BIOLOGICAL RESOURCES TECHNICAL REPORT
Citizens Imperial Solar, LLC

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CITIZENS IMPERIAL SOLAR, LLC

I. Executive Summary

This report was prepared under contract to Citizens Enterprises Corporation (Citizens) to describe biological resources at the Citizens Imperial Solar, LLC Project (Project) site. Citizens proposes to construct a 30-megawatt (MW) photovoltaic (PV) energy generating facility on approximately 158 acres of the 223-acre property owned by the Imperial Irrigation District (IID) in unincorporated Imperial County, California. This report addresses potential occurrence of special-status plants and animals, as well as sensitive vegetation communities or habitats. The term "special-status" species includes numerous designations, ranging from legally-listed threatened or endangered species to agency "watch-lists," as defined in Table 2.

No state or federally listed threatened or endangered plants or animals have been documented on the Project site. Razorback sucker (*Xyrauchen texanus*) is the only listed species with a moderate or greater potential to be present on the Project site, although the only potentially suitable habitat is within irrigation ditches. Loggerhead shrike (*Lanius ludovicianus*) is the only CDFW Species of Special Concern that was observed at the Project site. Several other CDFW Species of Special Concern have at least a moderate potential to be present, including burrowing owl (*Athene cunicularia*), Yuma hispid cotton rat (*Sigmodon hispidus eremicus*), Crissal thrasher (*Toxostoma crissale*), and several species of bats. Several other special-status wildlife species have at least a moderate potential for occurrence on the Project site including black-tailed gnatcatcher (*Polioptila melanura*), which was observed on the Project site during a February 2018 site visit. No special-status plants are present on the Project site, however one special-status plant with a California Rare Plant Rank (CRPR) of 4.3 has a moderate potential to be present.

The nearest critical habitat to the Project site is critical habitat for Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*), located approximately eight miles to the southeast (USFWS, 2008). Critical habitat for the desert tortoise (*Gopherus agassizii*) is approximately ten miles to the northeast of the Project site (USFWS, 1994a).

Three sensitive natural vegetation communities are present on the Project site: arrow weed thickets, bush seepweed scrub, and mesquite thickets. The Project site is not within any designated wildlife corridors and is not likely to serve as a significant wildlife movement route, although it may be used as a forage or dispersal area for wildlife in the immediate vicinity. Several potentially jurisdictional waters of the State and waters of the U.S. including federally jurisdictional wetlands and USACE non-wetland waters are present on the Project site.

Impacts to biological resources are identified and described and mitigation measures are recommended to reduce or avoid such impacts. With the implementation of these measures, impacts to biological resources would be less than significant.

II. Project and Property Description

II.A. Project Description

Citizens Enterprises Corporation (Citizens) proposes to develop and construct a 30-megawatt (MW) alternating current (AC) solar photovoltaic (PV) energy generating project known as the Citizens Imperial Solar, LLC Project (Project). The Project is a wholly-owned subsidiary of Citizens Enterprises Corporation. The

Project would utilize tracking technology organized in "solar arrays." Each array would include direct current (DC) collector systems and an AC inverter station with a medium-voltage transformer. Project facilities would include an onsite substation, access driveways, and electrical interconnection. All facilities would be constructed on 158 acres of an approximately 223-acre property owned by the Imperial Irrigation District (IID) in unincorporated Imperial County, California. The 223-acre property is referred to as the Project site in this report (Figure 1). The 158 acres on which development is proposed is referred to as the development area in this report (Figure 1). The Project description does not identify temporary or permanent land uses on the remaining 65 acres of the property.

The Project would connect to the electric grid at the IID Midway Substation, located on the Project site. A Power Purchase Agreement (PPA) with IID for the sale of power from the Project has already been established. The lifespan of the Project is expected to be 25 years. The generating facility, access roads, and substation interconnection would be used year-round.

Project construction would include the installation of a permanent chain-link fence around the perimeters of the solar arrays and substation. To facilitate construction activities, vegetation within the development areas would then be disced, mulched, or composted, and retained on-site to assist in erosion control and limit waste disposal. Once the site is cleared, minimal grading would be required to allow for installation of the PV panels. Typical grading would consist of array grading as required by the PV system requirements, substation, driveways, and other improvements. Access driveways would be constructed from existing paved public roads to the proposed site entranced. Access driveways would be constructed by placing two to four inches of decomposed granite or comparable material directly on the existing soil. The Project is not expected to impact the existing irrigation canals on the Project site. It is also not expected to impact the vegetation growing in and adjacent to the irrigation canals.

A Stormwater Pollution Prevention Plan (SWPPP) would be prepared for the Project by a qualified engineer or erosion control specialist, and would be implemented before construction starts. The SWPPP would be designed to reduce potential indirect impacts to the irrigation canals by requiring best management practices (BMPs) that would reduce the potential for erosion and surface water to leave the Project site. The BMPs will include erosion and sediment control measures, as needed, to prevent project related erosion and minimize runoff.

The Project description does not specify the location of the landscaping but landscaping will likely be required by the County. The final design of the landscaping would be determined at a later date to ensure it meets the intent of County landscaping ordinance requirements.

Project Schedule

The proposed Project schedule anticipates that permitting would begin in early 2018 and end with granting of a Conditional Use Permit in mid-2018. The construction of the Project would begin after all applicable approvals and permits have been obtained. Construction would take approximately 23 weeks, and must be completed before June 30, 2019.

II.B. Project Site

The Project site is located approximately 30 miles northeast of El Centro, CA and 5 miles southeast of Niland, CA (Figure 1). It appears on the USGS Iris 7½-minute topographic map in Township 11 South, Range 15 East, in Sections 20 and 29. The site consists of assessor's parcel numbers 025-260-024 (106 acres) and 025-280-003 (117 acres). The Project site totals approximately 223 acres, with a facility footprint of

approximately 159 acres. The boundaries of the site are shown on Figure 1 (Attachment 1). Several irrigation canals are located within the site including the East Highline Canal and Lateral Drains L, M, and N. Elevation of the Project site ranges from approximately 24 feet below mean sea level (msl) along the Highline Canal in the southeast to about 70 feet below msl near the southwest corner. Access to the Project site would be via Simpson Road for the southern parcel and from Highland Canal Road for the northern parcel.

III. Methods

Biologist Justin M. Wood of Aspen Environmental Group (Aspen) reviewed available literature to identify special-status plants, wildlife, and vegetation communities known from the vicinity of the Project site. This review included searches of the California Natural Diversity Database (CNDDB; CDFW, 2018a) for the following USGS 7½-minute topographic quadrangles (quads): Amos, Iris, Iris Wash, Lion Head Mtn., Niland, Tortuga, Wiest, Wister and Westmorland (Attachment 4). Wood also reviewed the California Native Plant Society (CNPS) *On-line Electronic Inventory* (CNPS, 2018) and Consortium of California Herbaria data (CCH, 2018) for special-status plant locations near the site. Various other websites, such as ebird.org and inaturalist.org, were searched for observations of special-status wildlife species near the Project site.

Table 2 lists all special-status plant and wildlife species known within the region and from habitats comparable to habitats on the Project site. Table 2 also summarizes the habitat, distribution, conservation status, and probability of occurrence on the site for these species. Many special-status species known from the region occur only in specialized habitats (e.g., sand dunes) that are absent from the Project site. These plants and animals are listed in Attachment 5 and are not addressed further in this report.

