Biological Technical Report for the Mount Signal Solar Farm-I, Calexico Solar Farm-I, and Calexico Solar Farm-II Projects

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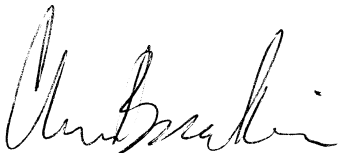

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Executive Summary

8minutenergy Renewables LLC (8minutenergy) proposes to sponsor three solar facilities and an associated transmission line west of Calexico, California. Located approximately two to eight miles west of Calexico in Imperial County, California, the three proposed solar facilities are:

- an up-to-200-megawatt (MW) photovoltaic (PV) Mount Signal Solar Farm I (MSSF-I; developed by 82LV 8ME, LLC);
- an up-to-200-MW PV Calexico Solar Farm I (CSF-I; composed of Phases A and B; developed by 88FT 8ME, LLC); and
- an up-to-200-MW PV Calexico Solar Farm II (CSF-II, composed of Phases A and B; developed by 89MA 8ME, LLC).

The three solar projects will tie into a proposed 230-kilovolt (kV) transmission line that will be constructed as part of the MSSF-I project. The Preferred and Alternative Transmission Routes follow the routes previously designed for Tenaska's Imperial Solar Energy Center (ISEC) South project, per an agreement with 8minutenergy and Tenaska.

In addition to the biological surveys conducted in 2010 for the transmission survey areas, rare plant surveys were conducted in 2011 along the transmission routes. General biological surveys, burrowing owl surveys, and avian point count surveys were conducted on the proposed solar fields.

Seven vegetation communities were mapped within the survey area, including creosote bush–white burr sage scrub, desert wash, cattail marsh, open water, 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 Bureau of Land Management sensitive flat-tailed horned lizard (*Phrynosoma mcallii*). Potentially significant impacts 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 these impacts 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 wolfii*), Thurber's pilostyles (*Pilostyles thurberi*), and Parish's desert thorn (*Lycium parishii*). One of the eleven 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.

Six sensitive wildlife species were observed during surveys: the Bureau of Land Management-sensitive burrowing owl (*Athene cunicularia*) and flat-tailed horned lizard; and the California Species of Special Concern loggerhead shrike (*Lanius ludovicianus*), crissal thrasher (*Toxostoma crissale*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), 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 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. No impacts to jurisdictional waters of the United States under United States Army Corps of Engineers jurisdiction are anticipated. A Section 1602 Streambed Alteration Agreement would 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

8minutenergy Renewables LLC (8minutenergy) proposes to sponsor three solar facilities and an associated transmission line west of Calexico, California. Located approximately 2 to 8 miles west of Calexico in Imperial County, California, (Attachment 1: Figure 1), the proposed facilities are:

- an up-to-200-megawatt (MW) photovoltaic (PV) Mount Signal Solar Farm I (MSSF-I; developed by 82LV 8ME, LLC);
- an up-to-200-MW PV Calexico Solar Farm I (CSF-I, composed of Phases A and B; developed by 88FT 8ME, LLC), and
- an up-to200-MW PV Calexico Solar Farm II (CSF-II, composed of Phases A and B; developed by 89MA 8ME, LLC) are.

The MSSF-I solar project includes three solar fields totaling approximately 1,440 acres that are situated on agricultural fields between State Route 98 to the north and the U.S.-Mexico border to the south, and between Pulliam Road to the west and Weed Road to the east (Attachment 1: Figures 2 and 3). The CSF-I solar project includes four solar fields totaling approximately 1,330 acres that are situated on agricultural fields between State Route 98 to the north and the U.S.-Mexico border to the south, and between a private road to the west (½ mile east of Pulliam Rd) and a private road to the east, one-half mile west of Ferrell Road (Attachment 1: Figures 2 and 3). This project will be constructed in two Phases (A and B) with a combined production total of up to 200 MW. The CSF-II solar project includes two solar fields totaling approximately 1,470 acres that are situated on agricultural fields generally located between Kubler Road to the north and the U.S.-Mexico border to the south, and between Hammers Road to the east and a private road to the west, one-half mile west of Corda Road (Attachment 1: Figures 2 and 3). This project will also be constructed in two Phases (A and B) with a combined production total of up to 200 MW.

The three solar projects will tie into a proposed 230-kilovolt (kV) transmission line that will be constructed as part of the MSSF-I project (Attachment 1: Figures 2 and 3). The proposed route (Preferred Transmission Route) will be constructed adjacent to the existing 230-kV transmission corridor that starts on the north side of the Imperial Valley Substation (Substation) and wraps around the eastern side of the substation to run south for 5 miles. The transmission line then runs east until it crosses into active agricultural fields and ties into the MSSF-I solar fields.

Alternatively, the projects may share all or part of a transmission line with one or more neighboring solar project(s) to interconnect to the Substation, thereby potentially reducing the length of MSSF-I's transmission line. MSSF-I may also utilize an existing

230-kV transmission line for a portion of the proposed route into the Substation. In the event that MSSF-I is granted access to the existing transmission line or lattice towers on reasonable terms, the portion of the proposed transmission route that parallels existing transmission lines may not need to be constructed if there is sufficient capacity on the existing line to accommodate all three projects (MSSF-I, CSF-I, and CSF-II).

In the event that the Preferred Transmission Route (PTR) is not feasible, 8minutenergy also identified an Alternative Transmission Route (ATR; Attachment 1: Figures 2 and 3). The ATR follows the PTR as it runs south, then continues south for 1 mile before turning east at the U.S.–Mexico Border. It then runs east for approximately 3 miles to connect to the MSSF-1 fields.

This report identifies biological resources within the proposed project areas 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 MSSF-I, CSF-I, and CSF-II projects.

1.1 Location

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

MSSF-I Assessor's Parcel Numbers (1,440 acres):

- Parcel I (560 acres): 052-210-013; 052-210-036; 052-210-034; 052-210-035
- Parcel II (380 acres): 059-130-001; 059-130-002; 059-130-004; 059-130-005
- Parcel III (330 acres): 052-210-016
- Parcel IV (170 acres): 052-190-012

CSF-I Assessor's Parcel Numbers (~1,330 acres):

- Phase A (~720 acres): 052-210-001, 052-210-002, 052-210-015, 052-210-14
- Phase B (~610 acres): 052-190-011, 052-210-037, 052-210-038, 052-210-039, 052-210-018

CSF-II Assessor's Parcel Numbers (~1,470 acres):

- Phase A (~940 acres): 059-110-006, 059-110-008, 059-130-003, 059-110-003, 059-110-007
- Phase B (~530 acres): 052-180-043, 052-180-044, 052-180-022, 052-180-050, 052-180-051

1.2 Project Description

1.2.1 MSSF-I Solar Facility Components

1.2.1.1 PV Solar Power Generating System

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 containers, an electrical collection system, and one or more substations. The facility would also have auxiliary equipment which would include safety and security equipment and operations and maintenance facilities.

MSSF-I will utilize non-reflective PV panels (or modules) to convert sunlight directly into electricity. Individual panels will be installed on either fixed-tilt or tracker mount systems, which will stand up to 15 feet high (depending on the mount) while either flat or tilted up to approximately 25 degrees from horizontal. The solar array field will be arranged in grids, and each grid will include an inverter container and a pad-mounted transformer near the center. MSSF-I will also have several electrical control containers throughout the project. MSSF-I will require the installation of up to 1.6 million photovoltaic panels to generate up to 200 MW alternate current (AC) (nameplate capacity of up to approximately 264 MW direct current [DC]). The initial energy production of MSSF-I will be up to approximately 480,000 MW hours per year.

Imperial Irrigation District (IID) canals, drains, and roads account for approximately 32 acres of the 1,440-acre agricultural parcels; therefore, it is assumed that temporary and/or permanent solar farm impacts will occur within the remaining 1,408 acres of agricultural fields for the proposed solar field sites, while the IID facilities will remain intact. Construction impact associated with the solar field consists of the use of heavy equipment, on-site cement mixing, and deliveries of equipment.

1.2.1.2 Solar Field Auxiliary facilities

Access to the MSSF-I is via existing paved roads (SR-98 and Ferrell Road). The site will be enclosed with a low-voltage 8-foot-high enhanced security fence with perimeter landscaping along public roads. The fencing will be screened with neutral colored slats (or similar) along public roads. The fence and landscaping would largely screen the project from view and beautify the project's frontages to ensure that the project would not adversely impact scenic resources or the visual character of the site and its surroundings.

The operations and maintenance (O&M) building's parking lot and access driveway will be paved (but not curbed). Internal maintenance/access roads will be spaced up to 500 feet apart and will have a semi-permeable Class II gravel base. Alternatively, MSSF-I may share the cost of a Wildland Type II (or similar) fire truck with other nearby solar projects to permit the fire department access throughout the site. The roads, driveways, and parking lots will meet the Department of Public Works and Fire/Office of Emergency Services (OES) Standards as well as those of the Air Pollution Control District. Parking spaces and walkways will be paved with concrete to meet all California Accessibility Regulations.

Project lighting will be primarily in the area of the 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.

1.2.1.3 Operations and Maintenance

82LV 8ME, LLC intends for MSSF-I to have an O&M building (up to approximately 320 square feet, or 40' x 80'), with associated parking, which will be constructed near the southwest corner of Ferrell Road and SR-98 (see Site Layout in the Appendix). Alternatively, the O&M building site could be located near the southwest corner of Ferrell Road and a dirt road (½ mile south of SR-98). The O&M building will be steel framed, with metal siding and roof panels, painted to match the surrounding setting (desert sand). The O&M building site will have a septic tank and leach field for wastewater disposal. A water system and small water treatment plant will be placed at the O&M building to provide onsite de-ionized water for panel washing. It is possible that MSSF-I would share another legal entity's O&M facilities. In that scenario, MSSF-I would therefore not require on-site O&M facilities (O&M building with associated parking area, water tank(s), dedicated 10,000 gallons of fire-fighting water to protect the O&M building, etc.).

Up to six (6) full time employees will operate MSSF-I. Typically, up to three (3) staff members will work during the day shift (sunrise to sunset), and the remainder during the night shifts and weekends. It is possible that MSSF-I would share another legal entity's O&M facilities. In that scenario, MSSF-I would also share personnel with that legal entity, thereby reducing or eliminating the on-site staff required for MSSF-I.

Panel washing requires about one quart of water for each panel per month. It is estimated that water demand from the IID canal for panel washing and domestic use will not exceed 80 acre-feet per year. A total of approximately 20,000 to 70,000 gallons of water will be stored in steel tank(s) placed above ground on-site at the water treatment area, under a metal shade structure. A total of 10,000 gallons of water will be exclusively dedicated for O&M firefighting purposes, i.e., to protect the O&M building only. Portions of the MSSF-I site may be landscaped with saltgrass (*Distichlis spicata*) or other

vegetation that is suitable for burrowing owl foraging habitat. A small amount of water may be used to drip irrigate this vegetation. A soil stabilizer will be used in areas where vegetation is not installed.

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 (approximately 3 times per year)
- Equipment inspections
- Maintaining the substation(s)
- 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.

1.2.1.4 Termination and Restoration

The generating facility's total useful operating life with appropriate maintenance, repair, and component replacement procedures is expected to be up to 40 years. The project proponent will purchase the land for MSSF-I and may return the land to active agriculture when the operations are terminated.

1.2.2 CSF-I Solar Facility Components

88FT 8ME, LLC proposes to situate the solar array on agricultural lands generally located between State Route 98 to the north and the U.S.-Mexico border to the south, and between a private road to the west (½ mile east of Puliam Rd) and a private road to the east (½ west of Ferrell Road). Any IID irrigation canals and drains will remain in place, including maintenance access roads as per IID easements.

88FT 8ME, LLC plans to develop the CSF-I project in two phases: Phase A and Phase B, each with a separate Conditional Use Permit (CUP) Application, and each intended to generate up to 100 MW. In addition, each phase is intended to have its own O&M building and on-site substation. The Applicant intends for each CUP application of the project's two phases to produce up to 100 MW. However, each phase may produce up to 200 MW if the other phase either does not get built at all or does not get built to its full

100-MW share. The total output of both CUPs and phases combined will not exceed a total of 200 MW in any scenario.

CSF-I's interconnection will occur at the 230-kV side of the SDG&E Imperial Valley (IV) Substation, located approximately 5 miles northwest of the project site. The Applicant intends to interconnect via 230-kV transmission facilities shared with one or more solar projects in the vicinity; several suitable transmission facilities are currently planned in CSF-I's immediate area. CSF-I intends to transfer electrical power from both of its on-site substations (one each on Phase A and Phase B land) to IV Substation via an off-site shared substation and transmission facility constructed, owned, operated, and funded by Mount Signal Solar Farm I (82LV 8ME, LLC). If CSF-I's on-site transmission, substation, and/or O&M facilities would be reduced or eliminated, those areas could instead be covered with solar panels.

1.2.2.1 PV Solar Power Generating System

CSF-I will utilize non-reflective PV panels (or modules) to convert sunlight directly into electricity. Individual panels will be installed on either fixed-tilt or tracker mount systems, which will stand up to 15 feet high (depending on the mount) while either flat or tilted up to approximately 40 degrees from horizontal. The solar array field will be arranged in grids, and each grid will include an inverter container and a pad-mounted transformer near the center. CSF-I will also have several electrical control containers throughout the project. CSF-I as a whole will require the installation of up to 1.6 million photovoltaic panels to generate up to 200 MW AC (nameplate capacity of approximately 264 MW DC). The initial energy production of CSF-I as a whole will be up to approximately 480,000 MW hours per year.

The IID canals, drains, and roads account for approximately 32 acres of the 1,330-acre agricultural parcels; therefore, it is assumed that temporary and/or permanent solar farm impacts will occur within the remaining 1,298 acres of agricultural fields for the proposed solar field sites, while the IID facilities will remain in-tact. Construction impact associated with the solar field consists of the use of heavy equipment, on-site cement mixing, and deliveries of equipment.

1.2.2.2 Solar Field Auxiliary facilities

Access to the CSF-I is via existing paved roads (SR-98 and Brockman Road). The site will be enclosed with a low-voltage 8-foot-high enhanced security fence with perimeter landscaping along public roads. The fencing will be screened with neutral colored slats (or similar) along public roads. The fence and landscaping would largely screen the project from view and beautify the project's frontages to ensure that the project would not adversely impact scenic resources or the visual character of the site and its surroundings.

The O&M building's parking lot and access driveway will be paved (but not curbed). The roads, driveways, and parking lots will meet the Department of Public Works and Fire/OES Standards as well as those of the Air Pollution Control District. Alternatively, CSF-I may share the cost of a Wildland Type II (or similar) fire truck with other nearby solar projects to permit the fire department access throughout the site. Parking spaces and walkways will be paved with concrete to meet all California Accessibility Regulations.

Project lighting will be primarily in the area of the 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.

1.2.2.3 Operations and Maintenance

The Applicant intends for each phase of CSF-I to have a separate O&M building (up to approximately 320 square feet each, or 40' x 80' each) with associated parking, which will be constructed near the southeast corner of Brockman Road and SR-98 for Phase A and the southeast corner of Brockman Road and Anza Road for Phase B. The O&M buildings will be steel framed, with metal siding and roof panels, painted to match the surrounding setting (desert sand). Each O&M building site will have a septic tank and leach field for wastewater disposal. A water system and small water treatment plant will be placed at each O&M building to provide onsite de-ionized water for panel washing. It is possible that CSF-I would share another legal entity's O&M facilities. In that scenario, CSF-I's own on-site O&M facility needs would therefore be reduced or eliminated, and any unused O&M building area depicted in the Site Layout would instead be covered by solar panels.

Up to twelve (12) full time employees will operate the entire CSF-I project (split roughly evenly between phases, and between daytime and nighttime shifts). Typically, up to six (6) staff members total for both phases combined will work during the day shift (sunrise to sunset), and the remainder during the night shifts and weekends. As noted earlier, it is possible that one phase of CSF-I would simply feed its power to the other phase. In that scenario, CSF-I's phases would share personnel, thereby reducing the staff required for CSF-I as a whole to a total of approximately ten (10) staff. It is also possible that CSF-I would share another legal entity's O&M facilities. In that scenario, CSF-I would also share personnel with that legal entity, thereby reducing or eliminating the on-site staff required for CSF-I.

Panel washing requires about one quart of water for each panel per month. It is estimated that water demand from the IID canal for panel washing and domestic use will not exceed 80 acre-feet per year for CSF-I as a whole (split between phases roughly in proportion to their respective acreages). A total of approximately 20,000 to 70,000

gallons of water for CSF-I as a whole (split between phases roughly in proportion to their respective acreages) will be stored in steel tank(s) placed above ground on-site at the water treatment area, under a metal shade structure. A total of 10,000 gallons of water for each O&M building will be exclusively dedicated for O&M firefighting purposes, i.e., to protect the O&M building only. Portions of the MSSF-I site may be landscaped with saltgrass or other vegetation that is suitable for burrowing owl foraging habitat. A small amount of water may be used to drip irrigate this vegetation. A soil stabilizer will be used in areas where vegetation is not installed.

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 substation(s)
- Noxious weed abatement
- 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.

1.2.2.4 Termination and Restoration

The generating facility's total useful operating life with appropriate maintenance, repair, and component replacement procedures is expected to be up to 40 years.

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

1.2.3 CSF-II Solar Facility Components

89MA 8ME, LLC proposes to situate the solar array on agricultural lands generally located between Kubler to the north and the U.S.–Mexico border to the south, and between Hammers Road to the east and a private road to the west (½ mile west of Corda Road). Any IID irrigation canals and drains will remain in place, including maintenance access roads as per IID easements.

89MA 8ME, LLC plans to develop this project in two phases: Phase A and Phase B, each with a separate CUP, and each intended to generate up to 100 MW. The Applicant further intends for each phase to have its own O&M building and on-site substation. The Applicant intends for each of the project's two phases to produce up to 100 MW. However, each phase may produce up to 200 MW if the other phase either does not get built at all or does not get built to its full 100-MW share. The total output of both phases combined will not exceed a total of 200 MW in any scenario.

CSF-II's interconnection will occur at the 230-kV side of the SDG&E Imperial Valley (IV) Substation, located approximately 7 miles northwest of the project site. The Applicant intends to interconnect via 230 kV transmission facilities shared with one or more solar projects in the vicinity; several suitable transmission facilities are currently planned in CSF-II's immediate area. CSF-II intends to transfer electrical power from both of its on-site substations (one each on Phase A and Phase B land) to IV Substation via an off-site shared substation and transmission facility constructed, owned, operated, and funded by Mount Signal Solar Farm I (82LV 8ME, LLC). If CSF-I's on-site transmission, substation, and/or O&M facilities would be reduced or eliminated, those areas could instead be covered with solar panels.

1.2.3.1 PV Solar Power Generating System

CSF-II will utilize non-reflective PV panels (or modules) to convert sunlight directly into electricity. Individual panels will be installed on either fixed-tilt or tracker mount systems, which will stand up to 15 feet high (depending on the mount) while either flat or tilted up to approximately 40 degrees from horizontal. The solar array field will be arranged in grids, and each grid will include an inverter container and a pad-mounted transformer near the center. CSF-II will also have several electrical control containers throughout the project. CSF-II as a whole will require the installation of up to 1.6 million photovoltaic panels to generate up to 200 MW AC (nameplate capacity of approximately 264 MW DC). The initial energy production of CSF-II as a whole will be up to approximately 480,000 MW hours per year. The solar array areas will have low-lying grass and/or a soil stabilizer to control dust and storm-water erosion.

The IID canals, drains, and roads account for approximately 32 acres of the 1,470-acre agricultural parcels; therefore, it is assumed that temporary and/or permanent solar farm impacts will occur within the remaining 1,438 acres of agricultural fields for the proposed solar field sites, while the IID facilities will remain in-tact. Construction impact associated with the solar field consists of the use of heavy equipment, on-site cement mixing, and deliveries of equipment.

1.2.3.2 Solar Field Auxiliary facilities

Access to the CSF-II is via existing paved roads (SR-98, Ferrell Road, and Weed Road). The site will be enclosed with a low-voltage 8-foot-high enhanced security fence with

perimeter landscaping along public roads. The fencing will be screened with neutral colored slats (or similar) along public roads. The fence and landscaping would largely screen the project from view and beautify the project's frontages to ensure that the project would not adversely impact scenic resources or the visual character of the site and its surroundings.

The O&M building's parking lot and access driveway from will be paved (but not curbed). The roads, driveways and parking lots will meet the Department of Public Works and Fire/OES Standards as well as those of the Air Pollution Control District. Alternatively, CSF-II may share the cost of a Wildland Type II (or similar) fire truck with other nearby solar projects to permit the fire department access throughout the site. Parking spaces and walkways will be paved with concrete to meet all California Accessibility Regulations.

Project lighting will be primarily in the area of the 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.

1.2.3.3 Operations and Maintenance

The Applicant intends for each phase of CSF-II to have a separate O&M building (up to approximately 320 square feet each, or 40' x 80' each), with associated parking, which will be constructed near the southeast corner of Weed Road and SR-98 for Phase A and the northwest corner of Ferrell Road and SR-98 for Phase B (see Site Layout in the Appendix). The O&M buildings will be steel framed, with metal siding and roof panels, painted to match the surrounding setting (desert sand). Each O&M building site will have a septic tank and leach field for wastewater disposal. A water system and small water treatment plant will be placed at each O&M building to provide on-site de-ionized water for panel washing. It is possible that CSF-II would share another legal entity's O&M facilities. In that scenario, CSF-II would therefore not require on-site O&M facilities (O&M building with associated parking area, water tank(s), dedicated 10,000 gallons of fire-fighting water to protect the O&M building, etc.). The O&M building area depicted in the Site Layout would instead be covered by solar panels.

Up to twelve (12) full time employees will operate the entire CSF-II project (split roughly evenly between phases, and between daytime and nighttime shifts). Typically, up to six (6) staff members total for both phases combined will work during the day shift (sunrise to sunset), and the remainder during the night shifts and weekends. As noted earlier, it is possible that one phase of CSF-II would simply feed its power to the other phase. In that scenario, CSF-II's phases would share personnel, thereby reducing the staff required for CSF-II as a whole to a total of approximately ten (10) staff.

Panel washing requires about one quart of water for each panel per month. It is estimated that water demand from the IID canal for panel washing and domestic use will not exceed 80 acre-feet per year for CSF-II as a whole (split between phases roughly in proportion to their respective acreages). A total of approximately 20,000 to 70,000 gallons of water for CSF-II as a whole (split between phases roughly in proportion to their respective acreages) will be stored in steel tank(s) placed above ground on-site at the water treatment area, under a metal shade structure. A total of 10,000 gallons of water for each O&M building will be exclusively dedicated for O&M firefighting purposes, i.e., to protect the O&M building only. Portions of the MSSF-I site may be landscaped with saltgrass or other vegetation that is suitable for burrowing owl foraging habitat. A small amount of water may be used to drip irrigate this vegetation. A soil stabilizer will be used in areas where vegetation is not installed.

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 substation(s)
- 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.

1.2.3.4 Termination and Restoration

The generating facility's total useful operating life with appropriate maintenance, repair, and component replacement procedures is expected to be up to 40 years.

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

1.2.4 230-kV Transmission Line

1.2.4.1 Construction

The MSSF-I Project would construct a 230-kV transmission line extending from the north side of the existing substation south approximately 5 miles and then east through agricultural land to connect to the solar fields (Attachment 1: Figures 2 and 3). The proposed transmission facility is designed for single or multiple 230-kV circuits to accommodate the outputs from additional solar projects in the area. This minimizes the potential disturbance on BLM lands. MSSF-I is attempting to negotiate with other project developers in the area regarding the potential to share the construction, operation, and maintenance of such a transmission line. However, no such agreement currently exists. MSSF-I is also willing to facilitate a joint electrical substation on MSSF-I property to combine the outputs from multiple projects onto a single transmission line.

