
4.4 BIOLOGICAL RESOURCES

This section discusses biological resources that may be impacted by the proposed projects. The following identifies the existing biological resources in the project study areas, analyzes potential impacts due to the implementation of the proposed projects, and recommends mitigation measures to avoid or reduce potential impacts of the proposed projects. Information for this section is summarized from the *Biological Technical Report for Mount Signal Solar Farm I, Calexico Solar Farm I, and Calexico Solar Farm II* and the *Burrowing Owl Addendum to the Biological Technical Report for Mount Signal Solar Farm I, Calexico Solar Farm I, and Calexico Solar Farm II Projects* prepared by RECON Environmental. The report and addendum are included in Appendix E of this Environmental Impact Report (EIR).

4.4.1 Environmental Setting

The Biological Technical Report (BTR) integrates information collected from a variety of literature sources and field surveys to describe the biological resources within the vicinity of the project study areas. General biological surveys and focused species surveys were conducted between October 2010 and June 2011 within the solar farm projects sites and including the off-site transmission facilities (OTF) within private land. General biological surveys were conducted for the OTF within Bureau of Land Management (BLM) land between March and April 2010. RECON also conducted surveys for rare plants along the OTF corridor within BLM land in the spring and fall of 2010, and the spring of 2011. 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 study areas.

4.4.1.1 Regulatory Setting

Federal

Bald and Golden Eagle Protection Act

The Bald and Golden Eagle Protection Act (BGEPA) prohibits anyone without a permit to “take” bald or golden eagles. ‘Take’ is defined as “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb.” ‘Disturb’ is defined as “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” (USFWS 2011).

Federal Endangered Species Act

Enacted in 1973, the federal Endangered Species Act (ESA) provides for the conservation of threatened and endangered species and their ecosystems. The ESA prohibits the “take” of threatened and endangered species except under certain circumstances and only with authorization from the U.S. Fish and Wildlife Service (USFWS) through a permit under Section 4(d), 7 or 10(a) of the Act. Under the ESA, “take” is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.

Migratory Bird Treaty Act

Congress passed the Migratory Bird Treaty Act (MBTA) in 1918 to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. The prohibition applies to birds included in the respective international conventions between the U.S. and Great Britain, the U.S. and Mexico, the U.S. and Japan, and the U.S. and Russia.

Section 404 Permit (Clean Water Act)

The Clean Water Act (CWA) establishes a program to regulate the discharge of dredge and fill material into waters of the U.S. including wetlands. Activities regulated under this program include fills for development, water resource projects (e.g., dams and levees), infrastructure development (e.g., highways and airports), and conversion of wetlands to uplands for farming and forestry. Either an individual 404b permit or authorization to use an existing U.S. Army Corps of Engineers (USACE) Nationwide Permit will need to be obtained if any portion of the construction requires fill into a river, stream, or stream bed that has been determined to be a jurisdictional waterway. When applying for a permit a company or organization must show that they would avoid wetlands when practicable, minimize wetland impacts, and provide compensation for any unavoidable destruction of wetlands.

State

California Environmental Quality Act

Title 14 California Code of Regulations (CCR) 15380 requires that endangered, rare or threatened species or subspecies of animals or plants be identified within the influence of the project. If any such species are found, appropriate measures should be identified to avoid, minimize or mitigate to the extent possible the effects of the project.

California Department of Fish and Game Code 1600 (as amended)

California Department of Fish and Game (CDFG), regulates activities that substantially diverts or obstructs the natural flow of any river, stream, or lake or uses materials from a streambed. This can include riparian habitat associated with watercourses.

California Department of Fish and Game Code Codes 3503, 3503.5, and 3513

CDFG Codes 3503, 3503.5, and 3513 protect migratory birds, bird nests and eggs including raptors (birds of prey) and raptor nests from take unless authorized by CDFG. Additionally, the State further protects certain species of fish, mammals, amphibians and reptiles, birds and mammals through CDFG's Fully Protected Animals which prohibits any take or possession of classified species. 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. Most Fully Protected Species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations (CDFG 2011).

California Fish and Game Code Sections 1900-1913 – Native Plant Protection Act

The Native Plant Protection Act (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."

Porter-Cologne Water Quality Control Act, as Amended

Administered by the State Water Resource Control Board (SWRCB), protects water quality and is an avenue to implement California responsibilities under the CWA. This act regulates discharge of waste into a water resource.

Local

Imperial County General Plan

The Conservation Element and Open Space Element provides detailed plans and measures for the preservation and management of biological and cultural resources, soils, minerals, energy, regional aesthetics, air quality, and open space. The purpose of the Conservation and Open Space Element is to promote the protection, maintenance, and use of the County's natural resources with particular emphasis on scarce resources, and to prevent wasteful exploitation, destruction, and neglect of the State's natural resources. Additionally, the purpose of this Element is to recognize that natural resources must be maintained for their ecological value for the direct benefit to the public, protect open space for the preservation of natural resources, the managed production of resources, outdoor recreation, and for public health and safety. Table 4.4-1 analyzes the consistency of the projects with specific policies contained in the Imperial County General Plan (Imperial County, as amended through 2008) associated with biological resources.

TABLE 4.4-1. PROJECT CONSISTENCY WITH GENERAL PLAN BIOLOGICAL RESOURCE POLICIES

General Plan Policies	Consistency with General Plan	Analysis
<p>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.</p> <p>Program: 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.</p>	<p>Yes</p>	<p>Biological assessments and reports have been conducted at the project study areas in regard to the proposed projects.</p> <p>Applicable agencies responsible for protecting plants and wildlife will be notified of the proposed projects and provided an opportunity to comment on this EIR prior to the County's consideration of any approvals for the projects.</p>
<p>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.</p> <p>Program: 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.</p>	<p>Yes</p>	<p>See response to the Open Space Conservation Policy above. Additionally, Burrowing Owl Focused Surveys have been conducted in accordance with the wildlife agency protocols. The results and mitigation are provided in this section of this EIR.</p>

4.4.1.2 Existing Conditions

4.4.1.2.1 Vegetation Communities

A total of 116 plant species, representing 37 plant families, were identified within the project study areas. Of this total, 89 (77%) are native to southern California and 27 (23%) are non-native, introduced species. Most of these species are located within the OTF within BLM lands as this area is desert lands. A complete list of plant species observed in the project study areas can be found in the BTR (Appendix E). 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 (Figures 4.4-1a through 4.4-1c). A small amount of disturbed and developed land is also present within the project study areas. Table 4.4-2 depicts the vegetation communities within the project study areas broken down for each project site, and the OTF. For purposes of calculating impacts, the BTR divides the OTF into two segments and refers to it as the Preferred Transmission Route (PTR) – 1 and – 2. The BTR included analysis of an Alternative Transmission Route (ATR) further south of the preferred alignment through BLM lands but it has since been determined that this alternative is not a viable route for the projects. The vegetation communities associated with each of the OTF segments and project sites are provided in Table 4.4-2. These vegetation communities are described in detail in the BTR included in Appendix E.

TABLE 4.4-2. VEGETATION COMMUNITIES/LAND COVER TYPES WITHIN THE PROJECT STUDY AREAS

Vegetation Community/ Land Cover Type	OTF – BLM Land PTR-1 (acres)	OTF – BLM Land PTR-2 (acres)	MSSF1 (acres)	CSF1 (acres)	CSF2 (acres)	Total (acres)
Creosote bush-white burr sage scrub	236.6	61.8	--	--	--	298.4
Desert wash	44.6	--	--	--	--	44.6
Cattail marsh	--	2.4	--	--	--	2.4
Open water	--	1.7	--	--	--	1.7
Mesquite thicket	--	8.6	--	--	--	8.6
Tamarisk thicket	--	2.2	--	--	--	2.2
Active agricultural fields	--	95.7	1,408	1,298	1,438	4,239.7
Disturbed/developed land	4.3	--	32	32	32	100.3
Total	285.5	172.4	1,440	1,330	1,470	4,697.9

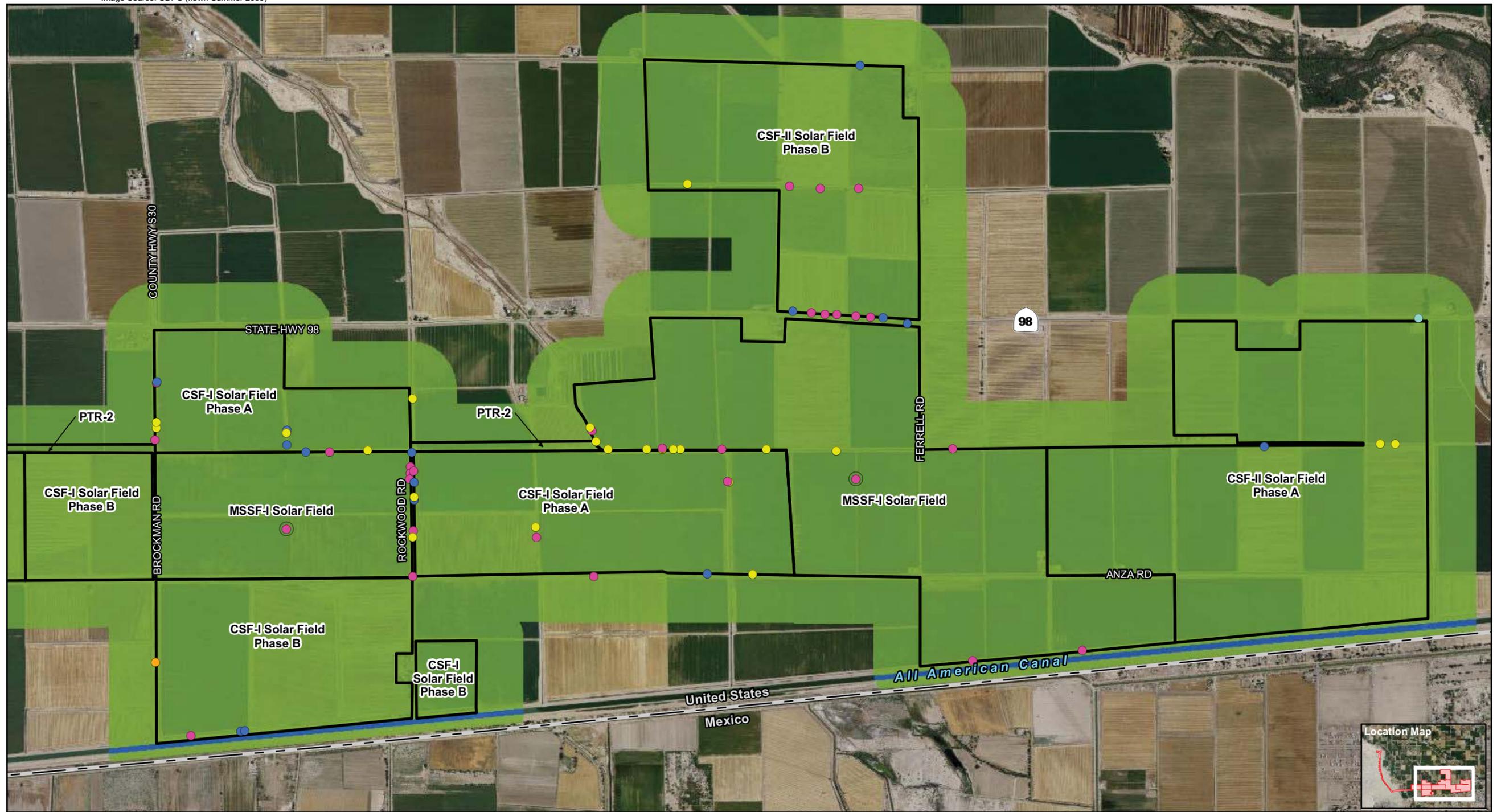
Source: RECON 2011.

Notes: PTR-1 = Preferred Transmission Route Segment 1
 PTR-2 = Preferred Transmission Route Segment 2
 MSSF = Mount Signal Solar Farm
 CSF = Calexico Solar Farm

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF–Private Land

Vegetation communities within the Mt. Signal Solar Farm 1 (MSSF1), Calexico Solar Farm 1A (CSF1(A)), Calexico Solar Farm 1B (CSF1(B)), Calexico Solar Farm 2A (CSF2(A)), Calexico Solar Farm 2B (CSF2(B)), and OTF–Private Land are limited to agriculture and disturbed/developed land.

Image Source: CDFG (flown Summer 2009)



- | | | | |
|-------------|-------------------------------|---|---|
| Survey Area | Vegetation Communities | Sensitive Wildlife Species | Barn Owl Nest (<i>Tyto alba</i>) |
| | Active Agriculture | Burrowing Owl Burrow (<i>Athene cunicularia hypugea</i>) | Cattle Egret Roost (<i>Bubulcus ibis</i>) |
| | Open Water | Single Owl with Burrow Outside IID Easements | |
| | | Pair of Owls with Burrow Inside IID Easements | |
| | | Single Owl with Burrow Inside IID Easements | |
| | | Auxiliary Burrow Inside IID Easements | |

