surveys were conducted in conjunction with other spring surveys in April and May 2010 due to the large amount of habitat to be evaluated. In addition, the first of the four site visits for focused nesting season surveys provided opportunities to refine the habitat assessment and burrow observations.

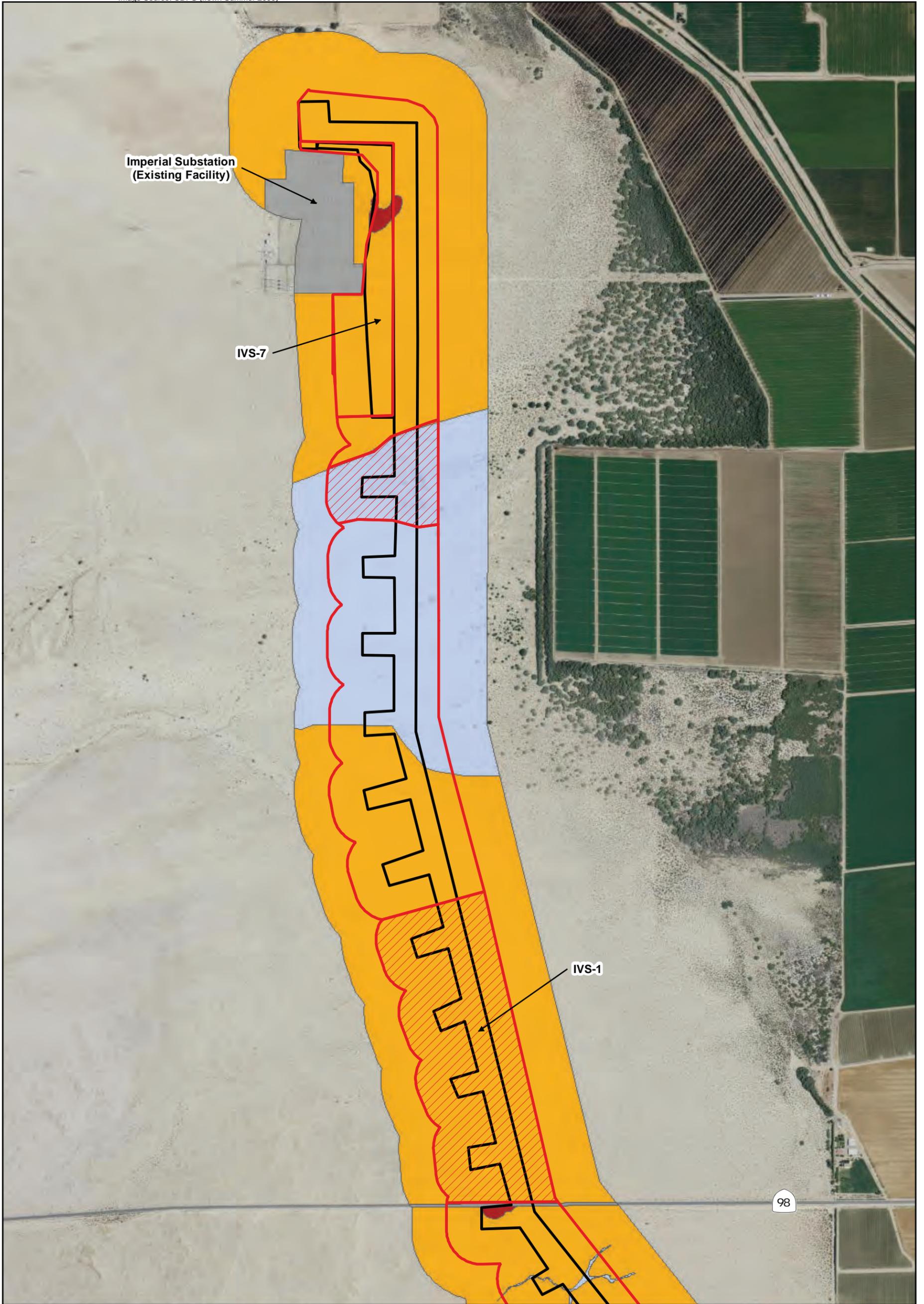
Existing Conditions

The proposed project is located in the Yuha Basin of the Colorado Desert between agricultural fields to the east and Mount Signal to the southwest as well as within active agricultural lands. Alluvial fans and washes run through the transmission line survey areas at various locations, flowing northeast from Mount Signal to enter the Westside Main Canal that skirts the edge of the active agricultural fields until bisecting the proposed ISEC South solar field. The proposed solar field comprises active agricultural fields. The upland topography between the washes is relatively flat with sparse vegetation and sand that ranges from soft and rolling to flat and compact. Elevation of the survey area ranges from sea level to 60 feet above mean sea level (USGS 1976).

As shown in Figures 4a and b, the survey area supports several vegetation communities including creosote bush–white burr sage scrub, desert wash, cattail marsh, arrow weed thicket, mesquite thicket, tamarisk thicket, and active agricultural fields.

Creosote bush–white burr sage scrub is the dominant vegetation community within the transmission line corridors in the survey area. This native vegetation alliance is dominated by creosote bush (*Larrea tridentata*) and white burr sage (*Ambrosia dumosa*) with relatively sparse vegetative cover and flat topography. A number of annual species were observed during the spring surveys that offered a sparse herbaceous layer between shrubs. These species include desert sunflower (*Geraea canescens*), desert sand verbena (*Abronia villosa* var. *villosa*), Peirson's browneyes (*Camissonia claviformis* ssp. *peirsonii*), pebble pincushion (*Chaenactis carophoclinea* var. *carophoclinea*), pincushion flower (*C. stevioides*), desert cambess (*Oligomeris linifolia*), narrow-leaved forget-me-not (*Crypthantha angustifolia*), and Mediterranean grass (*Schismus barbata*). A few scattered ironwood trees (*Olneya tesota*) are present within the creosote bush–white burr sage scrub vegetation in IVS-5 along the U.S./Mexico Border.

A number of desert washes flow northeast through the transmission corridors from Mount Signal into the Westside Main Canal. These washes are braided with the main flow channels primarily lacking in vegetation, while the sandbars and banks support the smoke tree woodland vegetation alliance. The areas dominated by smoke tree woodland support a number species, including rayless encelia (*Encelia frutescens*), sweetbush (*Bebbia juncea*), individual honey mesquite trees (*Prosopis glandulosa*) and tamarisk trees (*Tamarix aphylla*), scattered saltbush shrubs, a moderate to sparse cover of big galletta grass (*Pleuraphis rigida*), and sparse creosote bush and white burr sage.

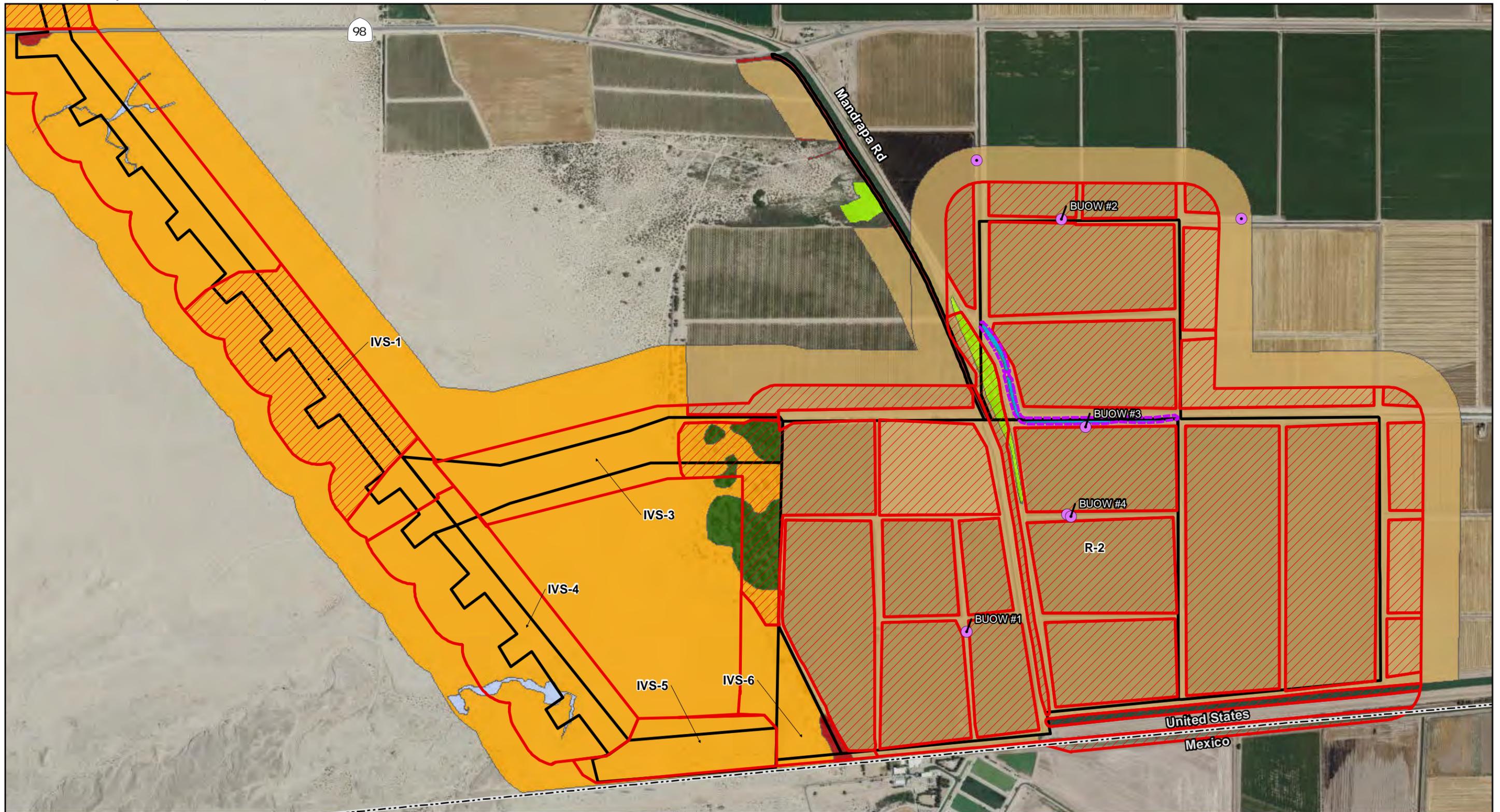


- Project Area
- Burrowing Owl Survey Area
- Excluded Area

- Vegetation Communities**
- Creosote Bush-White Burr Sage Scrub
 - Developed
 - Desert Wash (Smoke Tree Woodland)
 - Disturbed Land