For the MSSF-I preferred transmission facility, steel lattice towers will be used from the ROW's origination point on BLM land to the Southwest Power Link located at the southern end of the Imperial Valley Substation. Steel A-frame structures (or similar) will be used to cross the Southwest Power Link, and steel or concrete monopoles will be used for the remainder of the transmission facility entering the substation from the north end.

Transmission support structures (towers and monopoles) will be erected on the centerlines of the ROW, with lattice towers spaced approximately 900 to 1,150 feet apart (center to center) and monopoles spaced approximately 600 to 800 feet apart. Where possible, these structures will be positioned roughly in line with the existing transmission line towers and offset approximately 120 feet from the nearest set of towers. The proposed project will utilize different variations of tower and monopole support structures to serve different functions, with tower heights generally up to 140 feet high and monopole heights generally 100 feet (up to 140 feet for triple circuit). The minimum ground clearance of the conductor cable will be 36 feet, with cable sway ranging from 10 to 25 feet.

Approximately 5 miles of MSSF-I's preferred transmission facility runs parallel to existing 230-kV transmission lines located on federal land. To date, MSSF-I has not been granted access to these existing lines or their respective lattice towers. However, in the event that access is granted to MSSF-I on reasonable terms, and sufficient capacity is available to accommodate MSSF-I, CSF-I, and CSF-II, only the portion of MSSF-I's preferred transmission facility between the planned photovoltaic facility and the existing transmission line may need to be constructed. At the point where MSSF-I's preferred transmission facility meets the existing transmission line, MSSF-I could connect to the existing transmission line. Therefore, the remaining 5 miles of the preferred transmission facility may not need to be constructed in that scenario.

1.2.4.1.1 Access Roads

The proposed transmission facility is sited to follow existing roads, where possible, to minimize the project's ground disturbance footprint on BLM lands. To the extent possible, therefore, existing roads will provide access for project construction, operation, and maintenance. Grading of access roads may be necessary, but will be minimized. New unpaved access roads will generally be up to 12 feet wide. Access roads will use native soils. Certain temporary access roads, e.g., those required for pull sites, will be restored following construction.

1.2.4.1.2 Structure Sites and ROW

The clearing of some natural vegetation may be required. However, selective clearing will be performed only when necessary to provide for surveying, electrical clearance, line reliability, construction and maintenance operations, etc. Vegetation that cannot reasonably be avoided will be removed by shovel, small backhoe, chain saw, and/or brush cutters. Vegetation will be salvaged for use as mulch, cover for topsoil, or in rehabilitation of temporary disturbance sites. The ROW area will not be chemically treated unless necessary to comply with requirements of the permitting agency, and only upon approval by the BLM Authorized Officer. Any chemical used will be approved by the BLM Authorized Officer.

A temporary construction ROW may include areas beyond the permanent ROW at selected structure sites. These areas would be necessary to facilitate the safe operation of equipment.

1.2.4.1.3 Construction Yards and Work Areas

To minimize the temporary disturbance of BLM land, construction yards and work areas will be located on private land to the extent possible. Construction yards located on private land will be fenced and the gates locked. Construction areas located on BLM land may be flagged and/or staked. No storage of fuels, lubricants, or hazardous materials is currently anticipated on BLM land; if storage of any such materials becomes necessary, BLM approval will be required.

1.2.4.1.4 Foundation Installation

Preparation at each support structure location will consist of preparing concrete foundation footings. Each tower requires four footings—one on each corner—while a single footing is needed for each monopole. Tower base dimensions range from approximately 30 feet by 30 feet to 40 feet by 40 feet, with each concrete footing approximately 3 to 8 feet in diameter. Monopoles footings range from approximately 5 to 10 feet in diameter. A-Frames require four footings, each approximately 4 to 8 feet in diameter.

Setting these foundations will require the movement of equipment along access roads. The primary equipment used in setting foundations will be cement trucks, pickup trucks, and small construction equipment such as backhoes and skip loaders for excavation. Excavation or drilling for support structures will be done with power equipment.

1.2.4.1.5 Structure Assembly and Erection

Poles and associated hardware will be shipped to each support structure site by truck. Support structures will be anchored to the concrete foundations previously installed. Work areas at each structure site will be approximately 60 feet by 80 feet or up to 140 feet by up to 140 feet at dead-end sites. To minimize the temporary disturbance of BLM land, some structure assembly may be performed on private land if feasible.

Once these support structures are in place, conductors will be strung for the entire length of the transmission line via truck-mounted cable-pulling equipment. Cables will be pulled through one segment of the transmission line at a time. To pull cables, truck-mounted cable-pulling equipment is placed alongside the first and last towers or poles in a segment. Power pulling equipment is used at the front end of the segment, while power braking or tensioning equipment is used at the back end. The conductors are then pulled through the segment and attached to the insulators. Then, the equipment is moved to the next segment, and the front-end pull site just used becomes the back-end pull site for the next segment. Temporary cable pulling and tensioning site dimensions are typically 60 feet by 100 feet. Temporary wire splicing will take place within the designated pull sites or other temporary work areas in order to minimize temporary land disturbance.

At the crossing structure south of the Southwest Power Link, the static wires will be brought down by 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 will be backfilled.

1.2.4.1.6 Cleanup and Restoration

Construction sites, material storage yards, and access roads will be kept in an orderly condition throughout the construction period. Any refuse and trash, including stakes and flags, will be removed from the sites and disposed of in an approved manner. No construction equipment oil or fuel will be drained on the ground. Oils or chemicals will be hauled to an approved site for disposal. No open burning of construction trash will occur on BLM-administered land.

All temporary work areas will be re-contoured to their original topography, and native vegetation will be restored in accordance with the project's Habitat Restoration Plan.

1.2.4.1.7 Personnel and Vehicles

The workers and vehicles expected to be required to construct the proposed transmission line are estimated below.

TOWER CONSTRUCTION REQUIREMENTS

Vehicles	Personnel
Foundation Installation	
Drilling Rig	1: Operator
Boom Truck	1: Operator
Flat Bed Truck	1: Operator
Crew Truck(s)	5: Crew
Concrete Truck	1: Driver/Operator
Tower Erection	
Bucket Truck	1: Driver/Operator
Boom Truck	1: Driver/Operator
Crew Truck(s)	6: Linemen/Groundmen
Helicopter Support	1: Spotter
Cable Pulling	
Truck (Puller)	2: Driver + Operator
Truck (Tensioner)	2: Driver + Operator
Crew Truck	6: Linemen/Groundmen
Crew Truck	3: Spotters

MONOPOLE CONSTRUCTION REQUIREMENTS

Vehicles	Personnel
Foundation Installation	
Drilling Rig	3: Driver + Operator + Support
Crane	2: Driver + Operator
Boom Truck	1: Operator
Flat Bed Truck	1: Operator
Crew Truck(s)	6: Crew
Concrete Truck	1: Driver/Operator
Pole Erection	
Bucket Truck	2: Driver + Operator
Boom Truck	3: Driver + Operator+ Support
Crew Truck(s)	6: Linemen/Groundmen
Helicopter Support	1: Spotter
Cable Pulling	
Truck (Puller)	2: Driver + Operator
Truck (Tensioner)	2: Driver + Operator
Crew Truck	6: Linemen/Groundmen
Crew Truck	3: Spotters

In addition, the project will require the following:

- Engineering Surveys: truck(s) and 3 crew
- Cleanup and Restoration: truck(s) and 4 crew

Final equipment and personnel requirements will be determined in the detailed design phase

1.2.4.1.8 Estimated Disturbance

As noted earlier, transmission line routes were analyzed with an emphasis on providing the smallest ground-disturbance footprint on BLM lands. Therefore, the proposed transmission facility is sited to follow existing roads where possible and appropriate. Transmission tower and monopole foundations are relatively small and therefore have a smaller impact than the construction of new roads.

Permanent impact areas will be those areas where the surface of the ground is permanently disturbed, such as those relating to foundations or new access roads. Temporary impacts will occur in areas where construction activity will take place but where restoration of the surface will be possible, such as those relating to temporary work areas, cable pulling and tensioning sites, and wire splicing sites. In some places, areas of temporary disturbance will overlap with areas previously disturbed by prior transmission line installations. In addition, off-site construction and work areas will be utilized to the extent possible. Thus, the project's estimated temporary impact areas are likely somewhat overstated.

The Preferred Transmission Route would result in up to 2.9 acres of permanent impacts and up to 7.3 acres of temporary impacts from the following Project components:

- Permanent Access Roads (12 feet wide)
- 58 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)
- 58 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

8minutenergy is also proposing an ATR. The ATR follows the PTR as it runs south, then continues south for 1 mile before turning east at the U.S.–Mexico Border.

The ATR would result in up to 3.2 acres of permanent impacts and up to 7.8 acres of temporary impacts:

- Permanent Access Roads (12 feet wide)
- 58 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)
- 58 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

1.2.4.2 Operations and Maintenance

Operation and maintenance requirements for transmission lines are relatively limited and generally quite infrequent. Inspections are typically performed annually (via ground or air), with maintenance limited to any issues detected by the annual inspection or via the communications cable system information. Relevant activities could include, but may not be limited to, the following:

- Maintenance grading of access roads
- Insulator washing
- Repair or replacement of lines
- Replacement of insulators
- Painting tower or pole identification markings or corroded areas
- Response to emergency situation (e.g., outages) to restore power

For most of these operations, equipment will likely use the access roads, with no additional disturbance. Typical equipment used when maintenance is required will be two line trucks (large 4-wheel drives) with carrying man-lift buckets.

Transmission line conductors may occasionally need to be upgraded or replaced over the life of the line. Old cables will be taken down and new cables will be strung on the insulators in an operation similar to the cable-pulling operation used initially to install the conductors.

1.2.4.3 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 native seed mixes.

1.3 Regulatory Environment

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

1.3.1 Federal Protection for Sensitive Wildlife Species and Habitats

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."

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 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."

Flat-tailed Horned Lizard Rangewide Management Strategy (FTHL RMS). Flat-tailed Horned Lizard Interagency Coordinating Committee (ICC)'s *FTHL RMS* (2003) designated five Management Areas (MAs) to help focus conservation and management of FTHL key populations.

Federal Noxious Weed Act (FNWA). The FNWA of 1974, enacted in January 1975, "provides for the control and management of nonindigenous weeds that injure or have the potential to injure the interests of agriculture and commerce, wildlife resources, or the public health". This Act defines a noxious weed as "any living stage, such as seeds and reproductive parts, of any parasitic or other plant of a kind, which is of foreign origin, is new to or not widely prevalent in the United States, and can directly or indirectly injure crops, other useful plants, livestock, or poultry or other interests of agriculture, including irrigation, or navigation, or the fish or wildlife resources of the United States or the public health" (7 U.S.C. 2801 et seq.). The Act requires that each federal agency: develop a management program to control undesirable plants on federal lands under the agency's jurisdiction; establish and adequately fund the program; implement cooperative agreements with state agencies to coordinate management of undesirable plants on federal lands; establish integrated management systems to control undesirable plants targeted under cooperative agreements (7 U.S.C. 2801 et seq.).

1.3.2 California State Protection for Sensitive Wildlife Species and Habitats

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 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".

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.

1.3.3 Local

County of Imperial General Plan. Relevant County of Imperial General Plan policies related to biological resources are provided below (Imperial County 1993 and 2008).

- **Open Space Conservation Policy:** The County shall participate in conducting detailed investigations into the significance, location, extent, and condition of natural resources in the County, and re required to notify any agency responsible for protecting plant and wildlife before approving a project which would impact a rare, sensitive, or unique plant or wildlife habitat.

- **Land Use Element Policy:** The General Plan covers the unincorporated area of the County and is not site specific, however, a majority of the privately owned land is located in the area identified by the General Plan as "Agriculture," which is also the predominate area where burrowing owls create habitats, typically in the brims and banks of agricultural fields. Prior to approval of development of existing agricultural land either in form of one parcel or a numerous adjoining parcels equally a size of 10 acres or more shall prepare a Biological survey and

mitigate the potential impacts. The survey must be prepared in accordance with the United States Fish and Wildlife and California Department of Fish and Game regulations, or as amended.

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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.

RECON conducted biological surveys within the preferred and alternative transmission corridors in 2010 for Tenaska's Imperial Solar Energy Center (ISEC) South project. The MSSF-I's proposed preferred and alternative transmission corridors include the ISEC South's corridors entirely as well as an additional survey area along the perimeter.. Tenaska has agreed to share the survey data for the overlapping areas with 82LV 8ME, LLC and 8minutenergy Renewables, LLC for the purposes of this report preparation and the NEPA review process. Details of the surveys conducted are described below.

2.1 Field Surveys

The 4,911.6-acre survey area includes the following projects/project components:

- PTR-1: Preferred Transmission Line Segment 1—300-foot corridor (120-foot ROW + 90-foot survey buffer; 285.5 acres)
- PTR-2: Preferred Transmission Line Segment 2—500-foot corridor (120-foot ROW + 190-foot survey buffer; 204.0 acres [not including acreage overlapping solar fields])
- ATR-1: Alternative Transmission Line Segment 1—300-foot corridor (120-foot ROW + 90-foot survey buffer; 33.6 acres)
- ATR-2: Alternative Transmission Line Segment 2—500-foot corridor (120-foot ROW + 190-foot survey buffer; 148.5 acres)
- MSSF-I Solar Fields: 1,440 acres
- CSF-I Solar Fields: 1,330 acres
- CSF-II Solar Fields: 1,470 acres

2.1.1 General Biological Surveys

2.1.1.1 Transmission Line

A general biological survey of the transmission line survey areas (PTR-1, PTR-2, ATR-1, and ATR-2) was conducted by RECON biologists Cheri Bouchér and Carianne F. Campbell on March 24, 2010, with supplemental surveys conducted from March 29 through April 15, 2010, for the ISEC South project (RECON 2010a). 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-feet 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.

General surveys of the PTR to the east of Puliam Road, on privately owned lands, were conducted by Barrett Biological in conjunction with the general biological surveys for the MSSF-I solar fields and are detailed in the *Mount Signal Solar Farm-I: Biological Technical Report* (Barrett Biological 2011a). These surveys were conducted in October, November, and December 2010.

2.1.1.2 MSSF-I, CSF-I, and CSF-II Solar Fields

A pedestrian biological survey of the project area and transmission line to document vegetation and animals was conducted by Marie Barrett and Glenna Barrett, detailed in the *Mount Signal Solar Farm-I: Biological Technical Report* (Barrett Biological 2011a). These surveys were conducted in October, November, and December 2010 to develop an inventory of species (plant and animal) present at the time of the surveys; map vegetative communities; and ascertain the potential for occurrence of sensitive, endangered, or threatened species within the project area and vicinity. A similar survey was conducted for the CSF-I solar fields in March, April, and May 2011, as detailed in the *Calexico Solar Farm-I: Biological Technical Report* (Barrett Biological 2011b), and for the CSF-II solar fields in March and April, as detailed in the *Calexico Solar Farm-II: Biological Technical Report* (Barrett Biological 2011c).

2.1.2 Transmission Route Rare Plant Surveys

RECON conducted surveys for rare plants along the transmission routes within native desert habitats (BLM-owned land) in the spring and fall of 2010, and the spring of 2011. Rare plant surveys followed the *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009).

Floral nomenclature for all surveys followed 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.

Spring 2010

An initial search was conducted within PTR-1, PTR-2, ATR-1, and ATR-2 in the spring of 2010 in conjunction with Tenaska's ISEC South project (RECON 2010b). The survey 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 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).

Fall 2010

A complete floristic survey, as defined in *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009), was conducted within the survey area between November 8 and 19, 2010 (RECON 2011a). Prior to September 29, 2010, the only summer rain El Centro received was 0.16 inch on August 28, 2010. Between September 29 and October 3, 2010, El Centro received 1.25 inches of rain and another 0.18 inch of rain on October 19 and 20, 2010. RECON conducted a reconnaissance visit to the survey area on October 20, 2010 to determine the status of germination that might have occurred following the early October rain. Of the few annual plants that were germinating, none were in flower. It was determined that a survey conducted in mid-November would likely yield the best timing to observe the annual fall species in bloom. Therefore, surveys were conducted the weeks of November 8 and 15, 2010.

Spring 2011

On March 30 and 31, 2011, a targeted search for rare plants, as defined in the *Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species* (BLM 2009), was conducted within the PTR that was previously surveyed in fall 2010 (RECON 2011b). Approximately 100 acres of the PTR were surveyed, including a thorough search in the smoke-tree woodland vegetation, and searches within representative areas containing creosote bush–white burr sage scrub vegetation.

2.1.3 Burrowing Owl Surveys

Burrowing owl surveys were conducted in accordance with the 1993 California Burrowing Owl Consortium's *Burrowing Owl Survey Protocol and Mitigation Guidelines* (CBOC 1993).

2.1.3.1 Transmission Corridors

RECON conducted nesting season surveys within the PTR and ATR for the ISEC South project in summer of 2010 (RECON 2011d), and data from the 2010 surveys have been incorporated into this report, including species observations.

2.1.3.2 MSSF-I, CSF-I, and CSF-II Solar Fields

Barrett Biological conducted winter surveys for burrowing owl within the MSSF-I, CSF-I, and CSF-II solar fields during October, November, and December 2011, as well as a follow-up nesting season survey on June 29, 2011 (Barrett Biological 2011a).

A similar survey was conducted for the CSF-I solar fields in March, April, and May 2011, as detailed in the *Calexico Solar Farm-I: Biological Technical Report* (Barrett Biological 2011b); and for the CSF-II solar fields in March and April, as detailed in the *Calexico Solar Farm-II: Biological Technical Report* (Barrett Biological 2011c).

2.1.4 Solar Field Avian Point Counts

RECON biologists Rob Klotz and Beth Procsal, and Glenna Barrett of Barrett Consulting, Inc., conducted the point-count surveys on the MSSF-I, CSF-I, and CSF-II proposed solar fields for four consecutive weeks in April 2011. The surveys were conducted in accordance with BLM Solar Facility Point-count Protocol (BLM 2009). Per these survey guidelines, two surveyors conducted point-count surveys along one transect per square mile (640 acres), each of which contained eight point-count locations spaced at least 250 meters apart. Point-count locations along the survey transects were originally placed in straight lines; however, during surveys, some of the locations were relocated slightly due to flooded fields and crops that were too tall and dense to walk through. Survey dates, times, and personnel are provided in *Survey Results for Spring 2011 Avian Point-counts for the Mount Signal Solar Farm I, Calexico Solar Farm I, and Calexico Solar Farm II Projects* (RECON 2011e). Species observations are incorporated into this report.

2.1.5 Jurisdictional Delineation

RECON biologists conducted a jurisdictional waters delineation for the ISEC South project area in 2010 (RECON 2010c), which overlaps the PTR and ATR survey areas. 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 (CNDDB; 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.

Given the direct overlap of the MSSF-I proposed transmission corridors with the transmission corridors previously proposed for the ISEC South project, documentation and data from the ISEC South project was incorporated into this Biological Technical Report, including: *Biological Technical Report for the Imperial Solar Energy Center South Project* (RECON 2010a); *Imperial Solar Energy South Spring and Fall 2010 Rare Plant Survey Report* (RECON 2010b); *Burrowing Owl Nesting Season Surveys for the Imperial Solar Energy Center South Project* (RECON 2011d); *Focused Survey Results for the Southwestern Willow Flycatcher on the Imperial Solar Energy Center South Project* (RECON 2010d); and, *Mountain Plover Amendment to the Biological Assessment for the Imperial Solar Energy Center South Project* (RECON 2011f).

Survey data, impacts' analysis, and mitigation recommendations from Barrett Biological's *Biological Technical Reports* for the MSSF-I, CSF-I, and CSF-II solar farms (Barrett Biological 2011a, 2011b, and 2011c) have been incorporated into this Biological Technical Report in order to provide an overall analysis of the proposed transmission and solar projects.

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3.0 Existing Conditions

3.1 Topography and Soils

The 4,889.6-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 west of Calexico, California. 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 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). The proposed MSSF-I, CSF-I, and CSF-II solar fields are situated in active agricultural fields.

There are eight major soil types found within the survey areas: Rositas, Niland, Carsitas, Glenbar, Holtville-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.

- Holtville-Glenbar soils are nearly level, moderately well drained and well drained silty clay, silty clay loam, and clay loam. 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 General Vegetation

A total of 116 plant species, representing 37 plant families, were identified within the Project area. Of this total, 89 (77 percent) are native to southern California and 27 (23 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: Figures 4a-c, 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 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 1 below lists the acreage of each vegetation community in relation to the Project components.

TABLE 1
VEGETATION COMMUNITIES/LAND COVER TYPES WITHIN
MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS

Vegetation Community/ Land Cover Type	PTR-1 (ac.)	PTR-2 (ac.)	ATR-1 (ac.)	ATR-2 (ac.)	MSSF-1 (ac.)	CSF-I (ac.)	CSF-II (ac.)	Total (ac.)
Creosote bush–white burr sage scrub	236.6	61.8	33.0	36.9	-	-	-	368.3
Desert wash	44.6	-	0.6	-	-	-	-	45.2
Cattail marsh	-	2.4	-	-	-	-	-	2.4
Open water	-	1.7	-	8.7	-	-	-	10.4
Mesquite thicket	-	8.6	-	-	-	-	-	8.6
Tamarisk thicket	-	2.2	-	-	-	-	-	2.2
Active agricultural fields	-	95.7	-	110.0	1,408	1,298	1,438	4349.7
Disturbed/developed land	4.3		-	2.5	32	32	32	102.8
Total	**285.5**	**172.4**	**33.6**	**158.1**	**1,440**	**1,330**	**1,470**	**4,889.6**

ac. = acres

3.2.1 Vegetation Communities within the Survey Areas

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 (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 few scattered ironwood trees (*Olneya tesota*) are present within the creosote bush- white burr sage scrub vegetation in PTR-2, 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** is present in one of the IID irrigation channels between agricultural fields within the PTR-2 corridor. While broad-leaved cattail (*Typha dominginsis*) was the dominant species in this vegetation alliance; tamarisk was also present throughout.

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

A small **mesquite thicket**, dominated by honey mesquite, is present in the PTR-2 corridor, just west of the agricultural fields. Creosote bush and Mormon tea shrubs are present in between the honey mesquite trees.

As seen in Attachment 1: Figure 4b, a large **tamarisk thicket** is present within the PTR-2 corridor immediately east of the Westside Main Canal, adjacent to the agricultural fields. Tamarisk thickets are dominated by athel tamarisk (*Tamarix aphylla*) and salt cedar tamarisk (*T. ramosissima*). Honey mesquite trees are interspersed within tamarisk, but not in great enough number for this vegetation to be considered a mesquite thicket.

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

PHOTOGRAPH 2
Creosote Bush-White Burr Sage Scrub with
Scattered Ironwood Trees along ATR-2

The MSSF-1, CSF-I, and CSF-II proposed solar fields are situated in **active agricultural fields**. At the time of the surveys, alfalfa (*Medicago sativa*), bermuda grass (*Cynodon dactylon*), and sugar beets (*Beta vulgaris*) were the active crops within the MSSF-I fields; alfalfa, bermuda grass, wheat (*Triticum* sp.) and sugar beets were growing in the CSF-I fields; and alfalfa, bermuda grass, onions (*Allium* sp.), sugar beets, and wheat were the CSF-II crops.

Natural vegetation has been removed due to vehicle parking and driving immediately south of State Route 98 within the PTR-1, adjacent to the substation within PTR-1, and as ATR-2 crosses into the active agricultural fields. These areas contain little to no vegetation and are classified as **disturbed/developed land**. In addition, IID owns the canals, drains, and roads surrounding the agricultural fields. These IID facilities are also classified as disturbed/developed land.

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.

Honey bees (*Apis mellifera)* were observed utilizing fields for nectar gathering. Other insects such as beet armyworm (*Spodoptera exigua*), whitefly (*Bemisia tabaci) and* Egyptian alfalfa weevil (*Hypera brunneipennis)* could be expected in agricultural fields.