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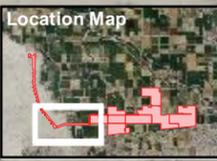
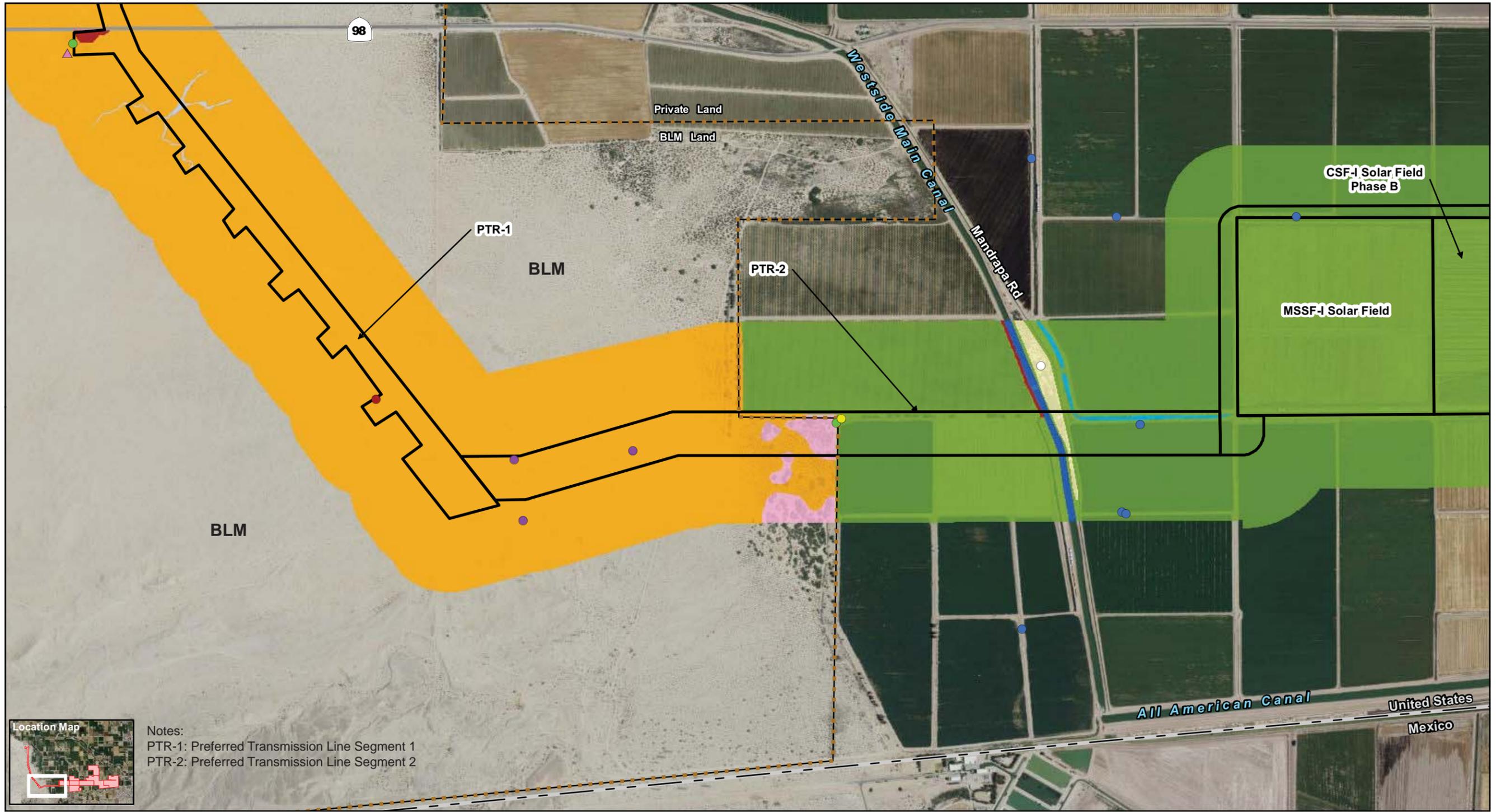
Notes:
PTR-2: Preferred Transmission Line Segment 2

Source: RECON, 2011

Existing Biological Resources - MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), and OTF within Private Lands

FIGURE 4.4-1a

Image Source: CDFG (flown Summer 2009)



Notes:
 PTR-1: Preferred Transmission Line Segment 1
 PTR-2: Preferred Transmission Line Segment 2

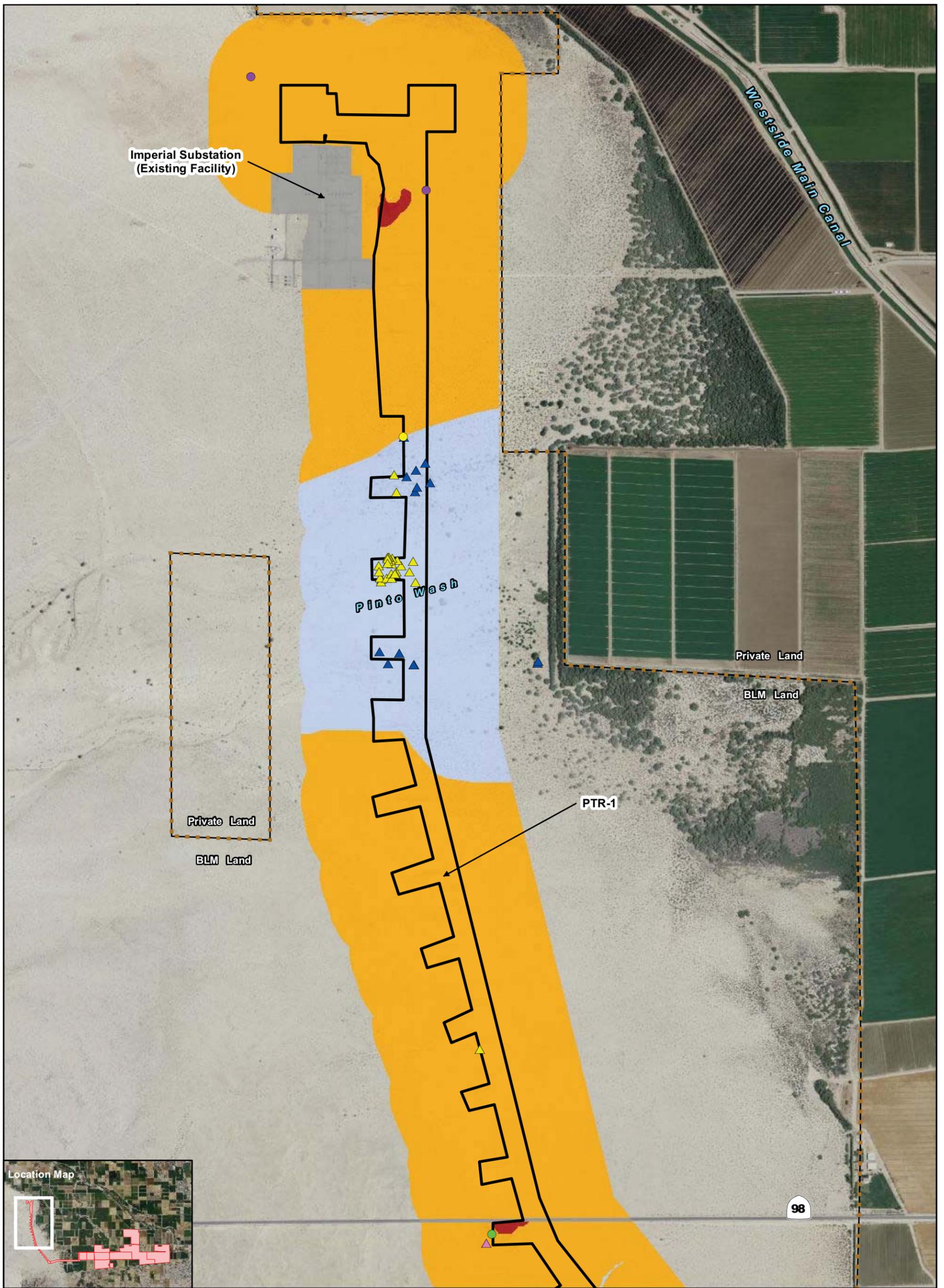
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|-------------------------------------|-----------------------------------|---|---|--|
| Survey Area | Vegetation Communities | Tamarisk Thicket | Sensitive Plant and Wildlife Species | Loggerhead Shrike (<i>Lanius ludovicianus</i>) |
| Creosote Bush-White Burr Sage Scrub | Open Water | Burrowing Owl Pair with Burrow (<i>Athene cunicularia hypugea</i>) Inside IID Easements | Red-tailed Hawk Nest (<i>Buteo jamaicensis</i>) | |
| Cattail Marsh | Developed | Burrowing Owl Auxiliary Burrow Inside IID Easements | Yellow Warbler (<i>Dendroica petechia</i>) | |
| Mesquite Thicket | Desert Wash (Smoke Tree Woodland) | Flat-tail Horned Lizard (<i>Phrynosoma mcallii</i>) | Parish's Desert Thorn (<i>Lycium parishii</i>) | |
| Active Agriculture | Disturbed Land | | | |



Source: RECON, 2011

Existing Biological Resources - OTF within BLM Land
 FIGURE 4.4-1b

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Survey Area
PTR-1: Preferred Transmission Line Segment 1

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*)

Source: Recon, 2011

Existing Biological Resources - OTF within BLM Lands

FIGURE 4.4-1c

Agriculture

The MSSF1, CSF1 and CSF2 project sites are located entirely on active agricultural fields. At the time of the surveys, alfalfa, bermuda grass, and sugar beets were the active crops within the MSSF1 and CSF1 sites and alfalfa, bermuda grass, onions, sugar beets, and wheat were active crops within the CSF2 site. In addition, the Imperial Irrigation District (IID) owns the canals, drains, and roads surrounding the agricultural fields. The IID facilities are also classified as disturbed/developed land of ruderal vegetation. The term "ruderal" refers to the type of vegetation which grows in response to human disturbance. Plants found within the IID rights-of-way (ROW) were weedy plants such as salt cedar and quail bush (a listing with scientific names is found Appendix C of the BTR). No rare or special species plants were observed or expected in the agricultural areas.

A small amount of cattail marsh is present in one of the IID irrigation channels between agricultural fields within the OTF corridor that traverses private land (located within the Imperial Solar Energy Center South project boundary). While broad-leaved cattail (*Typha domingensis*) 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.

OTF-BLM Land

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

Desert Wash. 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.

Mesquite Thicket. A small mesquite thicket, dominated by honey mesquite, is present in the OTF within BLM Land, just west of agricultural fields/the Imperial Solar Energy Center South project site. Creosote bush and Mormon tea shrubs are present in between the honey mesquite trees.

Tamarisk Thicket. A large tamarisk thicket is present within the OTF within BLM land 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.

4.4.1.2.2 Wildlife

The wildlife species observed during the surveys 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. A complete list of all wildlife species observed is included in the BTR and addendum (Appendix E). The observed species are summarized below:

Invertebrates

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF–Private Land, OTF–BLM Land

The project study areas contain suitable habitat for a wide variety of invertebrates. Harvester ants (*Pogonomyrmex* spp.) were observed regularly along the OTF corridors (both within private land and BLM land). 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.

Amphibians

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF–Private Land, OTF–BLM Land

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 was observed within the irrigation channels west of the MSSF1 active agricultural fields.

Reptiles

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF–Private Land

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*).

OTF–BLM Land

Three reptile species were commonly observed throughout the OTF within BLM Land corridor survey areas: desert iguana (*Dipsosaurus dorsalis*), common side-blotched lizard (*Uta stansburiana*), and common zebra-tailed lizard (*Callisaurus draconoides*). Great Basin tiger whiptail (*Aspidoscelis tigris tigris*) and sidewinder rattlesnake (*Crotalus cerastes*), and a flat-tailed horned lizard (FTHL; *Phrynosoma mcallii*) was observed within the creosote bush-white burr sage scrub in this portion of the OTF.

Flat-tailed Horned Lizard

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF–Private Land

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 Management Area (MA), no FTHLs were observed within these fields during general surveys, and no FTHLs are expected to occur within these fields.

OTF–BLM Land

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 (CFGF) 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 MAs to help focus conservation and management of FTHL key populations. The action area for the proposed projects falls partially within the Yuha Basin MA (see Attachment 1: Figure 5 of the BTR in Appendix E of this EIR); 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 Calexico, 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% confidence interval = 12,761 to 38,970), and in 2004 was estimated to have 73,017 adult lizards (95% 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

Two FTHLs were observed during spring/summer 2010 surveys within the creosote bush–white burr sage scrub at the west end of the second segment of the OTF-BLM Land (PTR-2). In accordance with the Rangewide Management Strategy, occupancy of FTHL within the MA is assumed; therefore, the entire native habitat within transmission corridor ROWs 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 State Route (SR) 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 SR 98 are fewer than in habitat farther from the paved highway (ICC 2003). The more compact nature of the soils observed during 2010 surveys adjacent to the Highway, and lack of FTHL observations in these areas, lends support to the assessment that the habitat adjacent to the Highway 98 provides only moderate quality habitat rather than the high quality habitat throughout the rest of the proposed ROW.

Birds

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

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF – Private Land

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 agricultural fields.

One large eucalyptus tree adjacent to the CSF1 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. Burrowing owl (*Athene cunicularia hypugaea*) and their associated burrows were observed at numerous locations in the survey area. The burrows are often found in earthen berms adjacent to the smaller irrigation channels and ditches. The burrowing owl is a California species of special concern (see Section 4.4.1.2.4 below). Figures 4.4-1a through 4.4-1c illustrate the locations of burrowing owls and their associated burrows (e.g., one owl/one burrow, two owls (pair)/one burrow).

OTF–BLM Land

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.

Mammals

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF–Private Land

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. Signs such as tracks, scat and direct observation were found during surveys.

OTF–BLM Land

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.

4.4.1.2.3 Sensitive Plant Species

Special Status Plant Species

Sensitive plant species are determined by their rarity, endangerment and limited distribution. There are three listing authorities for sensitive plants in California: the CNPS, a private organization; CDFG; and the USFWS. Appendix A of the attached BTR (Appendix E of this EIR) lists all species found in the data search that have been found within quadrangles in which the projects are located and lists all plants found within the project sites during surveys.

Federal 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 project study areas. Critical habitat has been designated (and revised) for this species in the Algodones Dunes (RECON 2011), which is located approximately 50 miles east of the project study areas. 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 (RECON 2011).

State Listed Species

There were three state-listed species identified during the literature review as having the potential to occur within the project study areas: Algodones Dunes sunflower (*Helianthus niveus* ssp. *tephrodes*), Wiggins' croton (*Croton wigginsii*), and Peirson's milkvetch). These species were not observed during focused spring 2010 and 2011 rare plant surveys and are not expected to occur within the project study areas based on elevation and the lack of suitable habitat (RECON 2011).

Priority Plant Species

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF – Private Land

No priority plant species were observed within this portion of the project study areas.

OTF–BLM Land

Priority plant species are specifically plants that are included on the CNPS Lists 2–4. Three priority plant species were observed within the OTF within BLM Land portion survey area during spring rare plant surveys, including Wolf's cholla (*Opuntia wolfii*), Thurber's pilostyles (*Pilostyles thurberi*), and Parish's desert thorn (*Lycium parishii*). These species are discussed below and shown on Figures 4.4-1b and 4.4-1c.

Wolf's cholla is a CNPS (2001) List 4 species. 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. It occurs in creosote-bush scrub between elevations of 1,000 and 3,300 feet, where it can be locally common. Eleven Wolf's chollas were observed within the braided wash channel system south of the existing Imperial Valley Substation within the OTF within BLM Land (Figure 4.4-1c). 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 is a CNPS List 4 species. It is a perennial stem-parasite in the rafflesia family that shows only its flowers and bracts on the stem of its host plant. The host plant is indigo bush (*Psoralea 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 was observed on 28 Emory's indigo bush shrubs located within the desert wash in OTF within BLM Land south of the Imperial Valley Substation (Figures 4.4-1b and 4.4-1c).