FIGURE 4a
Habitat Assessment and Survey Results for Burrowing Owl Surveys on the Imperial Solar Energy Center South Project



- Project Area
- Burrowing Owl Survey Area
- Excluded Area

- Burrowing Owl (*Athene cunicularia hypugea*) Pair and Active Burrow

- Vegetation Communities**
- Active Agriculture
 - Cattail Marsh
 - Creosote Bush-White Burr Sage Scrub
 - Desert Wash (Smoke Tree Woodland)
 - Developed
 - Disturbed Land
 - Mesquite Thicket
 - Tamarisk Thicket
 - Arrow-weed Thicket

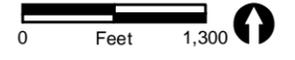


FIGURE 4b
Habitat Assessment and Survey Results for
Burrowing Owl Surveys on the Imperial
Solar Energy Center South Project

A small amount of cattail marsh was present in one of the irrigation channels between agricultural fields. While broad-leaved cattail (*Typha domingensis*) was the dominant species in this vegetation alliance, tamarisk was also present throughout.

Arrow weed (*Pluchea sericea*) has established along the edges of the irrigation canal in many locations, forming 5- to 10-foot-deep arrow weed thickets. These thickets largely exclude other plant species, but weedy invasive species such as sow thistle (*Sonchus* sp.), Sahara mustard (*Brassica turnifortii*), and London rocket (*Sisymbrium irio*) grow along the banks in between the arrow weed thickets.

A small mesquite thicket, dominated by honey mesquite, is present along the eastern edge of the IVS-3 corridor, adjacent to an irrigation ditch. Creosote bush and Mormon tea shrubs are present in between the honey mesquite trees. A larger mesquite thicket is present outside of the survey area along the western boundary of the ISEC South solar field.

As seen in Figure 4b, a large tamarisk thicket is present adjacent to the agricultural fields. Tamarisk thickets are dominated by tamarisk trees (*Tamarix* spp.). Honey mesquite trees are interspersed within tamarisk, but not in great enough number for this vegetation to be considered a mesquite thicket.

The R-2 survey area contains 916.5 acres of active agricultural fields.

Natural vegetation has been removed for vehicle parking and driving immediately south of State Route 98 within IVS-1, adjacent to the Imperial Valley Substation within IVS-7, and in the southeast corner of IVS-6. These areas contain little to no vegetation and are classified as disturbed land.

Adjacent to the survey area, the Westside Main Canal, as well as other agricultural irrigation channels, runs in between the agricultural fields. The channels that are unvegetated but holding water are classified as open water.

Habitat Assessment

The creosote bush–white burr sage scrub provides suitable habitat for burrowing owl in most portions of the survey area. The canopy cover of shrubs is less than 30-percent allowing for adequate foraging visibility in most areas, and kangaroo rat (*Dipodomys* spp.), round-tailed ground squirrel (*Spermophilus tereticaudus*), kit fox (*Vulpes macrotis*), desert cottontail rabbit (*Sylvilagus audubonii*), and other small- and medium-sized mammal burrows provide burrowing opportunities (Photograph 1).

Creosote bush–white burr sage scrub is excluded from the survey area in specific locations where creosote shrubs are too dense, such as at the east end of IVS-3 or where very flat and sparsely vegetated areas lack suitable burrows.

The culvert pipes and soil berms along the edges of the active agricultural fields provide abundant perching, burrowing, and foraging opportunities for burrowing owl and were included in the survey area (Photograph 2).

The interior portions of the active agricultural fields were excluded from the survey, as the active farm fields receive continual disturbance that inhibits long-term burrowing. While burrowing owls may forage within the interior of the fields, they are not expected to burrow there.



PHOTOGRAPH 1
Kangaroo Rat Burrow Provides Potential
Habitat for Burrowing Owl in IVS-1



PHOTOGRAPH 2
Soil Berms and Concrete Irrigation Channels within
Agricultural Fields Provide Habitat for Burrowing Owls

The mesquite thickets, tamarisk thickets, and arrow weed thicket were excluded from the burrowing owl survey area, as the vegetative cover within these communities is too dense to provide foraging and burrowing opportunities.

Phase III: Focused Burrowing Owl Nesting Season Surveys

Six active burrowing owl burrows were observed during the focused nesting season surveys within the active agricultural fields along the U.S./Mexico border, four of which are within the project survey area. As seen on Figure 4b, the westernmost active burrow hosted a pair of burrowing owls (BUOW #1; Photograph 3), but no eggs or juveniles were detected in or around the burrow during the surveys. The burrow is an earthen burrow built into the space adjacent to the concrete lining of an irrigation channel (Photograph 4).

As seen in Figure 4b, three additional burrowing owl locations, BUOW #2, BUOW #3, and BUOW #4, were observed within the soil irrigation channel berms in the agricultural fields east of the Westside Main Canal (Photograph 5). BUOW #2 was occupied by a single burrowing owl, BUOW #3 was occupied by a pair, and BUOW #4 represents two burrows adjacent to each other that were being simultaneously used by one pair. No egg or juvenile was detected in any of the burrows.

An additional two burrowing owl burrows, BUOW #5 and BUOW #6, were observed just outside of the northeast and northwest corners of the survey area. The owls were observed foraging and perching near both burrows frequently. No egg or juvenile was detected in either burrow; however the entrance to BUOW #6 contained scat from a number of mammal species (Photograph 6) and may indicate an active nest; this scattering of mammal scat at the burrow entrance is thought by some to mask the scent of the owls and young to prevent nest predation or to entice arthropods to enter the burrow (Smith and Conway 2007).

While suitable habitat is present within the transmission line corridors, no burrowing owl, burrowing owl burrow, or burrow owl sign was observed within the corridors during the surveys.

Attachment B lists the wildlife species observed during the 2010 spring and summer surveys, including the focused nesting season burrowing owl surveys.

Recommended Future Surveys

In accordance with the *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993), no winter burrowing owl survey is required within the survey area, as burrowing owls were observed during the nesting season surveys.

A pre-construction burrowing owl survey of the proposed ISEC South solar field and the transmission line may be required prior to any grading activities for the proposed project to identify current burrowing owl locations and prevent impact to this species.



PHOTOGRAPH 3
Burrowing Owl #1 Perching in the Agricultural
Fields West of the Westside Main Canal



PHOTOGRAPH 4
Burrowing Owl #1 Standing above its Burrow Situated
in Soil Adjacent to Concrete Lining of Irrigation Channel



PHOTOGRAPH 5
Active Burrow for Burrowing Owl #1 within a
Soil Berm between the Fallow Agricultural Fields



PHOTOGRAPH 6
Active Burrow for Burrowing Owl #2 within a
Soil Berm between the Fallow Agricultural Fields

Mr. Steve Johnson
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April 5, 2011

If you have any questions concerning the contents of this letter, please contact me.

Sincerely,



Cheri A. Bouchér
Senior Project Biologist

CAB:eab

cc: Magdalena Rodriguez, California Department of Fish and Game
Jennifer Whyte, Bureau of Land Management
Tim Gnibus, BRG Consulting
Patricia Valenzuela, County of Imperial

References Cited

- California Burrowing Owl Consortium, the
1993 *Burrowing Owl Survey Protocol and Mitigation Guidelines*. The California Burrowing Owl Consortium. April.
- Smith, Matthew D. and C. J. Conway
2007 Use of Mammal Manure by Nesting Burrowing Owls: a Test of Four Functioning Hypotheses. *Animal Behaviour* (73) 65-73.
- United States Geological Survey (USGS)
1976b Yuha Basin quadrangle 7.5-minute topographic map.

ATTACHMENT A

**ATTACHMENT A
BURROWING OWL-FOCUSED NESTING SEASON SURVEYS
DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS FOR THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT**

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
03/24/2010	ALL	N/A	Vegetation mapping, general biological survey (BUOW Phase I and II)	Cheri Bouchér Carianne Campbell	8:00 A.M.; 50°F; winds 7–10 mph; 0% cloud cover	4:15 P.M.; 80°F; winds 0–4 mph; 0% cloud cover	N/A
03/30/2010	IVS-6	21	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Karyl Palmer	1:00 P.M.; 82°F; winds 3–5 mph; 10% cloud cover	2:00 P.M.; 80°F; winds 7–13 mph; 10% cloud cover	7
03/30/2010	ALL	N/A	Vegetation mapping, general biological survey (BUOW Phase I and II)	Cheri Bouchér Carianne Campbell Karyl Palmer	2:00 P.M.; 80°F; winds 7–13 mph; 10% cloud cover	5:00 P.M.; 77°F; winds 5–10 mph; 5% cloud cover	N/A
04/06/2010	IVS-5	29	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Gerry Scheid Peter Dolan	2:30 P.M.; 77°F; winds 2–5 mph; <5 % cloud cover	3:30 P.M.; 82°F; winds 7–10 mph; <5 % cloud cover	7.3
04/07/2010	ALL	N/A	Vegetation mapping, general biological survey (BUOW Phase I and II)	Cheri Bouchér Carianne Campbell	2:00 P.M.; 78°F; winds 3–7 mph; 0% cloud cover	4:00 P.M.; 78°F; winds 5–7 mph; 2% cloud cover	N/A
04/08/2010	IVS-3	68	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	9:00 A.M.; 74°F; winds 0–1 mph; 0% cloud cover	12:30 P.M.; 84°F; winds 2–4 mph; 0% cloud cover	4.8
04/08/2010	IVS-4	39	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	1:00 P.M.; 84°F; winds 0–1 mph; 0% cloud cover	3:00 P.M.; 84°F; winds 0–1 mph; 0% cloud cover	4.9

ATTACHMENT A
BURROWING OWL-FOCUSED NESTING SEASON SURVEYS
DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS FOR THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT (cont.)