On February 22, 2018, Mr. Wood visited the Project site to map vegetation, assess habitat suitability for special-status species, and conduct a reconnaissance-level survey for all special-status species. During the visit, he drove on all accessible roads within the Project site and walked meandering transects throughout much of the site. All species observed during the survey were noted and a GPS unit was used to record locations of any special-status species detected. All plant species observed were identified in the field or collected for later identification. Plants were identified using keys, descriptions, and illustrations from Baldwin et al. (2012). All species detected on or near the site are listed in Attachment 3. Mr. Wood assessed potential habitat for burrowing owls but did not conduct a formal burrowing owl survey as described in the *Staff Report on Burrowing Owl Mitigation* (CDFG, 2012).

Vegetation mapping was done by drawing tentative boundaries onto high-resolution aerial images during the site visit, then digitizing these boundaries into GIS shapefiles. Vegetation was mapped digitally using ArcGIS (version 10.4) and one-foot pixel aerial imagery on a 22" diagonal flat screen monitor. The smallest mapping unit was approximately 0.1 acres and most mapped vegetation boundaries are accurate to within approximately 3 feet. Vegetation classification matches those used in *A Manual of California Vegetation* (Sawyer et al. 2009) whenever possible. Any vegetation map is subject to imprecision for several reasons:

1. Vegetation types tend to intergrade on the landscape so that there are no true boundaries in the vegetation itself. In these cases, a mapped boundary represents best professional judgment.
2. Vegetation types as they are named and described tend to intergrade; that is, a given stand of real-world vegetation may not fit into any named type in the classification scheme used. Thus, a mapped and labeled polygon is given the best name available in the classification, but this name does not imply that the vegetation unambiguously matches its mapped name.

3. Vegetation tends to be patchy. Small patches of one named type are often included within mapped polygons of another type. The size of these patches varies, depending on the minimum mapping units and scale of available aerial imagery.

IV. General Biological Survey Results

IV.A. Vegetation and Cover Types

Vegetation on the site consists of several upland, riparian, and wetland vegetation types. The upland vegetation types, including fourwing saltbush, alkali goldenbush, and quailbush scrub, are found on alkali soils. The riparian and wetland vegetation types are found in areas of high soil moisture, typically near the irrigation canals. Fallowed agricultural land on the site does not match any named vegetation types in A Manual of California Vegetation. Non-vegetation cover types including open water, developed, and disturbed was also used to map portions of the site. Vegetation and cover type descriptions that follow below correspond to the mapped polygons in Figure 2 and are based on the February 2018 field survey. Acreage of each vegetation or cover type on the Project site is provided in Table 1.

Table 1. Vegetation and Cover Types on the Project Site

Vegetation or Cover Type	Acres on Project Site	Acres on Development Area
Arrow weed thickets	3.7	0.1
Bush seepweed scrub	41.4	37.8
Common reed marshes	0.5	0.0
Fourwing saltbush scrub	14.3	7.9
Mesquite thickets	0.2	0.2
Quailbush scrub	3.9	1.2
Fallowed agriculture	95.3	86.5
Open water	5.9	0.0
Disturbed	34.3	23.0
Developed	22.5	1.4
Total	222.0	158.1

Arrow weed thickets (*Pluchea sericea* Shrubland Alliance). Arrow weed thickets are abundant within the site and are dominated by arrow weed (*Pluchea sericea*). It is the dominant vegetation along the irrigation canals within the Project site (Photos 1 and 2). Other species such as cattails (*Typha* spp.), common reed (*Phragmites australis*), and saltcedar (*Tamarix ramosissima*) are also present, but much less common. Arrow weed thickets are recognized by CDFW as a sensitive vegetation type (CDFW, 2018b).

Bush seepweed scrub (*Suaeda moquinii* Shrubland Alliance). Bush seepweed on the Project site is dominated by alkali goldenbush (*Isocoma acradenia*). Bush seepweed (*Suaeda nigra*) is also present but is much less common. Bush seepweed is not required to be the dominant species in this vegetation type and a relative cover of at least 50% alkali goldenbush qualifies (Sawyer et al. 2009, Buck-Diaz and Evens 2012, and Evens et al. 2014). Other species present include saltcedar, saltbush (*Atriplex* spp.), and burrobrush (*Ambrosia salsola*). Bush seepweed scrub is common in the northern parcel and is growing on an area that appears to have been cleared in about 1996 (based on historic aerial images), but shows very little evidence of agriculture or other human land use (Photo 3). Bush seepweed scrub is recognized by California Department of Fish and Wildlife (CDFW) as a sensitive vegetation type (CDFW, 2018b).

Common reed marshes (*Phragmites australis* Herbaceous Alliance). Common reed marshes occur at several locations on the Project site and are dominated by common reed. Common reed marshes grow in areas with high soil moisture, typically near irrigation canals. It tends to form dense, nearly monotypic stands with an occasional arrow weed also present.

Fourwing saltbush scrub (*Atriplex canescens* Shrubland Alliance). Fourwing saltbush scrub is dominated by fourwing saltbush (*Atriplex canescens*) along with quailbush (*Atriplex lentiformis*), desert holly (*Atriplex hymenelytra*), arrow weed, and bush seepweed. Several large creosote bushes (*Larrea tridentata*) are also present, but are uncommon. This vegetation is common on the site and covers a large portion of the northern parcel (Photo 4). It tends to integrate frequently with bush seepweed scrub.

Mesquite thickets (*Prosopis glandulosa - Prosopis velutina - Prosopis pubescens* Woodland Alliance). A single mesquite thicket was mapped in the northern parcel in an area with several large screw bean mesquites (*Prosopis pubescens*). Other species such as saltcedar, alkali goldenbush, and arrow weed were also present but much less common. Mesquite thickets are recognized by CDFW as a sensitive vegetation type (CDFW, 2018b).

Quailbush scrub (*Atriplex lentiformis* Shrubland Alliance). Quailbush scrub is dominated by quailbush. Other species such as saltcedar, fourwing saltbush, alkali goldenbush, and arrow weed are also present, but are less common. It is uncommon on the site and grows in several small patches, primarily around the perimeter of the site.

Fallowed Agriculture. Portions of the Project site that were formerly used as agriculture areas and still have remnants of the old row crops and irrigation systems are mapped as fallowed agriculture (Photo 5). They are now dominated by Russian thistle (*Salsola tragus*), Bermuda grass (*Cynodon dactylon*), and other non-native weeds that are typical of such areas.

Open Water. This cover type is used to map portions of the Project site that typically have water present. During the site visit, most of the irrigation canals had water present; however, they appear to fluctuate regularly based on agricultural needs (Photos 1 and 2). Several native plants are present along the margins of the open water including false daisy (*Eclipta prostrata*), catchfly prairie gentian (*Eustoma exaltatum*), bent spikerush (*Eleocharis geniculata*), and cattails (*Typha* spp.). Leafy pondweed (*Potamogeton foliosus*) is also present and grows submerged in the irrigation canals.