Parish's desert-thorn is a CNPS List 2 species. 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. The habitat for Parish's box-thorn is sandy to rocky slopes in creosote-bush desert scrub at elevations below 3,300 feet. Four Parish's desert thorns were recorded adjacent to the OTF within BLM Land survey corridor (Figures 4.4-1b and 4.4-1c).

4.4.1.2.4 Sensitive Wildlife Species

Special Status Wildlife Species

Special-status species are defined as plants and animals that are legally protected under the ESA, California Endangered Species Act (CESA), CDFG, or other regulations, and species that are considered sufficiently rare by the scientific community to qualify for such listing. These species are typically the focus of avoidance, minimization, and mitigation requirements under CEQA. As a result of the data search, endangered, threatened species, and CDFG species of special concern were evaluated for the potential to occur within the project study areas. Special-status species with potential to occur in the vicinity of the project study areas are detailed in Appendix A of the attached BTR.

Federally Listed Species

No federally listed species were observed in the project study areas. No favorable habitat was found that would support species such as southwestern willow flycatcher (*Empidonax traillii eximius*), Yuma clapper rail (*Rallus longirostris yumanensis*) or least Bell's vireo (*Vireo bellii pusillus*).

State Listed Species

Greater Sandhill Crane

One state-listed bird was evaluated based on known occurrences in Imperial County and habitat availability in the project study areas: Greater sandhill crane (*Grus Canadensis tabida*). The greater sandhill crane is state listed as threatened and is also on the MBTA list of sensitive birds. The Colorado River Valley population is estimated at 1,400-2,100 and is considered stable. The population breeds in northeastern Nevada and southwestern Idaho, migrates through Nevada and winters along the lower Colorado River Valley in California's Imperial Valley.

The greater sandhill crane is a very large bird with long neck, long legs with a gray body which may be stained reddish. The head has a red forehead, white cheek; another characteristic is tufted feathers over rump. The greater sandhill crane is likely to forage within the agricultural fields during winter, but this species is not expected to breed in the project study areas.

State Species of Special Concern and Fully Protected Species

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF – Private Land

Burrowing Owl

In California, burrowing owls (*Athene cunicularia*) are yearlong residents of flat, open, dry grassland and desert habitats at lower elevations (Bates 2006). They can inhabit annual and perennial grasslands and scrublands characterized by low-growing vegetation. They may be found in areas that include trees and shrubs if the cover is less than 30 percent (Bates 2006); however, they prefer treeless grasslands.

Although burrowing owls prefer large, contiguous areas of treeless grasslands, they have also been known to occupy fallow agriculture fields, golf courses, cemeteries, road allowances, airports, vacant lots in residential areas and university campuses, and fairgrounds when nest burrows are present (Bates 2006; County of Riverside 2008). Suitable habitat within the project study areas was searched with a pedestrian survey for burrowing owls and their sign (burrows, pellets, feathers, scat, litter, and animal dung). The pedestrian surveys were conducted October 2010 through June 2011.

The Imperial Valley has a majority of the burrowing owl in southern California. Irrigation canals and drains are commonly used as nesting sites in this area. The burrowing owl is a CDFG Species of Special Concern, and a Federal Species of Concern listed on the MBTA. This survey was done using The CDFG Staff Report (CDFG 1995), which addresses survey and mitigation guidelines for the owl and communications with CDFG wildlife biologists, Bermuda Dunes, CA office. The burrowing owl is a small, pale, buffy-brown owl that nests in borrowed burrows. The entrances to burrows often have bits of animal dung, prey carcasses, feathers, and litter, among other objects. Up to 12 eggs are laid, primarily from February to May.

Burrowing owls were observed within the boundaries of the project study areas and were also found on the IID ROW adjacent to the project study areas. The project study areas are being utilized by the owls as foraging habitat as agricultural fields on site support prey for owls. IID canal and drain areas are being utilized as both burrowing and foraging habitat. It is expected that the owls are foraging in the alfalfa and bermuda fields found within the project. Table 4.4-3 summarizes the burrowing owl observations within the project study areas. Figures 4.4-1a and 4.4-1b illustrate the active burrow sites observed during pedestrian surveys of the study areas.

As shown in Table 4.4-3, 44 active burrowing owl burrows were observed within the project sites survey area: 42 of these were found outside of the agricultural fields along IID canals, drains, berms, and roads, and two active burrows were observed within the proposed solar fields (at the MSSF1 site).

TABLE 4.4-3. BURROWING OWL OBSERVATIONS WITHIN THE STUDY AREAS

Location	Off-site	On-site	Grand Total
BLM Land	0	-	-
CSF1(A)			
One owl/One burrow	6	-	6
Two owls (pair)/One burrow	7	-	7
<i>CSF1(A) Total</i>	<i>13</i>	<i>-</i>	<i>13</i>
CSF1(B)			
One owl/One burrow	1	-	1
Two owls (pair)/One burrow	2	-	2
<i>CSF1(B) Total</i>	<i>3</i>	<i>-</i>	<i>3</i>
CSF2(A)			
One owl/One burrow	-	-	0
Two owls (pair)/One burrow	1	-	1
<i>CSF2(A) Total</i>	<i>1</i>	<i>-</i>	<i>1</i>
CSF2(B)			
One owl/One burrow	8	-	8
Two owls (pair)/One burrow	4	-	4
<i>CSF2(B) Total</i>	<i>12</i>	<i>-</i>	<i>12</i>
MSSF1			
One owl/One burrow	12	2	14
Two owls (pair)/One burrow	1	-	1
<i>MSSF1 Total</i>	<i>13</i>	<i>2</i>	<i>15</i>
Total	42	2	44

Source: RECON 2011/2012

OTF–BLM Land

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

Western Least Bittern (Ixobrychus exilis)

The western least bittern is a CDFG Species of Special Concern, and is a year-round resident of the Imperial Valley. This species was observed nesting in cattail marsh vegetation in an IID canal within the OTF survey corridor (RECON 2011). It is not expected to occur in any of the other survey areas, due to lack of suitable marsh vegetation.

Golden Eagle (Aquila chrysaetos)

This fully protected species is found throughout the United States, but rarely observed in Imperial County and was not been found in data base searches for the Mt. Signal and Heber Quadrangles. No suitable habitat was observed. Therefore this species is not expected to be found within or in the vicinity of the project sites.

Loggerhead Shrike (Lanius ludovicianus)

This species is a CDFG species of special concern and is year-round resident of Imperial County. Loggerhead shrikes were observed during surveys (Figures 4.4-1b and 4.4-1c). They are generally associated with open areas such as agricultural fields for foraging and thickets for nesting. They have the interesting habit of impaling prey upon sticks or thorns. Mesquites are often utilized for this activity.

Crissal Thrasher (Toxostoma crissale)

The crissal thrasher is a CDFG species of special concern and protected by the MBTA. It is a year-round resident in Imperial County. This species was observed within the mesquite thickets at the east end of the OTF within BLM Land corridor.

Yellow Warbler

The yellow warbler is a CDFG species of special concern and protected by the MBTA. It is known to both winter and breed in Imperial County. Three yellow warblers were observed within the desert wash vegetation within the OTF–BLM Land, south of the Imperial Valley Substation, and one was observed within the tamarisk thicket adjacent to the agricultural fields. This species is likely to nest within the mesquite trees in the desert wash, mesquite thicket, or tamarisk thicket within and adjacent to the survey area.

Mountain Plover (Charadrius montanus)

These species are CDFG species of special concern and proposed for federal listing. Additionally, this species is protected under the MBTA. The mountain plover avoids high dense cover and occurs in open grass plains, plowed fields with little vegetation, and open sagebrush areas. None were observed within the project study areas; however, suitable habitat is present for this species to occur.

LeConte's (Toxostoma lecontei lecontei) and Crissal Thrasher (Toxostoma crissale)

These species are CDFG species of special concern. The crissal thrasher prefers dense thickets of shrubs or low trees. The LeConte's thrasher occurs in desert scrub or desert wash areas. They were not observed or expected due to the lack of suitable habitat.

Long Billed Curlew (Numenius americanus)

These species are CDFG species of special concern. They typically nest in wet and dry uplands and can be found on wetlands, grain fields, lake and river shores, marshes, and beaches during wintertime and migration. Due to suitable habitat found within the project study areas, there is a high propensity for this species to be found on-site.

Short Billed Dowitcher (Limnodromus griseus)

These species are CDFG species of special concern. They typically breed in muskegs of taiga to timberline, and barely into subarctic tundra. They winter on coastal mud flats and brackish lagoons. During migration, they prefer saltwater tidal flats, beaches, and salt marshes. They can also be found in freshwater mud flats and flooded agricultural fields. Due to suitable habitat found within the project study areas, there is a high propensity for this species to be found on-site.

Horned Lark (Eremophila alpestris)

These species are CDFG species of special concern. They are typically found in open, barren country including dirt fields, gravel ridges, and shores and prefer bare ground to short grasses. Due to suitable habitat found within the project study areas, there is potential for this species to be found on-site.

Colorado Desert Fringe-toed Lizard (Uma notata notata)

The Colorado Desert fringe-toed lizard is a CDFG species of special concern. 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 (RECON 2011) and the creosote bush–white burr sage scrub vegetation provides suitable habitat.

California Leaf-nosed Bat (Macrotus californicus)

The California leaf-nosed bat is a CDFG species of special concern. The desert washes, thickets, agricultural fields and irrigation channels offer foraging opportunities for this species. The nearest reported location for the California leaf-nosed bat is approximately 26 miles northwest of the proposed project (RECON 2011). No known roosts occur in the survey area and there is no suitable roosting habitat within the survey area.

Pallid Bat (Antrozous pallidus)

Pallid bat is a CDFG species of special concern. 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 (RECON 2011). Roosts are not known to occur in the survey area and there is no suitable roosting habitat within the survey area.

Other Sensitive Species

As referenced in the Solar Energy Center South Final EIR/EA, Section 4.12, the FTHL in California is designated as a sensitive species by BLM. FTHL was found adjacent to the OTF which is located on BLM land.

4.4.1.2.5 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. Additionally, the creosote bush–white burr sage scrub within the OTF within BLM Land survey areas is considered “occupied” by the FTHL and is therefore protected under CEQA Guidelines.

A high level of disturbance or habitat conversion within the range could convert the status of vegetative communities to rare or sensitive. Wetland or riparian habitat communities are considered sensitive by CDFG. Mesquites are considered sensitive under the Imperial County General Plan.

4.4.1.2.6 Jurisdictional Waters

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF – Private Land

Drainage features within the survey areas that are considered exempt from USACE jurisdiction include farm drains. The active farm fields where the solar fields 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 considered USACE 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. Further, no IID drains or canals will be removed, relocated or otherwise impacted by the projects. No washes are found within this portion of the study areas; therefore, no USACE, CDFG or Regional Water Quality Control Board (RWQCB) resources would be affected. No impacts are identified and no mitigation required.

During O&M activities, the small amount of water used for solar panel cleaning (approximately 5 acre-feet of water per year) 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.

OTF–BLM Land

RECON biologists conducted jurisdictional waters delineation for the Solar Energy Center South project area in 2010 (RECON 2011), which overlaps the currently proposed OTF within BLM Land survey areas. The jurisdictional delineation was conducted to determine the extent of USACE, CDFG, and RWQCB resources within the Solar Energy Center South survey area. The delineation results for these resources are shown on Figures 4.4-2a and 4.4-2b. Table 4.4-4 summarizes the results.

TABLE 4.4-4. JURISDICTIONAL RESOURCES WITHIN OTF-BLM LAND

Jurisdictional Resource	OTF-BLM Land (acres)
Non-wetland Waters of the U.S.	7.3
<i>USACE Total</i>	7.3
Riparian	44.6
Streambed	0.5
<i>CDFG Total</i>	45.1

Source: RECON 2011

As shown in Table 4.4-4, no USACE wetland areas were identified within any of the survey areas. All USACE 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 USACE jurisdiction. The farm drains would not be considered USACE 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.

CDFG/RWQCB jurisdiction waters of the state include all USACE non-wetland jurisdictional waters (streambed) and any xeroriparian habitat that occurs outside of the limits of the USACE 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.

4.4.1.2.7 Habitat Connectivity and Wildlife Corridors

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land, OTF-BLM Land

The ability for wildlife to freely move about an area and not become isolated is considered connectivity and is important to allow dispersal of a species to maintain exchange genetic characteristics, forage (food and water), and escape from predation.

All species are able to freely move throughout the survey area. Although the All American Canal limits movement to Mexico, migration is still viable over the canal; however, the border fence poses a barrier for migration.

4.4.1.2.8 California Desert Conservation Area

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land

The MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), and OTF-Private Land study areas are not within or immediately adjacent to the Yuha Basin which is an Areas of Critical Environmental Concern (ACEC) of the California Desert Conservation Area.

OTF-BLM Land

The proposed OTF-BLM Land falls within the Yuha Basin ACEC of the CDCA, and is within Utility Corridor "N" as designated by the CDCA.