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
04/08/2010	IVS-1	38	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	3:00 P.M.; 84°F; winds 0–1 mph; 0% cloud cover	4:15 P.M.; 84°F; winds 0–2 mph; 0% cloud cover	7.6
04/09/2010	IVS-1	221	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell Beth Proscal Mike Nieto	8:00 A.M.; 65°F; winds 0–1 mph; 0% cloud cover	1:00 P.M.; 89°F; winds 2–4 mph; 0% cloud cover	11.1
04/13/2010	IVS-1	45	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	9:00 A.M.; 68°F; winds 2–5 mph; 0% cloud cover	12:00 P.M.; 74°F; winds 2–6 mph; 0% cloud cover	7.5
04/13/2010	IVS-1/ IVS-7	65	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	1:00 P.M.; 75°F; winds 2–5 mph; 0% cloud cover	4:00 P.M.; 79°F; winds 2–5 mph; 0% cloud cover	10.8
04/14/2010	IVS-7	55	Rare Plant Survey #1	Cheri Bouchér Carianne Campbell	2:30 P.M.; 78°F; winds 2–4 mph; 50% cloud cover	4:30 P.M.; 82°F; winds 2–4 mph; 50% cloud cover	13.75
05/11/2010	R-2	N/A	General biological survey (BUOW Phase I and II)	Cheri Bouchér Carianne Campbell	7:00 A.M.; 62°F; winds 25–30 mph; 5% cloud cover	9:00 A.M.; 64°F; winds 25–30 mph; 5% cloud cover	N/A
05/11/2010	IVS-1, IVS-5	30	Rare Plant Survey #2	Cheri Bouchér Carianne Campbell	9:00 A.M.; 64°F; ; winds 25–30 mph; 5% cloud cover	12:30 P.M.; 72°F; winds 25–30 mph; 1% cloud cove	4.28
6/3/2010	IVS-1, IVS-7	130	BUOW Survey #1	Cheri Bouchér Glenna Westbrook Randy Westbrook	5:00 A.M.; 66°F; winds 0–1 mph; 0% cloud cover	8:00 A.M.; 80°F; winds 0 mph; 0% cloud cover	<15
6/3/2010	IVS-1, IVS-7	120	BUOW Survey #1	Rob Klotz Colby Henley Daniela Fromer	5:50 P.M.; 100°F; winds 0-1 mph; 10% cloud cover	8:15 P.M.; 90°F; winds 0-1 mph; 5% cloud cover	<15
6/4/2010	IVS-1	135	BUOW Survey #1	Rob Klotz Colby Henley Daniela Fromer	5:00 A.M.; 71°F; winds 0-1 mph; 1% cloud cover	8:00 A.M.; 78°F; winds 01 mph; 1% cloud cover	<15

**ATTACHMENT A
BURROWING OWL-FOCUSED NESTING SEASON SURVEYS
DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS FOR THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT (cont.)**

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
6/8/2010	IVS-1	270	BUOW Survey #1	Cheri Bouchér Rob Hastings Rob Klotz Jake Mohlmann Glenna Westbrook Randy Westbrook	5:00 A.M.; 77°F; winds 4 mph; 5% cloud cover	7:30 A.M.; 78°F; winds 5 mph; 5% cloud cover	<15
6/8/2010	IVS-1, IVS-4, IVS-5, IVS-6	180	BUOW Survey #1	Rob Hastings Rob Klotz Jake Mohlmann Randy Westbrook	5:30 P.M.; 105°F; winds 13.5 mph; 1% cloud cover	8:30 P.M.; 97°F; winds 13 mph; 1% cloud cover	<15
6/8/2010	IVS-3	90	BUOW Survey #1	Cheri Bouchér Glenna Westbrook	5:45 P.M.; 105°F; winds 13.5 mph; 0% cloud cover	8:15 P.M.; 96°F; winds 13.5 mph; 0% cloud cover	<15
6/9/2010	R-2	270	BUOW Survey #1	Cheri Bouchér Rob Hastings Rob Klotz Jake Mohlmann Glenna Westbrook Randy Westbrook	5:00 A.M.; 70°F; winds 2 mph; 0% cloud cover	8:00 A.M.; 80°F; winds 4 mph; 0% cloud cover	<15
6/15/2010	IVS-1	90	BUOW Survey #2	Rob Hastings Wendy Loeffler	5:00 A.M.; 74°F; winds 0 mph; 0% cloud cover	8:00 A.M.; 84°F; winds 0 mph; 0% cloud cover	<15
6/16/2010	IVS-1	315	BUOW Survey #2	Cheri Bouchér Jillian Bates Wendy Loeffler Rob Hastings Jake Mohlmann Glenna Westbrook Randy Westbrook	5:00 A.M.; 73°F; winds 0–2 mph; 0% cloud cover	8:00 A.M.; 86°F; winds 1–5 mph; 0% cloud cover	<15
6/16/2010	IVS-1, IVS-4, IVS-5	270	BUOW Survey #2	Rob Hastings Wendy Loeffler Jake Mohlmann Jillian Bates Glenna Westbrook Randy Westbrook	5:45 P.M.; 98°F; winds 5–10 mph; 0% cloud cover	8:45 P.M.; 88°F; winds 6 mph; 0% cloud cover	<15

**ATTACHMENT A
BURROWING OWL-FOCUSED NESTING SEASON SURVEYS
DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS FOR THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT (cont.)**

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
6/17/2010	R-2	300	BUOW Survey #2	Cheri Bouchér Jillian Bates Rob Hastings Wendy Loeffler Jake Mohlmann Glenna Westbrook Randy Westbrook	5:00 A.M.; 60°F; winds 0–2 mph; 0% cloud cover	8:00 A.M.; 78°F; winds 0–2 mph; 0% cloud cover	<15
6/17/2010	IVS-3, IVS-5, IVS-6	180	BUOW Survey #2	Jillian Bates Rob Hastings Wendy Loeffler Jake Mohlmann Glenna Westbrook Randy Westbrook	5:45 P.M.; 101°F; winds 7 mph; 0% cloud cover	8:15 P.M.; 95°F; winds 4–12 mph; 0% cloud cover	<15
6/22/2010	IVS-1	270	BUOW Survey #3	Alex Fromer Peter Dolan Rob Hastings Gavin Bieber Jake Mohlmann Glenna Westbrook	5:45 P.M.; 101°F; winds 0–1 mph; 0% cloud cover	8:45 P.M.; 91°F; winds 4 mph; 0% cloud cover	<15
6/23/2010	IVS-1/ IVS-4	210	BUOW Survey #3	Alex Fromer Peter Dolan Rob Hastings Gavin Bieber Jake Mohlmann Glenna Westbrook	5:00 A.M.; 66°F; winds 0–1 mph; 0% cloud cover	7:45 A.M.; 81°F; winds 0–2 mph; 0% cloud cover	<15
6/23/2010	IVS-1/ IVS-3/ IVS-5/ IVS-6/ IVS-7	270	BUOW Survey #3	Alex Fromer Peter Dolan Rob Hastings Gavin Bieber Jake Mohlmann Glenna Westbrook	5:45 P.M.; 106°F; winds 2–3 mph; 0% cloud cover	8:45 P.M.; 97°F; winds 8–10 mph; 0% cloud cover	<15

ATTACHMENT A
BURROWING OWL-FOCUSED NESTING SEASON SURVEYS
DATES, PERSONNEL, TIMES, AND WEATHER CONDITIONS FOR THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT (cont.)

Date	Route Surveyed	Survey Area (acres)	Survey Type	Surveyors	Beginning Conditions	Ending Conditions	Survey Acres/ Hour
6/24/2010	R-2	230	BUOW Survey #3	Alex Fromer Peter Dolan Rob Hastings Gavin Bieber Jake Mohlmann Glenna Westbrook	5:00 A.M.; 63°F; winds 0 mph; 0% cloud cover	8:00 A.M.; 84°F; winds 7–9 mph; 0% cloud cover	<15
7/08/2010	IVS-1/ IVS-7	270	BUOW Survey #4	Cheri Bouch�er Rob Klotz Peter Dolan John Yerger Gavin Bieber Glenna Westbrook	5:00 A.M.; 76°F; winds 0 mph; 0% cloud cover	8:00 A.M.; 83°F; winds 2 mph; 0% cloud cover	<15
7/08/2010	IVS-1/ IVS-4	270	BUOW Survey #4	Cheri Bouch�er Rob Klotz Peter Dolan John Yerger Gavin Bieber Glenna Westbrook	5:45 P.M.; 106°F; winds 5 mph; 0% cloud cover	8:45 P.M.; 98°F; winds 5 mph; 0% cloud cover	<15
7/09/2010	IVS-1/ IVS-7	180	BUOW Survey #4	Rob Klotz Peter Dolan John Yerger Gavin Bieber	5:00 A.M.; 84°F; winds 0 mph; 90% cloud cover	8:00 A.M.; 91°F; winds 0 mph; 75% cloud cover	<15
7/13/2010	R-2	130	BUOW Survey #4	Rob Klotz John Yerger Gavin Bieber Glenna Westbrook	5:45 P.M.; 104°F; winds 4 mph; 15% cloud cover	8:45 P.M.; 98°F; winds 4 mph; 20% cloud cover	<15
7/14/2010	R-2	100	BUOW Survey #4	Rob Klotz John Yerger Gavin Bieber	5:00 A.M.; 79°F; winds 0 mph; 35% cloud cover	8:00 A.M.; 94°F; winds 0 mph; 25% cloud cover	<15
7/14/2010	IVS-3/ IVS-5/ IVS-6	160	BUOW Survey #4	Rob Klotz John Yerger Gavin Bieber Glenna Westbrook	5:45 P.M.; 111°F; winds 4 mph; 4% cloud cover	8:45 P.M.; 103°F; winds 5 mph; 3% cloud cover	<15