Disturbed. This cover type is used to describe portions of the Project site occupied by road shoulders, open unvegetated area, and other areas that appear to have been impacted by human land use in the past (Photo 6). Vegetation in these areas is sparse and composed of ruderal or weedy species such as Russian thistle, nettle leaf goosefoot (*Chenopodium murale*), prickly lettuce (*Lactuca serriola*), and sow thistle (*Sonchus oleraceus*). Some native species are also present in very low numbers such as bush seepweed and Chinese parsley (*Heliotropium curassavicum*).

Developed. This cover type is used to map existing development on the Project site including unpaved roads, irrigation canal access roads, and the Midway Substitution (Photo 7).

IV.B. Sensitive Natural Communities

The natural vegetation communities present on the Project site are described in Section IV.A., above. The arrow weed thickets (3.7 acres), bush seepweed scrub (41.4 acres), and mesquite thickets (0.2 acres) are all recognized by CDFW as sensitive natural communities (CDFW, 2018b). Natural communities are ranked using NatureServe's Heritage Methodology, the same system used to assign state rarity ranks for plants and animals in the CNDDB (CNPS, 2018). All three of these communities are ranked as S3 by CDFW, meaning that they are vulnerable (CDFW, 2018b). No other special-status natural communities are present on the Project site.

IV.C. Wildlife

Wildlife and wildlife sign observed during the field survey includes species common in the region, such as mourning dove (*Zenaida macroura*), Gambel's quail (*Callipepla gambelii*), white-crowned sparrow (*Zonotrichia leucophrys*), great blue heron (*Ardea herodias*), black-tailed Jackrabbit (*Lepus californicus*), side-blotched lizard (*Uta stansburiana*), mosquito fish (*Gambusia affinis*), and carp (*Cyprinus carpio*). Other notable species observed on the Project site include sage thrasher (*Oreoscoptes montanus*), double crested cormorant (*Phalacrocorax auritus*), sagebrush sparrow (*Amphispiza belli*), and cinnamon teal (*Anas cyanoptera*). Loggerhead shrike (*Lanius ludovicianus*) and black-tailed gnatcatcher (*Polioptila melanura*) were the only two special-status species observed. Other wildlife species common in wetlands, riparian scrub, and alkali shrublands habitat throughout the region are also likely to occur on the Project site, but were not observed. Attachment 3 lists all species observed or detected on the site during surveys.

V. Special-status Species Results

Plants or wildlife may be ranked as special-status species due to declining populations, vulnerability to habitat change, or restricted distributions. Certain species have been listed as threatened or endangered under the Federal Endangered Species Act (FESA) or California Endangered Species Act (CESA). Others have not been listed, but declining populations or habitat availability cause concern for their long-term viability. These species of conservation concern appear on lists compiled by resource agencies or private conservation organizations. In this report, "special-status species" includes all plants and wildlife listed as threatened or endangered or included in these other compilations. All special-status plants and wildlife occurring in the region in habitats like those found on the Project site are addressed in Table 2, with brief descriptions of habitat and distribution, conservation status, and probability of occurrence on the site.

Table 2. Special-status Species with Potential to Occur on the Project Site

Species Name	Habitat Requirements	Activity Season	Conservation Status	Potential to Occur
PLANTS				
Astragalus crotalariae Salton milk vetch	Perennial herb; sandy or gravelly soils in Sonoran Desert scrub. Throughout the Salton Sea Basin in Imperial and San Diego Cos. Elev. of about 200 ft. below sea level to about 3,000 ft. above sea level.	Jan-Apr	Fed: none CA: S4 CRPR: 4.3	Moderate. Suitable habitat is present; not observed during surveys; known from several records within about 5 miles.
Astragalus sabulonum Gravel milk-vetch	Annual or perennial herb; sandy or gravely flats, washes, and roadsides in desert dunes, Mojave Desert scrub, and Sonoran Desert scrub. Elev. of about 200 ft. below sea level to about 3,000 ft. above sea level.	Feb-Jun	Fed: none CA: S2 CRPR: 2B.2	Low. Suitable habitat is present; not observed during surveys. Known historically from one location within about 5 miles.
INVERTEBRATES				
Melitta californica California mellitid bee	Bee; known host plant includes *Sphaeralcea orcuttii;* desert regions of southern California, SW Arizona, and south into Baja Calif.	Spring-Fall	Fed: none CA: S2?	Low; no host plant present; very little is known about this species; known from only historic records from the region in 1949 and 1972.

Table 2. Special-status Species with Potential to Occur on the Project Site

Species Name	Habitat Requirements	Activity Season	Conservation Status	Potential to Occur
FISH				
Xyrauchen texanus Razorback sucker	Colorado River from the Mexico border north through much of the upper watershed; riverine and lake habitats. Also reported from irrigation canals that are fed by the Colorado River.	Year-round	Fed: END CA: END, FP, S1S2	Moderate. Irrigation canals on the Project site provide suitable habitat; historic record from East Highline Canal near the Project site.
AMPHIBIANS				
Incilius alvarius Sonoran Desert toad	In or near fresh water, breeds in temporary pools and irrigation ditches along the Colorado River and southern Imperial Valley.	Spring-summer	Fed: none CA: SH, SSC	Low. Suitable aquatic habitat is present; historic record (1940) from Niland; not seen in California since 1950's and likely extirpated.
Scaphiopus couchii Couch spadefoot	Temporary desert rain pools that last at least 7 days, with water temps > 15 C, and with subterranean refuge sites close by. Throughout southern AZ and into SW Calif.	Spring-summer	Fed: none CA: S2, SSC	Low. No suitable breeding pools present; irrigation canals provide limited aquatic habitat; known from recent record about 8.5 miles to the NW.
BIRDS				
Accipiter cooperii Cooper's hawk	Woodland, chiefly of open, interrupted, or marginal type; nest sites mainly in riparian growths of deciduous trees.	Year-round	Fed: none CA: S4, WL	Moderate (foraging only); suitable foraging habitat throughout, suitable nesting habitat absent.
Accipiter striatus Sharp-shinned hawk	Nests and hunts in forest and woodland mainly north of S Calif. (may breed in S Calif. mtns woodlands); also forages in open areas; regularly winters in S Calif.	Spring-early summer	Fed: none CA: S4, WL	Moderate (foraging only); suitable foraging habitat throughout, suitable nesting habitat absent.
Asio flammeus short-eared owl	Breeds in marshes and densely vegetated wetlands, forages over open wetlands, ag fields, and grasslands; temperate N and S America, Eurasia.	Winter	Fed: none CA: S3, SSC	Low (foraging only); minimally suitable foraging habitat; no suitable nesting habitat.
Athene cunicularia Burrowing owl	Nests mainly in rodent burrows, usually in open grassland or shrubland; forages in open habitat; increasingly uncommon in S Calif.; through W US and Mexico.	Year-round	Fed: none CA: S3, SSC	High; suitable habitat throughout; not observed during survey; known from numerous locations within 5 miles.
Charadrius alexandrinus nivosus Western snowy plover	Nests on sandy, gravelly, and friable soils on alkali lake margins and sandy beaches. Populations along the Pacific Coast are federally threatened. Elsewhere in CA the species is a SSC. Known to nest at Bombay Beach approx. 20 miles NW of the Project site.	Year-round	Fed: THR CA: S2S3, SSC	Low (foraging only); minimally suitable foraging habitat; no suitable nesting habitat.