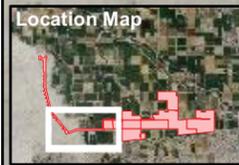
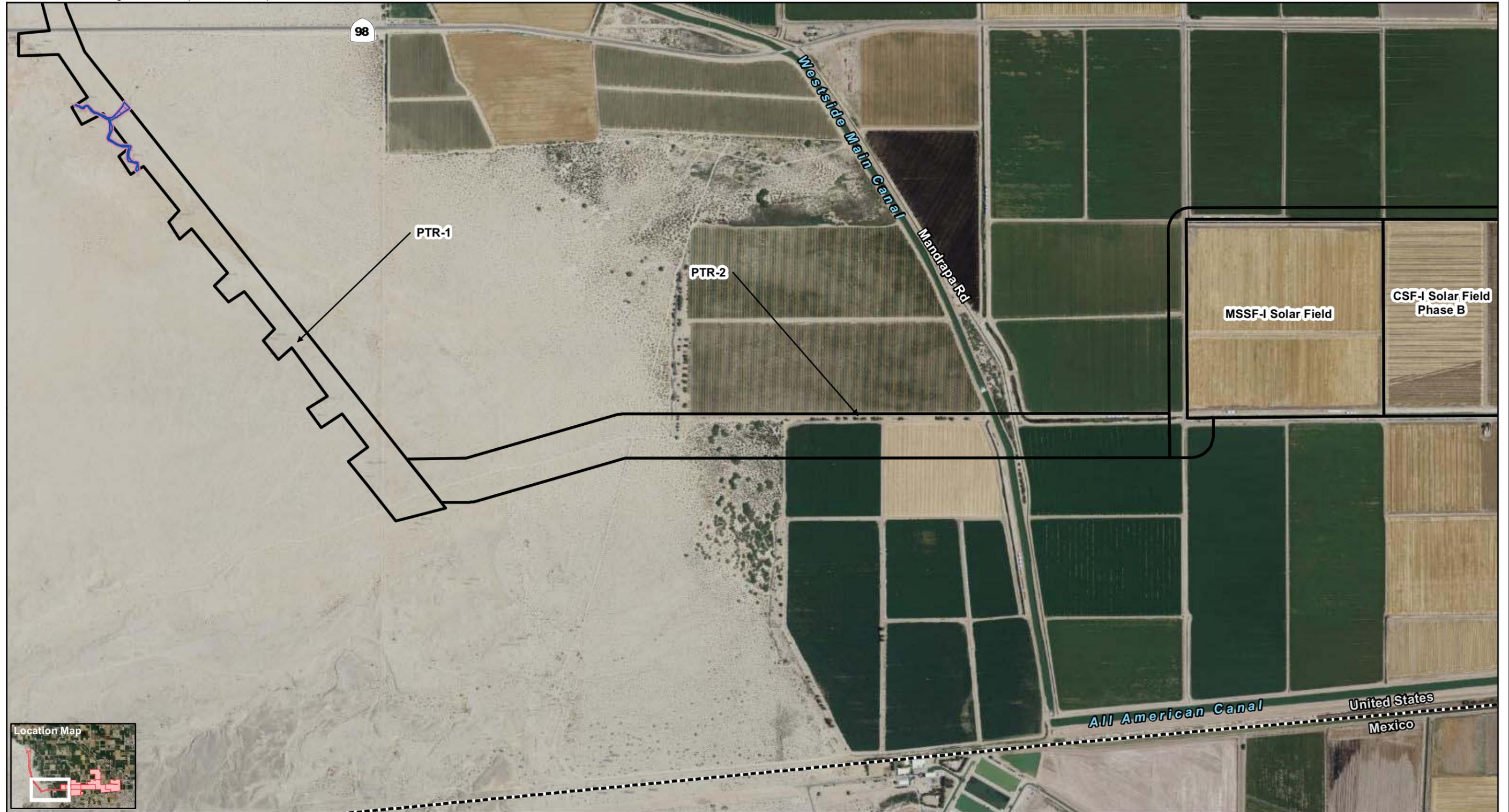
4.4.2 Impacts and Mitigation Measures

4.4.2.1 Thresholds of Significance

Based on CEQA Guidelines Appendix G, project impacts related to biological resources are considered significant if any of the following occur:

- 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;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG and USFWS;
- 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;
- Interfere substantially with the movement of any native resident or migratory fish and wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Image Source: CDFG (flown Summer 2009)



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

Notes:
 PTR-1: Preferred Transmission Line Segment 1
 PTR-2: Preferred Transmission Line Segment 2
 ATR-1: Alternative Transmission Line Segment 1
 ATR-2: Alternative Transmission Line Segment 2

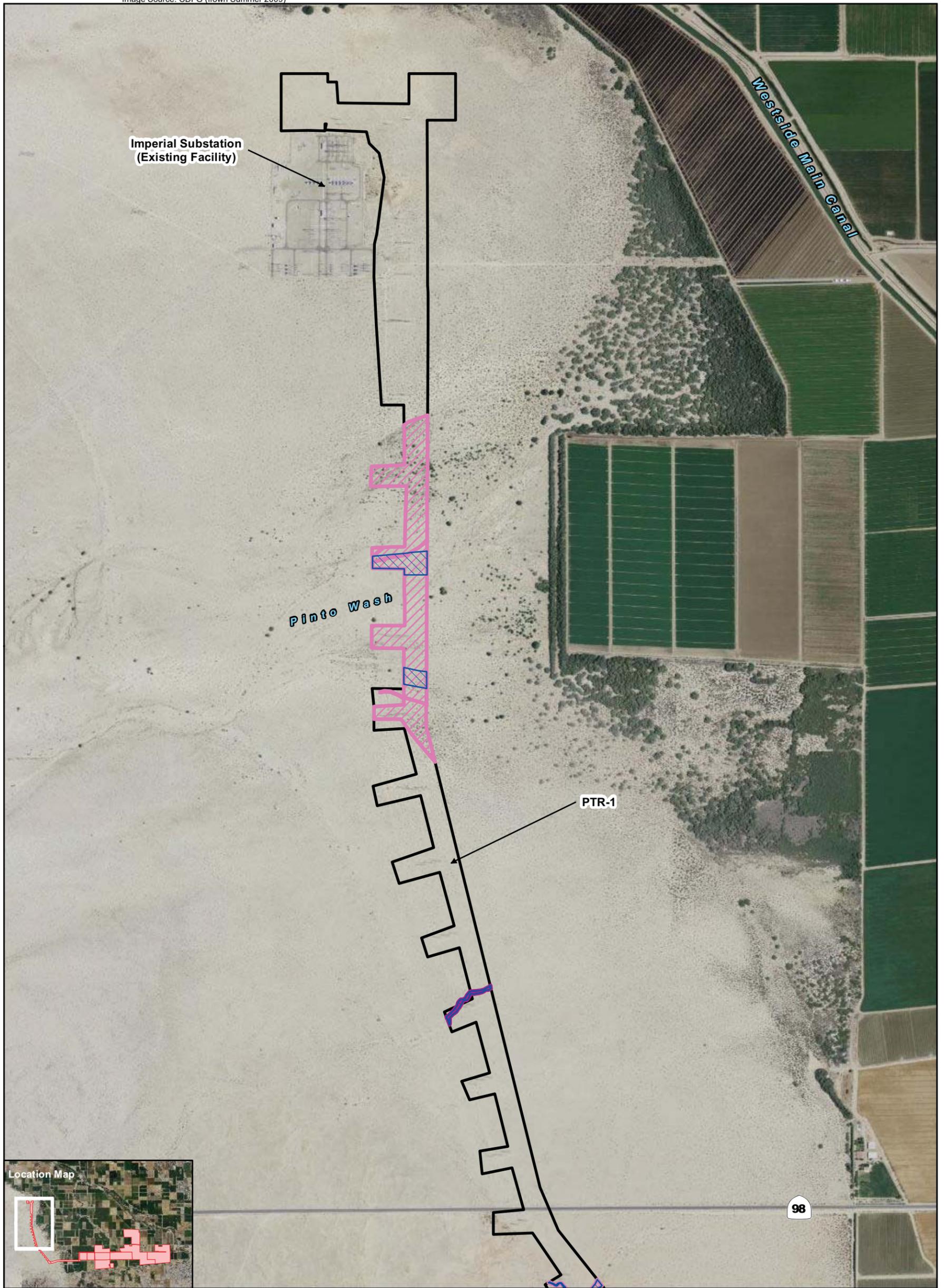


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Source: RECON, 2011

Existing Jurisdictional Resources - OTF within BLM Land
FIGURE 4.4-2a

Image Source: CDFG (flown Summer 2009)



- | | | |
|--|--------------------------------------|--|
| Survey Area | ACOE Jurisdictional Resources | CDFG Jurisdictional Resources |
| PTR-1: Preferred Transmission Line Segment 1 | Non-wetland water | Riparian - Desert Wash Scrub Streambed |

Source: Recon, 2011

Existing Jurisdictional Resources - OTF within BLM Lands
FIGURE 4.4-2b

4.4.2.2 Methodology

This analysis evaluates the potential for the projects, as described in Chapter 3, Project Description, to interact with local biological resources in the project study areas. Based on the extent of these interactions, this analysis considers whether these conditions would result in an exceedance of one or more of the applied significance criteria as identified above.

As indicated in the environmental setting, RECON prepared a BTR which covered the MSSF1, CSF1(A) and (B), and CSF2(A) and (B) site locations. The BTR (and addendum letter regarding the burrowing owl) are included as Appendix E of this EIR. The analysis prepared for this EIR also relied on GIS maps. The information obtained from these sources was reviewed and summarized to present the existing conditions and to identify potential environmental impacts, based on the significance criteria presented in this section. Impacts associated with biological resources that could result from project construction and operational activities were evaluated qualitatively based on site conditions; expected construction practices; materials, locations, and duration of project construction and related activities; and several field visits. Conceptual site plans for the project were also used to evaluate potential impacts. These conceptual exhibits are provided in Figures 3.0-4 through 3.0-6 and Figures 3.0-9 through 3.0-13. Because vegetation impacts will occur within the initial construction phases of the projects, future decommissioning activities would not likely result in additional impacts; however, indirect impacts could occur, similar to initial construction activities.

4.4.2.3 Impact Analysis

<p>IMPACT 4.4-1</p>	<p>Possible Habitat Modification. The construction and operation of the proposed projects within the project study areas could result in the indirect or direct habitat alteration on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or the CDFG or USFWS.</p>
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Impact to Vegetation Communities

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF–Private Land

The vegetation community type identified for the MSSF1, CSF1(A)(B), CSF2(A)(B), OTF-Private Land is agricultural. Figures 4.4-3a through 4.4-3c illustrate the impacts to vegetation communities as a result of each of the projects. Table 4.4-5 summarizes the impacted acreage associated with each vegetation community and associated projects.

The solar farms and OTF within the private land portion of the study areas have been in active agricultural cultivation and therefore does not support habitat for sensitive vegetation communities. Therefore, **no impact** is identified to sensitive vegetation communities.

OTF–BLM Land

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. Creosote bush–white burr sage scrub and desert wash vegetation are the two sensitive natural communities potentially affected by the OTF within BLM Land. These communities are considered sensitive whether or not they have been disturbed. The OTF-BLM Land impacts are summarized in Table 4.4-5 and shown on Figures 4.4-3b and 4.4-3c.

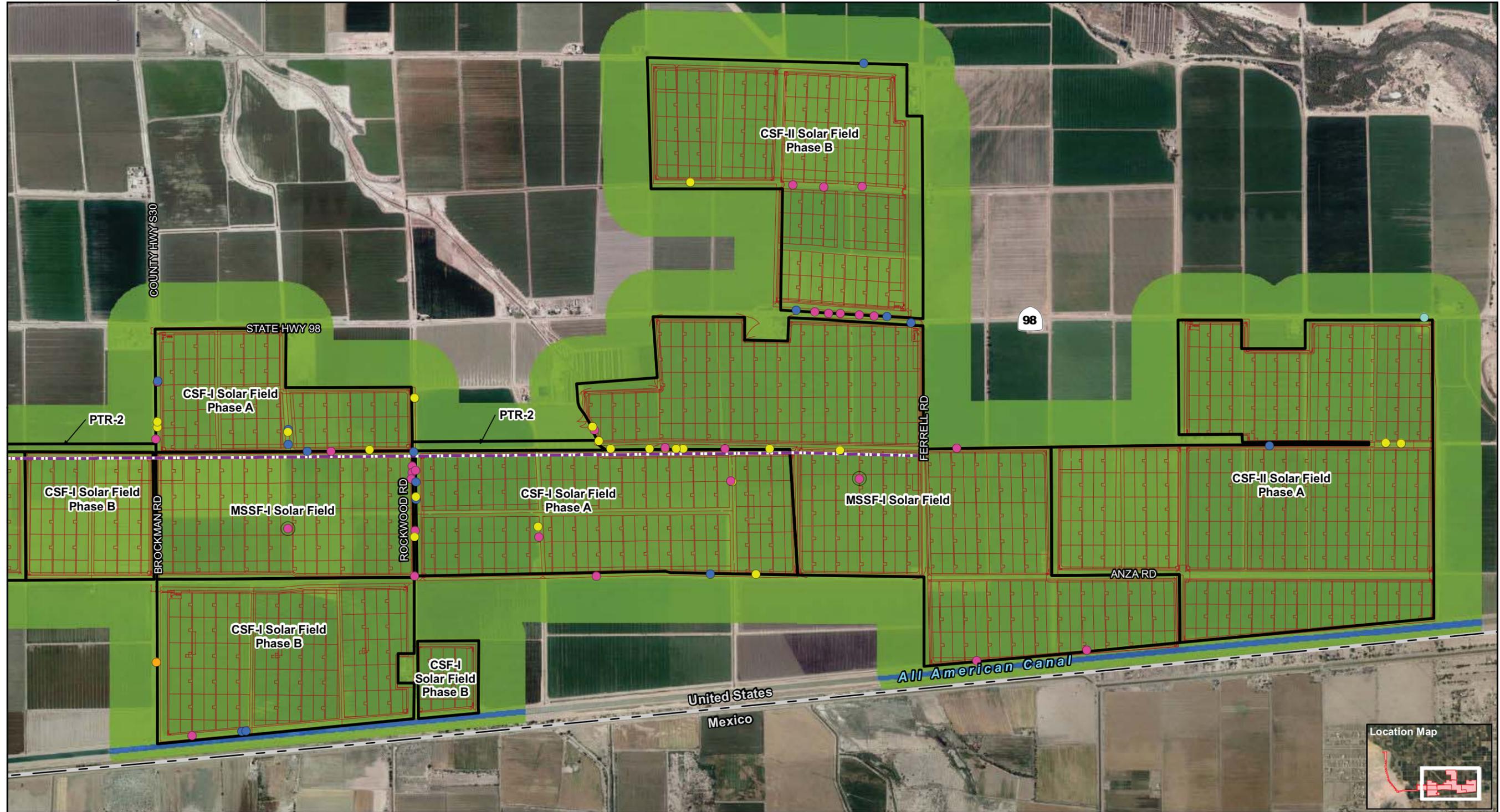
TABLE 4.4-5. VEGETATION COMMUNITY IMPACTS

Vegetation Communities/ Land Cover Type	OTF-BLM Land (PTR-1+PTR-2) Impacts (acres)	MSSF1 Solar Field Impacts (acres)	CSF1 Solar Field Impacts (acres)	CSF2 Solar Field Impacts (acres)
Permanent Impacts				
Creosote bush-white burr sage scrub (CBS)				
Access roads	2.3			
Monopole footings	<0.1			
Lattice tower footings*	<0.1			
<i>CBS Subtotal</i>	2.3			
Desert Wash (DW)				
Access roads	0.6			
Lattice tower footings*	<0.1			
<i>DW Subtotal</i>	0.6			
Active Agriculture (AG) Solar Fields	--	1,408	1,298	1,438
Monopole footings	(<0.1)			--
<i>Permanent Impacts Total</i>	2.9			
Temporary Impacts				
Creosote bush-white burr sage scrub (CBS)				
Pull site	0.8			
Monopole work areas	1.7			
Lattice tower work areas*	4.0			
Trench	<0.1			
<i>CBS Subtotal</i>	6.5			
Desert Wash (DW)				
Lattice tower work areas*	0.8			
<i>DW Subtotal</i>	0.8			
Active Agriculture (AG) Solar Fields				
Monopole work areas	(11.5)			
<i>Temporary Impacts Total</i>	(11.5)			
Total Project Impacts	10.2	1,408	1,298	1,438

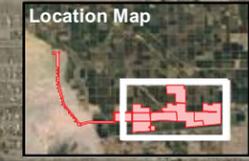
Source: RECON 2011

Notes: *Includes A-frames.