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.

Reliable moisture is a requirement for a portion of amphibian life cycle. The agricultural production cycle does not meet this requirement. The constant cultivating and harvesting of crops does not promote a habitat favorable to amphibians. No amphibians were observed within the water conveyance systems. Snapping turtles (*Chelydra serpentina*)

have been observed in the canals and drains. In addition, a bullfrog (*Rana catesbeiana*) was observed within the irrigation channels west of the MSSF-I active agricultural fields.

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 transmission corridor survey areas: desert iguana (*Dipsosaurus dorsalis*), common side-blotched lizard (*Uta standburiana*), 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 PTR-2.

The constant cultivating and harvesting of crops does not promote a habitat favorable to amphibians. None were observed within the agricultural fields. The only reptile expected within the agricultural fields is the gopher snake (*Pituophis catenifer).*

3.3.4 Birds

3.3.4.1 Transmission Corridors

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 (*Polioptila 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.

3.3.4.2 MSSF-I, CSF-I, and CSF-II Solar Fields

A number of species that rely on the adjacent open water canals and tamarisk thicket use the active agricultural fields for foraging. The flood irrigation practices within the active agricultural fields offer foraging opportunities as well for many shorebird and marsh species. The most commonly observed shorebird/marsh species, both in occurrences and numbers, include cattle egret (*Bubulcus ibis ibis*), great egret (*Ardea alba*), long-billed dowitcher (*Limnodromus scolopaceus*), long-billed curlew (*Numenius americanus*), killdeer (*Charadrius vociferous vociferous*), and red-winged blackbird (*Agelaius phoeniceus*). These species occurred as scattered individuals as well as flocks foraging in the fields.

One large eucalyptus tree adjacent to the CSF-I solar fields appeared to serve as a rookery for great blue herons (*Ardea herodias*); three great blue heron nests were observed within the tree, and great blue herons were observed in and around the tree consistently.

Upland birds commonly observed foraging in the agricultural fields during the surveys included species that typically forage in grasslands, such as mourning dove (*Zenaida macroura marginella*), western meadowlark (*Sturnella neglecta*), and horned lark (*Eremophila alpestris*).

Additional species often associated with urban or developed environments, such as Eurasian collared dove (*Streptopelia decaocto*), European starling (*Sturnus vulgaris*), and great-tailed grackle (*Quiscalus mexicanus*), were observed in trees or structures near the adjacent residences, or on nearby power lines.

Large nesting colonies of cliff swallow (*Petrochelidon pyrrhonota tachina*) are present underneath bridges that cross the All American Canal to the south, Westside Main Canal to the west, and other smaller irrigation channel crossings. These swallows often forage as individuals or in flocks over the agricultural fields, and were observed regularly during the surveys.

Tree nesting raptors such as red-tailed hawk (*Buteo jamaicensis*), American kestrel (*Falco sparverius sparverius*), turkey vulture (*Cathartes aura*), and peregrine falcon (*Falco peregrinus anatum*) were infrequently observed flying over or foraging over the agricultural fields.

As seen on Attachment 1: Figures 4a-c, burrowing owl (*Athene cunicularia hypugaea*) and their associated burrows were observed at numerous locations in the survey area (RECON 2011a and Barrett Biological 2011a, 2011b, and 2011c). The burrows are often

found in earthen berms adjacent to the smaller irrigation channels and ditches. This species is discussed in greater detail in Section 3.4.2.3.

3.3.5 Mammals

3.3.5.1 Transmission Corridors

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.

3.3.5.2 MSSF-I, CSF-I, and CSF-II Solar Fields

The constant cultivating and harvesting of crops does not promote a habitat favorable to mammals within agricultural fields. The following mammals are expected to occur around the peripheral areas of agricultural fields such as soil berms and other topographic features: round tailed ground squirrels (*Spermophilus tereticaudus*), pocket gophers (*Thomomys bottae),* desert cottontail, striped skunk (*Mephitis mephitis*) and coyote (Barrett Biological 2011a, 2011b, and 2011c). Signs such as tracks, scat and direct observation were found during surveys.

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 projects. 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: Figures 4a–c.

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 is 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).

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 2010 and 2011 rare plant surveys (RECON 2010b, 2011a and 2011b), 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: 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 (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 tubercules more than three times longer than they are wide (Baldwin et al. 2002).

Eleven Wolf's chollas were observed within the braided wash channel system south of the Substation within PTR-1 (Photograph 3; RECON 2011a). 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 pilostayles was observed on 28 Emory's indigo bush shrubs located within the desert wash in PTR-1 south of the Imperial Valley Substation (RECON 2011a).

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 1974). 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).

One individual was recorded adjacent to the PTR-1 survey corridor. An additional three individuals were recorded adjacent to the ATR-1 survey area.

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. Attachment 5 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.

PHOTOGRAPH 3
Wolf's Cholla adjacent to
Desert Wash Vegetation in PTR-1

3.4.2.1 Federally Listed Species

Three federally listed or proposed listed wildlife species were evaluated based on their occurrences in Imperial County: Yuma clapper rail (*Rallus longirostris yumanensis*), southwestern willow flycatcher (*Empidonax traillii extimus*), and Peninsular bighorn sheep (*Ovis canadensis nelsoni*). Each of these species is discussed below (see Attachment 5).

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.

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; and 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 PTR-2 were conducted April (one general bird survey), May (one general bird survey), and June (3 focused burrowing owl surveys; RECON 2010a). 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 Projects will not impact 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 1995).

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 1995).

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 1995). 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 2004). 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 burrowing owl surveys in early June 2010 for the ISEC South and West projects, 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 2010d and e). To determine subspecies and migratory status of this species, a USFWS protocol survey for southwestern willow flycatcher was initiated.

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 in late June and July 2010, no willow flycatchers were detected.

Based on these preliminary data, the willow flycatchers observed in early June 2010 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.

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 1998 and 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 as cited in USFWS 1998). 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 1998). 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 1998). 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 1998). 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 1998). 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 1998). 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 1998). 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 1998). 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 1998).

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 transmission line (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 1998). The proximity of the project area to continuous agricultural activities also reduces the likelihood of use by Peninsular bighorn sheep, which are sensitive to human activity and disturbance (USFWS 2010c).

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.

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 survey 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 barefoot banded gecko is a state-listed species and is 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.

Flat-tailed Horned Lizard (*Phrynosoma mcallii*)

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). On March 15, 2011, USFWS ruled that listing of FTHL under the ESA was not warranted (USFWS 2011a).

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 5); while the transmission line corridors falls within the MA, the proposed solar fields are outside of this MA, within the agricultural complex surrounding El Centro and Calixico, California.

The USFWS recently estimated the population size in three of the MAs by using capture-mark-recapture techniques incorporating detection probabilities (USFWS 2010f). Grant had previously 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). However, recently analyzed, unpublished USFWS data over all years indicate that the density of FTHL in the Yuha MA ranges between 1.3 to 3.1 animals/hectare with a confidence interval of 95 percent (2010 as cited in USFWS 2010f). It must be noted also that the research plots for the population studies, the permanent demographic plots within the MAs, were selected based on the best available FTHL habitat within each MA. Therefore this data is not random and habitat within the Yuha MA varies by substrate, plant cover, OHV use, etc.

Occurrence

As seen in Attachment 1: Figure 4b, two FTHLs were observed during spring/summer 2010 surveys within the creosote bush–white burr sage scrub at the west end of PTR-2 (Photograph 4; RECON 2010a). In accordance with the Rangewide Management Strategy, occupancy of FTHL within the MA is assumed; therefore, the entire native habitat within transmission corridor ROWs (PTR-1, PTR-2, ATR-1, and ATR-2) is 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

PHOTOGRAPH 4
Flat-tailed Horned Lizard at West End of PTR-2

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 active agricultural fields do not provide habitat for this species due to lack of appropriate vegetation and soils. In addition, they provide habitat for FTHL predators such as burrowing owl. 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.

Mountain Plover (*Charadrius montanus)*

Species

Mountain plover is a CDFG species of special concern (State of California 2010) and a BLM sensitive species. 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. On May 12, 2011, USFWS withdrew the proposed listing, citing a determination that the species is not endangered or threatened throughout all or a significant portion of its range (USFWS 2011b). 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 polycantha*), June grass (*Koeleria cristata*), and sagebrush (*Artemisia* sp.; USFWS 1999). Mountain plovers have historically nested on black-tailed prairie dog (*Cynomys ludovisianis*) towns. Clutch size ranges from 1 to 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 (USFWS 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 (USWFW 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).

Local Populations

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. 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.

Occurrence

There is potential for the mountain plover to forage during the winter months within the agricultural lands of the proposed solar fields. Not all of the agricultural land is expected to be suitable foraging habitat at one time, but it is expected that a percentage of the fields will likely meet the criteria discussed above as suitable foraging habitat during the winter months.

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.

Burrowing owl is primarily restricted to the western United States 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).

Local Populations

Historically, prior to the 1900s and the introduction of irrigated agriculture to the Imperial Valley, BUOW were found in low density, densities that corresponded to numbers found in the Colorado Desert (Rosenberg and Haley 2004). The distribution of BUOW has increased in agricultural areas and the Imperial Valley accounts for approximately 71 percent of California's BUOW population (USFWS, 2003).

The diet of BUOW in Imperial Valley consists primarily of crickets, earwigs (Coulumbe 1971), grasshoppers, mice, pocket gophers, and small birds (Rosenberg and Haley 2004). Frog, crayfish, small redwing blackbird, and western meadow lark feathers, and Lepidoptera larvae have also been observed at burrow entrances (personal communication, M. Barrett 2011).

Grinnell and Miller describe grassland as a favored habitat of BUOW (1944 as cited in Coulumbe 1971), as their common prey items such as caterpillars and grasshoppers, small birds (Jones and Vickery 2003), and locusts and crickets are commonly found in grass fields. Rosenberg and Haley (2004) found that the strongest foraging habitat selection was basically related to distance from nest; at distances greater than 600 m from the nest, hay (alfalfa, Bermuda, sudan, kline grass) was preferred, while at locations within 600 m, edge areas and fields without crops (freshly tilled or fallowed fields) were preferred.

Occurrence

No burrowing owls or active burrowing owl burrows were observed within the transmission corridors during the June 2010 survey.

As seen on Table 2 below, twenty six active burrowing owl burrows were observed within the MSSF-I survey area: 25 of these were found on outside of the agricultural fields along IID canals, drains, berms, and roads, and one active burrow was observed within the proposed solar fields (Attachment 1: Figures 4b-4c; Barrett Biological 2001a).

TABLE 2
BURROWING OWL OBSERVATIONS WITHIN
MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS

Location	MSSF-I Transmission Line Corridors	MSSF-I Solar Fields	CSF-I Solar Fields	CSF-II Solar Fields	Total
BLM Land	0	-	-	-	0
Private Land (Agricultural Fields)	0	1	2	8	11
IID Canals/Drains/Roads	2	25	26	8	61
Total	**2**	**26**	**28**	**16**	**72**

Twenty eight active burrowing owl burrows were observed within the CSF-I survey area: 26 of these were found on outside of the agricultural fields along IID canals, drains, berms, and roads, and two active burrows were observed within the proposed solar fields (Table 2; Attachment 1: Figures 4b and 4c; Barrett Biological 2001b).

Sixteen active burrowing owl burrows were observed within the CSF-II survey area: eight of these were found on outside of the agricultural fields along IID canals, drains, berms, and roads, and eight active burrows were observed within the proposed solar fields (Table 2; Attachment 1: Figures 4b and 4c; Barrett Biological 2001c).

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 projects (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 projects (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

Five 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*), yellow warbler, and yellow-headed blackbird (*Xanthocephalus xanthocephalus*). 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 in cattail marsh vegetation in an IID canal within the PTR-2 survey corridor (RECON 2010a). It is not expected to occur in any of the other survey areas, due to lack of suitable marsh vegetation.

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 likely to occur within or adjacent to the survey area. Golden eagles are rarely recorded within the vicinity of the project (LaPre 2010; State of California 2010); with one siting reported during 2010 and 2011 in the Imperial Valley approximately 5 miles southwest of the proposed project (Steward 2011). Golden eagles were not observed during various spring and summer 2010 biological surveys for the ISEC South, or during spring 2011 avian point count surveys within the proposed solar fields. This species may infrequently forage in the vicinity, but is not expected to forage regularly due to lack of foraging observations in recent years and the distance from known nest sites.

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.

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 2004). 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 4b, loggerhead shrikes were observed in mesquite trees within all of the transmission line 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 transmission survey areas.

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 at 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 PTR-2 corridor.

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 (RECON 2010a). 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.

Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*).

Species

The yellow-headed blackbird is a CDFG Species of Special Concern and protected by the MBTA and California Fish and Game Code §§ 3503, 3513.

Habitat

This species occurs in the Imperial Valley primarily as a migrant and summer resident from April to early October; breeds from mid-April to late July (Twedt and Crawford 1995 as cited in Shuford et al. 2008). Yellow-headed blackbirds breed almost exclusively in marshes with tall emergent vegetation, such as tules (Scirpus spp.) or cattails (Typha spp.), generally in open areas and edges over relatively deep water (Orians and Willson 1964 as cited in Shuford et al. 2008).

Occurrence

Yellow-headed blackbirds were observed foraging in and adjacent to the cattail marsh within the PTR-2 survey corridor.

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 transmission line survey areas 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 3, and shown in Attachment 1: Figures 6a–b.

TABLE 3
JURISDICTIONAL RESOURCES WITHIN
MSSF-I TRANSMISSION CORRIDOR SURVEY AREAS

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 any of the survey areas. 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 United States.

Jurisdictional non-wetland waters within the MSSF-I transmission corridor survey areas 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 survey area that are 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.

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 currently limited by and is only feasible by crossing the culverted bridges over the canal.

3.4.6 California Desert Conservation Area

As seen on Attachment 1: Figure 5, the proposed transmission line survey areas fall within the Yuha Basin ACEC of the CDCA, and are within the Utility Corridor N, as designated by the CDCA. The proposed solar fields are outside of the designated ACEC land.

3.5 Noxious, Invasive, and Non-native Weeds

The *Final EIR/EA for the Imperial Solar Energy Center South* (BRG 2011) and *Preliminary Weed Management and Rehabilitation* (Barrett Biological 2011d) describe the noxious, invasive, and non-native weeds occurring along the proposed transmission routes. Invasive weeds are generally considered to be plants that are capable of rapid, unchecked growth and spread into areas where the plants are not desirable and are capable of causing harm to the environment. Non-native is a more general term used to describe plant species that have been introduced into California sometime after European contact. For the purpose of this document weeds are defined as any plant included on the federal noxious weed list (United States Department of Agriculture [USDA] 2006), the California Department of Feed and Agriculture (CDFA) Noxious weed list (CDFA 2010) and/or is included in the California Invasive Plant Council's Invasive Plant Inventory (CAL-IPC; 2011). The spread of weeds results in impacts to agricultural resources and wild land natural resources by displacing crops and native species, increasing the risk and intensity of wildfires, and altering habitat structure and functions.

No federally listed noxious weeds were observed during the botanical surveys; however, 14 non-native plants were identified that area included on the CDGA noxious weed list and/or the CAL-IPC Invasive Plant Inventory.

Athel tamarisk (*Tamarix aphylla*) is an introduced species native to Africa and the Middle East. In the project study area it occurs in tamarisk thickets and along some desert washes, and is planted as wind-breaks along the edges of some of the agricultural fields. Athel tamarisk seldom escapes cultivation and is less invasive that other *Tamarix* species and is therefore listed as a species of limited concern by CAL-IPC.

Bermuda grass (*Cynodon dactylon*) is a grass that is originally from Asia that spreads quickly by rhizomes and stolons. Bermuda grass was observed in some of the active agricultural areas within the survey area. This species is considered listed by CALIPC as moderate in terms of its impacts, invasiveness and general distribution.

London rocket (*Sisymbrium irio*) is a winter annual mustard that is native to Europe. It was observed in agricultural areas, creosote bush-white bursage scrub habitat and in desert washes within the transmission survey corridors. Reproduction is entirely by seeds. London rocket can result in economic or environmental detriment in agricultural and natural areas but is widespread throughout the state and is therefore a CDFA list C noxious weed.

Mediterranean grass (*Schismus barbatus*) is an annual grass native to southern Europe. It is widespread and occurs in a variety of habitat types within the transmission line survey corridors. This species reproduced entirely by seeds. The CAL-IPC status for

Mediterranean grass is limited due to its moderate impact to natural systems, limited invasiveness and widespread distribution.

Puncture vine (*Tribulus terrestris*) is a mat forming summer annual that produces wedge shaped nutlets with stout sharp spines. Puncture vine is indigenous to the Mediterranean region. During the botanical surveys this species was observed along the PTR and in the agricultural areas. Reproduction is entirely by seed. This species can result in economic or environmental detriment in agricultural and natural areas but is widespread throughout the state and is therefore a CDFA list C noxious weed.

Rabbit's-foot grass (*Polypogon monspeliensis*) is an annual grass that was introduced from Europe. This species was observed only in agricultural areas during the botanical surveys. Reproduction of Rabbit's-foot grass is entirely from seed. This species is considered to have limited impacts and invasiveness, but is moderately widespread and is therefore listed as Limited by CAL-IPC.

Redstem filaree (*Erodium cicutarium*) is a winter annual that is native to southern Europe. Reproduction is by seed. During the botanical surveys this species was observed only in the agricultural areas. CAL-IPC designates this species as Limited due to its limited impacts and invasiveness.

Russian thistle (*Salsola tragus*) is a noxious summer annual indigenous to Eurasia. Reproduction is only from seed. Russian thistle accumulates oxalates that are toxic to livestock. This species also increases fire hazards and is a host plant for the beet leaf hopper (*Circulifer tenellus*) which is a vector for a virus that is damaging to a variety of crops. This species is a CDFA list C noxious weed and a CAL-IPC limited invasive species.

Sahara mustard (*Brassica tournefortii*) is a winter annual originally from the Mediterranean Region. Reproduction is entirely by seeds. CAL-IPC lists this species as highly invasive and considered to have severe impacts to natural ecosystems. During the botanical surveys this species was observed within agricultural fields and a variety of habitats along the transmission line alternatives.

Salt cedar (*Tamarix ramosissima*) is originally from Eurasian and is thought to have been introduced to the U.S in the early 1920s as an ornamental species. Salt cedar is a CDFA list B noxious weed and CAL-IPC high priority invasive species. Salt cedar has a long tap roots that allow it to intercept deep water tables which can adversely affect natural aquatic systems. This species also disrupts the structure and stability of native plant communities and degrades native wildlife habitat by outcompeting and replacing native plant species, monopolizing limited sources of moisture, and increasing the frequency, intensity and effect of fires and floods. During the botanical surveys salt cedar was observed in the tamarisk thickets in PTR-2, and within some of the washes along the transmission lines survey corridors.

White horse-nettle (*Solanum elaeagnifolium*) is a tall prickly perennial that is considered native to the southwestern U.S. and Mexico but is a CDFA list B noxious weed because it is toxic to livestock. Reproduction is by seeds as well as creeping roots. This species was observed in the agricultural areas only during the botanical surveys.

Wild Oat (*Avena fatua*) is an annual grass native to the Mediterranean region. Reproduction is entirely by seed. Wild oat is listed a moderately invasive species by CAL-IPC. This species was observed in agricultural areas during the botanical surveys.

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4.0 Proposed Project Impacts

The proposed Projects will develop the 1,440-acres MSSF-I solar fields; 1,330-acre CSF-I solar fields; and the 1,470-acre CSF-II solar fields as described in Section 1.2.1. All lands within IID easements, such as the drains, canals, and roads adjacent to and between the fields, will remain in place and will not be impacted by the proposed projects.

There are two transmission line alternatives associated with the MSSF-I project; the PTR and ATR. Both transmission line alternatives would start at the Substation and impact land within the PTR-1 transmission corridor. From the south end of PTR-1, the PTR would run east along PTR-2 to connect to the MSSF-I solar field.

The ATR would continue south from PTR-1 to the U.S.–Mexico border along ATR-1, and then run east along the border through ATR-2 before connecting to the MSSF-I solar field.

Permanent impacts would occur where new access roads and footings or anchors for tower, monopole, or crossing structures are constructed. Temporary impacts would occur in areas where construction takes place, but where restoration of the surface is possible including work areas around towers/monopoles and pull sites. Construction within the temporarily impacted areas will minimize impacts to large trees and shrubs (i.e. vehicles will take the path of least resistance when moving in and out of work areas), and will only remove or trim trees to allow for vehicles if the work in that specific area cannot otherwise be safely conducted. The proposed impacts are summarized below, and impacts to vegetation communities within the survey area are detailed in Table 4 and shown on Attachment 1: Figures 7a–c.

TABLE 4
VEGETATION COMMUNITY IMPACTS FOR MSSF-I, CSF-I, AND CSF-II PROJECTS

Vegetation Communities/Land Cover Types	MSSF-I Preferred Transmission Route Impacts (PTR-1 + PTR-2) (acres)	OR	MSSF-I Alternative Transmission Route Impacts (PTR-1 + ATR-1 + ATR-2) (acres)	MSSF-I Solar Field Impacts (acres)	CSF-I Solar Field Impacts (acres)	CSF-II Solar Field Impacts (acres)
Permanent Impacts						
Creosote bush–white burr sage scrub (CBS)						
Access roads	2.3		2.6			
Monopole footings	<0.1		<0.1			
Lattice tower footings*	<0.1		<0.1			
CBS Sub-total	*2.3*		*2.6*			
Desert Wash (DW)						
Access roads	0.6		0.6			
Lattice tower footings*	<0.1		<0.1			
DW Sub-total	*0.6*		*0.6*			
Active Agriculture (AG) Solar Fields	-		-	1,408	1,298	1,438
Monopole footings	(<0.1)		(<0.1)			-
Permanent Impacts Total	*2.9*		*3.2*	*1,408*	*1,298*	*1,438*
Temporary Impacts						
Creosote bush–white burr sage scrub (CBS)						
Pull site	0.8		1.0			
Monopole work areas	1.7		1.8			
Lattice tower work areas*	4.0		4.2			
Trench	<0.1		<0.1			
CBS sub-total	*6.5*		*7.0*			
Desert Wash (DW)						
Lattice tower work areas	0.8		0.8			
DW sub-total	*0.8*		*0.8*			
Active Agriculture (AG)						
Monopole work areas	(11.5)		(11.4)			
AG sub-total	(*11.5*)		(*11.4*)			
Temporary Impacts Total	*7.3*		*7.8*			
Total Project Impacts	**10.2**		**11.0**	**1,408**	**1,298**	**1,438**

*Includes A-frames.
( ) Indicates temporary transmission impacts that overlap proposed solar field permanent impact areas for the MSSF-I, CSF-I, CSF-II, and ISEC South projects. These work areas are not included in the total due to their overlap with the solar fields.

4.1 Impacts to Special Status Species

For purposes of this report, the proposed projects would have a significant impact if they 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 7a-b, one of the eleven 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. 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 work areas 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 MSSF-I transmission line. Construction activities such as the movement of construction vehicles or heavy equipment and the installation of transmission towers 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 5). The creosote bush–white burr sage scrub vegetation within and adjacent to the MA, including portions of the PTR and ATR, 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 MSSF-I, CSF-I, and CSF-II solar fields are located outside of the Yuha MA, entirely within active agricultural fields.

- The majority of the transmission line towers (all of PTR-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 5 and Figure 8, the Preferred Transmission Route for electrical transmission may permanently impact up to 2.9 acres and temporarily impact up to 7.3 acres, for a total of 10.2 acres of FTHL habitat within the MA.