Table 2. Special-status Species with Potential to Occur on the Project Site

Species Name	Habitat Requirements	Activity Season	Conservation Status	Potential to Occur
Charadrius montanus Mountain plover	Nests on the open plains of the Midwest US. Over winters in the short grasslands, freshly plowed fields, newly sprouting grain fields, and sod farms of southern Calif., Ariz., and south into Mexico.	Winter	Fed: none CA: S2S3, SSC	Low (foraging only); the agricultural fields in the southern parcel are inactive and provide very limited suitable foraging habitat.
Elanus leucurus *White-tailed kite*	Typically nests at lower elevations in riparian trees, including oaks, willows, and cottonwoods; forages over open country. Throughout much of cismontane California.	Year-round	Fed: none CA: S3S4, FP	Moderate (foraging only); suitable foraging habitat present; nesting habitat is absent.
Falco columbarius Merlin	Uncommon in winter in S Calif. desert and valleys; breeds in northern N America.	Winter	Fed: none CA: S3S4	Moderate (wintering only); suitable wintering forage habitat is present; does not nest in the region.
Falco mexicanus Prairie falcon	Nests on high cliffs, forages primarily over open lands; occurs throughout arid western US and Mexico.	Year-round	FED: none CA: S4	Moderate (foraging only); suitable foraging habitat is present; suitable nesting habitat is absent; no records near the Project site.
Gelochelidon nilotica Gull-billed tern	Nests on low sandy islets in the San Diego Bay and at the Salton Sea. Known to forage on fish along the Colorado River and on grasshoppers in alfalfa fields in Imperial Co.	Spring-summer	Fed: none CA: S1, SSC	Low (foraging only); the agricultural fields and irrigation canals provide very limited suitable foraging habitat. No nesting habitat present.
Hydroprogne caspia Caspian tern	Nests on sandy and rocky beaches. Occupies inland lakes, marshes, and salt water estuaries. Feed on fish, crayfish, and invertebrates. Known from very few records in Imperial Co.	Year-round	Fed: none CA: S4	Low (foraging only); the irrigation canals provide very limited suitable foraging habitat. No nesting habitat present.
Lanius ludovicianus Loggerhead shrike	Woodlands, shrublands, open areas with scattered perch sites; not dense forest; wide-spread in N America (declining significantly in midwest); valley floors to about 7000 ft. elev.	Year-round	Fed: none CA: S4, SSC	Present; a single loggerhead shrike was present on the Project site.
Laterallus jamaicensis coturniculus California black rail	Marshlands with very shallow water (<2 inches) along the lower Colorado River and tributaries in Arizona, California, Nevada, and Utah.	Spring-summer	Fed: none CA: THR, S1, FP	Low; irrigation canals provide minimally suitable foraging and dispersal habitat; nesting habitat is not present.
Pelecanus occidentalis californicus California brown pelican	Nests on coastal offshore islands. Occurs on coastal saltwater and on the open ocean, particularly within a few miles of shore.	Spring-summer	Fed: Delisted CA: Delisted, FP, S3	Low; West Highline Canal provides marginally suitable foraging habitat; no suitable nesting habitat; no records within 10 miles.
Polioptila melanura Black-tailed gnatcatcher	Desert shrublands, gen. thickets of mesquite, palo verde, or acacia, occas. in open shrubland (mostly winter); Calif. deserts thru S Texas, Baja, and arid mainl. Mexico	Year-round	Fed: none CA: S3S4, WL	Present; two pairs of birds were present on the Project site.

Table 2. Special-status Species with Potential to Occur on the Project Site

Species Name	Habitat Requirements	Activity Season	Conservation Status	Potential to Occur
Rallus obsoletus yumanensis Yuma Ridgway's rail	Marshlands along the lower Colorado River and tributaries in Arizona, California, Nevada, and Utah.	Spring-summer	Fed: END CA: THR, S1S2, FP	Low; irrigation canals provide minimally suitable foraging and dispersal habitat; nesting habitat is not present.
Rynchops niger Black skimmer	Nests on unvegetated gravel bars and sandy beaches in coastal and inland habitats. Relatively widespread species in coastal California.	Spring-summer	Fed: none CA: SSC, S2	Low; West Highline Canal provides minimally suitable foraging habitat; no suitable nesting habitat; no records within 10 miles.
Toxostoma crissale Crissal thrasher	Nests in dense, low, brushy thickets of mesquite or other desert riparian shrubs; Sonoran Des, E Mojave Des, to Texas, W mainland Mexico to Texas, W mainland Mexico	Year - around	Fed: none CA: SSC, S3	Moderate; marginally suitable shrubland habitat; known from within about 6 miles.
Toxostoma lecontei LeConte's thrasher	Calif. deserts, SW Central Val. and Owens Val., east to Utah, Arizona; open shrubland, often sandy or alkaline flats	Year - around	Fed: none CA: SSC, S3	Low; minimally suitable thickets of vegetation present; no records within 8 miles.
MAMMALS				
Antrozous pallidus Pallid bat	Desert, grassland, shrubland, woodland, forest; most common in open, dry habitats with rocky areas for roosting.	Spring-summer	Fed: none CA: S3, SSC	Minimal (roosting); Moderate (foraging). Suitable foraging habitat is present; suitable roosting habitat is absent.
Eumops perotis californicus Western mastiff bat	Lowlands (rare exceptions); cent. and S Calif., S Ariz., NM, SW Tex., N Mexico; roost in deep rock crevices, forage over wide area.	Year-round	Fed: none CA: S3S4, SSC	Minimal (roosting); Moderate (foraging). Suitable foraging habitat is present; suitable roosting habitat is absent.
Lasiurus cinereus Hoary bat	Prefers deciduous and coniferous woodlands; primarily roosts in tree foliage.	Spring-summer	Fed: none CA: S4	Minimal (roosting); Moderate (foraging). Suitable foraging habitat is present; suitable roosting habitat is absent.
Lasiurus xanthinus Western yellow bat	Mexico and Cent. Amer., to S AZ; Riv., Imperial and San Diego Cos.; riparian and wash habitats; roosts in trees; evidently migrates from Calif. during winter.	Spring-summer	Fed: none CA: S3, SSC	Minimal (roosting); Moderate (foraging). Suitable foraging habitat is present; suitable roosting habitat is absent.
Macrotus californicus California leaf-nosed	Arid lowlands, southern California, southern and western Arizona, Baja California, and Sonora, Mexico; roost in mineshafts, forage over open shrub-lands.	Year-round	Fed: none CA: S3, SSC	Minimal (roosting); Moderate (foraging). Suitable foraging habitat is present; suitable roosting habitat is absent.
Nyctinomops femorosaccus Pocketed free-tailed bat	Deserts and arid lowlands, SW US, Baja Calif., mainland Mexico; Roost mainly in crevices of high cliffs; forage over water and open shrubland.	Year-round	Fed: none CA: S3, SSC	Minimal (roosting); Moderate (foraging). Suitable foraging habitat is present; suitable roosting habitat is absent.