() Indicates temporary transmission impacts that overlap proposed solar field permanent impact areas for the MSSF1, CSF1, CSF2, and ISEC South projects. These work areas are not included in the total due to their overlap with the solar fields.



- | | | | |
|---------------------------------|-------------------------------|--|---|
| Survey Area | Vegetation Communities | Sensitive Wildlife Species | Barn Owl Nest (<i>Tyto alba</i>) |
| Solar Field Impacts | Active Agriculture | Burrowing Owl Burrow (<i>Athene cunicularia hypugea</i>) | Cattle Egret Roost (<i>Bubulcus ibis</i>) |
| Proposed Transmission Alignment | Open Water | Single Owl with Burrow Outside IID Easements | |
| | | Pair of Owls with Burrow Inside IID Easements | |
| | | Single Owl with Burrow Inside IID Easements | |
| | | Auxiliary Burrow Inside IID Easements | |



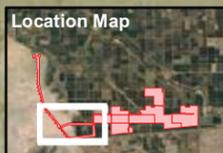
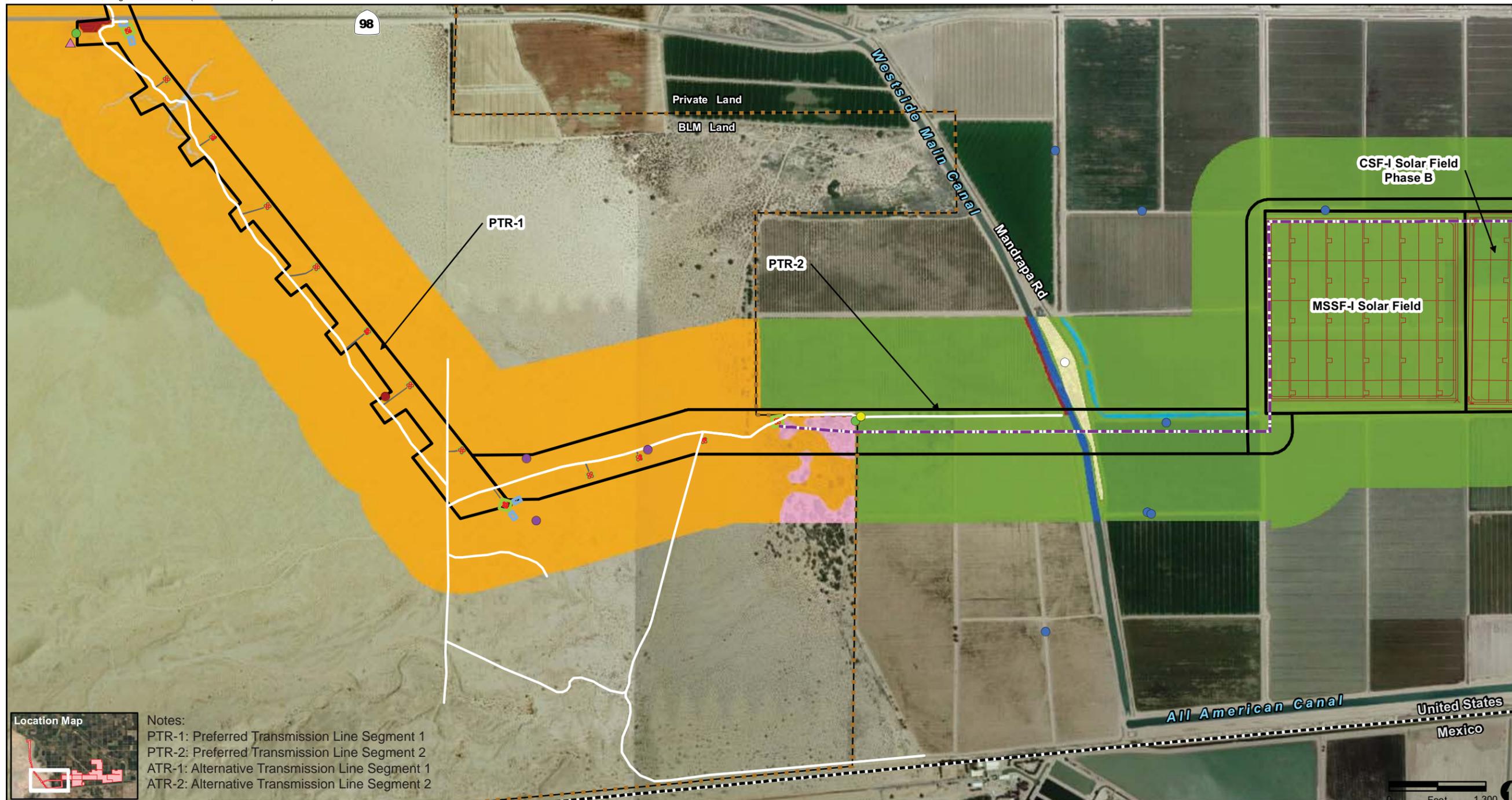
Notes:
PTR-2: Preferred Transmission Line Segment 2

Source: RECON, 2011

Impacts to Biological Resources - MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), and OTF within Private Lands

FIGURE 4.4-3a

Image Source: CDFG (flown Summer 2009)

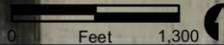


Notes:
 PTR-1: Preferred Transmission Line Segment 1
 PTR-2: Preferred Transmission Line Segment 2
 ATR-1: Alternative Transmission Line Segment 1
 ATR-2: Alternative Transmission Line Segment 2

- Survey Area
- Temporary Tower Site
- Permanent Tower
- Access Road
- Pull Site
- Existing Access Road
- Solar Field Impacts
- Proposed Transmission Alignment

- Sensitive Plant and Wildlife Species**
- Burrowing Owl Pair with Burrow (*Athene cunicularia hypugea*) Inside IID Easements
 - Burrowing Owl Auxiliary Burrow Inside 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*)

- 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

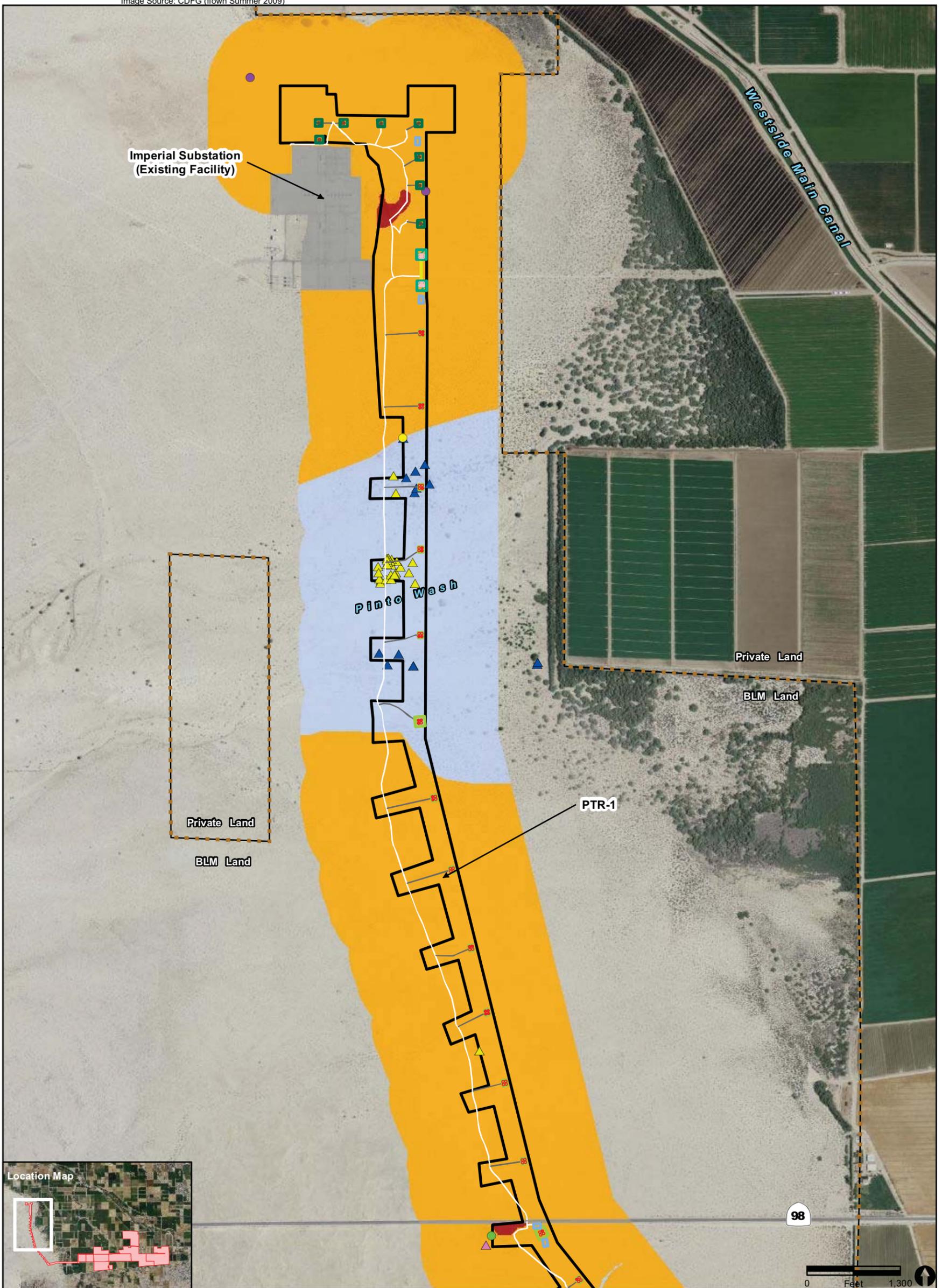


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Source: RECON, 2011

Impacts to Biological Resources - OTF within BLM Land
 FIGURE 4.4-3b

Image Source: CDFG (flown Summer 2009)



Survey Area	Temporary Monopole Site	Vegetation Communities	Sensitive Plant and Wildlife Species
Impact Areas	Temporary Tower Site	Creosote Bush-White Burr Sage Scrub	Flat-tail Horned Lizard (<i>Phrynosoma mcallii</i>)
Permanent Monopole Footing	Temporary A-Frame Tower Site	Desert Wash (Smoke Tree Woodland)	Loggerhead Shrike (<i>Lanius ludovicianus</i>)
Permanent Tower	Temporary Trench	Disturbed Land	Yellow Warbler (<i>Dendroica petechia</i>)
Permanent A-Frame Footing	Access Road	Developed	Parish's Desert Thorn (<i>Lycium parishii</i>)
Pull Site	Existing Access Road		Thurber's Pilostyles (<i>Pilostyles thurberi</i>)
			Wolf's Cholla (<i>Cylindropuntia wolfii</i>)

Source: Recon, 2011 PTR-1: Preferred Transmission Line Segment 1

Impacts to Biological Resources - OTF within BLM Land
FIGURE 4.4-3c

For the OTF within BLM Land, approximately 2.3 acres of permanent impact would occur to creosote bush-white burr sage scrub and approximately 0.6 acres of permanent impact would occur to desert wash. 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. Approximately 6.5 acres of temporary impact would occur to creosote bush-white burr sage scrub and approximately 0.8 acres of temporary impact would occur to desert wash. Therefore, a potentially **significant impact** is identified to vegetation communities and mitigation is required to reduce the impact to a level less than significant. Mitigation Measure 4.4-1a would reduce the impact to a level **less than significant**.

Impact to Special Status Species

Special Status and Priority Plants

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land

The constant cultivating and harvesting of crops does not promote a habitat favorable to special status plant species within the agricultural fields or peripheral areas and therefore **no impacts** to special status plant species are identified.

OTF-BLM Land

Three priority plant species were observed within the OTF-BLM land survey area during spring rare plant surveys, including Wolf's cholla, Thurber's pilostyles, and Parish's desert thorn. As shown in Figures 4.4-3b and 4.4-3c, 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. Parish's desert thorn and Thurber's pilostyles are not within the proposed work areas and would not be affected. Therefore, a **less than significant impact** is identified.

Impacts to Sensitive Wildlife

Flat-tailed Horned Lizard

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land

FTHL was not identified within the solar field project areas. It is not expected to occur within the area. Therefore, **no impact** is identified.

OTF-BLM Land

Construction Impacts

Direct impacts to FTHL may occur during construction of the OTF-BLM land. The OTF-BLM Land is within the Yuha Desert Flat-tailed Horned Lizard MA, as designated in the 2003 *Flat-tailed Horned Lizard Rangeland Management Strategy* (RMS) (shown in Figure 5 of the BTR in Appendix H) (RECON 2011). The creosote bush-white burr sage scrub vegetation within and adjacent to the MA, including portions of the OTF, provides habitat for this species. In accordance with the RMS, the proposed impacts to the MA are the minimum (i.e., impacts are minimized to the extent feasible) necessary to construct the project. The following identifies how the impacts have been minimized:

- The MSSF1, CSF1, and CSF2 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.

Nevertheless, 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. 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. Additionally, there would be a potential increase in invasive exotic plant species due to construction of the proposed project that could impact FTHL. Therefore, a **significant impact** is identified for FTHL and mitigation is required in order to reduce the impact to a level **less than significant**.

Table 4.4-6 depicts the impacts to FTHL habitat. The OTF-BLM Land route 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. These impacts would be considered significant and mitigation would be required.