°F = degrees Fahrenheit; mph = miles per hour; % = percent; BUOW = burrowing owl

ATTACHMENT B

**ATTACHMENT B
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH
PROJECT SURVEY AREA**

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
INVERTEBRATES (Nomenclature from Eriksen and Belk 1999; Milne and Milne 1980; Mattoni 1990; and Opler and Wright 1999)										
THERAPHOSIDAE	TARANTULAS									
<i>Aphonopelma chalcodes</i>	desert tarantula	CBS	U		B					
FORMICIDAE	ANTS									
<i>Pogonomyrmex spp.</i>	Harvester ants	CBS	C		O	O	O	O	O	O
PIERIDAE	WHITES & SULPHURS									
<i>Pieris rapae</i>	cabbage white	CBS, DW	C		O	O	O	O	O	O
LYCAENIDAE	BLUES, COPPERS, & HAIRSTREAKS									
<i>Brephidium exile</i>	western pygmy blue	CBS	F					O	O	
<i>Icaricia acmon acmon</i>	Acmon blue	CBS	U						O	
NYPHALIDAE	BRUSH-FOOTED BUTTERFLIES									
<i>Vanessa cardui</i>	painted lady	CBS, DW	C		O	O	O	O	O	O
REPTILES (Nomenclature from Crother 2001 and Crother et al. 2003)										
GEKKONIDAE	GECKOS									
<i>Coleonyx variegatus</i>	Western banded gecko	CBS	U		O		O			
IGUANIDAE	IGUANID LIZARDS									
<i>Dipsosaurus dorsalis dorsalis</i>	Northern desert iguana	CBS	C	O	O	O	O	O	O	O

ATTACHMENT B
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (Continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
PHRYNOSOMATIDAE	PHRYNOSOMATID LIZARDS									
<i>Callisaurus draconoides rhodostictus</i>	Common zebra-tailed lizard	CBS	C	O	O	O	O	O	O	O
<i>Phrynosoma mcallii</i>	flat-tailed horned lizard	CBS	U			O				
<i>Uta stansburiana</i>	common side-blotched lizard	CBS	C	O	O	O	O	O	O	O
TEIIDAE	WHIPTAIL LIZARDS									
<i>Aspidoscelis tigris tigris</i>	Great Basin tiger whiptail	CBS	U		O		O			
CROTALIDAE	RATTLESNAKES									
<i>Crotalus cerastes</i>	sidewinder	CBS	U		O		O			
BIRDS (Nomenclature from American Ornithologists' Union 1998 and Unitt 2004)										
PHASIANIDAE	PHEASANTS & GROUSE									
<i>Phasianus colchicus</i>	ring-necked pheasant (I)	AG, CM	U/ Y	O						
ODONTOPHORIDAE	NEW WORLD QUAIL									
<i>Callipepla gambelii gambelii</i>	Gambel's quail	CBS, MT, DW,	C/ Y	O	O	O	O	O	O	O
PHALACROCORACIDAE	CORMORANTS									
<i>Phalacrocorax auritus albociliatus</i>	double-crested cormorant	F	U/ Y	O						
ARDEIDAE	HERONS & BITTERNS									
<i>Ardea alba</i>	great egret	AG, CM	C/ W	O						
<i>Ardea herodias</i>	great blue heron	F	F/ Y	O						
<i>Bubulcus ibis ibis</i>	cattle egret	AG	F/ W	O						
<i>Butorides virescens</i>	green heron	CM	U/ S	O						
<i>Egretta thula thula</i>	snowy egret	AG	F/ W	O						
<i>Ixobrychus exilis hesperis</i>	western least bittern	AG	U/ S	O						

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WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (Continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Nycticorax nycticorax</i>	black-crowned night heron	CM	U/ Y	O						
CATHARTIDAE	NEW WORLD VULTURES									
<i>Cathartes aura</i>	turkey vulture	F	U/ M, S	O	O					
ACCIPITRIDAE	HAWKS, KITES, & EAGLES									
<i>Buteo jamaicensis</i>	red-tailed hawk	CBS	U/ Y		O		O			
FALCONIDAE	FALCONS & CARACARAS				O					O
<i>Falco sparverius sparverius</i>	American kestrel	AG	F/ Y	O	O					
RALLIDAE	RAILS, GALLINULES, & COOTS									
<i>Gallinula chloropus cachinnans</i>	common moorhen	AG, CM	F/ Y	O						
CHARADRIIDAE	LAPWINGS & PLOVERS									
<i>Charadrius vociferus vociferus</i>	killdeer	CBS	F/ Y	O	O					O
LARIDAE	GULLS, TERNS, & SKIMMERS									
<i>Hydroprogne caspia</i>	Caspian tern	F	U/S	O						
<i>Larus californicus</i>	California gull	F	F/ Y	O						
<i>Larus delawarensis</i>	ring-billed gull	F	U/ Y		O					O
RECURVIROSTRIDAE	STILTS & AVOCETS									
<i>Himantopus mexicanus</i>	black-necked stilt	AG, CM	F/ Y	O						
SCOLOPACIDAE	SANDPIPERS & PHALAROPES									
<i>Actitis macularius</i>	spotted sandpiper	AG, CM	F/ W, Y	O						
<i>Numenius americanus</i>	long-billed curlew	AG, CM	F/ W	O						
COLUMBIDAE	PIGEONS & DOVES									
<i>Columba livia</i>	rock dove (I)	CBS	U/ Y	O	O					O

ATTACHMENT B
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (Continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Columbina passerina pallescens</i>	common ground dove	AG	F/ Y	O						
<i>Streptopelia decaocto</i>	Eurasian collared dove	AG	F/ Y	O	O					O
<i>Zenaida asiatica mearnsi</i>	white-winged dove	CBS	U/ Y	O		O				
<i>Zenaida macroura marginella</i>	mourning dove	CBS, DW, MT, TT	C/ Y	O	O	O	O	O	O	O
CUCULIDAE	CUCKOOS & ROADRUNNERS									
<i>Geococcyx californianus</i>	greater roadrunner	CBS	F/ Y	O	O		O	O		
STRIGIDAE	TYPICAL OWLS									
<i>Athene cunicularia</i>	burrowing owl	AG	U/ Y, W	O						
<i>Bubo virginianus</i>	great horned owl	CBS	U/ Y				O		O	
CAPRIMULGIDAE	GOATSUCKERS									
<i>Chordeiles acutipennis texensis</i>	lesser nighthawk	CBS	F/ S		O	O		O		
APODIDAE	SWIFTS									
<i>Aeronautes saxatalis</i>	white-throated swift	F	U/ Y	O						
TROCHILIDAE	HUMMINGBIRDS									
<i>Archilochus alexandri</i>	black-chinned hummingbird	DW	U/ S		O					
<i>Calypte anna</i>	Anna's hummingbird	MT	F/ Y			O				
<i>Calypte costae</i>	Costa's hummingbird	MT	F/ S			O				
TYRANNIDAE	TYRANT FLYCATCHERS									
<i>Contopus cooperi</i>	olive-sided flycatcher	DW	F/ S		O					
<i>Empidonax traillii</i>	willow flycatcher	TT	U/ S	O						
<i>Myiarchus cinerascens cinerascens</i>	ash-throated flycatcher	DW	F/ S		O		O			

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WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (Continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Sayornis nigricans semiatra</i>	black phoebe	CBS	F/ Y	O					O	
<i>Sayornis saya</i>	Say's phoebe	CBS, DW	C/ W		O	O	O	O	O	O
<i>Tyrannus verticalis</i>	western kingbird	DW	F/ S	O	O					O
LANIIDAE	SHRIKES									
<i>Lanius ludovicianus</i>	loggerhead shrike	CBS	U/ Y	O	O	O	O	O	O	
CORVIDAE	CROWS, JAYS, & MAGPIES									
<i>Corvus brachyrhynchos hesperis</i>	American crow	CBS	F/ Y	O	O					O
<i>Corvus corax clarionensis</i>	common raven	CBS	F/ Y		O	O				O
ALAUDIDAE	LARKS									
<i>Eremophila alpestris leucansiptila</i>	horned lark	CBS	F/ Y	O	O	O	O	O	O	O
HIRUNDINIDAE	SWALLOWS									
<i>Hirundo rustica erythrogaster</i>	barn swallow	AG	U/ M	O						
<i>Petrochelidon pyrrhonota tachina</i>	cliff swallow	AG, MT	C/ S	O	O	O				
<i>Stelgidopteryx serripennis</i>	northern rough-winged swallow	AG	C/ S	O	O					
REMIZIDAE	VERDIN									
<i>Auriparus flaviceps acaciaram</i>	verdin	CBS, DW	C/ Y	O	O	O			O	
STURNIDAE	STARLINGS & MYNAS									
<i>Sturnus vulgaris</i>	European starling (I)	F	F/ Y	O						
SYLVIIDAE	GNATCATCHERS									
<i>Polioptila caerulea</i>	blue-gray gnatcatcher	DW	F/ Y		O	O				
<i>Polioptila melanura</i>	black-tailed gnatcatcher	DW	F/ Y	O	O					