TABLE 5
IMPACTS TO FLAT-TAILED HORNED LIZARD HABITAT FOR MSSF-I PROJECT

Vegetation Communities/ Land Cover Types	Preferred Transmission Route Impacts (PTR-1 + PTR-2) (acres)	OR	Alternate Transmission Route Impacts (PTR-1 + ATR-1 + ATR-2) (acres)
Permanent Impacts			
Inside FTHL MA			
Access roads	2.9		3.2
Monopole footings	<0.1		<0.1
Lattice tower footings*	<0.1		<0.1
Inside Sub-total	*2.9*		*3.2*
Outside FTHL MA			
Outside Sub-total			
Permanent Impacts Total	*2.9*		*3.2*
Temporary Impacts			
Inside FTHL MA			
Pull site	0.8		1.0
Monopole work areas	1.7		1.7
Lattice tower work areas*	4.8		5.0
Trench	<0.1		<0.1
Inside Sub-total	*7.3*		*7.7*
Outside FTHL MA			0.1
Outside Sub-total			*0.1*
Temporary Impacts Total	*7.3*		*7.8*
Total Project Impacts	**10.2**		**11.0**

*Includes A-frames.

For the Alternative Transmission Route, one monopole would be placed on the small corner of private land adjacent to the FTHL MA that is native desert vegetation and provides suitable habitat for the FTHL. This pole placement would result in temporary impacts of 0.1 acre for the work area required to construct the monopole.

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 include equipment inspection and/or repairs, transmission tower cleaning, and weed abatement or habitat restoration activities. These O&M activities will require vehicles to occasionally drive the access roads along the transmission line. FTHL injury or mortality could potentially occur due to occasional use of the transmission line access roads, 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

Occasional maintenance and/or inspections may be required along the transmission line. O&M 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.

4.1.2.2 Burrowing Owl

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).

4.1.2.2.1 Construction Impacts

Direct Impacts

As seen in Table 2 and on Attachment 1: Figures 7a–c, a total of 11 occupied burrowing owl burrows were observed within the active agricultural fields (1 in MSSF-I; 2 in CSF-I; and 8 in CSF-II), and 61 occupied burrowing owl burrows were observed adjacent to the fields within IID canals, drainages, roads and berms (2 along the MSSF-I transmission corridor; 25 in MSSF-I; 26 in CSF-I; and 8 in CSF-II).

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, but no IID canals, drainages, or roads will be impacted. Direct impact to any burrowing owl individuals and/or active burrowing owl burrows within the agricultural land to be graded 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 agricultural fields within the proposed solar fields provide habitat for burrowing owl. As seen in Table 4, approximately 4,144 acres of agricultural land will be impacted by the proposed solar fields. In accordance with the CDFG Staff Report on Burrowing Owl Mitigation (1995), impacts to the foraging habitat within 100 meters (approximately 300 feet; 6.5 acres) of each active burrow would be considered significant and would require mitigation. Eleven active burrowing owl burrows were observed within the active agricultural fields, within the limits of grading for the proposed solar fields. Based on a 100-meter radius around each active burrow within the proposed solar fields, impacts to up to 71.5 acres of burrowing owl foraging habitat are considered significant and will require mitigation. This includes 6.5 acres for the MSSF-I project (one active burrow), 13 acres for the two active burrows on Phase A of the CSF-I project, 19.5 acres for the three active burrows in Phase A of CSF-II, and 32.5 acres for the five active burrows in Phase B of the CSF-II project.

As seen on Figures 7b and 7c, an additional 58 active burrows were observed adjacent to the proposed solar fields, within IID easements (berms, drains, canals, etc.). The IID drains and canals, which provide foraging habitat for these burrowing owls, will not be impacted by the proposed projects. These burrows are covered under IID's Draft HCP, and no mitigation would be required for impacts adjacent to these burrows.

The creosote bush–white burr sage scrub and desert wash vegetation along the proposed transmission line offers suitable habitat for this species. A total of 2.9 acres of potential burrowing owl habitat will be permanently impacted by the proposed transmission line.

Indirect Impacts

Noise and vibrations from construction equipment may disturb or disrupt burrowing owl nesting behavior if construction takes place within 250 feet of an active burrow during breeding season for the burrowing owl. These impacts would be considered significant and mitigation would be required to minimize and/or avoid these impacts.

4.1.2.2.2 O&M Impacts

After construction of the solar field is complete, burrowing owl are expected to persist along the perimeter of the solar fields along the IID canals, drains, and roads, which

provide burrowing and foraging opportunities. As discussed in Sections 1.2.1 through 1.2.3, saltgrass may be cultivated in disturbed areas in order to provide foraging habitat for burrowing owls underneath and adjacent to the solar panels. The owls are also expected to utilize the solar field perimeter fence as a foraging perch.

O&M Direct Impacts

Direct impacts to burrowing owls may occur during O&M activities within the solar fields and along the transmission line. Vehicles driving on access roads where burrowing owls are foraging may result in the direct mortality, injury, or harassment of this species. These impacts would be considered significant and mitigation would be required.

After the solar fields are constructed, burrowing owls are expected to forage within the saltgrass and other areas underneath the solar panels and within the solar facilities that provide foraging opportunities. While searching for prey, burrowing owls characteristically hover for periods of several minutes at heights of 8-15 meters (Coulumbe 1971). During the night the foraging behavior changes to suit the reduced visibility of small food items; they may pursue arthropods on the ground by walking and running. They also may glide about one meter above the ground when foraging for rodents (Coulumbe 1971). Given the static and highly visible nature of the solar panels and transmission towers, burrowing owls are not expected to collide with the structures during daytime foraging activities when they may be hovering or flying in search for prey. When foraging at night, they are not expected to collide with facility structures given their walking/hopping manner of foraging, coupled with the static and highly visible nature of the solar panels. No impacts to burrowing owl are anticipated due to collision with facility structures, and no mitigation would be required.

O&M Indirect Impacts

All permanent lighting within the solar field will be by low-profile fixtures that point inward toward the solar field with directional hoods or shades to reduce light from shining into the adjacent lands. 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

4.1.2.3.1 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 for the proposed projects 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.

4.1.2.3.2 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 (8minutenergy Renewables, LLC 2011). In addition, each phase's insulators, attached to the conductors at each arm of the towers/monopoles, are spaced at least 30 feet apart (8minutenergy Renewables, LLC 2011); 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. Migratory bird species include special status species that may nest on-site such as loggerhead shrike, Crissal thrasher, and yellow-headed blackbird. Migratory bird species also include special status species that may forage during spring and fall migration or overwinter in the Imperial Valley such as long-billed curlew, greater sandhill crane, mountain plover, willow flycatcher, and yellow warbler. An APP, 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.

4.1.2.4.1 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.

4.1.2.4.2 O&M Impacts

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, transmissions 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 United States. 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 2 miles, then northwest to the substation. In order to reduce the potential for avian collision as the transmission line passes through the agricultural fields and over the Westside Main Canal, the transmission route uses the shortest, most direct route to the west. As the transmission line turns north, it 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).

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 APP will be developed that will incorporate guidance from USFWS (2010e) and the AAPLIC (2006), and will include a wildlife mortality reporting program. This APP 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 4, 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 4 and shown on Attachment 1: Figures 7a-b, 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 6 and Figures 9a-b show the proposed Project impacts to CDFG jurisdictional resources. No ACOE jurisdictional resources are expected to be impacted by the proposed project.

TABLE 6
JURISDICTIONAL RESOURCES IMPACTS FOR MSSF-I PROJECT

Jurisdictional Resources	Preferred Transmission Route Impacts (acres)	Alternative Transmission Route Impacts (acres)
Permanent Impacts		
CDFG–Riparian		
Access roads	0.6	0.6
Lattice tower footings*	<0.1	<0.1
Total	***0.6***	***0.6***
Temporary Impacts		
CDFG–Riparian		
Lattice tower work areas*	0.8	0.8
Total	***0.8***	***0.8***
Total Impacts	**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 PTR-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 permeable, allowing water to be absorbed into the soil, and detention basins will be installed within the solar fields to catch any run-off. 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 Rangewide 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 the solar fields 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 APP 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, along IID roads between the solar fields, 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.

4.6. Noxious, Invasive, and Non-Native Weeds

The *Final EIR/EA for the Imperial Solar Energy Center South* (BRG 2011) and *Preliminary Weed Management and Rehabilitation* (Barrett Biological 2011d) describe potential impacts due to the noxious, invasive, and non-native weeds occurring along the proposed transmission routes. The spread of invasive and noxious weeds poses a threat to agricultural and natural resources by reducing crop production and displacing native plant species, increasing the threat of wildfires, supplanting natural food for wildlife and altering the structure and ecological functions of natural habitats. Construction activities and soil disturbance can facilitate the introduction and/or spread of invasive, noxious, and/or non-native plant species. New introductions may occur when seed is inadvertently brought into an area, most often in mulch, straw wattles, hay bales, and seed mixes used for erosion control. Seed may also be introduced into and area by transport on construction equipment or vehicle tires. Additionally construction activities can result in the proliferation and spread of weed species that may already be present in the area as a result of grading and other site disturbances that alter the natural vegetation and disrupt the soils.

The solar panels also have the potential to facilitate the growth and spread of weed species by altering the natural hot, dry conditions typical of the project area. Increased shading of the ground results in cooler moister areas that may favor colonization of weedy species (Smith 1984; Smith et al. 1987). Additionally routine washing of the solar panels increases soil moisture availability.

These potential impacts to biological resources and adjacent agricultural crops would be considered significant and would require mitigation.

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 areas as well as restore and/or improve the quality of habitat in the project areas, 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 wildlife mortality.

- Annual formal Worker Environmental Awareness Program (WEAP) should be established for all employees and any subcontractors 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 *Weed Management and Habitat Restoration 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 include native seed/planting guidelines 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 Protection Plan* (APP) 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* 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 projects may have on FTHL. The following will be implemented, when conducting construction activities on the transmission line:

1. Prior to ground-disturbing activities, an individual shall be designated and approved by the USFWS and BLM as a Designated Biologist[1] (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 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

[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.

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 Proponent 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 on-going 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, tower installation, wire stringing) 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 any BLM 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:

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:

   - o A general description of the status of the Project site;
   - o A copy of the table in the Project biological monitoring report with notes showing the current implementation status of each conservation measure;
   - o An assessment of the effectiveness of each completed or partially completed measure in avoiding and minimizing Project impacts;
   - o A completed a *Project Reporting Form from the Flat-tailed Horned Lizard RMS* (ICC 2003);
   - o A summary of information regarding any FTHL mortality in conjunction with the Project's *Wildlife Mortality Reporting Program*; and
   - o 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 roads, particularly during the FTHL active season (March 1 through September 30). These measures will include:

    - o A speed limit of 15 miles per hour when driving transmission line access roads. All vehicles required for O&M along the transmission line within suitable FTHL habitat must remain on the designated access/maintenance roads.
    - o O&M activities including 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.
    - o 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 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 7.

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.

TABLE 7
FLAT-TAILED HORNED LIZARD HABITAT MITIGATION REQUIREMENTS FOR MSSF-I TRANSMISSION ROUTES

FTHL Habitat	Preferred Transmission Route Impact (acres)	Mitigation Ratio	PTR Mitigation Required (acres)	Alternative Transmission Route Impacts (acres)	Mitigation Ratio	ATR Mitigation Required (acres)
Permanent Impacts						
Inside FTHL MA						
Access roads	2.9	6:1	17.4	3.2	6:1	19.2
Monopole footings	<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
Total Permanent	*2.9*		***17.8***	*3.2*		***19.6***
Temporary Impacts						
Inside FTHL MA						
Pull site	0.8	6:1	4.8	1.0	6:1	6.0
Monopole work areas	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
Trench	<0.1	6:1	<0.1	<0.1	6:1	<0.1
Outside FTHL MA						
Monopole work area				0.1	1:1	0.1
Total Temporary	*7.3*		***43.8***	*7.7*		***46.3***
Total Mitigation Required			**61.6**			**65.9**

*Includes A-frames.

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 for the proposed solar fields should take place between September 1 and January 31 to avoid impacts to breeding burrowing owls (State of California 1995).

2) During non-nesting season (September through January) a distance of 160 feet should be maintained between active burrows and construction activities. A qualified biologist may also employ the technique of sheltering in place (using hay bales to shelter the burrow from construction activities). If this technique is employed, it is recommended that the sheltered area be monitored weekly by a qualified biologist.

3) 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.

4) 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* (CBOC 1993).

5) If active burrows are present within the project footprints, 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 in accordance with the guidelines found in the Imperial Irrigation District Artificial Burrow Installation Manual. 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. One way doors will be left in place for 48 hours if scoping indicates occupancy. Burrow will be scoped prior to excavation. Excavation will be done using hand tools and refilled to prevent reoccupation. After burrow is collapsed, contractor will immediately disk down area to prevent reoccupation. 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 within open areas in the solar fields such as detention basins. All passive relocation efforts will be documented with photographs, Global Positioning System (GPS) coordinates of created burrows, and a description of relocation efforts, to be submitted to CDFG in report format.

6) 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) require 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 sites.

As discussed in Section 4.1.2.2.1, impact to habitat surrounding the 11 active burrows within the limits of grading is estimated at up to 71.5 acres, based on a calculation of 6.5 acres of foraging habitat per active burrow. This includes 6.5 acres for the MSSF-I project (one active burrow), 13 acres for the two active burrows on Phase A of the CSF-I project, 19.5 acres for the three active burrows in Phase A of CSF-II, and 32.5 acres for the five active burrows in Phase B of the CSF-II project.

In order to mitigate for this acreage and provide foraging habitat for burrowing owls, 82LV 8ME, LLC intends to landscape small pockets of land along the perimeter of the solar fields, and/or within the solar fields themselves, with saltgrass or other native vegetation that will provide suitable foraging habitat for burrowing owls. Although the site plan on Figures 7b and 7c show almost 100 percent coverage of solar panels, the final site design is still under preparation. It is anticipated that due to the nature of solar panel configuration, there will be spaces at various locations, such as between the edges of the agricultural fields (i.e., outside of IID easements) and the solar field perimeter fencing. A minimum of 71.2 acres of these open areas would be set aside for burrowing owl habitat and burrow relocation for the lifespan of the solar project. Due to potential County of Imperial requirements that the solar fields be returned to active agriculture after the life of the solar projects, the land cannot be set aside in perpetuity; however, it is assumed that if the land is returned to active agricultural crops, it will continue to provide habitat for burrowing owl.

If the vegetation that is planted does not succeed or planting is not feasible, the 71.5 acres of foraging habitat must be mitigated through off-site preservation or in-lieu fee and must be approved by CDFG.

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 Environmental Awareness 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 APP will be prepared and implemented. This APP 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 APP 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:

- 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. Mitigation ratios and acreage requirements are detailed in Table 8 below.

TABLE 8
VEGETATION COMMUNITY MITIGATION REQUIREMENTS FOR MSSF-I TRANSMISSION ROUTES

Vegetation Communities/ Land Cover Types	Preferred Transmission Route Impact (acres)	Mitig. Ratio	PTR Mitigation Required (acres)	Alternative Transmission Route Impacts (acres)	Mitigation Ratio	ATR Mitigation Required (acres)
Permanent Impacts						
Creosote Bush–White Burr Sage Scrub (CBS)						
Access roads	2.3	6:1	13.8	2.6	6:1	15.6
Monopole footings	<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
CBS Sub-total	*2.3*		*14.1*	*19.4*		*15.9*
Desert Wash (DW)						
Access roads	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
DW Sub-total	*0.6*		*3.7*	*0.6*		*3.7*
Active Agriculture (AG)	<0.1	N/A	-	<0.1	N/A	-
Permanent Total	*2.9*		***17.8***	*840.7*		***19.6***
Temporary Impacts						
Creosote Bush–White Burr Sage Scrub (CBS)						
Pull site	0.8	6:1	4.8	1.0	6:1	6.0
Monopole work areas	1.7	6:1	10.2	1.8	6:1**	10.3**
Lattice tower work areas*	4.0	6:1	24.0	4.2	6:1	25.2
Trench	<0.1	6:1	<0.1	<0.1	6:1	<0.1
CBS Sub-total	*6.5*		*39.0*	*6.9*		*41.4*
Desert Wash (DW)						
Lattice tower work areas	0.8	6:1	4.8	0.8	6:1	4.8
DW Sub-total	*0.8*		*4.8*	*0.8*		*4.8*
Active Agriculture (AG)						
Monopole work areas	(*11.5*)	*N/A*		(*11.4*)	*N/A*	
AG Sub-total	(*11.5*)	*N/A*		(*11.4*)	*N/A*	
Temporary Total	*7.3*		***43.8***	*7.8*		***46.2***
Total Mitigation			**61.6**			**65.8**

*Includes A-frames.
** 0.1 acre of the 1.8 acre of impacts is located outside of the FTHL MA, requiring only on-site habitat restoration at a 1:1 ratio.
( ) Indicates temporary transmission impacts that overlap proposed solar field permanent impact areas for the MSSF-I, CSF-I, CSF-II, and ISEC South projects. These work areas are not included in the total due to their overlap with the solar fields.

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 *Weed Management Plan,* should be prepared for general O&M within the solar field.

In order to prevent unauthorized impacts to vegetation communities, the WEAP program will detail the authorized access roads and work areas, and highlight biologically sensitive areas to be avoided during O&M activities.

5.4 Jurisdictional Waters

As seen on Figures 9a and 9b, the proposed transmission lines 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 9, 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 0.8 acres of temporary impacts to CDFG riparian habitat is typically at a ratio of 1, totaling 2.0 acres of required mitigation.

TABLE 9
JURISDICTIONAL RESOURCES MITIGATION REQUIREMENTS FOR MSSF-I TRANSMISSION ROUTES

Jurisdictional Resources	Preferred Transmission Route Impact (acres)	Mitigation Ratio	PTR Mitigation Required (acres)	Alternative Transmission Route Impact (acres)	Mitigation Ratio	ATR Mitigation Required (acres)
Permanent Impacts						
CDFG–Riparian						
Access roads	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
Permanent Total	*0.6*		*1.2*	*0.6*		*1.2*
Temporary Impacts						
CDFG–Riparian						
Lattice tower work areas*	1.7	1:1	1.7	1.7	1:1	1.7
Temporary Total	*1.7*		*1.7*	*1.7*		*1.7*
Total Mitigation			**2.9**			**2.9**

*Includes A-frames.

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.

5.5. Noxious, Invasive, and Non-Native Weeds

To minimize the introduction and spread of weed species, a Weed Management and Habitat Restoration Plan will be developed and implemented. This management plan for temporary disturbance construction sites will have the following objectives:

- Weed identification and risk assessment: identifying the presence, location, and abundance of weed species in the project areas, both existing conditions and conditions over time.

- Weed suppression: reducing or maintaining current infestation densities. The weeds present are widely distributed, higher density weeds for which eradication is not feasible. No weed control is being administered on adjacent properties and therefore there is a strong possibility that the transmission line area will be continuously re-infested.

- Weed containment: preventing infestation expansion or spread as a result of this project.

The *Weed Management and Habitat Restoration Plan* will include a discussion of specific weeds identified on-site that will be targeted for eradication or control as well as a variety of measures that will be undertaken to prevent the introduction and spread of new weed species as a result of the project.

General measures to prevent the spread of weeds include:

- Limiting disturbance areas during construction to the minimal required to perform work and limiting ingress and egress to defined routes

- Maintaining vehicle wash and inspection stations, and closely monitoring the types of materials brought onto the site to minimize the potential for weed introduction

- Use of certified weed free mulch, straw wattles, hay bales and seed mixes

- Reestablishing native vegetation as quickly as practicable on disturbed sites as the most effective long-term strategy to avoid weed invasions

- Monitoring and rapid implementation of control measures to ensure early detection and eradication for need weed invasions

Weed control methods that may be used included both physical and chemical control. Physical control methods include manual hand pulling of weeds, or the use of hand and power tools to uproot, girdle, or cut plants. Herbicide applications are a widely used, effective control method for removing infestations of invasive weed species. However, inadvertent application of herbicide to adjacent native plants must be avoided, which can often be challenging when weeds are interspersed with native cover. Before applying herbicide, contractors will be required to obtain any required permits from state and local authorities. Only a State of California and federally certified contractor will be permitted to perform herbicide applications. All herbicides will be applied in accordance with applicable laws, regulations, and permit stipulations. Only herbicides and adjuvants approved by the State of California and federal agency for use on public lands will be used within or adjacent to the project site. The PEIS lists 10 herbicides acceptable for use on BLM lands (USDI 2007). Guidelines for the use of chemical control of vegetation on BLM lands are presented in the Chemical Pest Control Manual (BLM n.d.). These guidelines require submittal of a pesticide use proposal and pesticide application records for the use of herbicides on BLM lands.

6.0 Cumulative Effects

The proposed projects have 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 projects would not contribute to a significant cumulative biological resources' impact.

As shown in Table 10, 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 acreage allowable within the Yuha MA. This impact, still under the 1 percent threshold for impacts acreage, will be mitigated in accordance with the RMS, thereby reducing the cumulative impact to a level of less than significant.