TABLE 4.4-6. IMPACTS TO FLAT-TAILED HORNED LIZARD HABITAT FOR OTF-BLM LAND

Vegetation Communities/ Land Cover Types	OTF – BLM Land Impacts (PTR-1 + PTR-2) (acres)
Permanent Impacts	
Inside FTHL MA	
Access roads	2.9
Monopole footings	<0.1
Lattice Tower footings*	<0.1
<i>Inside Subtotal</i>	<i>2.9</i>
Outside FTHL MA	
<i>Outside Subtotal</i>	--
<i>Permanent Impacts Total</i>	<i>2.9</i>
Temporary Impacts	
Inside FTHL MA	
Pull site	0.8
Monopole work areas	1.7
Lattice Tower work areas *	4.8
Trench	<0.1
<i>Inside Subtotal</i>	<i>7.3</i>
Outside FTHL MA	
<i>Outside Subtotal</i>	--
<i>Temporary Impacts Total</i>	<i>7.3</i>
Total Project Impacts	10.2

Source: RECON 2011
 Notes: *Includes A-frames.

Operation 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. Similar measures would be required for any future decommissioning and restoration activities that may occur at the end of the currently anticipated 40-year life of the projects.

Additionally, 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. There would be a potential increase in invasive exotic plant species due to construction of the proposed project that could impact FTHL. Therefore, a **significant impact** is identified for FTHL and mitigation is required in order to reduce the impact to a level less than significant. Implementation of Mitigation Measures 4.4-1b, through 4.4-1d would reduce impacts to **less than significant**.

Burrowing Owl

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land

Construction Impacts

The CDFG Staff Report on Burrowing Owl (1995) lists impacts to burrowing owl as:

- Disturbance within 160 feet (September through January non-nesting season) or within 250 feet (February through August nesting season) of active burrows.
- Destruction of active burrows.
- Destruction/degradation of forage within 300-feet of active burrows.

Figures 4.4-3a and 4.4-3b illustrate the active burrow sites within, and adjacent to (off-site) the project sites.

Direct Impacts

A total of two occupied burrowing owl burrows (one owl/one burrow) were observed within the active agricultural fields, both of these are located within MSSF1. A total of 42 occupied burrowing owl burrows were observed adjacent to the fields within IID canals, drainages, roads and berms (13 in MSSF1, 16 in CSF1, and 13 in CSF2).

The agricultural fields within the proposed solar fields provide habitat for burrowing owl. As shown in Table 4.4-5, approximately 4,144 acres of agricultural land would 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. Two 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, the impact to burrowing owl foraging habitat is considered a **significant impact** and will require mitigation. This includes approximately 13 acres for the MSSF1 project (two active burrows). Therefore, potentially significant impacts are identified for burrowing owl. However, with the implementation of Mitigation Measures 4.4-1e and 4.4-1f, impacts would be reduced to levels **less than significant**.

An additional 42 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.

Additionally, 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 impacts 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 impact minimization would be required to reduce the impacts to a level of **less than significant**. Similar measures would be required for any future decommissioning, restoration activities that may occur at the end of the currently anticipated 40-year life of the projects.

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 a **significant impact** and mitigation would be required to minimize and/or avoid these impacts. Implementation of these measures would reduce the impact to a level **less than significant**. Similar measures would be required for any future decommissioning, restoration activities that may occur at the end of the currently anticipated 40 year life of the projects.

Operation 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. 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.

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 a **significant impact** and mitigation would be required. Mitigation Measure 4.4-1c requires preparation of a Worker Environmental Awareness Program (WEAP) and Mitigation Measure 4.4-1d requires that construction vehicles maintain a speed limit of 15 miles while driving on access roads. Implementation of these mitigation measures would reduce impacts to burrowing owls from O&M activities to **less than significant**.

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.

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.

OTF-BLM Land

No burrowing owl was identified along the OTF-BLM Land corridor, and no direct impact to burrowing owls is anticipated; however, this portion of the project study areas contains creosote bush-white burr sage scrub and desert wash vegetation, which is suitable habitat for the burrowing owl. A total of 2.9 acres of potential burrowing owl habitat would be impacted. This is considered a **significant impact**. Implementation of Mitigation Measures 4.4-1e and 4.4-1f is required to reduce this impact to a level **less than significant**.

Mountain Plover, Long Billed Curlew, Short Billed Dowitcher, Horned Lark, Loggerhead Shrike

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land, OTF-BLM Land

Construction Impacts

With the exception of the Loggerhead Shrike, these species were not observed during site visits to the project study areas. However, due to the availability of suitable foraging habitat, there is a potential for these species to occur. Because the mountain plover is a naturally evasive species, they will readily move out of harms way to avoid construction related activities, such as site clearing and any possible grading activities. Additionally, minimal light and noise from the heavy equipment during construction is not expected to adversely modify the behavioral patterns of the foraging mountain plover. Long billed curlew, short billed dowitcher, horned lark, and loggerhead shrike typically use agricultural areas for foraging. Although the removal of potential forage areas for these species would not result in a reduction of sufficient prey base found within the vicinity, impacts are considered **potentially significant** in the absence of mitigation due to the possibility that these species could find suitable foraging habitat within the project study areas and mitigation measures would be provided. Implementation of Mitigation Measure 4.4-1g would reduce construction impacts to **less than significant**. Similar measures would be required for any future decommissioning, restoration activities that may occur at the end of the currently anticipated 40-year life of the projects.

Operation Impacts

General operation related activities, such as equipment inspection and/or repairs, solar panel washing, and site security are expected to result in minimal noise and therefore, would not result in disturbance to these species nor would it affect adjacent agricultural areas where they may forage. As a result, a **less than significant** impact is identified for this issue area.

Migratory Birds and Other Sensitive Non-Migratory Bird Species

MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land, OTF-BLM Land

Construction Impacts

There are few tall trees within the project study areas that would encourage raptor nesting. The crops in the area do not encourage ground nesting of raptors such as northern harriers (*Circus cyaneus*). No osprey (*Pandion haliaetus*) nests were observed or expected due to the lack of available food sources. If nesting raptors are found within the study areas, during construction, impacts to this issue area would be

considered **potentially significant** and mitigation would be required in order to reduce the impact to a level less than significant. Implementation of Mitigation Measures 4.4-1h and 4.4-1i would reduce impacts to nesting birds during construction to **less than significant**.

Operations and Maintenance Impacts

Electrocution

All electrical components within the solar projects shall be either undergrounded or protected so that there will be no exposure to wildlife and therefore no potential for electrocution. The OTF-Private Land and OTF-BLM Land would be constructed in such a manner that energized components do not present an opportunity for “skin to skin” or wing span contact. However, the Avian Powerline Interaction Committee’s (APLIC) 1996 report on power line electrocution in the United States 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. The distance between energized components along transmission lines (>69 kV) is generally insufficient to present avian electrocution risk. **No impact** to raptors is anticipated to occur due to electrocution along the proposed OTF. Therefore, no mitigation would be required. However, a **potentially significant impact** may occur to avian mortality during O&M activities along the transmission lines. Therefore, 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. Mitigation Measure 4.4-1h, specifically the ABPP, will provide the applicant the vehicle to comply with the Bald and Golden Eagle Protection Act as well as the MBTA. Implementation of that mitigation measure would reduce impacts to **less than significant**.

Collisions

No incidences of avian ground wire collisions of existing transmission wires were observed during surveys. If collisions are found to be a problem, marking shall be applied to ground wires, which has been shown to decrease the incidence of bird collisions by 60 percent (Alonso, Alonso and Munoz-Pulido 1994); therefore, this impact is considered **less than significant**.

Mitigation Measure(s)

Sensitive Vegetation Communities

No mitigation measures are required for vegetation communities for MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), and OTF-Private Land. The following mitigation measure is required for OTF-BLM Land:

4.4-1a Sensitive Vegetation Communities Mitigation Ratios. Mitigation for the permanent and temporary impacts to creosote bush-white burr sage scrub, and desert wash shall be accomplished through the provision of required mitigation acres prior to issuance of a grading permit. Table 4.4-7 identifies the mitigation ratio/requirement and required mitigation for each vegetation community. Mitigation ratios are in accordance with the Flat-tailed Horned Lizard Rangeland Management Strategy.

Flat-tailed Horned Lizard

No mitigation measures are required for impacts to FTHL for MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), and OTF-Private Land. The following mitigation is required for OTF-BLM Land:

TABLE 4.4-7. VEGETATION COMMUNITY MITIGATION REQUIREMENTS FOR OTF-BLM LAND

Vegetation Communities/ Land Cover Types	OTF-BLM Land Impact (acres)	Mitigation Ratio	OTF-BLM Land Mitigation Required (acres)
Access Roads	2.3	6:1	13.8
Monopole Footings	<0.1	6:1	<0.1
Lattice Tower Footings*	<0.1	6:1	0.3
<i>CBS Subtotal</i>	<i>2.3</i>		<i>14.1</i>
Access Roads	0.6	6:1	3.6
Lattice Tower Footings	<0.1	6:1	0.1
<i>DW Subtotal</i>	<i>0.6</i>		<i>3.7</i>
Active Agriculture (AG)	<0.1		--
<i>Permanent Total</i>	<i>2.9</i>		<i>17.8</i>
Pull Site	0.8	6:1	4.8
Monopole Work Areas	1.7	6:1	10.2
Lattice Tower Work Areas*	4.0	6:1	24.0
Trench	<0.1	6:1	<0.1
<i>CBS Subtotal</i>	<i>6.5</i>		<i>39.0</i>
Lattice Tower Work Areas	0.8	6:1	4.8
<i>DW Subtotal</i>	<i>0.8</i>		<i>4.8</i>
Monopole Work Areas	(11.5)	N/A	
<i>AG Subtotal</i>	<i>(11.5)</i>	<i>N/A</i>	
<i>Temporary Total</i>	<i>7.3</i>		<i>43.8</i>
Total Mitigation			61.6

Source: RECON, October 2011.

Note: *Includes A-frames.

() Indicates temporary transmission impacts that overlap proposed solar field permanent impact areas for MSSF1, CSF1, CSF2, and ISEC South projects. These work areas are not included in the total due to their overlap with the solar fields.

4.4-1b FTHL Rangewide Management Strategy. In accordance with the Flat-tailed Horned Lizard Rangewide Management Strategy, mitigation for the OTF within BLM Land would be required for impacts to FTHL habitat as identified in Table 4.4-8.

TABLE 4.4-8. FLAT-TAILED HORN LIZARD HABITAT MITIGATION REQUIREMENTS FOR OTF-BLM LAND

FTHL Habitat	OTF-BLM Land Impact (acres)	Mitigation Ratio	OTF-BLM Land Mitigation Required (acres)
<i>Permanent Impacts</i>			
Inside FTHL MA			
Access Roads	2.9	6:1	17.4
Monopole Footings	<0.1	6:1	<0.1
Lattice Tower Footings*	<0.1	6:1	0.4
<i>Total Permanent</i>	<i>2.9</i>		<i>17.8</i>
<i>Temporary Impacts</i>			
Inside FTHL MA			
Pull Site	0.8	6:1	
Monopole Work Areas	1.7	6:1	
Lattice Tower Work Areas*	4.8	6:1	
Outside FTHL MA	<0.1	6:1	
<i>Total Temporary</i>	<i>7.3</i>		<i>43.8</i>
Total Mitigation Required			61.6

Source: RECON, October 2011.

Note: *Includes A-frames.

4.4-1c FTHL Construction Mitigation Measures. In accordance with the *FTHL Rangeland Management Strategy* (ICC 2003), the measures proposed below are designed to avoid, minimize, and/or compensate for potential direct and indirect effects that construction of the OTF within BLM Land may have on FTHL. The following shall be implemented, when conducting construction activities on the transmission line within BLM Land:

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

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 minimize impacts to biological resources, the Designated Biologist and/or Biological Monitor(s) shall:

- Notify BLM's Authorizing Officer and the USFWS at least 14 calendar days before initiating ground-disturbing activities.
 - Immediately notify BLM's Authorized Officer and the USFWS in writing, if the project applicant is not in compliance with any conservation measures, including but not limited to any actual or anticipated failure to implement conservation measures within the time periods specified.
 - Conduct compliance inspections at a minimum of once per month during ongoing construction after clearing, grubbing, and grading are completed, and submit a monthly compliance report to BLM's Authorized Officer until construction is complete.
2. The boundaries of all areas to be disturbed (including staging areas, access roads, and sites for temporary placement of spoils) shall be delineated with stakes and flagging prior to construction activities. Spoils shall 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 shall be minimized. All disturbances, vehicles, and equipment shall be confined to the flagged areas. To the extent possible, surface disturbance shall be timed to minimize mortality to FTHL.
 3. Approved Biological Monitor(s) shall 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 shall 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 shall 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 Worker Environmental Awareness Program (WEAP) shall be developed and implemented, and shall be available in both English and Spanish. Wallet-sized cards summarizing this information shall be provided to all construction, operation, and maintenance personnel. The education program shall 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 shall be removed from harm's way during all construction activities, per conservation measure #6 below. FTHL removal shall 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 shall 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).
6. Persons that handle FTHL shall 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 shall handle FTHLs. FTHL removal surveys shall also include:
- A Horned Lizard Observation Data Sheet and a Project Reporting Form, per Appendix 8 of the RMS, shall be completed.
 - During construction, quarterly reports describing FTHL removal activity, per the reporting requirements described in Conservation Measure #1 above, shall be submitted to the USFWS, BLM, and CDFG.

The removal of FTHLs out of harm's way shall include relocation to nearby suitable habitat in low-impact (e.g., away from roads and solar panels) areas of the Yuha MA. Relocated FTHLs shall 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, shall hold the FTHL for later release. Initially, captured FTHLs shall be held in a cloth bag, cooler, or other appropriate clean, dry container from which the lizard cannot escape. Lizards shall be held at temperatures between 75° F and 90° F and shall not be exposed to direct sunlight. Release shall occur as soon as possible after capture and during daylight hours. The Designated Biologist or Biological Monitor shall 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).

Temporarily disturbed areas associated with transmission line construction and staging areas shall 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 five 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.

4.4-1d O&M Mitigation Measures. To reduce the potential impacts to FTHL (and burrowing owl) during O&M, the following shall be implemented when conducting O&M activities along the transmission line within BLM Land:

1. No later than January 31 of every year that the Project remains in operation, the Designated Biologist shall provide the BLM's Authorized Officer, USFWS, CDFG, and the FTHL ICC an annual FTHL Status Report, which shall include, at a minimum:
 - A general description of the status of the project site;
 - A copy of the table in the project biological monitoring report with notes showing the current implementation status of each conservation measure;
 - An assessment of the effectiveness of each completed or partially completed measure in avoiding and minimizing project impacts;

- A completed project reporting form from the Flat-tailed Horned Lizard RMS (ICC 2003);
 - A summary of information regarding any FTHL mortality in conjunction with the project's Wildlife Mortality Reporting Program; and
 - Recommendations on how conservation measures might be changed to more effectively avoid, minimize, and offset future project impacts on the FTHL.
2. The Designated Biologist or Biological Monitor(s) shall 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 shall include:
- 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&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.
 - 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 shall 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 (see Mitigation Measure 4.4-1d).