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WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (Continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
MIMIDAE	MOCKINGBIRDS & THRASHERS									
<i>Mimus polyglottos polyglottos</i>	northern mockingbird	CBS	F/ Y	O	O					O
<i>Toxostoma crissale</i>	crissal thrasher	TT, MT	U/ Y		O	O		O	O	
<i>Toxostoma lecontei lecontei</i>	Le Conte's thrasher	MT	U/ Y			O				
MOTACILLIDAE	WAGTAILS & PIPITS									
<i>Anthus rubescens pacificus</i>	American pipit	F	U/ W			O				
PARULIDAE	WOOD WARBLERS									
<i>Dendroica coronata</i>	yellow-rumped warbler	CBS, DW, MT, AG	C/ W		O	O	O	O	O	O
<i>Dendroica nigrescens</i>	black-throated gray warbler	DW	U/ M		O		O			
<i>Dendroica petechia</i>	yellow warbler	DW, TT	U/ S	O	O					
<i>Geothlypis trichas</i>	common yellowthroat	TT, DW	C/ Y	O						
<i>Vermivora celata</i>	orange-crowned warbler	DW, TT	F/ Y	O	O					
<i>Wilsonia pusilla</i>	Wilson's warbler	DW, TT	F/ M	O	O					
EMBERIZIDAE	EMBERIZIDS									
<i>Chondestes grammacus strigatus</i>	lark sparrow	DW	U/ Y		O					
<i>Melospiza melodia</i>	song sparrow	TT, AT	F/ Y	O						
<i>Pipilo aberti</i>	Abert's towhee	DW	U/ Y	O	O					
<i>Pipilo maculatus</i>	spotted towhee	CBS	F/ Y						O	
<i>Poocetes gramineus</i>	vesper sparrow	CBS	U/ W	O						
<i>Zonotrichia leucophrys</i>	white-crowned sparrow	CBS	C/ W		O	O	O	O	O	O
CARDINALIDAE	CARDINALS & GROSBEAKS									

ATTACHMENT B
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (Continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
<i>Passerina caerulea salicaria</i>	blue grosbeak	TT, AT	U/ S	O						
ICTERIDAE	BLACKBIRDS & NEW WORLD ORIOLES									
<i>Agelaius phoeniceus</i>	red-winged blackbird	AG, CM, DW	C/ Y	O	O				O	
<i>Icterus bullockii</i>	Bullock's oriole	TT, MT	F/ S	O						
<i>Molothrus ater</i>	brown-headed cowbird	CM, TT	F/ Y	O						
<i>Quiscalus mexicanus</i>	great-tailed grackle	AG, CM	F/ Y	O						
<i>Sturnella neglecta</i>	western meadowlark	AG, CM	C/ Y	O						
<i>Xanthocephalus xanthocephalus</i>	yellow-headed blackbird	AG, TT, CM	F/ W	O						
FRINGILLIDAE	FINCHES									
<i>Carduelis psaltria hesperophilus</i>	lesser goldfinch	CBS, DW, MT, TT	C/ Y	O			O	O		O
<i>Carpodacus mexicanus frontalis</i>	house finch	AG, DW, TT, CBS	F/ Y	O	O				O	O
PASSERIDAE	OLD WORLD SPARROWS									
<i>Passer domesticus</i>	house sparrow (I)	AG	U/ Y	O						
MAMMALS (Nomenclature from Baker et al. 2003)										
MOLOSSIDAE	FREE-TAILED BATS									
<i>Tadarida brasiliensis</i>	Mexican free-tailed bat	F	C		O		O			
LEPORIDAE	RABBITS & HARES									
<i>Lepus californicus deserticola</i>	desert black-tailed jackrabbit	CBS	F		T, S	T, S	T, S	O	T, S	T, S
<i>Sylvilagus audubonii</i>	desert cottontail	CBS	C		O	T, S, B				

ATTACHMENT B
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (Continued)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				R-2	IVS-1	IVS-3	IVS-4	IVS-5	IVS-6	IVS-7
SCIURIDAE	SQUIRRELS & CHIPMUNKS									
<i>Spermophilus tereticaudus</i>	round-tailed ground squirrel	CBS	C		T, S, B					
HETEROMYIDAE	POCKET MICE & KANGAROO RATS									
<i>Dipodomys spp.</i>	kangaroo rat	CBS	C		T, S, B					
<i>Dipodomys deserti deserti</i>	desert kangaroo rat	CBS	C		O		O	O		
MURIDAE	OLD WORLD MICE & RATS (I)									
<i>Neotoma lepida lepida</i>	desert woodrat	CBS	U			D				
<i>Peromyscus sp.</i>	mouse	CBS	C		B, S					
CANIDAE	CANIDS									
<i>Canis latrans</i>	coyote	CBS	U				O		O	
<i>Urocyon cinereoargenteus</i>	common gray fox	CBS	U		T, S	T				
CERVIDAE	DEER									
<i>Odocoileus hemionus</i>	mule deer	CBS	U		S	T, S		S		

(I) = Introduced species

HABITAT

AG = Agriculture
 AT = Arrow-weed thicket
 CM = Cattail marsh
 CBS = Creosote bush – white burr sage scrub
 DW = Desert wash
 F = Flying overhead
 MT = Mesquite thicket
 OW = Open water (reservoirs, ponds, streams, lakes)
 TT = Tamarisk thicket

ABUNDANCE (based on Garrett and Dunn 1981)

C = Common to abundant; almost always encountered in proper habitat, usually in moderate to large numbers
 F = Fairly common; usually encountered in proper habitat, generally not in large numbers
 U = Uncommon; occurs in small numbers or only locally

SEASONALITY (birds only)

A = Accidental; species not known to occur under normal conditions; may be an off-course migrant
 M = Migrant; uses site for brief periods of time, primarily during spring and fall months
 S = Spring/summer resident; probable breeder on-site or in vicinity

ATTACHMENT B
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE
IMPERIAL SOLAR ENERGY CENTER SOUTH PROJECT SURVEY AREA (Continued)

T = Transient; uses site regularly but unlikely to breed on-site
V = Rare vagrant
W = Winter visitor; does not breed locally
Y = Year-round resident; probable breeder on-site or in vicinity

EVIDENCE OF OCCURRENCE

B = Burrow
C = Carcass/remains
D = Den site
O = Observed
S = Scat
T = Track
V = Vocalization

Imperial Solar Energy Center South

Appendix I-4

Post Survey Notification of Focused Survey for the
Southwestern Willow Flycatcher

Prepared by Recon Environmental, Inc.

July 30, 2010

1927 Fifth Avenue
San Diego, CA 92101-2357
P 619.308.9333 F 619.308.9334
www.recon-us.com

525 W. Wetmore Rd., Suite 111
Tucson, AZ 85705
P 520.325.9977 F 520.293.3051

1412 W. 6th 1/2 Street
Austin, TX 78703-5150
P 512.913.1200 F 512.474.1184



A Company of Specialists

July 30, 2010

Ms. Sandy Marquez
U.S. Fish and Wildlife Service
Carlsbad Field Office
6010 Hidden Valley Road
Carlsbad, CA 92009

Reference: Post-Survey Notification of Focused Survey Results for the Southwestern Willow Flycatcher on the Imperial Solar Energy Center South Project (RECON Number 5726B)

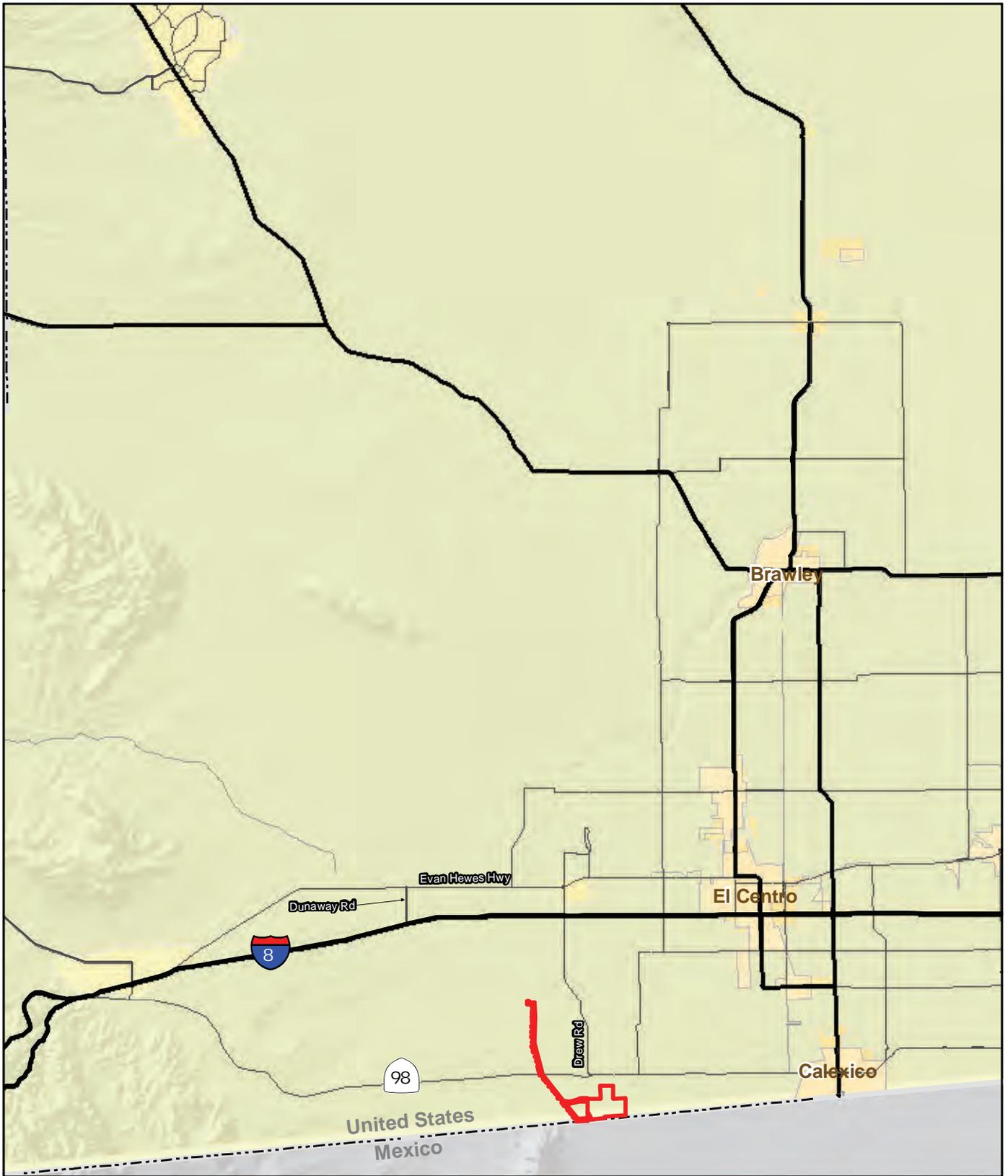
Dear Ms. Marquez:

This letter summarizes the results of the 2010 nesting season surveys for southwestern willow flycatcher (*Empidonax traillii extimus*) conducted within the Imperial Solar Energy Center (ISEC) South Project survey area. The proposed ISEC South Project is located approximately 8 miles west of Calexico in Imperial County, California (Figure 1). The proposed project includes a solar field (R-2 and IVS-6) that is situated on the U.S./Mexico border and a proposed 230-kilovolt (kV) transmission line route (IVS-1) adjacent to an existing 230-kV transmission corridor that starts on the north side of the Imperial Valley Substation and wraps around the eastern side of the substation to run south for 5 miles. The transmission line then runs east for 1 mile (IVS-3) to connect to the solar field. An alternate transmission line extension runs south from IVS-1 for 1 mile (IVS-4) and then runs east for 0.5 mile (IVS-5) to connect to the solar field (Figures 2 and 3).

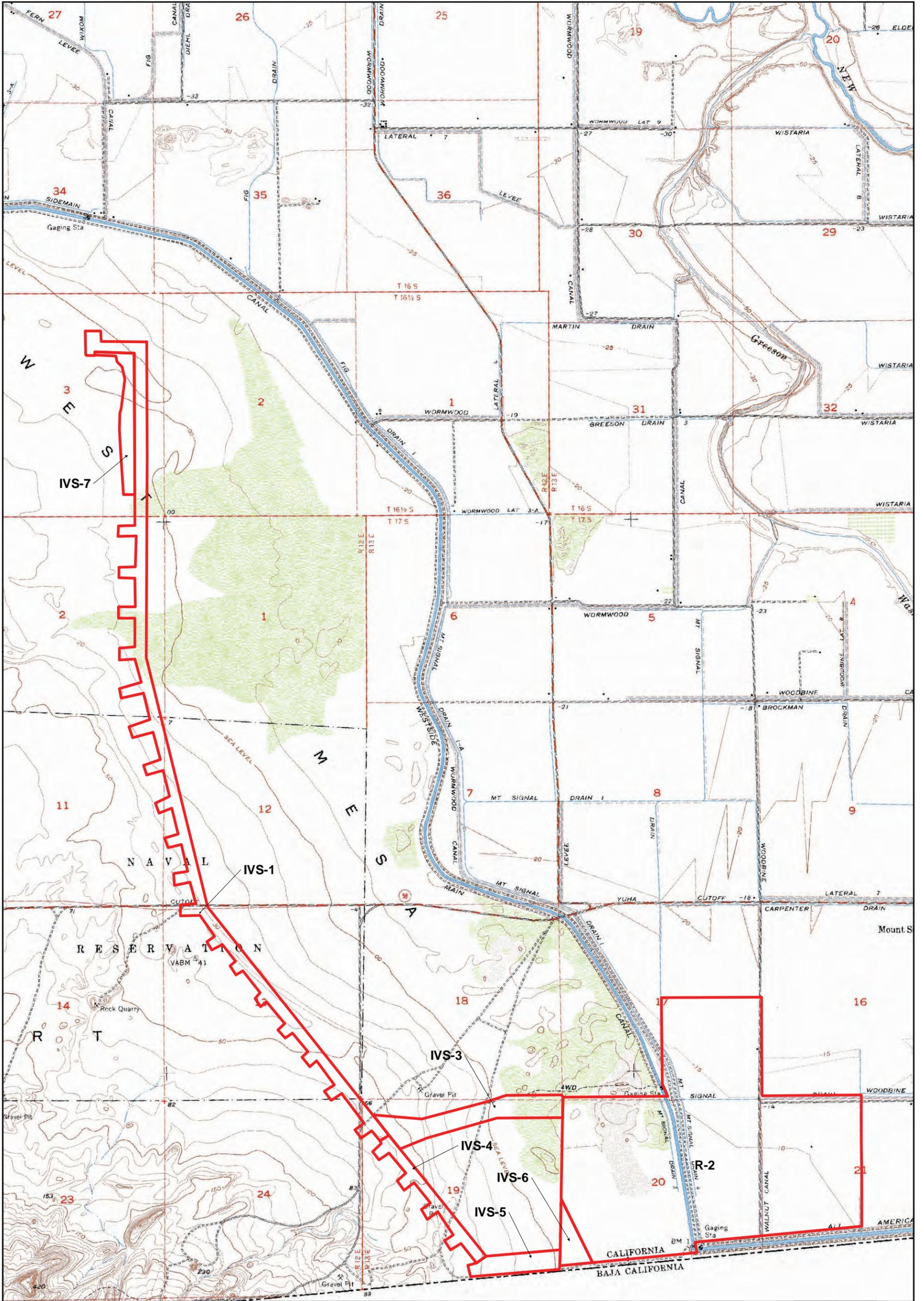
The project area is found in Township 16 ½ South, Range 12 East, Section 3; Township 17 South, Range 12 East, portions of Section 2, 11, 12, 13, 19, and 24; of the U.S. Geological Survey (USGS) Mount Signal quadrangle (USGS 1976; Figures 2 and 3).

Methods

Breeding southwestern willow flycatchers are riparian obligates, typically nesting in relatively dense riparian vegetation where surface water is present or soil moisture is high enough to maintain the appropriate vegetation characteristics (Sogge and Marshall 2000; U.S. Fish and Wildlife Service [USFWS], 2002; Ahlers and Moore 2009). While some of the vegetation communities within the project area include some species associated with riparian areas, none of the areas supports surface water or high soil moisture conditions and is therefore representative of willow flycatcher breeding habitat. Additionally, species occurrence records from the California Natural Diversity Database (CNDDDB; State of California 2010) did not indicate the presence of willow flycatchers in the project vicinity. Therefore, protocol surveys for southwestern willow flycatchers were not initially conducted.



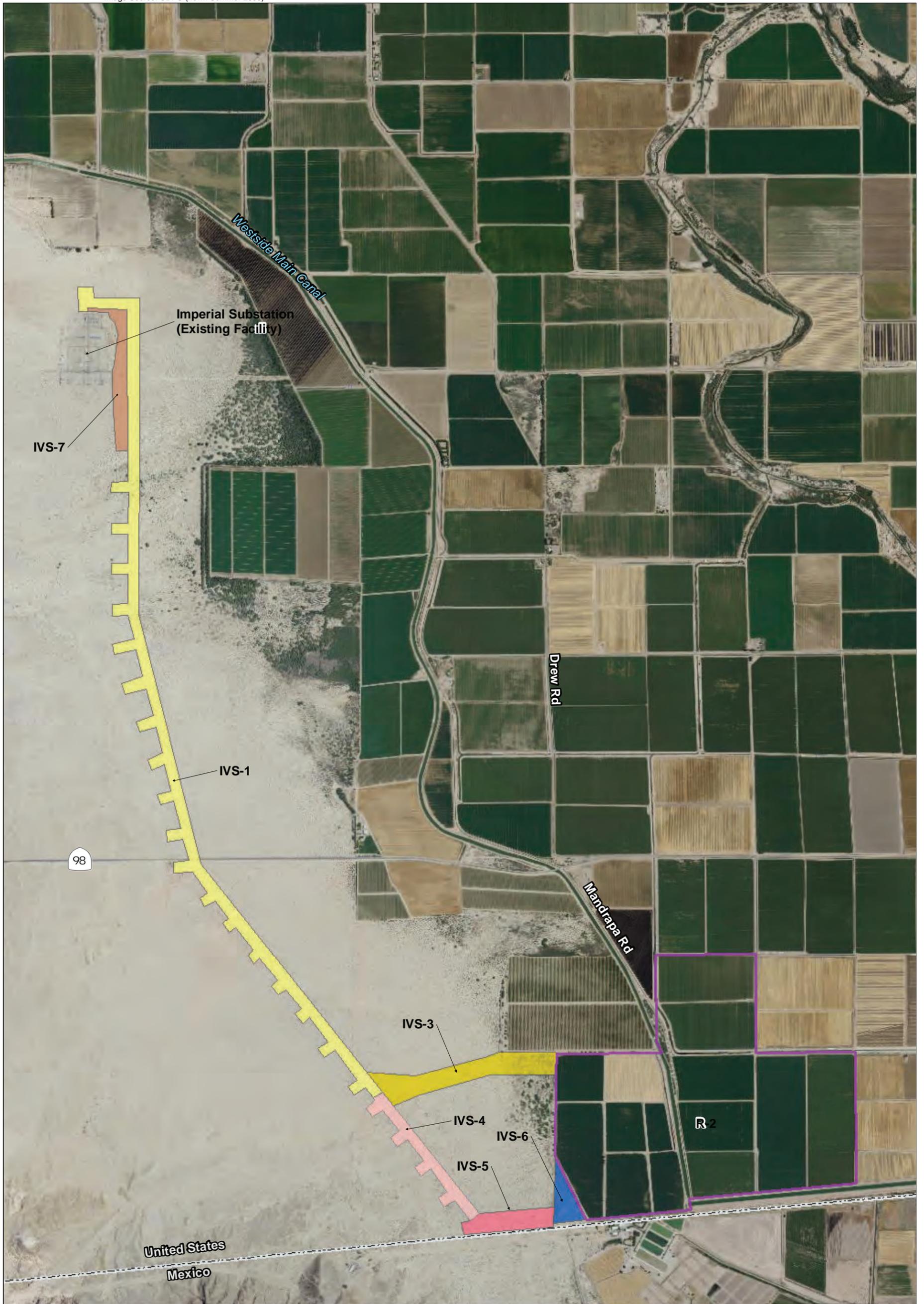
 Project Area



Project Area

FIGURE 2

Project Location on USGS Map



Project Components

- IV South Project Area (R-2)
- Transmission Line (IVS-1)
- Transmission Line Connector (IVS-3)
- Transmission Line Extension (IVS-4)
- Transmission Line Connector (IVS-5)
- Corner Parcel (IVS-6)
- Substation Buffer (IVS-7)