Table 2. Special-status Species with Potential to Occur on the Project Site

Species Name	Habitat Requirements	Activity Season	Conservation Status	Potential to Occur
Sigmodon hispidus eremicus Yuma hispid cotton rat	Along the Colorado River and in grass and agricultural areas near irrigation waters	Year-round	Fed: none CA: S2, SSC	Moderate; irrigation canals provide suitable habitat. Known from numerous records in the region in similar habitat.
Taxidea taxus American badger	Mountains, deserts, interior valleys where burrowing animals are avail. As prey and soil permits digging; throughout cent. and W N Amer.	Year-round	Fed: none CA: S3, SSC	Low; marginally suitable habitat is present, no sign of American badgers observed during survey, known from region.

General references (botany): Baldwin et al., 2012; CDFW, 2018a; CNPS, 2018; and CCH, 2018. General references (wildlife): American Ornithologists Union, 1998 (including supplements through 2013); Barbour and Davis, 1969; Ebird.org, 2017; Feldhammer et al., 2003; Garrett and Dunn, 1981; Hall, 1981; Hatfield et al., 2015; Jennings and Hayes, 1994; Stebbins, 2003; Wilson and Ruff, 1999; and Zeiner et al., 1990.

Conservation Status

Federal designations (*Fed*): (federal ESA, USFWS).

END: Federally listed, endangered.
THR: Federally listed, threatened.
Delisted: Previously Federally listed and formally delisted.

State designations (*CA*): (CESA, CDFW)

END: State listed, endangered.
THR: State listed, threatened.
SSC: California Species of Special Concern. Considered vulnerable to extinction due to declining numbers, limited geographic ranges, or ongoing threats.
WL: Species that were either previously listed as SC and have not been state listed under CESA; or were previously state or federally listed and now are on neither list; or are on the list of "Fully Protected" species.
FP: Fully protected. May not be taken or possessed without permit from CDFG.
Delisted: Previously State listed and formally delisted.

CDFW Natural Diversity Data Base Designations: Applied to special-status plants and sensitive plant communities; where correct category is uncertain, CDFW uses two categories (i.e. S1S2) or a question mark (?).

S1: Fewer than 6 occurrences or fewer than 1000 individuals or less than 2000 acres.
S1.1: Very threatened
S1.2: Threatened
S1.3: No current threats known
S2: 6-20 occurrences or 1000-3000 individuals or 2000-10,000 acres (decimal suffixes same as above).
S3: 21-100 occurrences or 3000-10,000 individuals or 10,000-50,000 acres (decimal suffixes same as above).
S4: Apparently secure in California; this rank is clearly lower than S3 but factors exist to cause some concern, i.e., there is some threat or somewhat narrow habitat. No threat rank.
S5: Demonstrably secure or ineradicable in California. No threat rank.
SH: All California occurrences historical (i.e., no records in > 20 years).
SX: Presumed extirpated in California.

California Rare Plant Rank designations. Note: According to the California Native Plant Society (http://www.cnps.org/cnps/rareplants/ranking.php), plants ranked as CRPR 1A, 1B, and 2 meet definitions as threatened or endangered and are eligible for state listing. That interpretation of the state Endangered Species Act is not in general use.

1A: Plants presumed extinct in California.
1B: Plants rare and endangered in California and throughout their range.
2A: Plants presumed extinct in California but more common elsewhere in their range.
2B: Plants rare, threatened or endangered in California but more common elsewhere in their range.
3: Plants about which we need more information; a review list.
4: Plants of limited distribution; a watch list.

California Rare Plant Rank Threat designation extensions:

.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 Fairly endangered in California (20-80% occurrences threatened)
.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Definitions of occurrence probability: Estimated occurrence probabilities are based on literature sources cited earlier, field surveys, and habitat analyses reported here.

Present: Observed on the site by qualified biologists.
High: Habitat is a type often utilized by the species and the site is within the known range of the species.
Moderate: Site is within the known range of the species and habitat on the site is a type occasionally used.
Low: Site is within the species' known range but habitat is rarely used, or the species was not found during focused surveys covering less than 100% of potential habitat or completed in marginal seasons.
Minimal: No suitable habitat on the site; or well outside the species' known elevational or geographic ranges; or a focused study covering 100% of all suitable habitat, completed during the appropriate season and during a year of appropriate rainfall, did not detect the species.

V.A. Special-status Plants

No listed threatened or endangered plants or other special-status plants were observed at the Project site. A single non-listed special-status plant has at least a moderate potential for occurrence and is addressed below. One additional non-listed special-status plant, gravel milk-vetch (*Astragalus sabulonum*) has a low potential for occurrence and therefore is not addressed further in this report.

V.A.1. Non-listed Special-status Plants

Salton milk vetch (*Astragalus crotalariae*). Salton milk vetch has a CRPR of 4.3 (limited distribution in California). It is the only special-status plant with at least a moderate potential to be present. It is a perennial herb in the pea (Fabaceae) family that blooms between January and April (CNPS, 2018). It grows on sandy and gravely soils throughout the Salton Sea basin in Sand Diego and Imperial Counties. It grows as a perennial and can die back to the ground and requires adequate rainfall to trigger flowering and fruiting. It is known from several records within 5 miles of the Project site. It has a moderate potential to be present in the portions of the Project site to the north and west of the Midway Substation in a year with at least average rainfall.

V.B. Special-status Wildlife

Razorback sucker (*Xyrauchen texanus*) is the only listed species with at least a moderate potential to be present on the Project site. Loggerhead shrike (*Lanius ludovicianus*) is the only CDFW Species of Special Concern that was observed at the Project site. Several other CDFW Species of Special Concern have at least a moderate potential to be present including burrowing owl (*Athene cunicularia*), Yuma hispid cotton rat (*Sigmodon hispidus eremicus*), Crissal thrasher (*Toxostoma crissale*), and several species of bats. Several other special-status wildlife species have at least a moderate potential for occurrence on the Project site including black-tailed gnatcatcher (*Polioptila melanura*), which was observed on the Project site during the February 2018 field survey.

V.B.1. Listed Threatened or Endangered Wildlife

This section includes wildlife species listed as threatened or endangered under the FESA or CESA. No listed threatened or endangered wildlife species were observed at the Project site. One listed endangered fish species, razorback sucker, has a moderate potential to be present in the irrigation canals on the Project site, although the only potentially suitable habitat is within irrigation ditches. Other listed wildlife species are not expected to be present either because the Project site lacks suitable habitat or is outside of their elevational or geographic ranges.

Razorback sucker (*Xyrauchen texanus*). The razorback sucker is listed as endangered under the FESA and CESA (CDFW, 2018a). It is also a California fully protected species. Razorback sucker is a member of the Catostomidae family and can reach about 40 inches in length (101 cm) (LCRMSCP, 2018a). Razorback

suckers are found throughout the larger rivers of the Colorado River Basin, from Sonora and Baja, California, into Arizona, Colorado, Nevada, New Mexico, and Wyoming (LCRMSCP, 2018a). In California they are limited to the Colorado River and historically extended west into the Salton Sea. They have been documented in irrigation canals of Imperial County, including the East Highline Canal near Niland, in the immediate vicinity of the Project site. Presumably, they access the irrigation system from the All-American Canal, and persist there temporarily. They were last reported in the East Highline Canal in 1974 (CDFW, 2018a). The aquatic habitat within irrigation ditches on the Project site provides suitable habitat and there is a moderate potential that razorback sucker could occasionally be present while the ditches are carrying water, but could not survive there long-term.