Burrowing Owls

In addition to Mitigation Measures 4.4-1c and 4.4-1d that would reduce impacts to burrowing owl during O&M activities, the following mitigation measures are required for MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land, and OTF-BLM Land.

4.4-1e Burrowing Owl Mitigation. Burrowing owls have been observed in the active agricultural fields within the project study areas. The following measures will avoid, minimize, or mitigate potential impacts to burrowing owl during construction activities:

1. Initial grading of the agricultural fields project footprint should take place between September 1 and January 31 to avoid impacts to any breeding burrowing owls.
2. During non-nesting season (September through January) a distance of 160 feet shall 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, the sheltered area shall be monitored weekly by a qualified biologist.
3. If construction is to begin during the breeding season, the following measures (Measure 4 below) shall be 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 shall be subject to frequent surveys by the qualified biologist for burrows before the breeding season begins, so that owls can be properly relocated before nesting occurs.

4. Within 30 days prior to initiation of construction, pre-construction clearance surveys for this species shall be conducted by qualified and agency-approved biologists 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 shall be clearly demarcated in the field by the project engineers and biologist prior to the commencement of the pre-construction clearance survey. The surveys shall follow the protocols provided in the *Burrowing Owl Survey Protocol and Mitigation Guidelines*.
5. If active burrows are present within the project footprint, the following mitigation measures shall be implemented. Passive relocation methods are to be used by the biological monitors to move the owls out of the impact zone. Passive relocation shall 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. A period of at least one week is required after the relocation effort to allow the birds to leave the impacted area before construction of the area can begin. The burrows shall then be excavated and filled in to prevent their reuse. The destruction of the active burrows on-site requires construction of new burrows at a mitigation ratio of 2:1 at least 50 meters from the impacted area and must be constructed as part of the above-described relocation efforts. The construction of new burrows will take place within open areas in the solar fields such as detention basins.
6. As the project construction schedule and details are finalized, an approved biologist shall prepare a Burrowing Owl Mitigation and Monitoring Plan that will detail the approved, site-specific methodology proposed to minimize and mitigate impacts to this species. Passive relocation, destruction of burrows, construction of artificial burrows, and Forage Habitat Plan shall only be completed upon prior approval by and in cooperation with the CDFG. The Mitigation and Monitoring Plan shall include success criteria, remedial measures, and an annual report to CDFG and shall be funded by the applicant to ensure long-term management and monitoring of the protected lands.

4.4-1f Burrowing Owl Compensation. The project applicant shall compensate for impacts to burrowing owl habitat through the following measures:

1. CDFG's mitigation guidelines for burrowing owl (1995) require the acquisition and protection of replacement foraging habitat per pair or unpaired resident bird to offset the loss of foraging and burrow habitat on the project sites.

The project applicant(s) shall 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, pursuant to a Mitigation and Monitoring Plan that is reviewed and approved by CDFG prior to the commencement of construction. Although the site plans show almost 100 percent coverage of solar panels, 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 project footprints. Sufficient open areas shall be set aside for burrowing owl habitat and burrow relocation for the lifespan of the solar projects. Due to County of Imperial requirements that the solar fields be returned to active agriculture after the life of the solar projects, it is assumed that when 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, sufficient areas cannot be provided onsite, or planting is not feasible, alternative mitigation shall be provided, which CDFG determines provides equivalently effective mitigation. Such alternative mitigation may include off-site preservation of the required amount of foraging habitat through a CDFG-approved conservation easement, or an in-lieu fee in an amount approved by CDFG that is sufficient to acquire such conservation easements, or some combination of the two.

Mountain Plover, Long Billed Curlew, Short Billed Dowitcher, Horned Lark, Loggerhead Shrike

The following mitigation measures are required for MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land, and OTF-BLM Land:

4.4-1g Temporary Construction Suspension. If a Designated Biological Monitor observes these species foraging within the project study areas, or in adjacent agricultural fields, construction shall cease until they disperse. Additionally, in order to reduce impacts to the Mountain Plover, Long Billed Curlew, Short Billed Dowitcher, Horned Lark, and Loggerhead Shrike, an Avian Bat Protection Plan (ABPP) shall be prepared following USFWS guidelines and subsequently implemented by the project applicant. The requirements of the ABPP are described in Mitigation Measure 4.4-1h.

Migratory Birds and Other Sensitive Non-Migratory Bird Species

The following mitigation measures are required for MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private and OTF-BLM Land to offset impacts to migratory and other sensitive non-migratory bird species:

4.4-1h Construction and O&M Mitigation Measures. In order to reduce the potential indirect impact to migratory birds, bats and raptors, an Avian Bat Protection Plan ABPP shall be prepared following the USFWS's guidelines and implemented by the project applicant. This ABPP shall outline conservation measures for construction and O&M activities that might reduce potential impacts to bird populations and shall be developed by the project applicant in conjunction with and input from the USFWS.

Construction conservation measures to be incorporated into the ABPP include:

1. Minimizing disturbance to vegetation to the maximum extent practicable.
2. Clearing vegetation outside of the breeding season. If construction occurs between February 1 and September 15, an approved biologist shall conduct a pre-construction clearance survey for nesting birds in suitable nesting habitat that occurs within the proposed area of impact. Pre-construction nesting surveys will identify any active migratory birds (and other sensitive non-migratory birds) nests. Direct impact to any active migratory bird nest should be avoided.
3. Minimize wildfire potential.

4. Minimize activities that attract prey and predators.
5. Control of non-native plants.

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

1. Incorporate APLIC guidelines for overhead utilities as appropriate to minimize avian collisions with transmission facilities (APLIC 2006).
2. Minimize noise.
3. Minimize use of outdoor lighting.
4. Implement post-construction avian monitoring that will incorporate of the Wildlife Mortality Reporting Program.

4.4-1i Raptor and Active Raptor Nest Avoidance. Raptors and active raptor nests are protected under CFGC 3503.5, 3503, 3513. In order to prevent direct and indirect noise impact to nesting raptors such as red-tailed hawk, the following measures shall be implemented:

1. Initial grading and construction within the project study areas should take place outside the raptors' breeding season of February 1 to July 15.
2. If construction occurs between February 1 and July 15, an approved 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 an approved biologist determines that the fledglings are independent of the nest.

Significance After Mitigation

With the implementation of Mitigation Measure 4.4-1a, impacts to sensitive vegetation communities would be reduced to a level **less than significant**. Implementation of Mitigation Measures 4.4-1b through 4.4-1d would reduce impacts to FTHL to a level **less than significant**. The implementation of Mitigation Measures 4.4-1e and 4.4-1f would reduce impacts to burrowing owls to a level **less than significant**. Implementation of Mitigation Measures 4.4-1g would reduce the potential impact to mountain plover, long billed curlew, short billed dowitcher, horned lark, and loggerhead shrike to levels **less than significant**. Mitigation Measures 4.4-1h and 4.4-1i would reduce impacts to migratory and non-migratory birds and nesting raptors to levels **less than significant**. It should be noted that the compensatory mitigation required for impacts to sensitive vegetation communities, FTHL, and burrowing owl are anticipated to overlap.

<p>IMPACT 4.4-2</p>	<p>Possible Impact to Riparian Habitats or Other Sensitive Natural Communities. Construction and operation of the proposed projects within the project study areas could impact riparian or other sensitive natural communities identified in local or regional plans, policies, regulations, or by the CDFG and USFWS.</p>
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MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land

The project study areas contain active agricultural and ruderal vegetative communities and therefore do not have riparian or other sensitive natural communities. **No impacts** are identified for this issue area.

OTF-BLM Land

Creosote bush-white burr sage scrub and desert wash vegetation are the two sensitive natural communities potentially affected by the OTF-BLM Land. These communities are considered sensitive whether or not they have been disturbed. The OTF-BLM Land impacts are depicted in Table 4.4-5 and shown on Figures 4.4-3b and 4.4-3c.

For the OTF within BLM Land, approximately 2.3 acres of permanent impact would occur to creosote bush-white burr sage scrub and approximately 0.6 acres of permanent impact would occur to desert wash. Additionally, approximately 6.5 acres of temporary impact would occur to creosote bush-white burr sage scrub and approximately 0.8 acres of temporary impact would occur to desert wash. 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. Therefore, a **significant impact** is identified. However, implementation of Mitigation Measure 4.4-1a would reduce these impacts to **less than significant**.

Mitigation Measure(s)

No mitigation measures are required for MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), and OTF-Private Land. No additional mitigation measures beyond Mitigation Measure 4.4-1a is required for OTF-BLM Land.

Significance After Mitigation

With the implementation of Mitigation Measure 4.4-1a, temporary and permanent impacts to creosote bush-white burr sage scrub and desert wash would be reduced to **less than significant** through the provision of mitigation acres according to the mitigation ratio set forth in Table 4.4-7.

<p>IMPACT 4.4-3</p>	<p>Possible Impact to Wetlands. Construction and operation of the proposed projects within the project study areas could impact jurisdictional resources as defined by Section 404 of the CWA (including, but not limited to: marsh, vernal pool, coastal, etc) through direct removal, filling, hydrological interruption, or other means.</p>
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MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land

No IID canal or drain structures would be removed; therefore, there would be no impact to riparian habitat or sensitive natural communities. No IID drains or canals would be removed or relocated and no washes are found within the project sites; therefore, no USACE, CDFG, or RWQCB jurisdictional resources will be directly affected and **no impact** is identified.

The development of approximately 4,200 acres of land to a solar farm will decrease the amount of surface (tail water) and subsurface water (tile water) into several IID drains (including All American Drain #3, Brockman Drain, Carpenter Drain, Mt. Signal Drain, Wisteria Drain and Wells Drain) servicing these properties. Less water in these drains will result in a decrease in weed growth and gopher and muskrat washouts, which will reduce both the maintenance operations and TSS within the drains and ultimately to the Salton Sea. Less TSS will improve water quality in support of the drain water quality improvement plan. These drains will still receive agricultural runoff from agricultural fields not developed into solar farms and storm water flows to maintain a vegetative base to support habitat. In addition, storm water flows are estimated to be 3.6 percent of surface water inputs, and that water will still end up in the drains.

There are approximately 1,400 miles of drains which transport subsurface and surface agricultural drain water, storm water flows, municipal wastewater treatment plant effluent, ground water from East and

West mesas and industrial effluent discharges. All aforementioned discharge sources contribute to the degradation of water quality within the Imperial Irrigation District (IID) water conveyance system. The IID is currently implementing a drain water quality improvement plan (Resolution No 93-145) to achieve water quality objectives to comply with the Clean Water Act 303(d). A component of the IID plan is to reduce maintenance operations which will result in a reduction of total suspended (TSS).

These drains are all located within the far southernmost part of Imperial County and are not considered direct-to-Sea drains and therefore would not impact desert pupfish (*Cyprinodon macularius*). The drains are in the southwest corner of Imperial County and at the end of the water conveyance system; drain water generated by the agricultural fields that will be developed into a solar farm must travel over 35 miles to reach the Salton Sea. No more than 31 percent surface and subsurface runoff into the drains actually reaches the Salton Sea. Therefore, eliminating the volume this acreage has generated in the past should not adversely affect the elevation of the Salton Sea as the waters not utilized by this solar farm are expected to remain within the All American Canal Service area. It is expected that this water will be used on other agricultural crops and therefore will not be lost to the drainage system and the Salton Sea drainage. This impact is considered **less than significant**.

The potential effects to IID drainages as a result of shifting of water use in the Imperial Valley is also discussed in EIR Chapter 6.0 Cumulative Impacts.

OTF-BLM Land

The OTF-BLM Land would result in a permanent impact to 0.6 acre of CDFG-Riparian jurisdictional resources, and a temporary impact to 0.8 acre of CDFG-Riparian jurisdictional resources, as shown in Table 4.4-8. No impacts to USACE jurisdictional resources are anticipated. A **significant impact** is identified associated with CDFG jurisdictional resources and mitigation is required. Figures 4.4-4a and 4.4-4b depict the impacts to jurisdictional resources within the OTF-BLM Land. Implementation of Mitigation Measure 4.4-3 would reduce impacts to jurisdictional resources to **less than significant**.