TABLE 10
APPROVED AND/OR PROPOSED PROJECTS IN 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—MSSF-I (82LV 8ME, LLC.)	**1,408**	**10.2**	**10.2**
ISEC West (CSOLAR)	1071.5	13.7	13.7
Calexico Solar Farm I and II	2,736	-	-
SDG&E Photovoltaic Solar Field	-	100	unknown
North Gila to Imperial Valley #2 (Southwest Transmission Partners)	-	450	3
Total			**301.9**

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ATTACHMENTS

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ATTACHMENT 1

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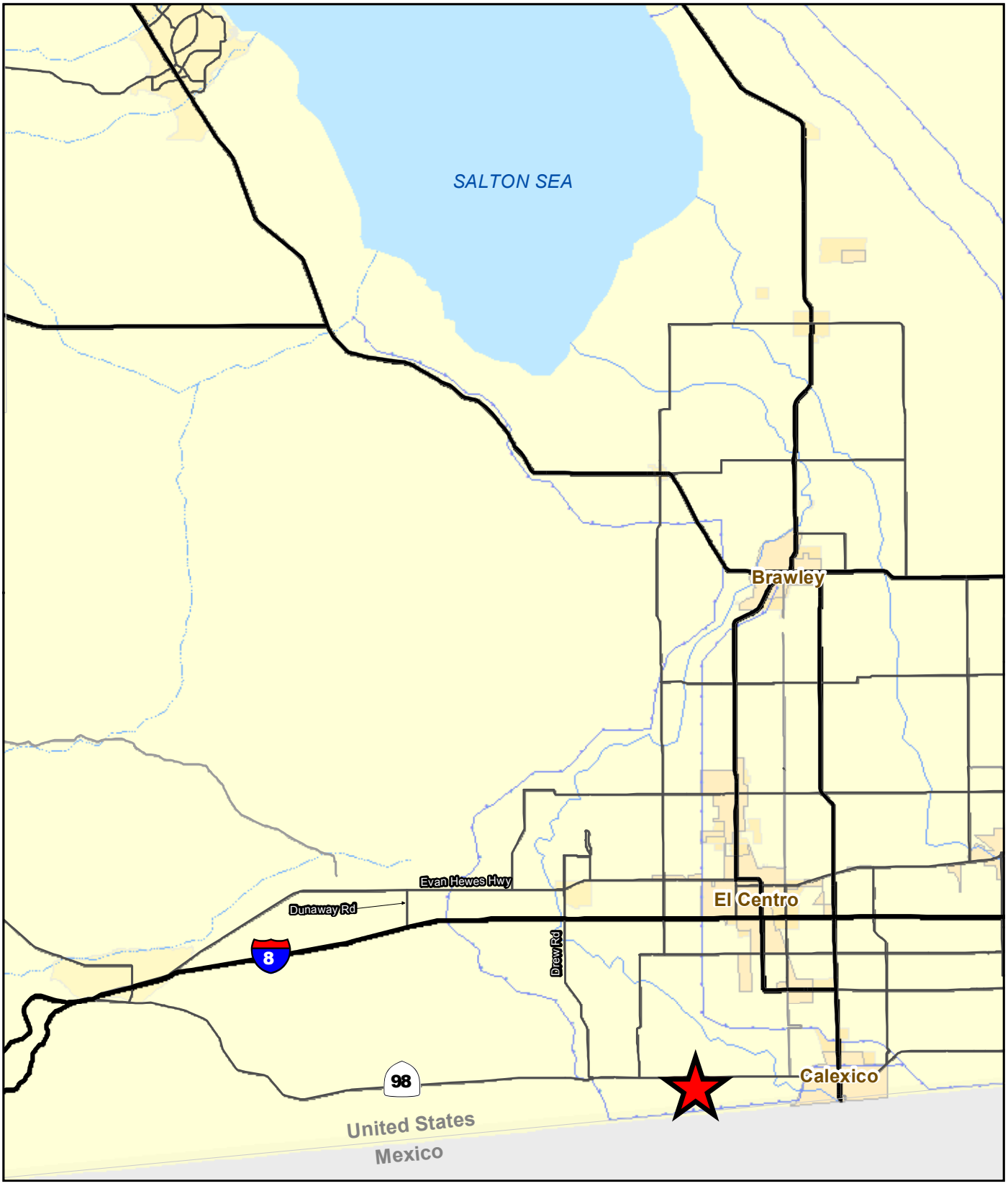

FIGURE 1

Regional Location of the
MSSF-I, CSF-I, and CSF-II Projects

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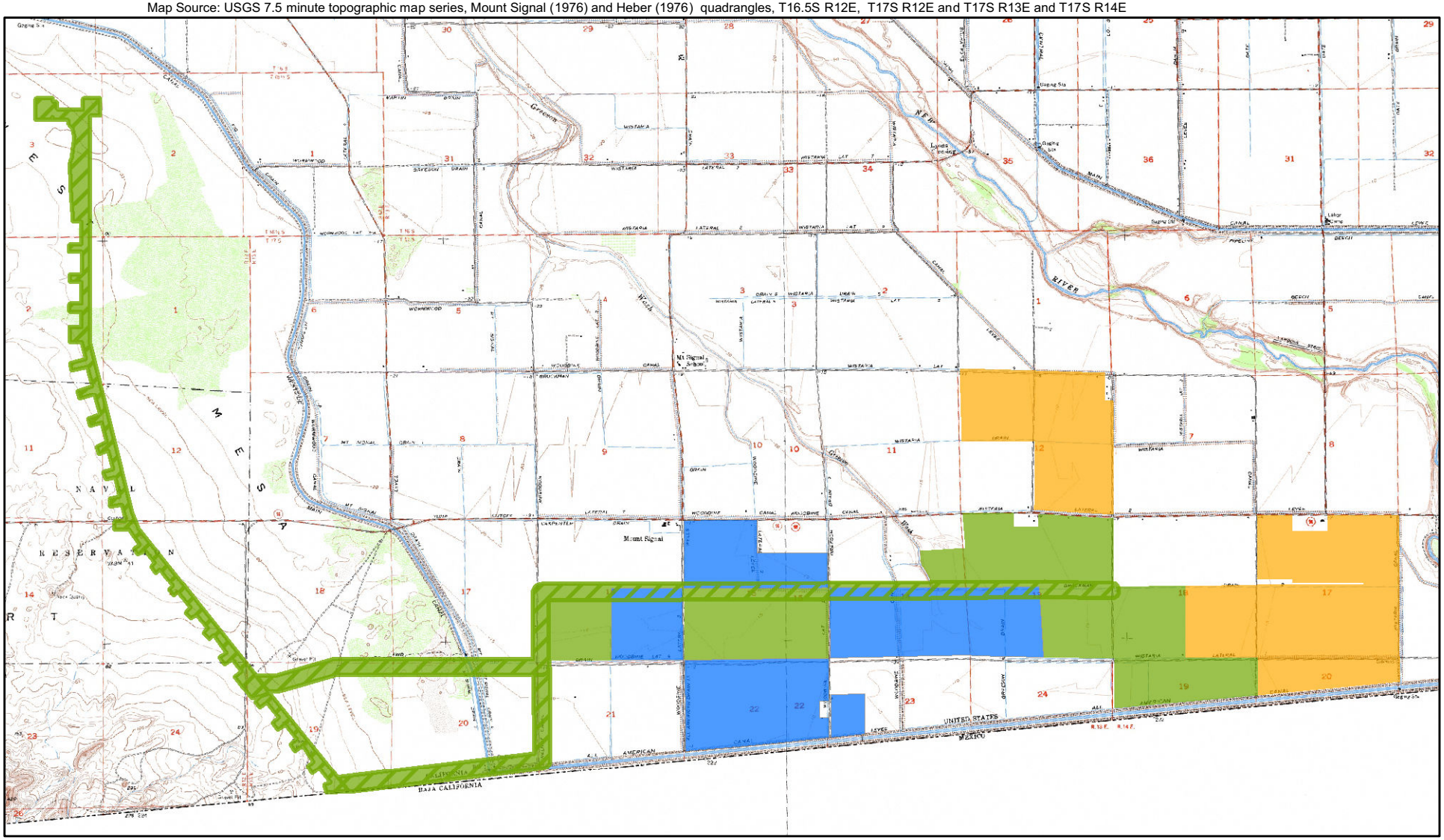
Map Source: USGS 7.5 minute topographic map series, Mount Signal (1976) and Heber (1976) quadrangles, T16.5S R12E, T17S R12E and T17S R13E and T17S R14E



Mount Signal Solar Farm I Survey Area

Calexico Solar Farm I Survey Area

Calexico Solar Farm II Survey Area

0 Feet 5,400

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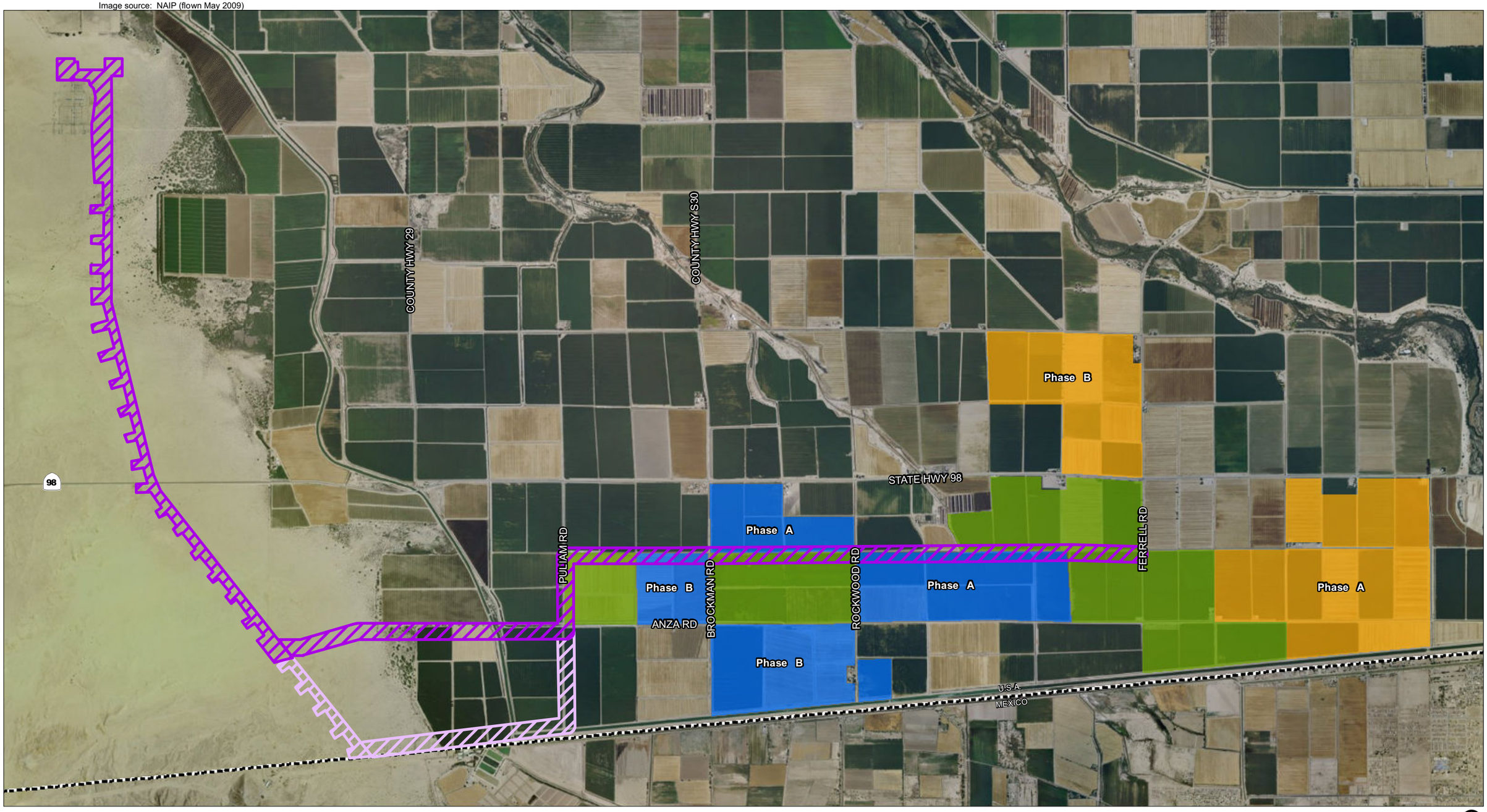
FIGURE 2

MSSF-I, CSF-I, and CSF-II Project Locations on USGS Map

Image source: NAIP (flown May 2009)



Mount Signal Solar Farm I

Calexico Solar Farm I

Calexico Solar Farm II

Mount Signal Solar Farm I Preferred Transmission Route

Mount Signal Solar Farm I Alternative Transmission Route

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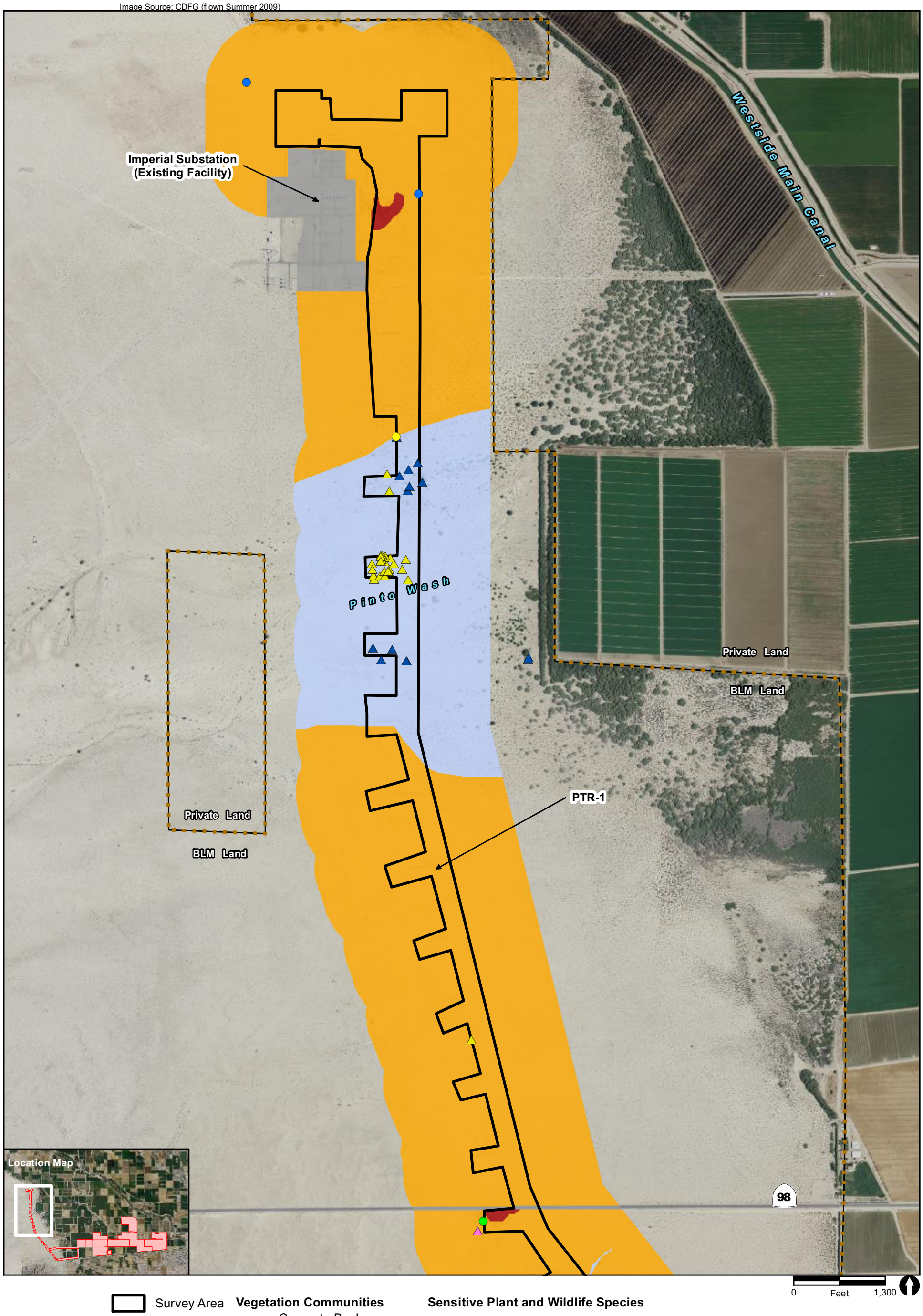
FIGURE 3

Overview of MSSF-I, CSF-I, and CSF-II Projects

Image Source: CDFG (flown Summer 2009)



Survey Area

Vegetation Communities

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

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 wolfii*)

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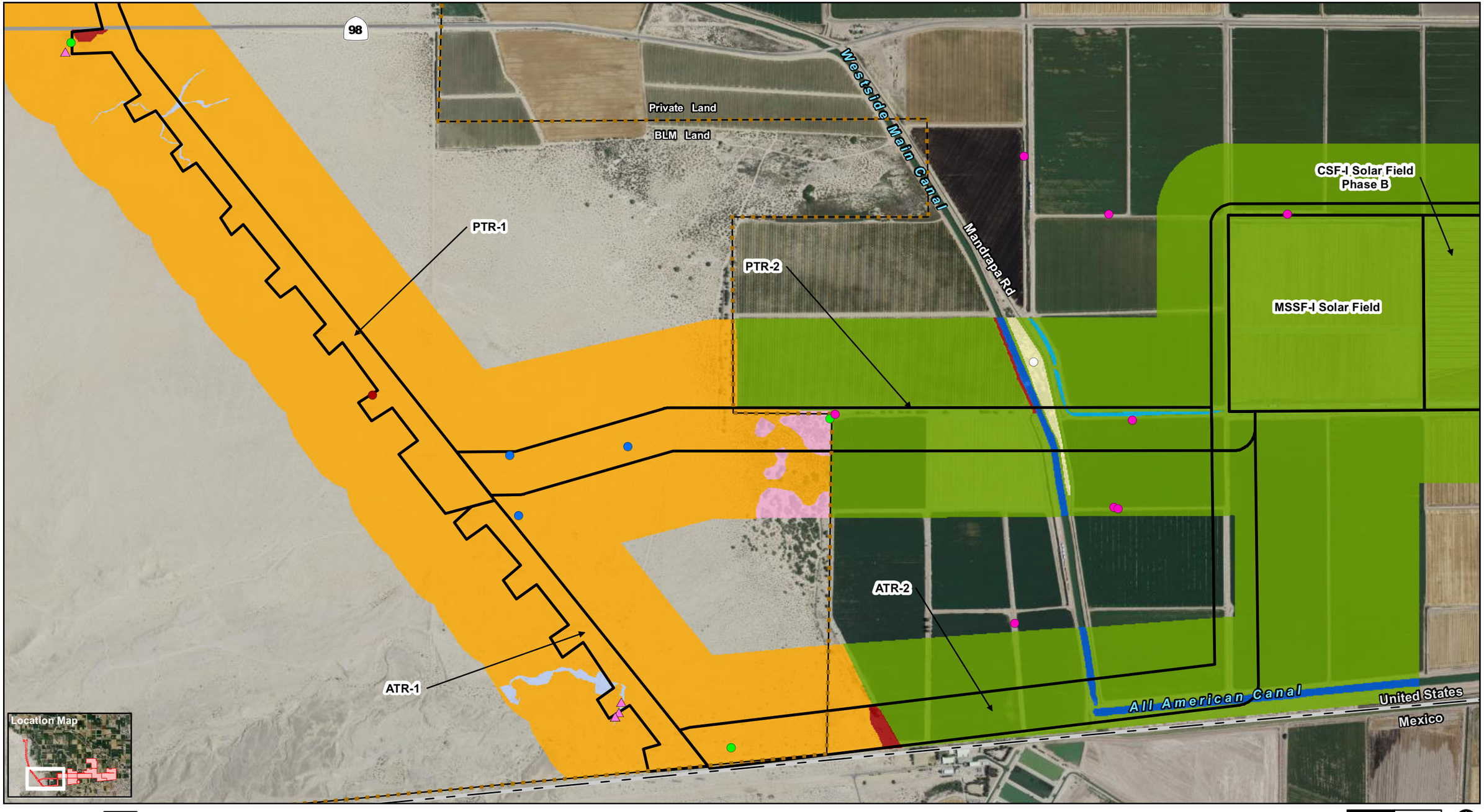
FIGURE 4a

Existing Biological Resources

Image Source: CDFG (flown Summer 2009)



Survey Area

Vegetation Communities

- Creosote Bush-White Burr Sage Scrub
- Cattail Marsh
- Mesquite Thicket
- Active Agriculture
- Tamarisk Thicket
- Open Water
- Developed
- Desert Wash (Smoke Tree Woodland)
- Disturbed Land

Sensitive Plant and Wildlife Species

- Burrowing owl pair and active burrow (*Athene cunicularia hypugea*) [within IID easements]
- 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*)

0 Feet 1,300

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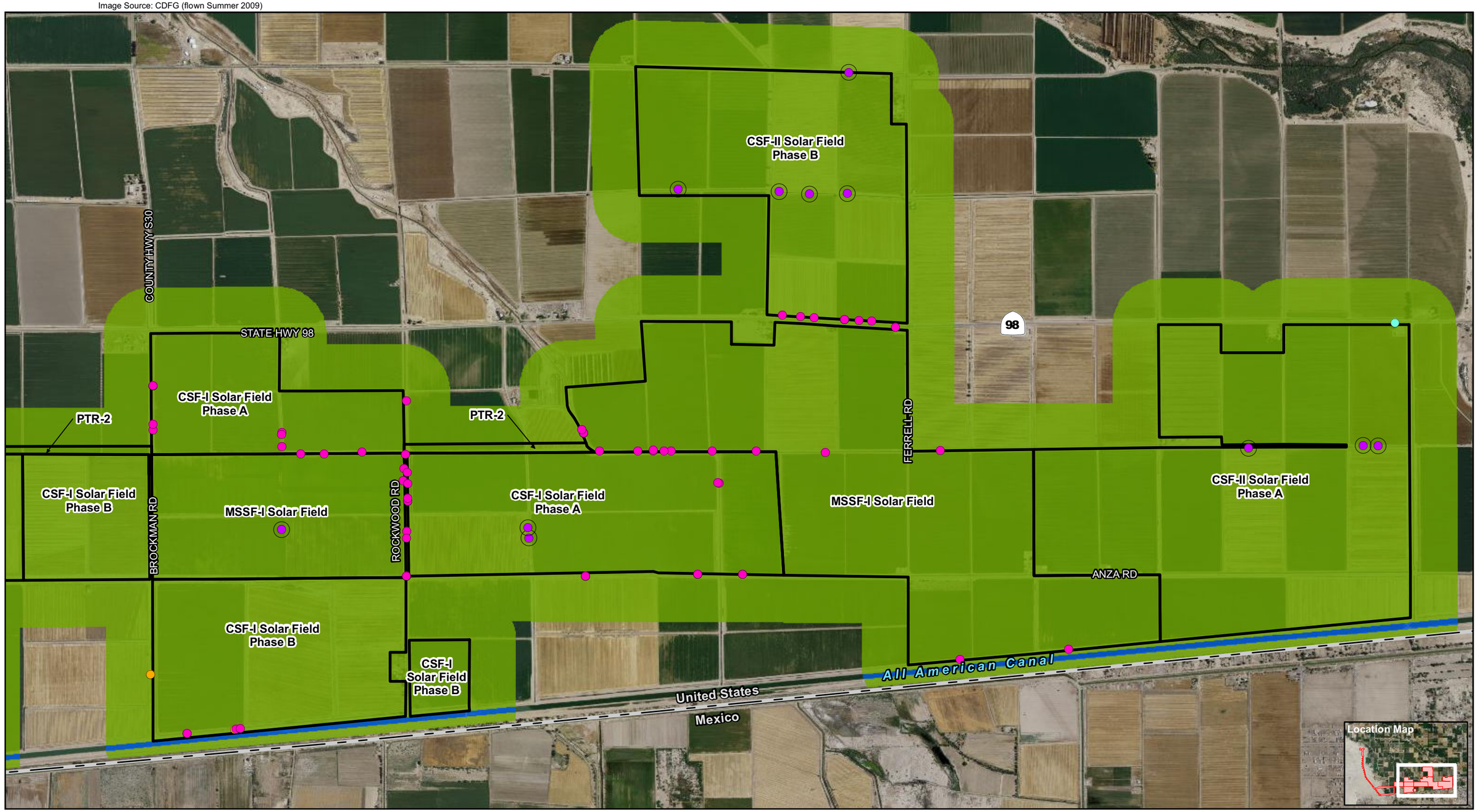
FIGURE 4b

Existing Biological Resources

Image Source: CDFG (flown Summer 2009)



Survey Area

Vegetation Communities

- Active Agriculture
- Open Water

Sensitive Wildlife Species

- Active Burrowing Owl Burrow (*Athene cunicularia hypugea*) [within IID easements]
- Active Burrowing Owl Burrow (*Athene cunicularia hypugea*) [outside IID easements]
- Barn Owl Nest (*Tyto alba*)
- Cattle Egret Roost (*Bubulcus ibis*)