The nearest designated critical habitat for razorback sucker is more than 43 miles east of the Project site along the Colorado River (USFWS, 1994). The Project site is more than 90 miles from the Colorado River via the All-American Canal and the East Highline Canal.

V.B.2. CDFW Species of Special Concern

Burrowing owl (*Athene cunicularia*). The burrowing owl is a CDFW Species of Special Concern and, as a native bird, is also protected by the federal Migratory Bird Treaty Act (MBTA) and the California Fish and Game Code[1]. It is a small, terrestrial owl of open country. During the breeding season, it ranges throughout most of the western U.S. It occurs year-round in southern California, but may be more numerous during fall and winter, when migratory individuals from farther north join the regional resident population. The burrowing owl favors flat, open annual or perennial grassland or gentle slopes and sparse shrub or tree cover. It uses the burrows of ground squirrels and other rodents for shelter and nesting, and availability of suitable burrows is an important habitat component. Where ground squirrel burrows are not available, the owl may use alternate burrow sites or man-made features such as drain pipes, debris piles, or concrete slabs. Burrowing owl nesting season, as recognized by CDFW (CDFG, 2012), is 1 February through 31 August.

Burrowing owls were not observed at the Project site during the reconnaissance-level survey. No burrowing owl sign was observed, but suitable habitat was observed throughout the Project site. Burrowing owls may utilize the old irrigation ditches and dirt piles on the site for nesting as well as the numerous ground squirrel burrows that were observed along the irrigation canals (Photo 8 in Attachment 2). Burrowing owls are abundant in the region and the highest concentrations of birds is near the more active, irrigated agriculture fields to the west that are productive for providing insects for prey. Burrowing owl has a moderate potential to be present on the Project site.

Loggerhead shrike (*Lanius ludovicianus*). The loggerhead shrike is a CDFW Species of Special Concern. It is widespread in the United States and throughout California. It prefers open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. It most often occurs in open-canopied forest and woodland habitats. It nests in well-concealed microsites in densely foliaged trees or shrubs (Miller, 1931; Bent, 1950). It has also been observed nesting in thickets of large weedy annual plants such as Russian thistle. It feeds on large insects, but will also take small birds, mammals, amphibians, reptiles, fish, carrion, and various invertebrates. Loggerhead shrikes often impale their prey on thorns, barbed wire, or

[1] Most birds are protected by the MBTA and California Fish and Game Code Sections 3503, 3503.5, and 3513. The MBTA prohibits take of any migratory bird, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting of waterfowl or upland game species). Under the MBTA, "migratory bird" is broadly defined and thus applies to most native bird species. The California Fish and Game Code prohibits take, possession, or needless destruction of bird nests or eggs except as otherwise provided by the code; protects birds of prey (including nests and eggs); and adopts the provisions of the federal MBTA into state law.

other sharp objects. A single loggerhead shrike was present on the Project site during the reconnaissance-level survey (see Figure 2 [Attachment 1] and Photo 9 [Attachment 2]). The bird was behaving as if it was establishing or defending a territory by staying in the same area throughout the survey and frequently returning to a patch of dead Russian thistle within the fallowed agricultural field. Loggerhead shrikes probably nest on the Project site.

Crissal thrasher (*Toxostoma crissale*). Crissal thrasher is a CDFW Species of Special Concern. It is widespread in the deserts of the southwestern United States and south into Mexico. It prefers dense thickets of mesquite, ironwood, catclaw, acacia, and arrow weed along washes and streams for nesting (CDFW, 2018a). Crissal thrasher was not observed during the survey, however, the arrow weed thickets and mesquite thickets on the Project site provide suitable habitat. There are numerous records of Crissal thrasher throughout the region including several within about 6 miles of the Project site (ebird.org 2018). Crissal thrasher has a moderate potential to be present on the Project site.

Yuma hispid cotton rat (*Sigmodon hispidus eremicus*). The Yuma hispid cotton rat is a CDFW Species of Special Concern. It is restricted to the lower Colorado River from near Palo Verde south to Yuma, Arizona and west into Imperial County (LCRMSCP, 2018b). It lives in backwater areas of the Colorado River where it creates nests and a network of raceways in dense patches of grasses and other herbaceous species. Within the western portion of its range it occupies irrigation ditches dominated by arrow weed, common reed, saltcedar, and saltgrass (CDFW, 2018a). Yuma hispid cotton rat was not observed on the Project site; however, it is very secretive and requires trapping to positively detect its presence. The irrigation canals within the site provide suitable habitat and there are two records in similar habitat within 10 miles (CDFW, 2018a). Yuma hispid cotton rat has a moderate potential to be present in the lateral irrigation canals on the Project site.

Bats. Six special-status bat species have a moderate potential to forage over the Project site: California leaf-nosed bat (*Macrotus californicus*), pallid bat (*Antrozous pallidus*), western mastiff bat (*Eumops perotis californicus*), hoary bat (*Lasiurus cinereus*), western yellow bat (*Lasiurus xanthinus*), and pocketed free-tailed bat (*Nyctinomops femorosaccus*). The pallid bat and western mastiff bat forage in open areas over grasslands, agricultural areas, and other shrublands and roost in a variety of habitats including building, rock crevices, mines and caves. The California leaf-nosed bat forages on large insect prey that are captured on the ground or on vegetation. It roosts in rock crevices, mines and caves. The western yellow bat and hoary bat forage over open water and riparian habitats and roost in trees. The pocketed free-tailed bat forages over water and open shrublands and roosts in crevices in cliffs. There is no suitable roosting habitat for any of these species on the Project site.

V.B.3. Other Special-status Wildlife

Black-tailed gnatcatcher (*Polioptila melanura*). The black-tailed gnatcatcher is recognized as a watch list species by CDFW. It is a small song bird that nests in desert shrublands, typically in areas with thickets of mesquite, palo verde, or acacia. It occurs from the deserts of southern California east through Texas and south into Mexico. Black-tailed gnatcatchers were observed at two locations on the Project site (see Figure 2 in Attachment 1). Both observations included a pair of birds that were behaving as though they were establishing or defending territories, including “scolding” the biologist as he walked nearby. This behavior indicates probable nesting in the area. It is likely that black-tailed gnatcatchers nest on the Project site in the arrow weed thickets and mesquite thickets that provide dense nesting habitat.

Raptors: Several special-status birds of prey are found seasonally in the region, especially during winter and during migration. These are sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperii*), merlin (*Falco columbarius*), prairie falcon (*Falco mexicanus*), and white-tailed kite (*Elanus*

leucurus). Suitable winter or migratory season foraging habitat for these raptors is widely available throughout the region. These species, if present may forage on the Project site, but would not nest because of a lack of suitable habitat.

V.C. Designated Critical Habitat

The Project site is not within federally designated critical habitat for any species. The nearest critical habitat to the Project site is for Peirson's milk-vetch (*Astragalus magdalenae* var. *peirsonii*), approximately 8 miles to the southeast (USFWS, 2008). Critical habitat for the desert tortoise (*Gopherus agassizii*) is approximately 10 miles to the northeast of the Project site (USFWS, 1994a).