0 Feet 2,250

FIGURE 3

Overview of the Imperial Solar Energy Center South Project

In early June 2010, willow flycatchers were detected in the tamarisk/mesquite thicket adjacent the R-2 solar field during burrowing owl surveys in the project area. Protocol surveys were then initiated to determine the subspecies and migration status of the willow flycatchers detected on-site. The survey area consisted of the tamarisk/mesquite thicket where the initial detections occurred and in a tamarisk/mesquite thicket adjacent to the Westside Main Canal, a total of approximately 17 acres. Although the May 15–May 31 survey period had passed, the initial detections were counted as the first survey. The four remaining surveys (two during each of the two remaining survey periods) were conducted in accordance with the project clearance survey protocol outlined in Sogge et al. (2010). The surveys were conducted by a qualified biologist (Brian Lohstroh) with a current USFWS endangered species recovery permit No. TE-063608-4. Additionally, RECON biologist Colby Henley (permit number TE-797665) assisted with the focused surveys.

The surveys were conducted using call-playback surveys by broadcasting a series of recorded willow flycatcher *fitz-bews* and *britts* within suitable habitat for 10–15 seconds and then listening for approximately 1 minute for a response. The process was repeated approximately every 20–30 meters. All suitable habitat within the project areas was surveyed from approximately 1 hour before sunset to as late as 09:15 A.M. in suitable weather and environmental conditions. All bird species observed during the surveys were noted. Survey dates, times, and weather conditions are provided in Table 1.

**TABLE 1
 SURVEY DATES, TIMES, AND WEATHER CONDITIONS**

Date	Surveyors	Beginning Conditions	Ending Conditions	Number of Adult WIFL
6/09/10		Detections incidental to burrowing owl surveys.		3
6/13/10	Brian Lohstroh Colby Henley	5:30 A.M.; 66°F; winds 0 mph; 0% cloud cover	9:15 A.M.; 81°F; winds 0 mph; 0% cloud cover	0
6/23/10	Brian Lohstroh Colby Henley	5:30 A.M.; 70°F; winds 0 mph; 0% cloud cover	9:00 A.M.; 88°F; winds 0 mph; 80% cloud cover	0
7/07/10	Brian Lohstroh Colby Henley	5:30 A.M.; 79°F; winds 0 mph; 0% cloud cover	9:00 A.M.; 90°F; winds 0 mph; 0% cloud cover	0
7/13/10	Brian Lohstroh Colby Henley	5:30 A.M.; 82°F; winds 0 mph; 0% cloud cover	8:30 A.M.; 91°F; winds 0 mph; 0% cloud cover	0

°F = degrees Fahrenheit; mph = mile per hour; % = percent; WIFL = willow flycatcher

Existing Conditions

Seven vegetation communities were mapped within the project area, including creosote bush–white burr sage scrub, desert wash (smoke tree woodland mix), cattail marsh, arrow weed thicket, mesquite thicket, tamarisk thicket, and active agricultural fields. Vegetation community classifications follow *A Manual of California Vegetation* (Sawyer, Keeler–Wolfe and Evens 2009). Under *A Manual of California Vegetation*, vegetation communities are classified by the dominant or co-occurring species and are referred to as alliances. A small amount of disturbed and developed land is also present within the project area.

Creosote bush–white burr sage scrub is the dominant vegetation community within the transmission line corridors. This native vegetation alliance is dominated by creosote bush (*Larrea tridentata*) and white burr sage (*Ambrosia dumosa*) with relatively sparse vegetative cover and flat topography. A number of annual species were observed during the spring general biology surveys that offered a sparse herbaceous layer between shrubs. These species include desert sunflower (*Geraea canescens*), desert sand verbena (*Abronia villosa* var. *villosa*), Peirson's browneyes (*Camissonia claviformis* ssp. *peirsonii*), pebble pincushion (*Chaenactis carophoclina* var. *carophoclina*), pincushion flower (*C. stevioides*), desert cambess (*Oligomeris linifolia*), narrow-leaved forget-me-not (*Crypthantha angustifolia*), and Mediterranean grass (*Schismus barbata*). A few scattered ironwood trees (*Olneya tesota*) are present within the creosote bush–white burr sage scrub vegetation in IVS-5, along the U.S./Mexico Border.

A number of desert washes flow northeast through the transmission corridors from Mount Signal into the Westside Main Canal. These washes are braided with the main flow channels primarily lacking in vegetation, while the sandbars and banks support the smoke tree woodland vegetation alliance. The areas dominated by smoke tree woodland support a number species, including rayless encelia (*Encelia frutescens*), sweetbush (*Bebbia juncea*), individual honey mesquite trees (*Prosopis glandulosa*) and tamarisk trees (*Tamarix aphylla*), scattered saltbush shrubs, a moderate to sparse cover of big galletta grass (*Pleuraphis rigida*), and sparse creosote bush and white burr sage.

A small amount of cattail marsh was present in one of the irrigation channels between agricultural fields. While broad-leaved cattail (*Typha domingensis*) was the dominant species in this vegetation alliance, tamarisk was also present throughout.

Arrow weed (*Pluchea sericea*) has established along the edges of the irrigation canal in many locations, forming 5- to 10-foot-deep arrow weed thickets. These thickets largely exclude other plant species, but weedy invasive species such as sow thistle (*Sonchus* sp.), Sahara mustard (*Brassica turnifortii*), and London rocket (*Sisymbrium irio*) grow along the banks in between the arrow weed thickets.

A small mesquite thicket, dominated by honey mesquite, is present along the eastern edge of the IVS-3 corridor, adjacent to an irrigation ditch. Creosote bush and Mormon tea shrubs are present in between the honey mesquite trees. A larger mesquite thicket is present outside of the survey area along the western boundary of the ISEC South solar field.

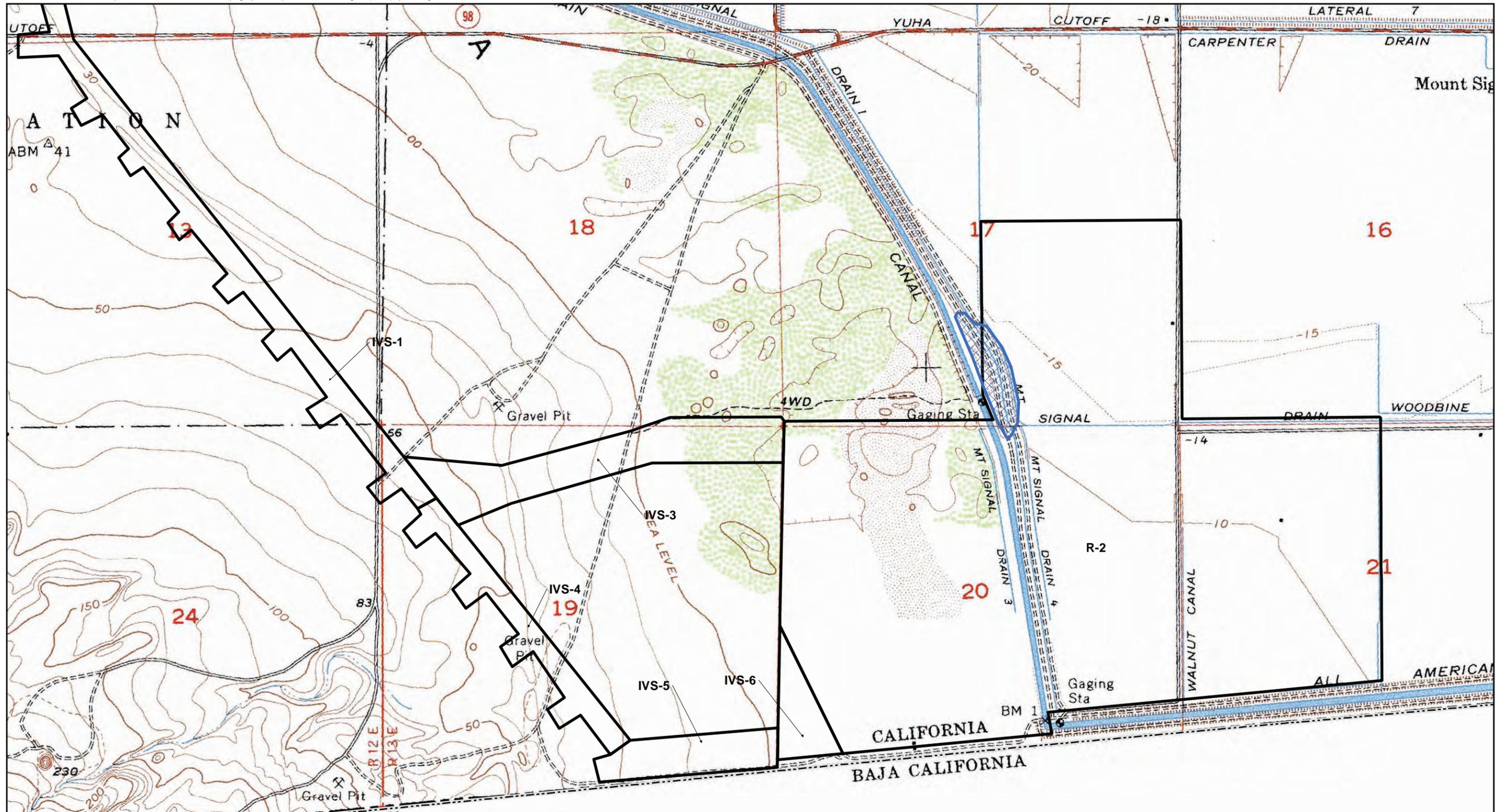
The R-2 area contains active agricultural fields and an adjacent large tamarisk thicket dominated by tamarisk trees (*Tamarix* spp.). Honey mesquite trees are interspersed within tamarisk, but not in great enough number for this vegetation to be considered a mesquite thicket.