0 Feet 2,000

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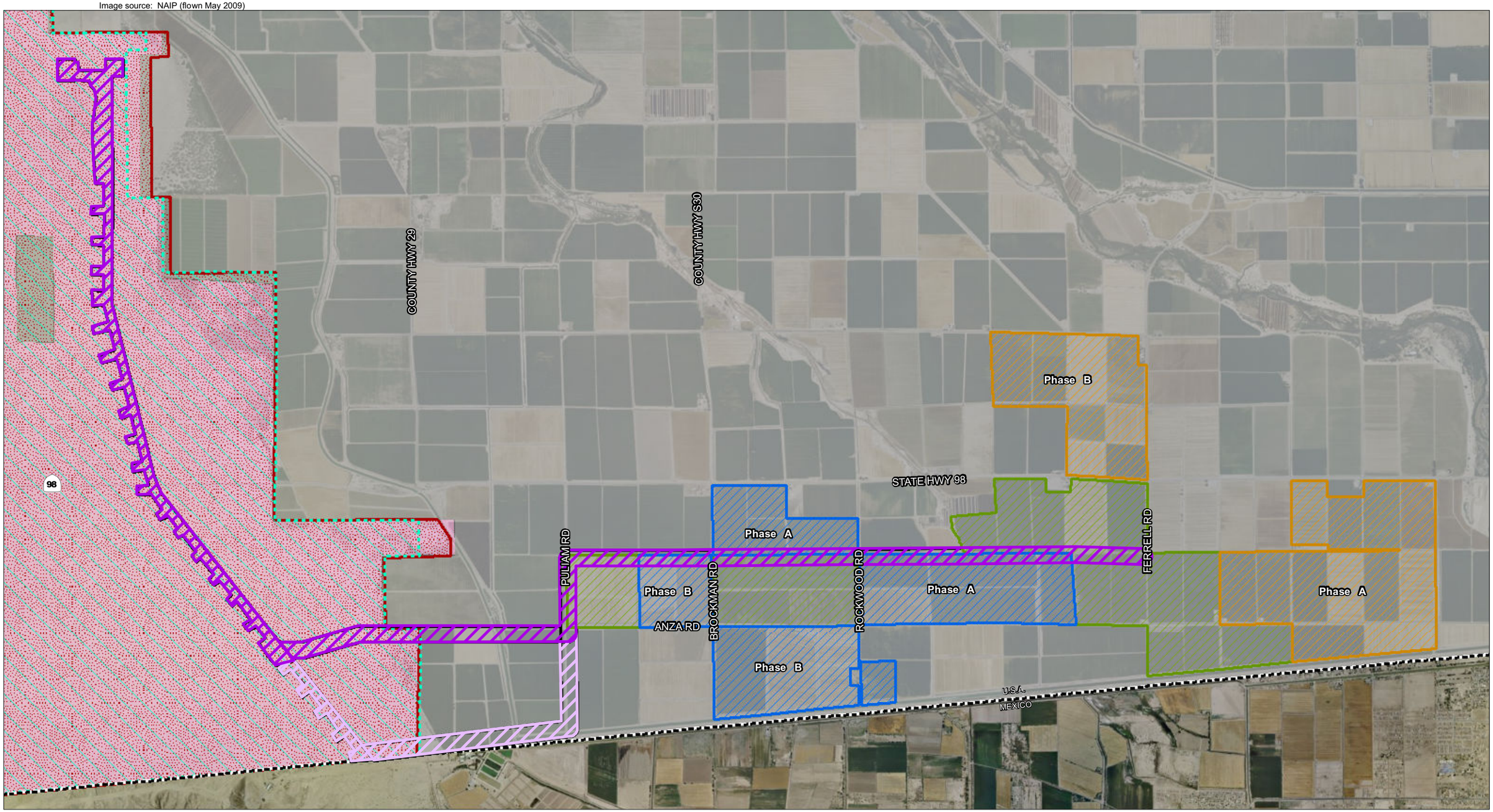
FIGURE 4c

Existing Biological Resources

Image source: NAIP (flown May 2009)



Survey Area
Mount Signal Solar Farm I
Calexico Solar Farm I
Calexico Solar Farm II
Mount Signal Solar Farm I Preferred Transmission Route
Mount Signal Solar Farm I Alternative Transmission Route
Flat-tail Horned Lizard Management Area
Yuha Basin ACEC

Land Ownership
Private Land Ownership
Bureau of Land Management

0 Miles 1

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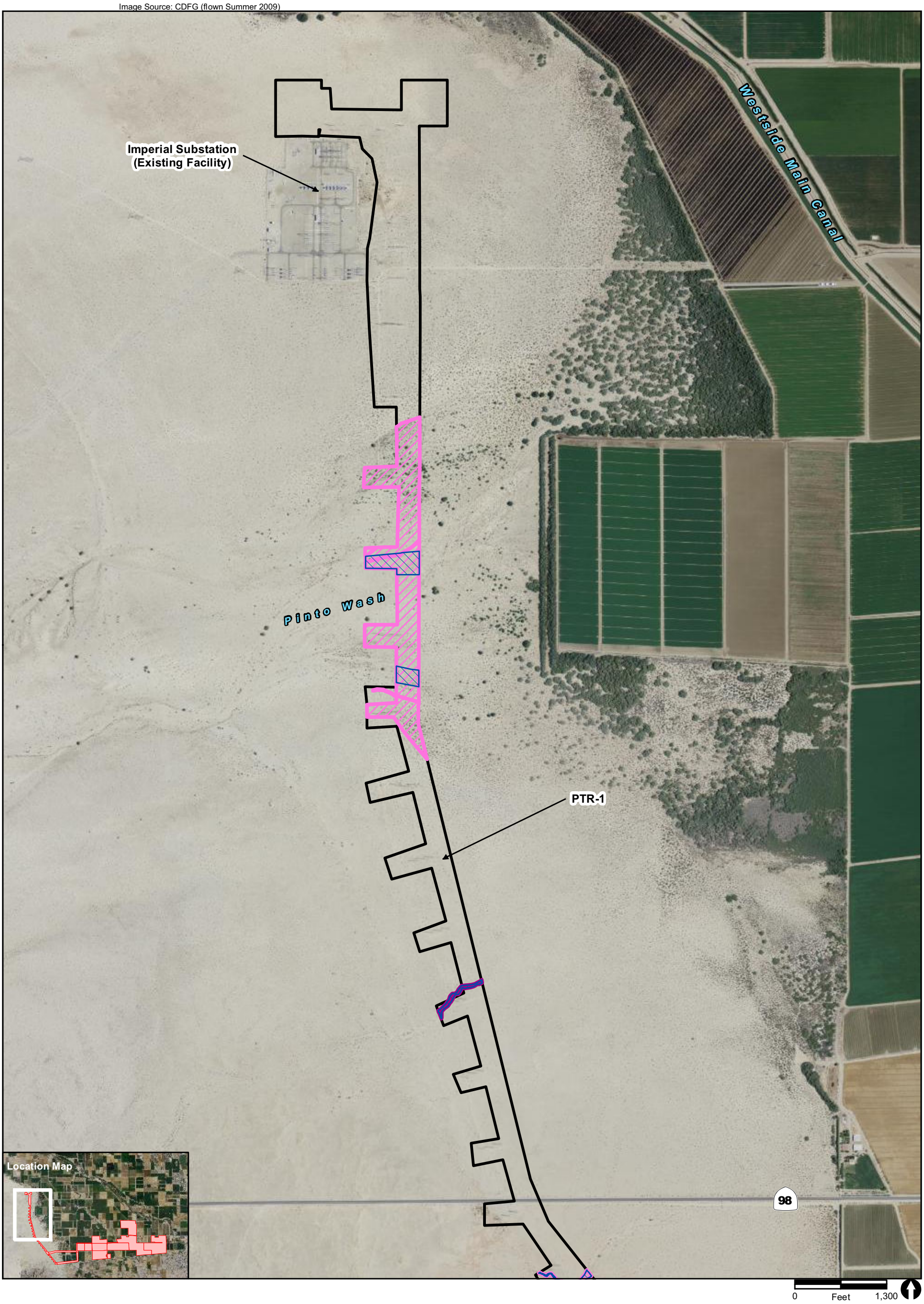
FIGURE 5

MSSF-I, CSF-I, and CSF-II Projects in Relation to Preserve Areas

Image Source: CDFG (flown Summer 2009)



Survey Area

ACOE Jurisdictional Resources
Non-wetland water

CDFG Jurisdictional Resources
Riparian - Desert Wash Scrub
Streambed

FIGURE 6a

Jurisdictional Resources for the
MSSF-I, CSF-I, and CSF-II Projects

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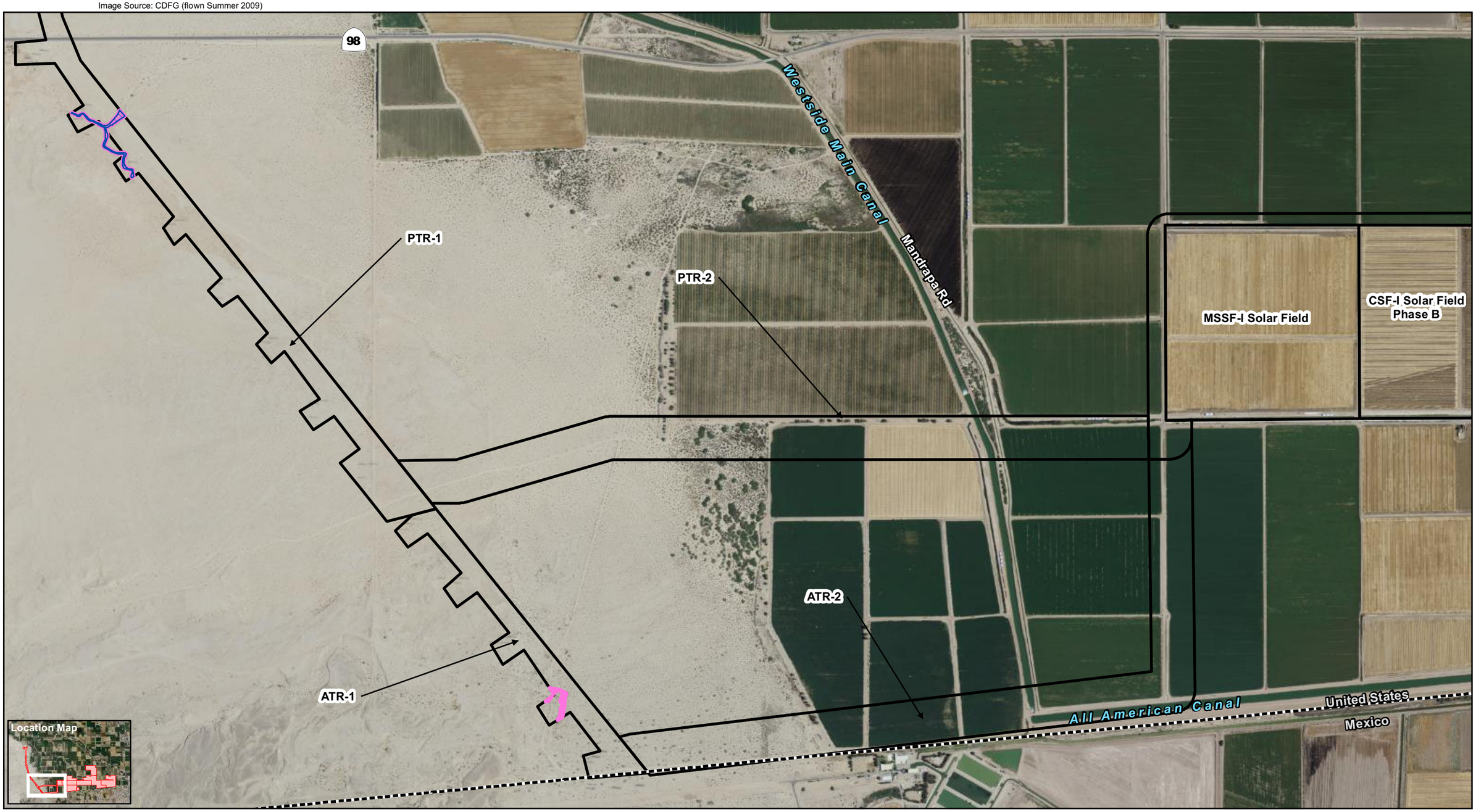
Image Source: CDFG (flown Summer 2009)



0 Feet 1,300

Survey Area

ACOE Jurisdictional Resources

Non-wetland water

CDFG Jurisdictional Resources

Riparian - Desert Wash Scrub

RECON

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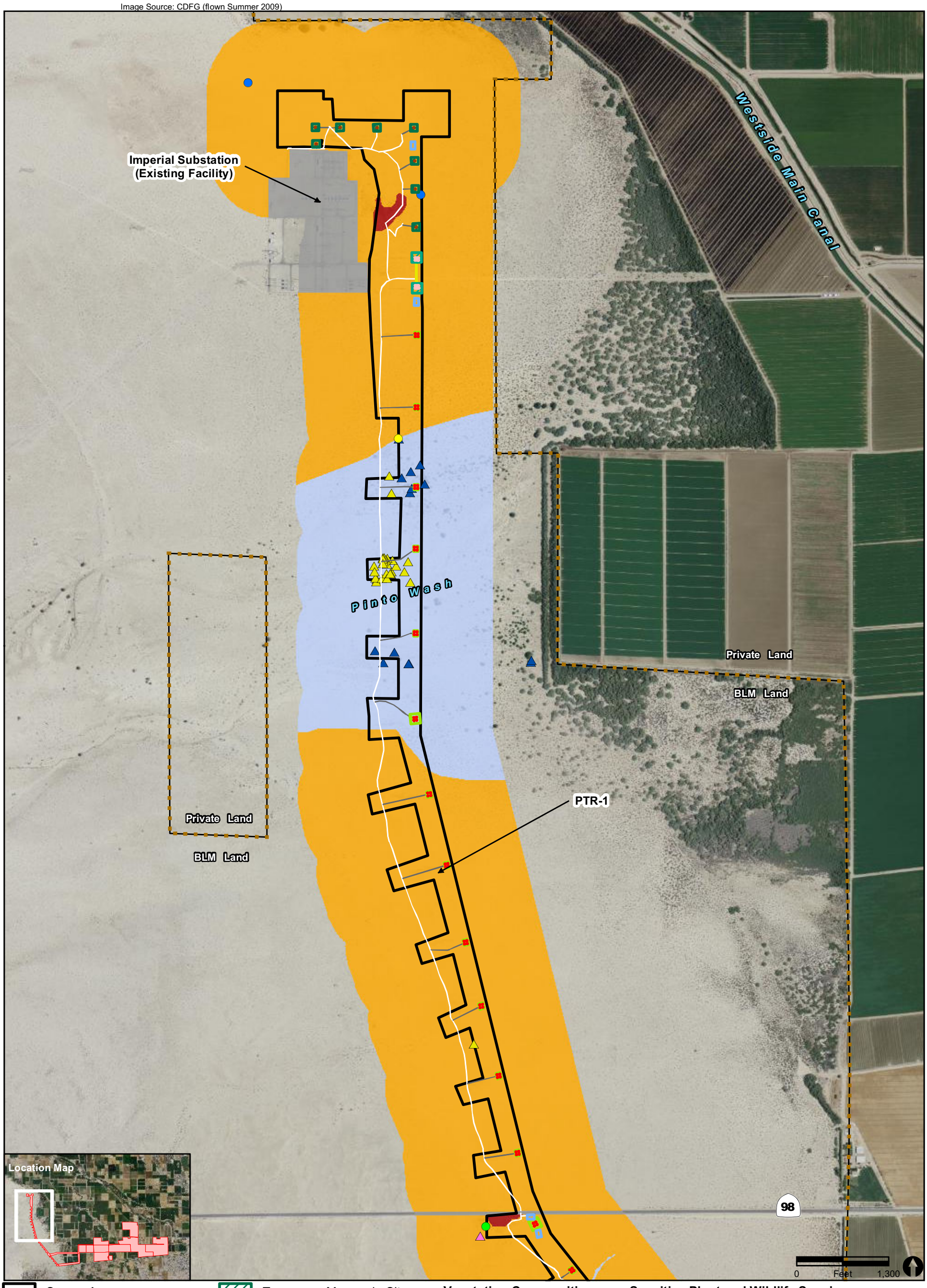
FIGURE 6b

Jurisdictional Resources for the
MSSF-I, CSF-I, and CSF-II Projects

Image Source: CDFG (flown Summer 2009)



Survey Area

Impact Areas
- Permanent Monopole Footing
- Permanent Tower
- Permanent A-Frame Footing
- Pull Site
- Temporary Monopole Site
- Temporary Tower Site
- Temporary A-Frame Tower Site
- Temporary Trench
- Access Road
- white — Existing Access Road

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

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 wolfii*)

RECON

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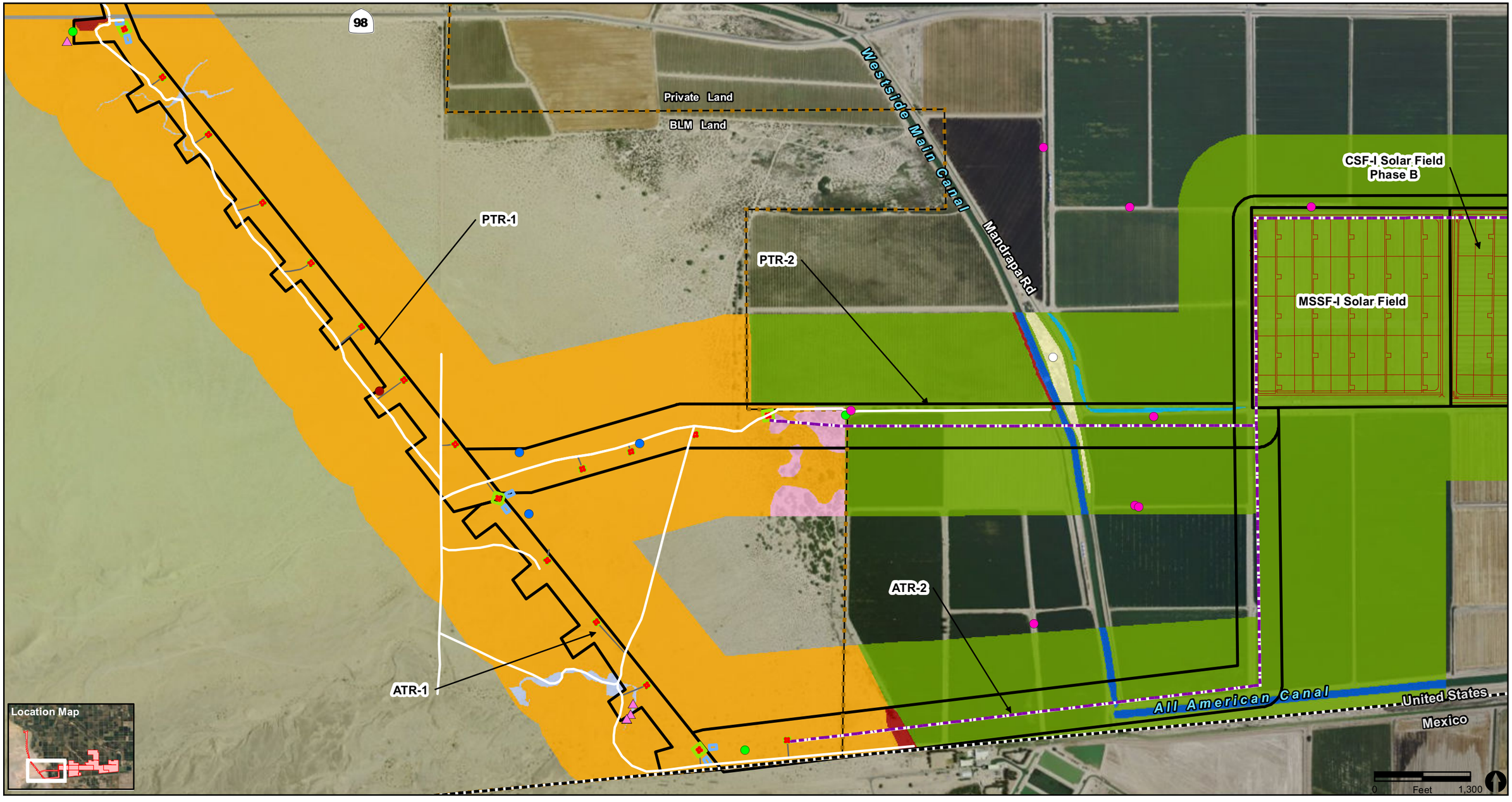
FIGURE 7a
Impacts to Biological Resources for the MSSF-I, CSF-I, and CSF-II Projects

Image Source: CDFG (flown Summer 2009)



Survey Area

Impact Areas
- Permanent Tower
- Pull Site
- Temporary Tower Site
- Access Road
- white — Existing Access Road
- Solar Field Impacts
- Proposed Transmission Alignment

Vegetation Communities
- Creosote Bush-White Burr Sage Scrub
- Cattail Marsh
- Mesquite Thicket
- Active Agriculture
- Tamarisk Thicket
- Open Water
- Developed
- Desert Wash (Smoke Tree Woodland)
- Disturbed Land

Sensitive Plant and Wildlife Species
- Burrowing owl pair and active burrow (*Athene cunicularia hypugea*) [within IID easements]
- 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*)

RECON

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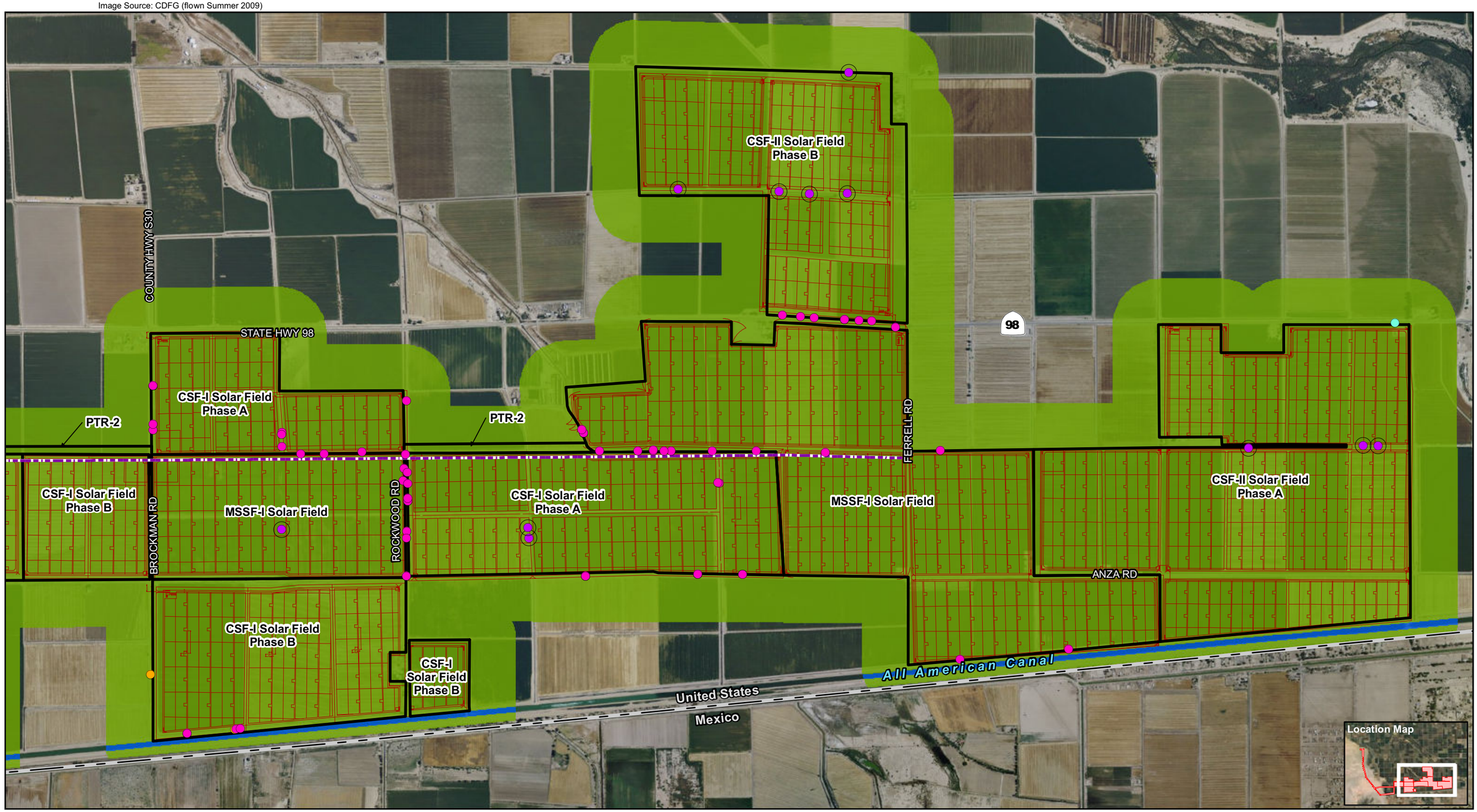
FIGURE 7b

Impacts to Biological Resources for the MSSF-I, CSF-I, and CSF-II Projects

Image Source: CDFG (flown Summer 2009)



Survey Area
Solar Field Impacts
Proposed Transmission Alignment

Vegetation Communities

Active Agriculture
Open Water

Sensitive Wildlife Species

Active Burrowing Owl Burrow (*Athene cunicularia hypugea*) [within IID easements]
Active Burrowing Owl Burrow (*Athene cunicularia hypugea*) [outside IID easements]
Barn Owl Nest (*Tyto alba*)
Cattle Egret Roost (*Bubulcus ibis*)