V.D. Wildlife Movement

The ability for wildlife to move freely among populations and habitat areas is important to long-term genetic variation and demography. Fragmentation and isolation of natural habitat may cause loss of native species diversity in fragmented habitats. In the short term, wildlife movement may also be important to individual animals' ability to occupy their home ranges, if their ranges extend across a potential movement barrier. These considerations are especially important for rare, threatened, or endangered species, and wide-ranging species such as large mammals, which exist in low population densities.

The California Essential Habitat Connectivity Project was commissioned by the California Department of Transportation (Caltrans) and CDFW to create a statewide assessment of essential habitat connectivity to be used for conservation and infrastructure planning (Caltrans and CDFW, 2010). One of its goals was to create the Essential Connectivity Map, which depicts large, relatively natural habitat blocks that support native biodiversity (natural landscape blocks) and areas essential for ecological connectivity between them (essential connectivity areas). This map does not reflect the needs of particular species, but is based on overall biological connectivity and ecological integrity. A more detailed analysis is required to assess local and regional needs for connectivity and develop linkage designs based on the requirements of individual species (Caltrans and CDFW, 2010).

The Essential Connectivity Map (Caltrans and CDFW, 2010) identifies the Chocolate Mountains, to the east of the Project site, as a natural landscape block. It also identifies an essential connectivity area just over 2 miles to the east of the Project site. The Project site is more than 2 miles from these essential wildlife areas and is isolated by two large irrigation canals, several railroad lines, and several unpaved roads.

The Project site is located within an area with existing agricultural use that has already significantly modified the natural habitat. The patches of natural habitat in the northern parcel are small and largely disconnected from adjacent natural areas further to the east. The Project site is likely to be used by local wildlife to move between agricultural lands and open space in the area. It does not appear to provide connectivity between larger areas of open space such as the Chocolate Mountains or the Salton Sea because the distances are too great and the areas have been heavily modified by human land use.

V.E. Jurisdictional Waters and Wetlands

Jurisdictional waters, including some wetlands and riparian habitats on the Project site, may be regulated by the U.S. Army Corps of Engineers (USACE), the Colorado River Regional Water Quality Control Board (CRRWQCB), and CDFW. The USACE Regulatory Program regulates activities pursuant to Section 404 of the federal Clean Water Act (CWA); the CDFW regulates activities under the Fish and Game Code Section 1600-1607; and the CRRWQCB regulates activities under Section 401 of the CWA and the California Porter-Cologne Water Quality Control Act.

A formal jurisdictional delineation of the Project site was not conducted. Based on the reconnaissance-level survey the irrigation canals on the Project site are likely to be under the jurisdiction of the USACE and CRRWQCB. The irrigation canals originate at the Imperial Dam on the Colorado River and terminate in the Salton Sea. Both the Colorado River and Salton Sea are federally jurisdictional and irrigation canals that convey perennial water from one body of water to another are generally recognized as federally jurisdictional (USACE, 2007). Federally regulated wetlands may also be present along sections of the lateral canals where perennial water and wetland vegetation are present (Photo 10 in Attachment 2).

Based on the reconnaissance-level survey the irrigation canals on the Project site are also likely to be under the jurisdiction of the CDFW. CDFW is likely to regulate these canals to the top of the banks or to the outer edge of the adjacent riparian vegetation. The arrow weed thickets along the canals are likely to be regulated by CDFW as adjacent riparian vegetation.

VI. Potential Impacts

VI.A. Special-status species

The project is not expected to impact razorback sucker. All direct and indirect impacts to the irrigation canals would be avoided. Therefore, no potential take or adverse impact to razorback sucker are anticipated. Even if project construction necessitates temporary impacts to irrigation canals (e.g., temporary stoppage of flow), the potential for adverse impacts to razorback sucker is minimal, because the fish are unlikely to be present during project construction.

One special-status plant, Salton milk vetch (CRPR 4) has a potential to be present. Although it could be affected, this plant's conservation status indicates that it is not rare and impacts, should they occur, would be less than significant.

Burrowing owls were not present on the Project site during the biological surveys, however suitable nesting and foraging habitat is present and they may be present at the start of Project construction. If burrowing owls are present, Project construction could result in take[2] or other direct impacts, including loss of foraging habitat. Indirect impacts to burrowing owls could also result if they are present in the lands surrounding the Project site and Project construction produces dust, noise, or other disturbances to this species. Mitigation measures BIO-1 and BIO-2 would avoid take and reduce potential impacts to this species to below a level of significance by requiring pre-construction surveys, establishing avoidance buffers, and reducing other construction related impacts. The loss of burrowing owl foraging habitat would be less than significant given the abundance of suitable foraging habitat in the lands surrounding the Project site and throughout the region.

Loggerhead shrike, black-tailed gnatcatcher, and several other special-status birds were observed on the Project site or have a potential to be present. In addition, several common bird species could nest on the site. If construction takes place outside the nesting season, then these birds, if present, would be expected to avoid direct disturbance by flying away from construction activities. However, if construction takes place while one or more of these species has active nest(s) on the site, Project construction could result in take of the eggs or nestlings protected by the MBTA and Fish and Game Code. Indirect impacts to special-status bird species could also result if they are present in the lands surrounding the Project site and Project construction produces dust, noise, or other disturbances to these species. Mitigation

[2] Under the California Fish and Game Code, "take" means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.

measures BIO-1, BIO-2, and BIO-3 would reduce any potentially significant direct and indirect impacts to these species by requiring pre-construction surveys, establishing nest avoidance buffers, and reducing other construction related impacts. These measures would ensure avoidance of special-status birds and their nests. The loss of foraging habitat for these species is expected to be less than significant given the abundance of similar suitable foraging habitat in the lands surrounding the Project site and throughout the region.

Suitable habitat for Yuma hispid cotton rat is found along the margins of irrigation canals on the site. If all direct and indirect impacts to the irrigation canals are avoided, then there would be no potential take or adverse impact to Yuma hispid cotton rat. However, if project activities cause habitat loss within or around the irrigation canals, there is a possibility that the project could cause adverse impacts, including take, to Yuma hispid cotton rat. The species conservation status (S2, not designated as a CDFW species of special concern) indicates that minimal take or habitat impacts would be less than significant. In addition, comparable irrigation canal habitat is abundant in the region. Therefore, no mitigation for this potential impact is recommended.

Suitable roosting habitat for special-status bats is not present on the Project site and direct impacts are therefore not expected. Indirect impacts to foraging bats could result from Project construction, if work takes place after approximately 7 pm in the evening. These indirect impacts would likely be limited to disturbance caused by construction lighting. With the implementation of BIO-1 that requires directing night lighting into the interior of the Project site, impacts to foraging bats will be less than significant. Loss of foraging habitat is expected to be less than significant given the abundance of similar suitable foraging habitat in the region and surrounding lands.

VI.B. Designated Critical Habitat

The Project site and surrounding lands are not designated as critical habitat for any federally listed species. The Project would not impact any designated critical habitat therefore mitigation measures for critical habitat are not needed

VI.C. Wildlife Movement

Following construction of the Project, ground-dwelling wildlife will be able to move locally through the area using the surrounding agricultural lands and margins of the irrigation canals. The Project is not expected to significantly impact wildlife movement through the Project vicinity therefore no mitigation measures for wildlife movement are needed.