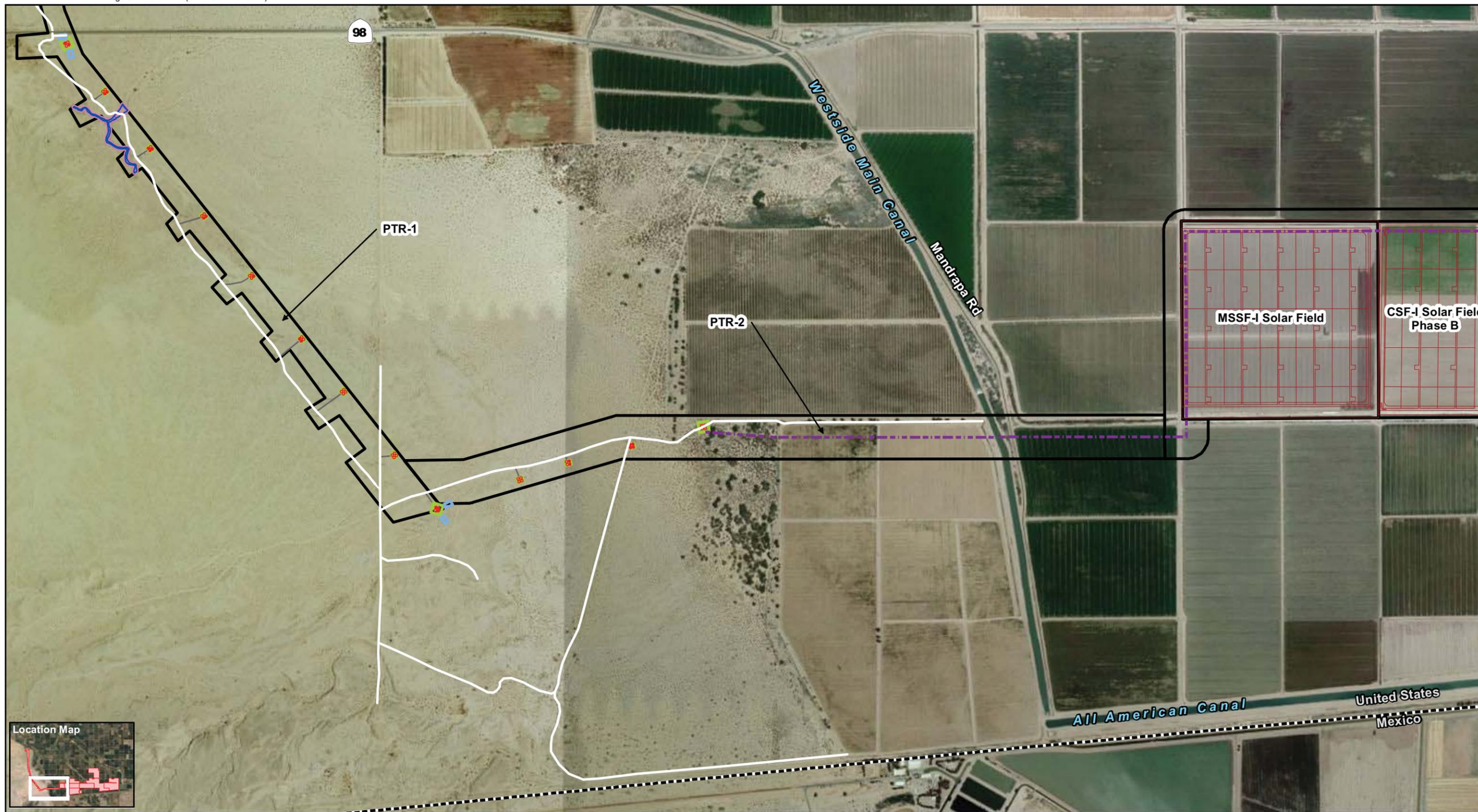
TABLE 4.4-8. JURISDICTIONAL RESOURCES IMPACTS FOR OTF-BLM LAND

Jurisdictional Resources	Preferred Transmission Route Impact (acres)
Access Roads	0.6
Lattice tower footings*	<0.1
Total Permanent Impacts	0.6
Lattice tower work areas*	0.8
Total Temporary Impacts	0.8
TOTAL Impacts	1.4

Source: RECON 2011

Note: *Includes A Frames

Image Source: CDFG (flown Summer 2009)



- | | | |
|---------------------------------|--------------------------------------|----------------------|
| Survey Area | ACOE Jurisdictional Resources | Impact Areas |
| Solar Field Impacts | Non-wetland water | Permanent Tower |
| Proposed Transmission Alignment | CDFG Jurisdictional Resources | Pull Site |
| | Riparian - Desert Wash Scrub | Temporary Tower Site |
| | | Access Road |
| | | Existing Access Road |

Notes:
 PTR-1: Preferred Transmission Line Segment 1
 PTR-2: Preferred Transmission Line Segment 2
 ATR-1: Alternative Transmission Line Segment 1
 ATR-2: Alternative Transmission Line Segment 2

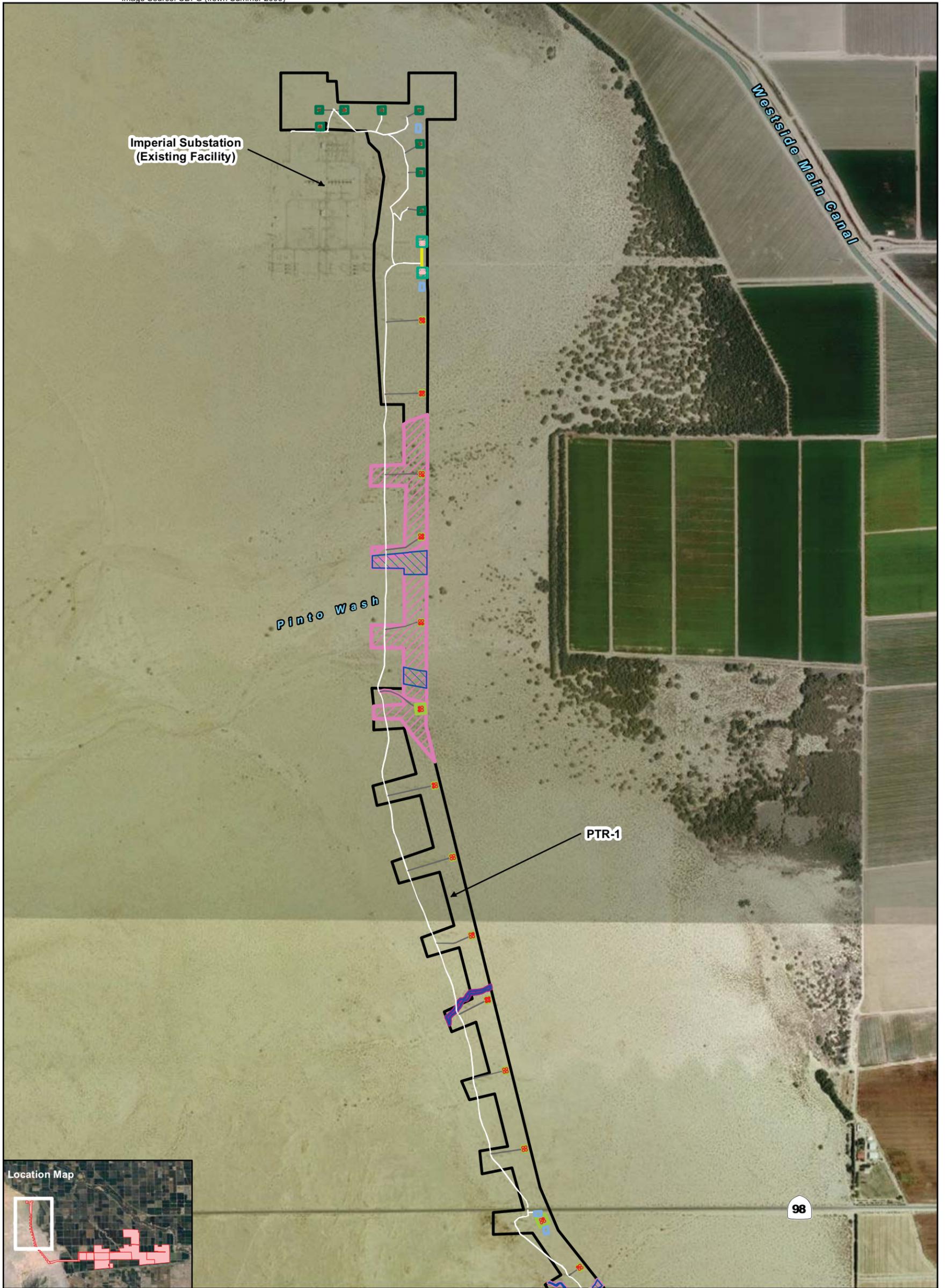


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Source: RECON, 2011

Impacts to Jurisdictional Resources - OTF within BLM Land
 FIGURE 4.4-4a

Image Source: CDFG (flown Summer 2009)



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|--------------------------------------|--|----------------------------|------------------------------|
| Survey Area | CDFG Jurisdictional Resources | Impact Areas | Temporary Tower Site |
| ACOE Jurisdictional Resources | Riparian - Desert Wash Scrub Streambed | Permanent Monopole Footing | Temporary A-Frame Tower Site |
| Non-wetland water | | Permanent Tower | Temporary Trench |
| | | Permanent A-Frame Footing | Access Road |
| | | Pull Site | Existing Access Road |
| | | Temporary Monopole Site | |

Source: Recon, 2011

Impacts to Jurisdictional Resources - OTF within BLM Lands
FIGURE 4.4-4b

Mitigation Measure(s)

No mitigation measures are required for MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), and OTF-Private Land. The following mitigation measure is required for OTF-BLM Land:

4.4-3 Riparian Habitat. Mitigation for the permanent and temporary impacts to CDFG riparian habitat shall be accomplished through required mitigation acres. Table 4.4-9 identifies the mitigation ratio/requirement and required mitigation for impacts to CDFG riparian habitat.

TABLE 4.4-9. JURISDICTIONAL RESOURCES MITIGATION REQUIREMENTS FOR OTF-BLM LAND

Jurisdictional Resources	OTF-BLM Land Impact (acres)	Mitigation Ratio ¹	OTF-BLM Land Mitigation Required (acres)
Access Roads	0.6	2:1	1.2
Lattice Tower Footings*	<0.1	2:1	<0.1
<i>Permanent Total</i>	<i>0.6</i>		<i>1.2</i>
Lattice Tower Work Areas*	1.7	1:1	1.7
<i>Temporary Total</i>	<i>1.7</i>		<i>1.7</i>
Total Mitigation			2.9

Source: RECON October 2011.

Notes: *Includes A-frames.

¹ CDFG typically requires a 2:1 mitigation ratio for impacts to riparian or desert wash habitat

Significance After Mitigation

With the implementation of Mitigation Measure 4.4-3, identified above, the temporary and permanent impacts to jurisdictional resources resulting from the OTF-BLM land would be reduced to **less than significant**. Mitigation for these impacts will be conducted in concert with the purchase/acquisition of mitigation for FTHL as detailed in Mitigation Measure 4.4-1b. 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.

IMPACT 4.4-4	Possible Impact to Wildlife Movement and Nursery Sites. Construction and operation of the proposed projects within the project study areas would not interfere substantially with the movement of any resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
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MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land, OTF-BLM Land

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 are in place. The projects' ABPP will also ensure that movement and corridor uses to avian species will not be impacted by the proposed projects (Mitigation Measure 4.4-1h). 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. Therefore, impacts identified for this issue area are **less than significant**.

Further, 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 study areas (Mitigation Measures 4.4-1b through 4.4-1d). These measures include use of existing roads, minimization of habitat disturbance, a WEAP for all crew and personnel, and speed limits during construction and O&M activities.

Mitigation Measure(s)

No mitigation measures are required beyond those previously identified in this section for FTHL (Mitigation Measures 4.4-1b through 4.4-1d) and raptors (Mitigation Measure 4.4-1h).

Significance After Mitigation

With the implementation of the mitigation measures previously identified for FTHL (Mitigation Measures 4.4-1b through 4.4-1d) and raptors (Mitigation Measure 4.4-1h), impacts to wildlife movement would be reduced to **less than significant**.

<p>IMPACT 4.4-5</p>	<p>Possible Conflict with Policies Protecting Biological Resources. The project study areas do not conflict with local policies, such as a tree preservation policy, or ordinances.</p>
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MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land

The projects consist of the construction and operation of solar energy facilities and associated electrical transmission lines. Development of the solar facilities is subject to the County’s zoning ordinance. Pursuant to Title 9, Division 5, Chapter 9, “Solar Energy Plants” is a use that is permitted in the A-2, A-2-R, and A-3 zones, subject to securing a Conditional Use Permit (CUP). “Transmission lines, including supporting towers, poles, microwave towers, utility substations” are permitted uses within the A-3 Zone. Pursuant to Title 9, Division 5, Chapter 8, “Solar energy electrical generator,” “Electrical power generating plant,” “Major facilities relating to the generation and transmission of electrical energy,” and “Resource extraction and energy development,” are uses that are permitted in the A-2, A-3, and A-2-R zone subject to approval of a CUP from the County. As demonstrated in Table 4.4-1, with implementation of CUPs, and because the project study areas are located in a disturbed, agricultural region, the projects would be consistent with Imperial County General Plan biological resources policies. Therefore, **no impacts** are identified for this issue area.

OTF-BLM Land

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 this section are in conformance with the CDCA and maintain the integrity and intent of the Conservation Plan. Therefore, **no impacts** are identified for this issue area.

Mitigation Measure(s)

No mitigation measures are required.

<p>IMPACT 4.4-6</p>	<p>Possible Conflict with Local Conservation Plan(s). Construction and operation of the proposed projects within the project study areas does not conflict with an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.</p>
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MSSF1, CSF1(A), CSF1(B), CSF2(A), CSF2(B), OTF-Private Land

The project study areas and OTF-Private Land are not located in a Habitat Conservation Plan (HCP), Natural Community Conservation Plan (NCCP), or other approved local, regional, or state habitat conservation plan. **No impact** is identified.

OTF-BLM Land

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 route. 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 an 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. The potential for the introduction of noxious, invasive, and non-native weeds is considered a **significant impact**. Mitigation Measure 4.4-4 would reduce this impact to a level **less than significant**.

Mitigation Measure(s)

4.4-6 Weed Minimization. To minimize the introduction and spread of weed species, a Weed Management and Habitat Restoration Plan shall 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* shall 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 shall 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 include 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 shall 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.

Significance After Mitigation

With the implementation of Mitigation Measure 4.4-4 would reduce the potential for the introduction of noxious, invasive, and non-native weeds to a level **less than significant**.

4.4.3 Decommissioning/ Restoration and Residual Impacts

Decommissioning/Restoration

Because vegetation impacts will occur within the initial construction phases of the projects, future decommissioning activities would not likely result in additional impacts; however, indirect impacts (e.g., noise, dust) could occur, similar to initial construction activities. Decommissioning activities will require construction vehicles to drive across the solar farms, OTF and access roads, which could result in ground disturbance and transportation of invasive weeds. Mitigation measures required to reduce potential impacts to sensitive wildlife species (e.g., FTHL, BUOW, Mountain Plover, Long Billed Curlew, Short Billed Dowitcher, Horned Lark, Loggerhead Shrike, wildlife) would be applicable during the decommissioning phase of the project as well including the following Mitigation Measures: 4.4-1b, 4.4-1c, 4.4-1e, 4.4-1g, 4.4-1h, 4.4-1i and 4.4-4.

Residual

With the implementation of Mitigation Measure 4.4-1a, impacts to sensitive vegetation communities and riparian habitat would be reduced to a level less than significant. Implementation of Mitigation Measures 4.4-1b through 4.4-1d would reduce impacts to FTHL to a level less than significant. The implementation of Mitigation Measures 4.4-1e and 4.4-1f would reduce impacts to burrowing owls to a level less than significant. Implementation of Mitigation Measures 4.4-1g would reduce the potential impact to mountain plover, long billed curlew, short billed dowitcher, horned lark, and loggerhead shrike to levels less than significant. Mitigation Measures 4.4-1h and 4.4-1i would reduce impacts to migratory and non-migratory birds and nesting raptors to levels less than significant. Implementation of Mitigation Measure 4.4-3a would reduce impacts to jurisdictional resources to levels less than significant. Implementation of Mitigation Measure 4.4-4 will reduce the potential impact associated with the introduction of invasive species to a level less than significant. The projects would not result in residual significant and unmitigable impacts related to Biological Resources.

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