0 Feet 2,000

RECON

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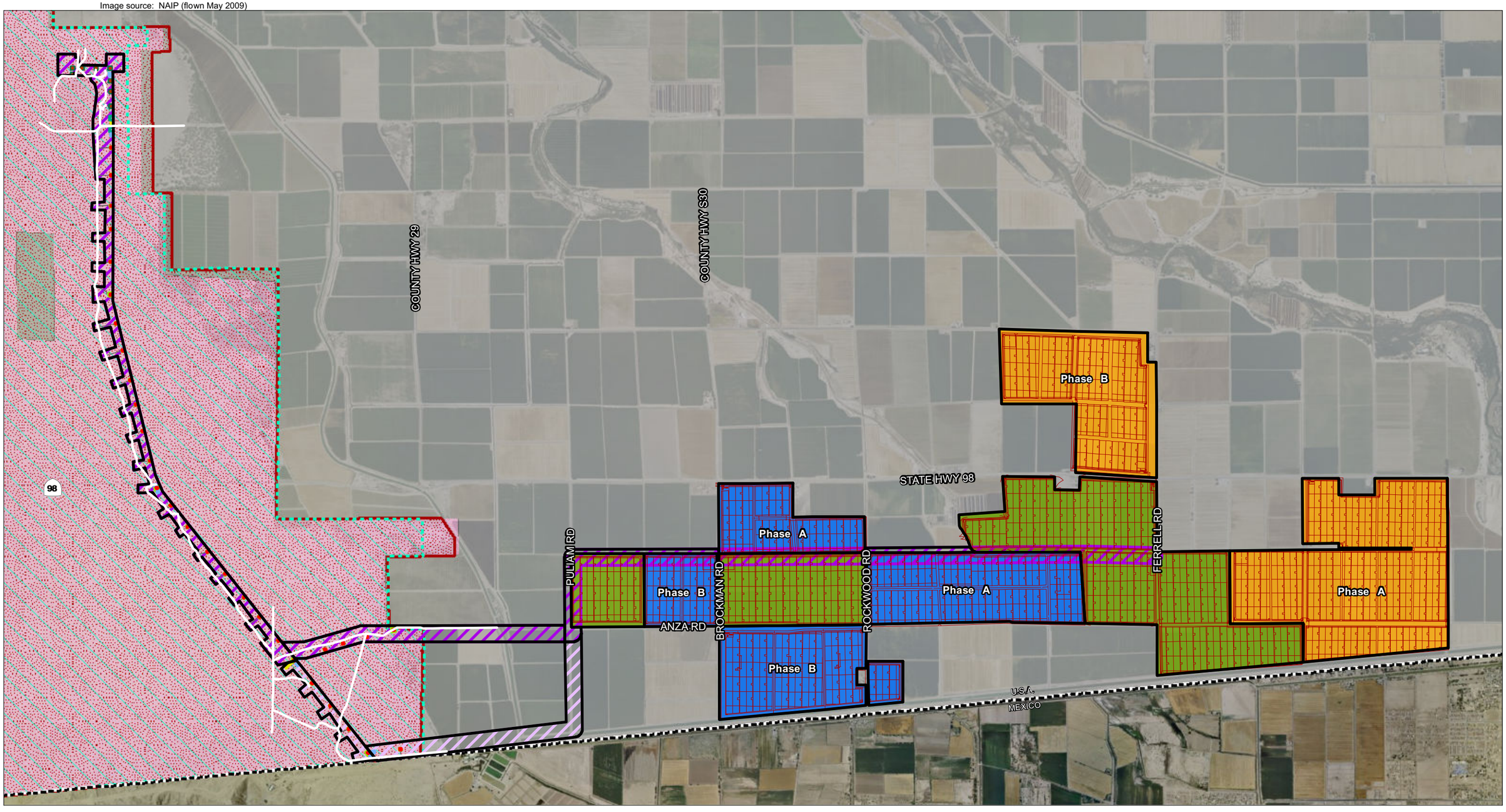
FIGURE 7c
Impacts to Biological Resources for the
MSSF-I, CSF-I, and CSF-II Projects

Image source: NAIP (flown May 2009)



Survey Area

Solar Field Impacts

Impact Areas

- Permanent Monopole Footing
- Permanent Tower
- Pull Site
- Temporary Monopole Site
- Temporary Tower Site
- Temporary A-Frame Tower Site
- Temporary Trench
- Access Road
- white — Existing Access Road
- Mount Signal Solar Farm I
- Calexico Solar Farm I
- Calexico Solar Farm II
- Mount Signal Solar Farm I Preferred Transmission Route
- Mount Signal Solar Farm I Alternative Transmission Route
- Flat-tail Horned Lizard Management Area
- Yuha Basin ACEC

Land Ownership

- Private Land Ownership
- Bureau of Land Management

0 Miles 1

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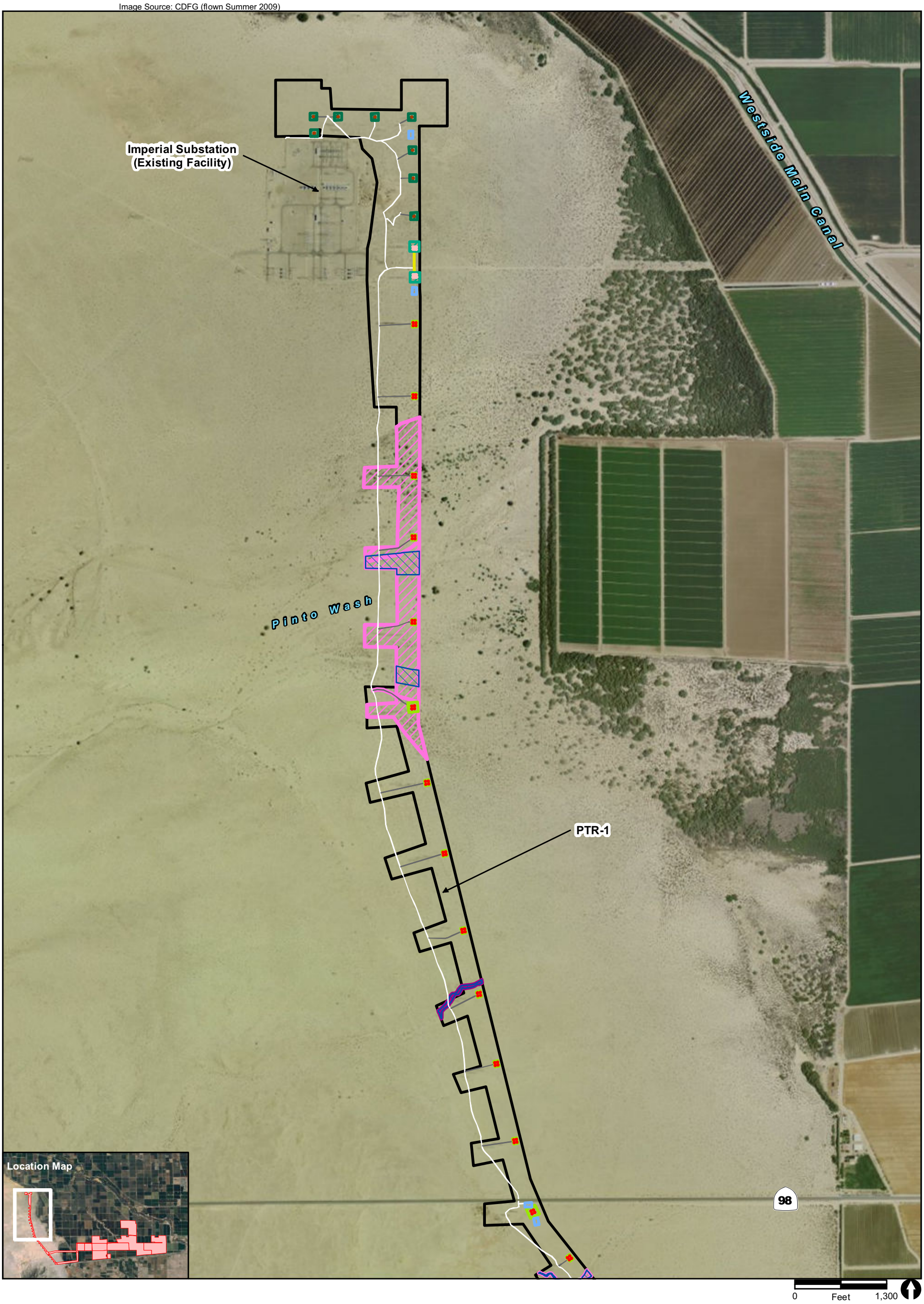
FIGURE 8

Impacts to Preserve Areas

Image Source: CDFG (flown Summer 2009)



Survey Area

ACOE Jurisdictional Resources
Non-wetland water

CDFG Jurisdictional Resources
Riparian - Desert Wash Scrub
Streambed

Impact Areas
Permanent Monopole Footing
Permanent Tower
Permanent A-frame Footing
Pull Site
Temporary Monopole Site
Temporary Tower Site
Temporary A-Frame Tower Site
Temporary Trench
Access Road
white — Existing Access Road

FIGURE 9a

Impacts to Jurisdictional Resources for the MSSF-I, CSF-I, and CSF-II Projects

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Image Source: CDFG (flown Summer 2009)

Survey Area
Solar Field Impacts
Proposed Transmission Alignment

ACOE Jurisdictional Resources
Non-wetland water

CDFG Jurisdictional Resources
Riparian - Desert Wash Scrub

Impact Areas
Permanent Tower
Pull Site
Temporary Tower Site
Access Road
white Existing Access Road

0 Feet 1,300

RECON

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FIGURE 9b
Impacts to Jurisdictional Resources for the MSSF-I, CSF-I, and CSF-II Projects

ATTACHMENT 2

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ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN MSSF-I, CSF-1, AND CSF-II PROJECT SURVEY AREAS

Scientific Name	Common Name	Habitat	Origin	PTR-1	PTR-2	ATR-1	ATR-2	MSSF-I	CSF-I	CSF-II
	GNETALES									
EPHEDRACEAE	**EPHEDRA FAMILY**									
Ephedra trifurca	three-fork ephedra	CBS	N	X	X	X				
	ANGIOSPERMS: DICOTS									
AMARANTHACEAE	**AMARANTH FAMILY**									
Amaranthus palmeri	Palmer's amaranth	AT	N					X	X	X
ASTERACEAE	**SUNFLOWER FAMILY**									
Ambrosia dumosa	white burr sage	CBS, AG	N	X	X	X	X	X		
Baileya pauciradiata	lax flower	CBS	N	X	X	X	X			
Bebbia juncea	sweetbush	DW	N	X						
Chaenactis carophoclinia var. *carphoclinia*	pebble pincushion	CBS	N			X				
Chaenactis fremontii	desert pincushion flower	CBS	N	X			X			
Chaenactis stevioides	pincushion flower	CBS	N	X		X				
Dicoria canescens	bugseed	DW	N	X	X	X				
Encelia farinosa	brittlebush, incienso	CBS	N	X				X		
Encelia frutescens	rayless encelia	DW	N	X						
Geraea canescens	desert sunflower	CBS	N	X	X	X	X			
Hymenoclea salsola	cheese bush	CBS, AG	N	X				X		
Isocoma acradenia var. *eremophila*	alkali goldenbush	CBS	N	X	X					
Lactuca serriola	prickly lettuce	AG	I							X
Malacothrix glabrata	desert dandelion	CBS	N	X	X		X			
Palafoxia arida var. *arida*	Spanish needles	CBS, AG	N	X	X	X	X	X		
Pectis papposa	pectis		N	X						
Perityle emoryi	rock daisy	CBS, DW	N	X						
Pluchea sericea	arrow weed	AG	N		X			X	X	X
Psathyrotes ramosissima	turtleback	DW	N	X						
Rafinesquia neomexicana	desert chickory	CBS, DW	N	X	X					

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN MSSF-I, CSF-1, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Habitat	Origin	PTR-1	PTR-2	ATR-1	ATR-2	MSSF-I	CSF-I	CSF-II
Sonchus sp.	sow thistle	DW, AG	I	X		X	X	X		
BIGNONIACEAE	**BIGNONIA FAMILY**									
Chilopsis linearis ssp. *arcuata*	desert-willow	DW	N	X						
BORAGINACEAE	**BORAGE FAMILY**									
Cryptantha angustfolia	narrow-leaved forget-me-not	CBS, DW	N	X	X	X	X			
Heliotropium curassavicum	salt heliotrope	AG	I					X	X	X
Pectocarya recurvata	comb-bur	CBS, DW	N	X		X				
Tiquilia palmeri	Palmer's tiquilia	CBS, DW	N	X	X	X	X			
Tiquilia plicata	fanleaf crinklemat	CBS, DW, AG	N	X	X	X	X	X		
BRASSICACEAE (CRUCIFERAE)	**MUSTARD FAMILY**									
Brassica tournefortii	Sahara mustard	CBS, DW, AT	I	X	X	X	X			
Dytheria californica	spectacle pod	CBS	N	X	X					
Lepidium lasiocarpum	desert peppergrass	CBS, AT	N	X		X				
Sisymbrium irio	London rocket	AG, CBS, DW	I	X	X					
CACTACEAE	**CACTUS FAMILY**									
Cylindropuntia wolfii	Wolf's cholla	DW	N	X						
CANNABACEAE	**CANNABIS FAMILY**									
Cannabis sativa	hemp	AG	I					X		
CARYOPHYLLACEAE	**PINK FAMILY**									
Achyronychia cooperi	frost mat	CBS, DW	N	X	X	X	X			
CHENOPODIACEAE	**GOOSEFOOT FAMILY**									
Atriplex canescens	fourwing saltbush, shad-scale	CBS, DW	N	X	X	X	X			
Atriplex hymenelytra	desert holly	CBS, DW	N	X						
Atriplex lentiformis	quailbush	AG	N					X	X	X
Atriplex polycarpa	desert saltbush	CBS, DW	N	X		X	X			
Bassia hyssopifolia	fivehook bassia	AG	I					X		
Chenopodium murale	nettle-leaved goosefoot	CBS, AG	N	X	X			X	X	X
Salsola tragus	Russian thistle	CBS, AG	I					X	X	
Suaeda moquinii	desert seepweed	DW	N	X						

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN MSSF-I, CSF-1, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Scientific Name	Common Name	Habitat	Origin	PTR-1	PTR-2	ATR-1	ATR-2	MSSF-I	CSF-I	CSF-II
EUPHORBIACEAE	**SPURGE FAMILY**									
Chamaesyce micromera	spurge	CBS, DW	N	X						
Chamaesyce polycarpa	sandmat	CBS, DW	N	X						
Croton californicus var. *mohavensis*	desert croton	DW	N	X						
Stillingia spinulosa	broad-leaved stillingia	CBS	N	X						
FABACEAE (LEGUMINOSAE)	**LEGUME FAMILY**									
Acacia greggii	catclaw acacia	CBS	N	X			X			
Astragalus palmeri	Palmer's milkvetch	DW	N		X					
Dalea mollissima	silk dalea	DW	N		X					
Lotus sp.	Lotus	DW	N	X						
Lupinus arizonicus	Arizona lupine		N	X						
Olneya tesota	ironwood	CBS	I	X		X	X			
Prosopis glandulosa var. *torreyana*	honey mesquite	CBS, DW, MT, TT, AG	N	X	X			X		
Psorothamnus emoryi	Emory's indigo bush	CBS, DW	N	X	X	X				
Psorothamnus schotti	indigo bush	CBS	N	X						
Psorothamnus spinosus	smoke tree	DW	N	X						
GERANIANACEAE	**GERANIUM FAMILY**									
Erodium cicutarium	redstem filaree	AG	I					X	X	X
HYDROPHYLLACEAE	**WATERLEAF FAMILY**									
Nama demissum	purple mat	CBS, DW	N	X						
Phacelia rotundifolia	round-leaf phacelia	CBS	N	X						
KRAMERIACEAE	**RHATANY FAMILY**									
Krameria grayi	Pima rhatany, purple-heather	CBS	N	X	X	X	X			
LAMIACEAE	**MINT FAMILY**									
Hyptis emoryi	desert lavendar	DW	N	X						
LOASACEAE	**LOASA FAMILY**									
Mentzelia albicaulis	white stem stickleaf	CBS	N	X						
Petalonyx thurberi ssp. *Thurberi*	sandpaper plant	DW	N	X						

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN MSSF-I, CSF-1, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Habitat	Origin	PTR-1	PTR-2	ATR-1	ATR-2	MSSF-I	CSF-I	CSF-II
MALVACEAE	**MALLOW FAMILY**									
Eremalche rotundifolia	desert five-spot	DW	N			X	X			
Malva parviflora	cheeseweed mallow	AG	I					X		
Malvella leprosa	alkali mallow	AG	N					X	X	X
Sphaeralcea ambigua	globemallow	CBS, DW	N		X		X	X		X
MYRTACEAE	**EUCALYPTUS FAMILY**									
Eucalyptus sp.	eucalyptus trees\	AG	I					X	X	X
NYCTAGINACEAE	**FOUR O'CLOCK FAMILY**									
Abronia villosa var. *villosa*	desert sand verbena	CBS, DW	N	X		X	X			
ONAGRACEAE	**EVENING-PRIMROSE FAMILY**									
Camissonia boothii	woody bottle washer	CBS, DW	N	X	X		X			
Camissonia claviformis spp. *peirsonii*	Peirson's browneyes	CBS, DW	N	X	X		X			
Oenothera deltoides	dune primrose	CBS, DW	N	X	X	X				
PAPAVERACEAE	**POPPY FAMILY**									
Eschscholzia minutiflora	little leaf gold poppy	CBS	N	X		X	X			
PLANTAGINACEAE	**PLANTAIN FAMILY**									
Plantago ovata	Indian wheat	CBS, DW	N	X		X	X			
POLEMONIACEAE	**PHLOX FAMILY**									
Langloisia setosissima var. *setosissima*	langloisia	CBS	N	X						
Loeseliastrum mathewsii	desert calico	CBS	N	X						
POLYGONACEAE	**BUCKWHEAT FAMILY**									
Chorizanthe brevicornu	brittle spineflower	CBS	N		X	X				
Chorizanthe rigida	rigid chorizanthe	CBS	N	X	X	X	X			
Eriogonum deflexum	skeleton weed	CBS, DW	N	X	X	X	X			
Eriogonum deserticola	dune buckwheat	CBS, DW	N		X					
Eriogonum inflatum	desert trumpet	CBS, DW	N			X				
Eriogonum thomasii	Thomas's buckwheat	CBS, DW	N	X	X					
Polygonum argyrocolion	silver sheath knotweed	AG	I					X		
Rumex crispus	curly dock	AG	I					X		X

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN MSSF-I, CSF-1, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Scientific Name	Common Name	Habitat	Origin	PTR-1	PTR-2	ATR-1	ATR-2	MSSF-I	CSF-I	CSF-II
PORTULACACEAE	**PURSELANE FAMILY**									
Calandrinia ambigua	dead man's fingers	CBS	N	X						
Portulaca oleracea	prostrate pigweed	AG	I					X	X	X
RAFFLESIACEAE	**RAFFLESIA FAMILY**									
Pilostyles thurberi	Thurber's pilostyles	DW	N	X						
RESEDACEAE	**MIGNONETTE FAMILY**									
Oligomeris linifolia	narrowleaf oligomeris	CBS, DW	N	X	X	X	X			
SOLANACEAE	**NIGHTSHADE FAMILY**									
Datura stramonium	Jimson weed	AG	I					X		
Lycium parishii /L. brevipes var. *brevipes*	Parish's desert-thorn / desert-thorn	DW	N	X		X				
Physalis sp.	ground cherry	AG	N					X		
Solanum elaeagnifolium	white horse-nettle	AG	N					X	X	X
TAMARICACEAE	**TAMARISK FAMILY**									
Tamarix aphylla	Athel tamarisk	DW, TT, AG	I	X	X			X	X	X
Tamarix ramosissima	salt cedar, tamarisk	DW, TT, AG	I	X	X	X		X	X	X
VISCACEAE	**MISTLETOE FAMILY**									
Phoradendron californium	mistletoe	CBS	N				X			
ZYGOPHYLLACEAE	**CALTROP FAMILY**									
Larrea tridentata	creosote bush	CBS, DW, AG	N	X	X	X	X	X		
Tribulus terrestris	puncture vine	DW, AG	I	X						
	ANGIOSPERMS: MONOCOTS									
ARECACEAE	**PALM FAMILY**									
Washingtonia filifera	California fan palm	AG	N					X		
CYPERACEAE	**SEDGE FAMILY**									
Cyperus rotundus	nutgrass	AG	I					X	X	X
LILIACEAE	**LILY FAMILY**									
Hesperocaulis undulata	desert lily	DW	N	X	X	X				

ATTACHMENT 2
PLANT SPECIES OBSERVED WITHIN MSSF-I, CSF-1, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Habitat	Origin	PTR-1	PTR-2	ATR-1	ATR-2	MSSF-I	CSF-I	CSF-II
POACEAE (GRAMINEAE)	**GRASS FAMILY**									
Aristida purpurea	purple three-awn	CBS	N	X						
Avena barbata	Slender wild oat	AG	I					X	X	X
Bouteloua aristidoides	grama grass		N	X						
Cynodon dactylon	Bermuda grass	AG, DW	I	X				X	X	X
Distichlis spicata	salt grass	AG	N						X	X
Echinochloa crus-galli	barnyard grass	AG	I					X		
Leptochloa mucronata	red sprangletop	AG	N					X	X	X
Phalaris minor	Mediterranean canary grass	AG, DW	I	X				X		X
Pleuraphis [=*Hilaria*] *rigida*	big galleta grass	DW, CBS	N	X	X	X	X			
Phragmites australis	common reed	AG	N					X	X	X
Polypogon monspeliensis	annual beard grass, rabbit's foot grass	AG	I						X	X
Schismus barbatus	Mediterranean grass	CBS, DW, AG	I	X	X	X	X	X		
Sorghum bicolor	sweet sorghum	AG	I					X		
TYPHACEAE	**CATTAIL FAMILY**									
Typha dominginsis	narrowleaved cattail	AG	N					X	X	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 3

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ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS

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

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				PTR-1	PTR-2	ATR-1	ATR-2	MSSF-1	CSF-I	CSF-II
PHRYNOSOMATIDAE	**PHRYNOSOMATID LIZARDS**									
Callisaurus draconoides rhodostictus	Common zebra-tailed lizard	CBS	C	O	O	O	O			
Phrynosoma mcallii	flat-tailed horned lizard	CBS	U		O					
Uta stansburiana	common side-blotched lizard	CBS	C	O	O	O	O			
TEIIDAE	**WHIPTAIL LIZARDS**									
Aspidoscelis tigris tigris	Great Basin tiger whiptail	CBS	U	O		O				
CROTALIDAE	**RATTLESNAKES**									
Crotalus cerastes	sidewinder	CBS	U	O		O				
BIRDS (Nomenclature from American Ornithologists' Union 1998 and Unitt 2004)										
ANATIDAE	**DUCKS, GEESE, & SWANS**									
Anas platyrhynchos platyrhynchos	mallard	OW	U/ Y					O	O	O
PHASIANIDAE	**PHEASANTS & GROUSE**									
Phasianus colchicus	ring-necked pheasant (I)	AG, CM	U/Y					O	O	O
ODONTOPHORIDAE	**NEW WORLD QUAIL**									
Callipepla gambelii gambelii	Gambel's quail	CBS, MT, DW,	C/Y	O	O	O	O			
ARDEIDAE	**HERONS & BITTERNS**									
Ardea alba	great egret	AG, CM	C/Y					O	O	O
Ardea herodias	great blue heron	F	F/Y					O	O	O
Bubulcus ibis ibis	cattle egret	AG	F/Y					O	O	O
Butorides virescens	green heron	CM	U/S					O		
Egretta thula thula	snowy egret	AG	F/Y					O	O	O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				PTR-1	PTR-2	ATR-1	ATR-2	MSSF-1	CSF-I	CSF-II
THRESKIORNITHIDAE	**IBISES**									
Eudocimus albus	white ibis							O		O
Plegadis chihi	white-faced ibis	AG	U/W							
CATHARTIDAE	**NEW WORLD VULTURES**									
Cathartes aura	turkey vulture	F	U/Y	O				O	O	O
ACCIPITRIDAE	**HAWKS, KITES, & EAGLES**									
Buteo jamaicensis	red-tailed hawk	CBS	U/Y	O		O		O		O
Circus cyaneus hudsonius	northern harrier	AG, F	C/Y					O	O	
FALCONIDAE	**FALCONS & CARACARAS**			O						
Falco peregrinus anatum	peregrine falcon	F	U/W					O		O
Falco sparverius sparverius	American kestrel	AG	F/Y	O				O	O	O
RALLIDAE	**RAILS, GALLINULES, & COOTS**									
Gallinula chloropus cachinnans	common moorhen	AG, CM	F/Y						O	
CHARADRIIDAE	**LAPWINGS & PLOVERS**									
Charadrius vociferus vociferus	killdeer	CBS	F/Y	O				O	O	O
LARIDAE	**GULLS, TERNS, & SKIMMERS**									
Larus delawarensis	ring-billed gull	F	U/Y	O						
RECURVIROSTRIDAE	**STILTS & AVOCETS**									
Himantopus mexicanus	black-necked stilt	AG, CM	F/Y					O	O	O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				PTR-1	PTR-2	ATR-1	ATR-2	MSSF-1	CSF-I	CSF-II
SCOLOPACIDAE	**SANDPIPERS & PHALAROPES**									
Actitis macularius	spotted sandpiper	AG,CM	F/Y					O	O	O
Limnodromus scolopaceus	long-billed dowitcher							O	O	O
Numenius americanus	long-billed curlew	AG, CM	F/W					O	O	O
Phalaropus lobatus	red-necked phalarope							O	O	O
COLUMBIDAE	**PIGEONS & DOVES**									
Columba livia	rock dove (I)	CBS	U/Y	O				O	O	
Columbina inca	Inca dove								O	
Columbina passerina pallescens	common ground dove	AG	F/Y					O		
Streptopelia decaocto	Eurasian collared dove	AG	F/Y	O				O	O	O
Zenaida asiatica mearnsi	white-winged dove	CBS	U/Y		O					
Zenaida macroura marginella	mourning dove	CBS, DW, MT, TT	C/Y	O	O	O	O	O	O	O
CUCULIDAE	**CUCKOOS & ROADRUNNERS**									
Geococcyx californianus	greater roadrunner	CBS	F/Y	O		O	O	O		O
STRIGIDAE	**TYPICAL OWLS**									
Tyto alba	barn owl	AG	Y					O	O	
Athene cunicularia	burrowing owl	AG	U/Y, W					O	O	O
Bubo virginianus	great horned owl	CBS	U/Y			O				
ALCEDINIDAE	**KINGFISHERS**									
Megaceryle alcyon	belted kingfisher	AT, OW	F/W							O
PICIDAE	**WOODPECKERS & SAPSUCKERS**									
Melanerpes uropygialis	Gila woodpecker								O	

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				PTR-1	PTR-2	ATR-1	ATR-2	MSSF-1	CSF-I	CSF-II
Picoides scalaris	ladder-backed woodpecker									O
CAPRIMULGIDAE	**GOATSUCKERS**									
Chordeiles acutipennis texensis	lesser nighthawk	CBS	F/S	O	O		O	O		
APODIDAE	**SWIFTS**									
Aeronautes saxatalis	white-throated swift	F	U/Y					O		
TROCHILIDAE	**HUMMINGBIRDS**									
Archilochus alexandri	black-chinned hummingbird	DW	U/S	O						
Calypte anna	Anna's hummingbird	MT	F/Y		O					
Calypte costae	Costa's hummingbird	MT	F/S		O					
TYRANNIDAE	**TYRANT FLYCATCHERS**									
Contopus cooperi	olive-sided flycatcher	DW	F/S	O						
Myiarchus cinerascens cinerascens	ash-throated flycatcher	DW	F/S	O		O				
Pyrocephalus rubinus	vermilion flycatcher	AG	U/Y					O		
Sayornis nigricans semiatra	black phoebe	CBS	F/Y					O	O	O
Sayornis saya	Say's phoebe	CBS, DW	C/W	O	O	O	O	O	O	O
Tyrannus verticalis	western kingbird	DW	F/S	O				O	O	O
LANIIDAE	**SHRIKES**									
Lanius ludovicianus	loggerhead shrike	CBS	U/Y	O	O	O	O	O	O	
CORVIDAE	**CROWS, JAYS, & MAGPIES**									
Corvus brachyrhynchos hesperis	American crow	CBS	F/Y	O						O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				PTR-1	PTR-2	ATR-1	ATR-2	MSSF-1	CSF-I	CSF-II
Corvus corax clarionensis	common raven	CBS	F/Y	O	O			O	O	
ALAUDIDAE	**LARKS**									
Eremophila alpestris leucansiptila	horned lark	CBS	F/Y	O	O	O	O	O	O	O
HIRUNDINIDAE	**SWALLOWS**									
Hirundo rustica erythrogaster	barn swallow	AG	U/M					O	O	O
Petrochelidon pyrrhonota tachina	cliff swallow	AG, MT	C/S	O	O			O	O	O
Stelgidopteryx serripennis	northern rough-winged swallow	AG	C/S	O				O		O
Tachycineta bicolor	tree swallow	F	F/W					O	O	O
REMIZIDAE	**VERDIN**									
Auriparus flaviceps acaciarum	verdin	CBS, DW	C/Y	O	O			O		
STURNIDAE	**STARLINGS & MYNAS**									
Sturnus vulgaris	European starling (I)	F	F/Y					O	O	O
SYLVIIDAE	**GNATCATCHERS**									
Polioptila caerulea	blue-gray gnatcatcher	DW	F/W	O	O					
Polioptila melanura	black-tailed gnatcatcher	DW	F/Y	O				O		
MIMIDAE	**MOCKINGBIRDS & THRASHERS**									
Mimus polyglottos polyglottos	northern mockingbird	CBS	F/Y	O				O	O	O
Toxostoma crissale	crissal thrasher	TT, MT	U/Y	O	O		O			
Toxostoma lecontei lecontei	Le Conte's thrasher	MT	U/Y		O					

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				PTR-1	PTR-2	ATR-1	ATR-2	MSSF-1	CSF-I	CSF-II
MOTACILLIDAE	**WAGTAILS & PIPITS**									
Anthus rubescens pacificus	American pipit	F	U/W		O			O		
PARULIDAE	**WOOD WARBLERS**									
Dendroica coronata	yellow-rumped warbler	CBS, DW, MT, AG	C/W	O	O	O	O	O	O	O
Dendroica nigrescens	black-throated gray warbler	DW	U/M	O		O				
Dendroica petechia	yellow warbler	DW, TT	U/S	O				O		
EMBERIZIDAE	**EMBERIZIDS**									
Chondestes grammacus strigatus	lark sparrow	DW	U/Y	O						
Passerculus sandwichensis nevadensis	savannah sparrow	TT	F/W					O	O	O
Pipilo aberti	Abert's towhee	DW	U/Y	O				O	O	
Zonotrichia leucophrys	white-crowned sparrow	CBS	C/W	O	O	O	O		O	O
ICTERIDAE	**BLACKBIRDS & NEW WORLD ORIOLES**									
Agelaius phoeniceus	red-winged blackbird	AG, CM, DW	C/Y	O				O	O	O
Euphagus cyanocephalus	Brewer's blackbird	AG	F/Y					O		O
Molothrus ater	brown-headed cowbird	CM, TT	F/Y					O	O	
Quiscalus mexicanus	great-tailed grackle	AG, CM	F/Y					O	O	O
Sturnella neglecta	western meadowlark	AG, CM	C/Y					O	O	O
Xanthocephalus xanthocephalus	yellow-headed blackbird	AG, TT, CM	F/Y					O		O

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				PTR-1	PTR-2	ATR-1	ATR-2	MSSF-1	CSF-I	CSF-II
FRINGILLIDAE	**FINCHES**									
Carduelis psaltria hesperophilus	lesser goldfinch	CBS, DW, MT, TT	C/Y	O		O	O			
Carpodacus mexicanus frontalis	house finch	AG, DW, TT, CBS	F/Y	O				O	O	O
PASSERIDAE	**OLD WORLD SPARROWS**									
Passer domesticus	house sparrow (I)	AG	U/Y					O	O	O
MAMMALS (Nomenclature from Baker et al. 2003)										
MOLOSSIDAE	**FREE-TAILED BATS**									
Tadarida brasiliensis	Mexican free-tailed bat	F	C	O		O				
LEPORIDAE	**RABBITS & HARES**									
Lepus californicus deserticola	desert black-tailed jackrabbit	CBS	F	T, S	T, S	T, S	O			
Sylvilagus audubonii	desert cottontail	CBS	C	O	T, S, B	T, S, B	T, S, B	O		
SCIURIDAE	**SQUIRRELS & CHIPMUNKS**									
Spermophilus tereticaudus	round-tailed ground squirrel	CBS	C	O	O	O	O			O
GEOMYIDAE	**POCKET GOPHERS**									
Thomomys sp.	pocket gopher	AG	C					B	B	B
HETEROMYIDAE	**POCKET MICE & KANGAROO RATS**									
Dipodomys spp.	kangaroo rat	CBS	C	T, S, B	T, S, B	T, S, B	T, S, B			
Dipodomys deserti deserti	desert kangaroo rat	CBS	C	O		O	O			

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

Scientific Name	Common Name	Occupied Habitat	On-site Abundance/ Seasonality (Birds Only)	Evidence of Occurrence						
				PTR-1	PTR-2	ATR-1	ATR-2	MSSF-1	CSF-I	CSF-II
MURIDAE	**OLD WORLD MICE & RATS (I)**									
Neotoma lepida lepida	desert woodrat	CBS	U		D					
Peromyscus sp.	mouse	CBS	C	B, S	B, S	B, S	B, S		O	
CANIDAE	**CANIDS**									
Canis latrans	coyote	CBS	U			O		O	T	
Urocyon cinereoargenteus	common gray fox	CBS	U	T, S	T					
PROCYONIDAE	**PROCYONIDS**									
Procyon lotor	northern raccoon	AG	U					O		T
MEPHITIDAE	**SKUNKS**									
Mephitis mephitis	striped skunk	AG	F					O		O
CERVIDAE	**DEER**									
Odocoileus hemionus	mule deer	CBS	U	S	T, S		S			
BOVIDAE	**BOVIDS**									
Ovis aries	domestic sheep	AG	C					O		

See notes on next page.

ATTACHMENT 3
WILDLIFE SPECIES OBSERVED/DETECTED WITHIN AND ADJACENT TO THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (CONT.)

(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

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

ATTACHMENT 4

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ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Amaranthaceae—Amaranth Family									
Amaranthus watsonii 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									
Cynanchum utahense 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									
Chaenactis carphoclina var. *peirsonii* 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.			
Helianthus niveus ssp. *tephrodes* 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.				

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Asteraceae—Sunflower Family (cont.)									
Malperia tenuis 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.			
Palafoxia arida var. *gigantea* 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.				
Xylorhiza cognata 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.			
Xylorhiza orcuttii 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.			

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Boraginacaeae - Borage Family									
Cryptantha costata 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.			
Cryptantha holoptera 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									
Lyrocarpa coulteri var. *palmeri* 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									
Cylindropuntia echinocarpa [=Opuntia wigginsii] 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.			

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Cylindropuntia wolfii [=Opuntia wolfii] **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 11 observed within desert wash vegetation.**	Not expected to occur. This species would have been observed during focused rare plant surveys.		
Euphorbiaceae—Spurge Family									
Chamaesyce abramsiana 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.)									
Chamaesyce arizonica 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.			

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Chamaesyce platysperma 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.			
Croton wigginsii 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.				
Ditaxis serrata var. *californica* 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.)									
Tetracoccus hallii	-/-	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.				

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Fabaceae—Legume Family									
Astragalus crotolariae 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.			
Astragalus insularis var. *harwoodii* 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.)									
Astragalus lentiginosus var. *borreganus* 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.			
Astragalus magdalena var. *peirsonii* 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.				

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Lotus haydonii 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.			
Lupinus excubitis var. *medius* 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.)									
Parkinsonia microphylla [=Cercidium microphyllum] 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									
Salvia greatae 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.				
Teucrium cubense ssp. *depressum* 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.			

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Lennoaceae—Sand Food Family									
Pholisma sonorae 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.				
Loasaceae—Blazing Star Family									
Mentzelia hirsutissima 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.			
Mentzelia tridentata 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									
Horsfordia alata 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.				

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Malvaceae—Mallow Family (cont.)									
Horsfordia newberryi 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.			
Herrisantia crispa 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									
Proboscidea althaeifolia 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									
Mirabilis tenuiloba 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.			

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Onagraceae—Evening Primrose Family									
Camissonia arenaria 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									
Ipomopsis tenuifolia 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									
Imperata brevifolia 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									
Ipomopsis effusa 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.			

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Polygonaceae—Knotweed Family									
Nemacaulis denudata var. *gracilis* 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.			
Rafflesiaceae—Rafflesia Family									
***Pilostyles thurberi* 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 28 Emory's indigo bush shrubs within the survey area.**	Potential to occur. This parasite was not detected on any *Psorothamnus* spp. within the survey area.		
Rhamnaceae—Buckthorn Family									
Colubrinia californica	-/-	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.				
Condalia globosa var. *pubescens* 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.				

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Family/Species	Federal/ State Status	CNPS List	BLM Status	Habit, Habitat, and Blooming Period	Likelihood of Occurrence				
					MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Selaginellaceae—Spikemoss Family									
Selaginella eremophila 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									
***Lycium parishii* 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. One shrub was observed adjacent to the survey area.		**Observed. 3 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									
Ayenia compacta 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.			

ATTACHMENT 4
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (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
SPECIAL STATUS PLANT SPECIES OBSERVED OR WITH THE POTENTIAL FOR OCCURRENCE IN MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

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ATTACHMENT 5

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ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
REPTILES (Nomenclature from Crother 2001 and Crother et al. 2003)								
GEKKONIDAE GECKOS								
Switak's banded gecko *Coleonyx switaki*	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 *Phrynosoma mcalli*	FPT	Sensitive	Dunes and sandy flats of low desert.	Not expected to occur. No suitable habitat present.	High potential to occur.	**Two observed within CBS at the west end of the survey area.**	High potential to occur.	
Colorado desert fringe-toed lizard *Uma notata notata*	CSC	Sensitive	Loose sand of desert dunes, flats, riverbanks, and washes. Prefers scant vegetation.	Not expected to occur. No suitable habitat present.	Potential to occur. This species in known from the vicinity and is likely to occur within the survey area.			

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
XANTUSIIDAE NIGHT LIZARDS								
Sandstone night lizard *Xantusia gracilis*	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 PELICANS								
American white pelican (nesting colony) *Pelecanus erythrorhynchos*	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 canals and agricultural land may provide foraging habitat for this species, there is no suitable nesting habitat for this species within the survey area.				
ARDEIDAE HERONS & BITTERNS								
Green heron (breeding) *Butorides virescens*	*		Riparian woodland, lakes, ponds, brackish lagoons.	Potential to forage within the canals and drains.	Not expected to occur. No suitable habitat present.	**Observed foraging within cattail marsh. High potential to nest.**	Not expected to occur. No suitable habitat present.	Potential to forage within the canals and drains.

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II SURVEY AREAS (Cont.)

	Status			Occurrence/Comments				
Species	Federal/ State Status	BLM Status	Habitat	MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Great egret (rookery site) *Ardea alba*	*		Lagoons, bays, estuaries. Ponds and lakes in the coastal lowland. Winter visitor, uncommon in summer.	**Observed foraging. No rookery sites observed.**	Not expected to occur. No suitable habitat present.	Potential to forage within ag. fields.	Not expected to occur. No suitable habitat present.	Potential to forage within ag. fields.
Great blue heron (rookery site) *Ardea herodias*	*		Bays, lagoons, ponds, lakes. Non-breeding year-round visitor. Some localized breeding.	**Observed foraging. A rookery site observed south of CSF-I survey area.**	Not expected to occur. No suitable habitat present.	Potential to forage within the canals and drains.	Not expected to occur. No suitable habitat present.	Potential to forage within the canals and drains.
Snowy egret (rookery site) *Egretta thula thula*	*		Coastal waters and freshwater ponds and lakes. Winter visitor, summer resident. Localized breeding colonies.	**Observed foraging in ag. fields.**	Not expected to occur. No suitable habitat present.	**Observed foraging in ag. fields. No rookery sites observed.**	Not expected to occur. No suitable habitat present.	Potential to forage in ag. fields.

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

	Status			Occurrence/Comments				
Species	Federal/ State Status	BLM Status	Habitat	MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Western least bittern *Ixobrychus exilis hesperis*	CSC		Brackish and freshwater marshes in the coastal lowland. Rare summer resident, rare in winter.	Potential to forage within the canals and drains.	Not expected to occur. No suitable habitat present.	**Observed nesting in cattail marsh. Potential to forage in the canals and drains.**	Not expected to occur. No suitable habitat present.	Potential to forage within the canals and drains.
Black-crowned night heron (rookery site) *Nycticorax nycticorax*	*		Lagoons, estuaries, bayshores, ponds, and lakes. Often roost in trees. Year-round visitor. Localized breeding.	Potential to forage within the canals and drains.	Not expected to occur. No suitable habitat present.	**Observed foraging.**	Not expected to occur. No suitable habitat present.	Potential to forage within the canals and drains.

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
ACCIPITRIDAE HAWKS, KITES, & EAGLES								
Cooper's hawk (nesting) *Accipiter cooperii*	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.		
Golden eagle (nesting and wintering) *Aquila chrysaetos canadensis*	CSC, BEPA		Require vast foraging areas in grassland, broken chaparral, or sage scrub. Nest in cliffs and boulders. Uncommon resident.	Not expected to nest within the survey area. No known nesting locations or suitable nesting habitat within 10 miles of the survey. One observation of foraging five miles southwest of the survey area (Steward 2011), but not expected to forage regularly due to distance from nesting sites.				

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Ferruginous hawk (wintering) *Buteo regalis*	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	**FALCONS & CARACARAS**							
Prairie falcon (nesting) *Falco mexicanus*	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.				
RALLIDAE	**RAILS, GALLINULES, & COOTS**							
Yuma clapper rail *Rallus longirostris yumanensis*	FE, ST		Marshland vegetation, dense cattail stands, bulrush, reeds. Resident.	Low potential to occur. Drains and canals within the agricultural lands lack any mudflats or usable bank.				
GRUIDAE	**CRANES**							
Greater sandhill crane (wintering) *Grus canadensis tabida*	ST		Prairies, fields, marshes.	Potential to winter and forage within the AG fields.				

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
LARIDAE GULLS, TERNS, & SKIMMERS								
Laughing gull (nesting colony) *Larus atricilla*	CSC		Salton Sea.	Not expected to occur. There is no suitable shoreline habitat for this species within the survey area.				
STRIGIDAE TYPICAL OWLS								
Long-eared owl (nesting) *Asio otus wilsonianus*	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.				
Burrowing owl (burrow sites) *Athene cunicularia*	CSC	Sensitive	Grassland, agricultural land, coastal dunes. Require rodent burrows. Declining resident.	**Observed** **- breeding pairs and burrows present within agricultural fields.** Not detected within native desert habitats, but potential to forage and burrow exists in these areas.				

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
TYRANNIDAE TYRANT FLYCATCHERS								
Southwestern willow flycatcher *Empidonax traillii extimus*	FE/SE		Nesting restricted to willow thickets. Also occupies other woodlands. Rare spring and fall migrant. Extremely localized breeding.	Not expected to nest or forage within the survey area.	Not expected to nest or forage within the survey area.	May forage within the mesquite and tamarisk thickets during migration. No suitable nesting habitat.	Not expected to nest or forage within the survey area.	Not expected to nest or forage within the survey area.
Vermilion flycatcher *Pyrocephalus rubinus flammeus*	CSC		Agricultural areas, parks, ponds, rivers. Rare fall and spring migrant, winter visitor, summer resident. Breeding rare.	Low potential to occur within a few trees at field edges.	Not expected to occur. There is no suitable habitat within the survey for this species.	Low potential to occur within canal and mesquite thickets.	Not expected to occur. There is no suitable habitat within the survey for this species.	Not expected to occur. There is no suitable habitat within the survey for this species.

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
LANIIDAE SHRIKES								
Loggerhead shrike *Lanius ludovicianus*	CSC		Open foraging areas near scattered bushes and low trees.	**Observed within large shrubs and trees throughout the survey area.**				
VIREONIDAE VIREOS								
Least Bell's vireo (nesting) *Vireo bellii pusillus*	FE/SE		Willow riparian woodlands. Summer resident.	Not expected to nest or forage within the survey area due to lack of suitable nesting habitat.				
MIMIDAE MOCKINGBIRDS & THRASHERS								
Crissal thrasher *Toxostoma crissale*	CSC		Mesquite thickets in Borrego Springs area. Rare resident.	Low potential to occur due to lack of high-standing vegetation.	**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.	

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
PARULIDAE WOOD WARBLERS								
Yellow warbler (nesting) *Dendroica petechia*	CSC		Breeding restricted to riparian woodland. Spring and fall migrant, localized summer resident, rare winter visitor.	Not expected to nest within the survey area due to lack of dense mesquite or desert wash vegetation.	**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) *Icteria virens auricollis*	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 *Macrotus californicus*	CSC	Sensitive	Low deserts. Caves, mines, buildings. Colonial. Migrational. Mostly near Colorado River in California.	Low potential to occur. May forage along the drains and canals, but no roosting habitat is present.				

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
VESPERTILIONIDAE VESPER BATS								
Pallid bat *Antrozous pallidus*	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 drains and canals, but no roosting habitat is present.				
MOLOSSIDAE FREE-TAILED BATS								
Pocketed free-tailed bat *Nyctinomops femorosaccus*	CSC		Normally roosts in crevice in rocks, slopes, cliffs. Lower elevations in San Diego and Imperial Counties. Colonial. Leaves roosts well after dark.	Low potential to occur. May forage along the drains and canals, but no roosting habitat is present.				

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
HETEROMYIDAE **POCKET MICE & KANGAROO RATS**								
Jacumba little pocket mouse *Perognathus longimembris internationalis*	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 **OLD WORLD MICE & RATS (I)**								
Southern grasshopper mouse *Onychomys torridus ramona*	CSC		Alkali desert scrub and desert scrub preferred. Can also occur in succulent shrub, wash, and 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.			

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II SURVEY AREAS (Cont.)

Species	Status		Habitat	Occurrence/Comments				
	Federal/ State Status	BLM Status		MSSF-I, CSF-I, and CSF-II Solar Fields	PTR-1	PTR-2	ATR-1	ATR-2
Yuma hispid cotton rat *Sigmodon hispidus eremicus*	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.			
MUSTELIDAE	**WEASELS, OTTERS, & BADGERS**							
American badger *Taxidea taxus*	*		Grasslands, Sonoran desert scrub.	Not expected to occur. No suitable habitat present.	Moderate potential to occur within the survey area.			
FELIDAE	**CATS**							
Mountain lion *Felis concolor*	*		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 *Ovis canadensis nelsoni*	FE, ST, *	Sensitive	Open, rocky habitat, sparse vegetated desert slopes, rocky ridges. San Bernardino 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.				

See notes on next page.

ATTACHMENT 5
SPECIAL STATUS WILDLIFE SPECIES OCCURRING OR WITH THE POTENTIAL TO OCCUR IN THE MSSF-I, CSF-I, AND CSF-II PROJECT SURVEY AREAS (Cont.)

(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)