Natural vegetation has been removed for vehicle parking and driving immediately south of State Route 98 within IVS-1, adjacent to the Imperial Valley Substation within IVS-7, and in the southeast corner of IVS-6. These areas contain little to no vegetation and are classified as disturbed land.

The Westside Main Canal, as well as other agricultural irrigation channels, runs adjacent to and in between the agricultural fields. The channels that are unvegetated, but holding water, are classified as open water.

Survey Results

Willow flycatchers were initially detected on June 9, 2010 during burrowing owl surveys in the project area. The willow flycatchers, located within the linear thicket of tamarisk and mesquite adjacent the R-2 solar field (Figure 4), were spontaneously giving "fitz-bew" and calls. In addition to the audible detections, one willow flycatcher was visually observed. No willow flycatcher was detected during the remaining four protocol surveys (June 13, June 23, July 7, and July 13, 2010).



- Project Area
- Migrant Willow Flycatcher



FIGURE 4

Locations of Migrant Willow Flycatcher

Ms. Sandy Marquez
Page 8
July 30, 2010

Based on the spontaneous calls occurring early in the season and negative detections later in the season, we conclude that the willow flycatchers detected within the project area were migrants. No resident or nesting southwestern willow flycatchers was detected. Survey data forms and USGS maps are provided in Appendix A.

Birds commonly observed during the surveys included mourning dove (*Zenaida macroura*), white-winged dove (*Z. asiatica*), red-winged blackbird (*Agelaius phoeniceus*), Brewer's blackbird (*Euphagus cyanocephalus*), greater roadrunner (*Geococcyx californianus*), Abert's towhee (*Pipilo aberti*), and black-tailed gnatcatcher (*Polioptila melanura*). Brown-headed cowbirds (*Molothrus ater*) were also observed in the survey area.

If you have any questions concerning the contents of this notification letter, please contact me.

Sincerely,



Colby Henley
Senior Biologist

DCH:eab

cc: Steve Johnson, CSOLAR Development, LLC
Magdalena Rodriguez, California Department of Fish and Game
Jennifer Whyte, Bureau of Land Management El Centro
Tim Gnibus, BRG Consulting
Patricia Valenzuela, County of Imperial

References Cited

- Ahlers, D. and D. Moore
2009 A review of vegetation and hydrologic parameters associated with the Southwestern Willow Flycatcher – 2002-2008, Elephant Butte Reservoir Delta, NM: Report by the Bureau of Reclamation, Technical Service Center, Denver, Colorado.
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- Sawyer, J. O., Keeler-Wolf T., and Evens
2009 *A Manual of California Vegetation*. California Native Plant Society. Sacramento.
- Sogge, M.K., Ahlers, Darrell, and Sferra, S.J.
2010 A natural history summary and survey protocol for the southwestern willow flycatcher: U.S. Geological Survey Techniques and Methods 2A-10, 38 p..
- Sogge, M.K. and R.M. Marshall
2000 Chapter 5: A survey of current breeding habitats, *in* Finch, D.M., and Stoleson, S.H., eds., Status, ecology, and conservation of the Southwestern Willow Flycatcher: U.S. Forest Service Rocky Mountain Research Station General Technical Report-60, p. 43-56.

References Cited (cont.)

U.S. Fish and Wildlife Service

2002 Southwestern Willow Flycatcher (*Empidonax traillii extimus*) final recovery plan: U.S. Fish and Wildlife Service, Albuquerque, New Mexico.

2005 Designation of critical habitat for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*), Final Rule: Federal Register 70:60886–61009 (October 19, 2005).

United States Geological Survey (USGS)

1976 Mount Signal quadrangle 7.5-minute topographic map.

I certify that the information in this survey report and attached exhibits fully and accurately represents my work.



Colby Henley
Permit Number TE-797665

7/30/10
Date

APPENDIX A
Survey Data Forms

Willow Flycatcher (WIFL) Survey and Detection Form (revised April 2010)

Site Name Imperial Valley Solar Project State CA County Imperial
 USGS Quad Name Plaster City, Yuha Basin, Mount Signal Elevation -8 M below sea level (meters)
 Creek, River, Wetland, or Lake Name Westside Main Canal

Is copy of USGS map marked with survey area and WIFL sightings attached (as required)? Yes No

Survey Coordinates: Start: N32.76869 W115.77004 Datum WGS 84 (See instructions)
 Stop: N32.66160 W115.66327

If survey coordinates changed between visits, enter coordinates for each survey in comments section on back of this page.

**** Fill in additional site information on back of this page ****

Survey # Observer(s) (Full Name)	Date (m/d/y) Survey time	Number of Adult WIFLs	Estimated Number of Pairs	Estimated Number of Territories	Nest(s) Found? Y or N If Yes, number of nests	Comments (e.g., bird behavior; evidence of pairs or breeding; potential threats [livestock, cowbirds, <i>Diorhabda</i> spp.]). If <i>Diorhabda</i> found, contact USFWS and State WIFL coordinator	GPS Coordinates for WIFL Detections (this is an optional column for documenting individuals, pairs, or groups of birds found on each survey). Include additional sheets if necessary.			
							# Birds	Sex	UTM E	UTM N
Survey # 1 Observer(s) Rob Klotz	Date 6/02/10 Start Stop Total hrs	3	0	0	N	Incidental observations - numerous 'fitz-bew' and 'whit' calls; one WIFL observed.	3	U	N32.66160	W115.66327
Survey # 2 Observer(s) B. Lohstroh C. Henley	Date 6/13/10 Start 0530 Stop 0915 Total hrs 3.8	0	0	0	N					
Survey # 3 Observer(s) B. Lohstroh C. Henley	Date 6/23/10 Start 0530 Stop 0900 Total hrs 3.5	0	0	0	N	No WIFL detected.				
Survey # 4 Observer(s) B. Lohstroh C. Henley	Date 7/7/10 Start 0530 Stop 0900 Total hrs 3.5	0	0	0	N	No WIFL detected.				
Survey # 5 Observer(s) B. Lohstroh C. Henley	Date 7/13/10 Start 0530 Stop 0830 Total hrs 3	0	0	0	N	No WIFL detected.				
Overall Site Summary Totals do not equal the sum of each column. Include only resident adults. Do not include migrants, nestlings, and fledglings. Be careful not to double count individuals. Total Survey Hrs		Total Adult Residents	Total Pairs	Total Territories	Total Nests	Were any Willow Flycatchers color-banded? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> If yes, report color combination(s) in the comments section on back of form and report to USFWS.				
		0	0	0	0					

Reporting Individual Brian Lohstroh Date Report Completed _____
 US Fish and Wildlife Service Permit # TE-063608-4 State Wildlife Agency Permit # 801197-03

Submit form to USFWS and State Wildlife Agency by September 1st. Retain a copy for your records.

Fill in the following information completely. Submit form by September 1st. Retain a copy for your records.

Reporting Individual Brian Lohstroh Phone # (858) 750-9300
 Affiliation Lohstroh Biological Consulting, under contract with RECON E-mail lbiological@gmail.com
 Site Name Imperial Valley Solar Project Date Report Completed _____

Was this site surveyed in a previous year? Yes ___ No x Unknown ___
 Did you verify that this site name is consistent with that used in previous years? Yes ___ No ___ Not Applicable x
 If site name is different, what name(s) was used in the past? _____
 If site was surveyed last year, did you survey the same general area this year? Yes ___ No ___ If no, summarize below.
 Did you survey the same general area during each visit to this site this year? Yes x No ___ If no, summarize below.

Management Authority for Survey Area: Federal x Municipal/County ___ State ___ Tribal ___ Private ___
 Name of Management Entity or Owner (e.g., Tonto National Forest) Bureau of Land Management

Length of area surveyed: 1.7 (km)

Vegetation Characteristics: Check (only one) category that best describes the predominant tree/shrub foliar layer at this site:

- Native broadleaf plants (entirely or almost entirely, > 90% native)
- Mixed native and exotic plants (mostly native, 50 - 90% native)
- Mixed native and exotic plants (mostly exotic, 50 - 90% exotic)
- Exotic/introduced plants (entirely or almost entirely, > 90% exotic)

Identify the 2-3 predominant tree/shrub species in order of dominance. Use scientific names.
Prosopis glandulosa, Prosopis pubescens, Tamarix aphylla

Average height of canopy (Do not include a range): ~3 (meters)

Attach the following: 1) copy of USGS quad/topographical map (REQUIRED) of survey area, outlining survey site and location of WIFL detections; 2) sketch or aerial photo showing site location, patch shape, survey route, location of any detected WIFLs or their nests; 3) photos of the interior of the patch, exterior of the patch, and overall site. Describe any unique habitat features in Comments.

Comments (such as start and end coordinates of survey area if changed among surveys, supplemental visits to sites, unique habitat features. Attach additional sheets if necessary.

WIFL detected incidentally in June during other biological surveys, WIFL surveys were initiated for this project to confirm these birds were migrants. Incidental detection date represents first survey date for this protocol survey.

Territory Summary Table. Provide the following information for each verified territory at your site.

Territory Number	All Dates Detected	UTME	UTMN	Pair Confirmed? Y or N	Nest Found? Y or N	Description of How You Confirmed Territory and Breeding Status (e.g., vocalization type, pair interactions, nesting attempts, behavior)

Attach additional sheets if necessary