VI.D. Sensitive Natural Communities

The Project is expected to permanently remove the following sensitive natural communities:

- 0.1 acres of arrow weed thickets.
- 37.8 acres of bush seedweed scrub.
- 0.2 acres of mesquite thickets.

In addition, Project construction could cause temporary impacts to sensitive natural communities if portions of the project site outside the designated development area (Figures 1 and 2) are used as access, parking, logistics, lay-down, equipment staging, or other uses that cause vegetation removal, soil disturbance, or compaction. These potential impacts, if any, are not identified in the Project description.

A permanent loss of 0.1 acres of arrow weed thickets, as well as any additional loss of this community, would be less than significant given that arrow weed thickets are abundant in the vicinity of the Project site. No mitigation is recommended for this impact.

A permanent loss of 0.2 acres of mesquite thickets, as well as any additional loss of this community, would be significant given that it is uncommon on the Project site and on the surrounding lands. In addition, black-tailed gnatcatcher, a special-status bird species was nesting in this vegetation at the time of the survey. Mitigation Measure BIO-4 would require the restoration of mesquite thickets within undeveloped areas within the Project site at a 3:1 ratio. This measure would compensate for the loss of mesquite thickets and rectify the impact over time, as the restored vegetation becomes established, reducing the impact below a level of significance.

Based on a review of historical aerial imagery of the Project site, the bush seepweed scrub on-site was in use as agricultural fields as recently as 1996 and has recovered since that time. Permanent and temporary loss of this vegetation would be less than significant given the previous agricultural land use and the natural recovery upon cessation of agricultural activities.

VI.E. Jurisdictional Waters and Wetlands

State jurisdictional streambeds and federally jurisdictional waters and wetlands may be present on the Project site. These jurisdictional features appear to be restricted to the irrigation canals. Project construction and O&M activities would not affect the irrigation canals on or adjacent to the project site. Therefore, there would be no impacts to state or federally jurisdictional waters.

VII. Mitigation Measures

To reduce or avoid impacts to special-status biological resources the following mitigation measures are recommended:

BIO-1. Wildlife Impact Avoidance and Minimization Measures.

The following measures will be applicable throughout the life of the project.

- To the extent feasible, initial site clearing will be conducted outside the nesting season to avoid potential take of nesting birds or eggs.
- No more than seven (7) days prior to initial site clearing, a Project biologist will survey the development area to determine if burrowing owls, nesting birds, black-tailed gnatcatcher, or any other special-status species are present. If special-status species or active bird nests are present, then the additional avoidance and minimization measures for burrowing owl and other special-status species identified below in BIO-2 and BIO-3 will be implemented. During the pre-construction survey the Project biologist will also clearly mark arrow weed thickets and bush seepweed scrub that are beyond outside the disturbance area for avoidance. The flagging must be clearly visible and construction crews must be clearly instructed to ensure that these areas are not directly impacted.
- Avoid or minimize night lighting by using shielded directional lighting pointed downward and towards the interior of the site, thereby avoiding illumination of adjacent natural areas and the night sky.
- The boundaries of all areas to be newly disturbed (including solar facility areas, staging areas, access roads, and sites for temporary placement of construction materials and spoils) will be delineated with stakes and flagging prior to disturbance. All disturbances, vehicles, and equipment will be confined to the flagged areas.

- No potential wildlife entrapments (e.g., trenches, bores) will be left uncovered overnight. Any uncovered pitfalls will be excavated to 3:1 slopes at the ends to provide wildlife escape ramps. Covered pitfalls will be covered completely to prevent access by small mammals or reptiles.
- To avoid wildlife entrapment (including birds) all pipes or other construction materials or supplies will be covered or capped in storage or laydown area, and at the end of each work day in construction, quarrying and processing/handling areas. No pipes or tubing of sizes or inside diameters ranging from 1 to 10 inches will be left open either temporarily or permanently.
- No anticoagulant rodenticides, such as Warfarin and related compounds (indandiones and hydroxycoumarins), may be used within the Project site, on off-site project facilities and activities, or in support of any other Project activities.
- Avoid wildlife attractants. All trash and food-related waste shall be placed in self-closing containers and removed regularly from the site to prevent overflow. Workers shall not feed wildlife. Water applied to dirt roads and construction areas for dust abatement shall use the minimal amount needed to meet safety and air quality standards to prevent the formation of puddles, which could attract wildlife. Pooled rainwater or floodwater within quarries will be removed to avoid attracting wildlife to the active work areas.
- Any injured or dead wildlife encountered during project-related activities shall be reported to the Project Biologist, Biological Monitor, CDFW, or a CDFW-approved veterinary facility as soon as possible to report the observation and determine the best course of action. For special-status species, the Project Biologist shall notify the BLM, USFWS, and/or CDFW, as appropriate, within 24 hours of the discovery.

BIO-2 Burrowing Owls

If one or more burrowing owls are present on the site outside of the nesting season (September 1 to January 31) and construction activities are planned at the same location as the occupied burrow, then the California Department of Fish and Wildlife (CDFW) will be consulted and the Project biologist may be authorized to exclude the burrowing owl(s) from the site using passive exclusion methods described in the most recent CDFW staff report on burrowing owl mitigation (CDFG, 2012). If burrowing owls are present on the site during nesting season (February 1 through August 31), then project activities will either be postponed until nesting is completed, or the Project biologist will monitor activities in the vicinity of the burrowing owl and will establish a buffer as needed to avoid direct impacts to the burrowing owls or occupied burrows.

BIO-3 Nesting Birds

Project activities that would disturb soil or vegetation will be completed outside the breeding season (i.e. no removal of potential nesting habitat from February 1 through August 31), or after a pre-construction nesting bird survey has been completed. The Project biologist will determine if birds are nesting in or adjacent to areas to be disturbed. If native birds are nesting on the site, then construction will be postponed until nesting is completed or the Project biologist will designate appropriate avoidance buffers around nests to protect nesting birds. No project related disturbance will be allowed within these buffers. The Project biologist will remove the buffers and allow project activities to continue once the nestlings have fledged or once the nest is no longer active.

BIO-4 Sensitive Natural Communities

Following the completion of Project construction, mesquite thickets will be created or enhanced within the undeveloped portions of the Project site at a ratio of 3:1 (i.e., 3 acres created or enhanced for each acre affected by permanent or temporary project activities). Revegetation will include the installation of

at least forty screw bean mesquite container plants and appropriate seed (e.g. alkali goldenbush). The revegetation will be installed within one year of Project construction. The plants will be irrigated and maintained (e.g., weeds will be controlled) until they become established to ensure that they develop adequate root systems. The vegetation will be protected and maintained for the life of the Project.

IX. Conclusion

Absent mitigation, the Project could result in significant impacts to biological resources. With the implementation of the mitigation measures described above, potential project impacts to biological resources would be reduced to less than significant. These measures will reduce or minimize impacts and ensure that the Project is in compliance with CEQA and other applicable state and federal laws and regulations.

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Attachment 1

Figures

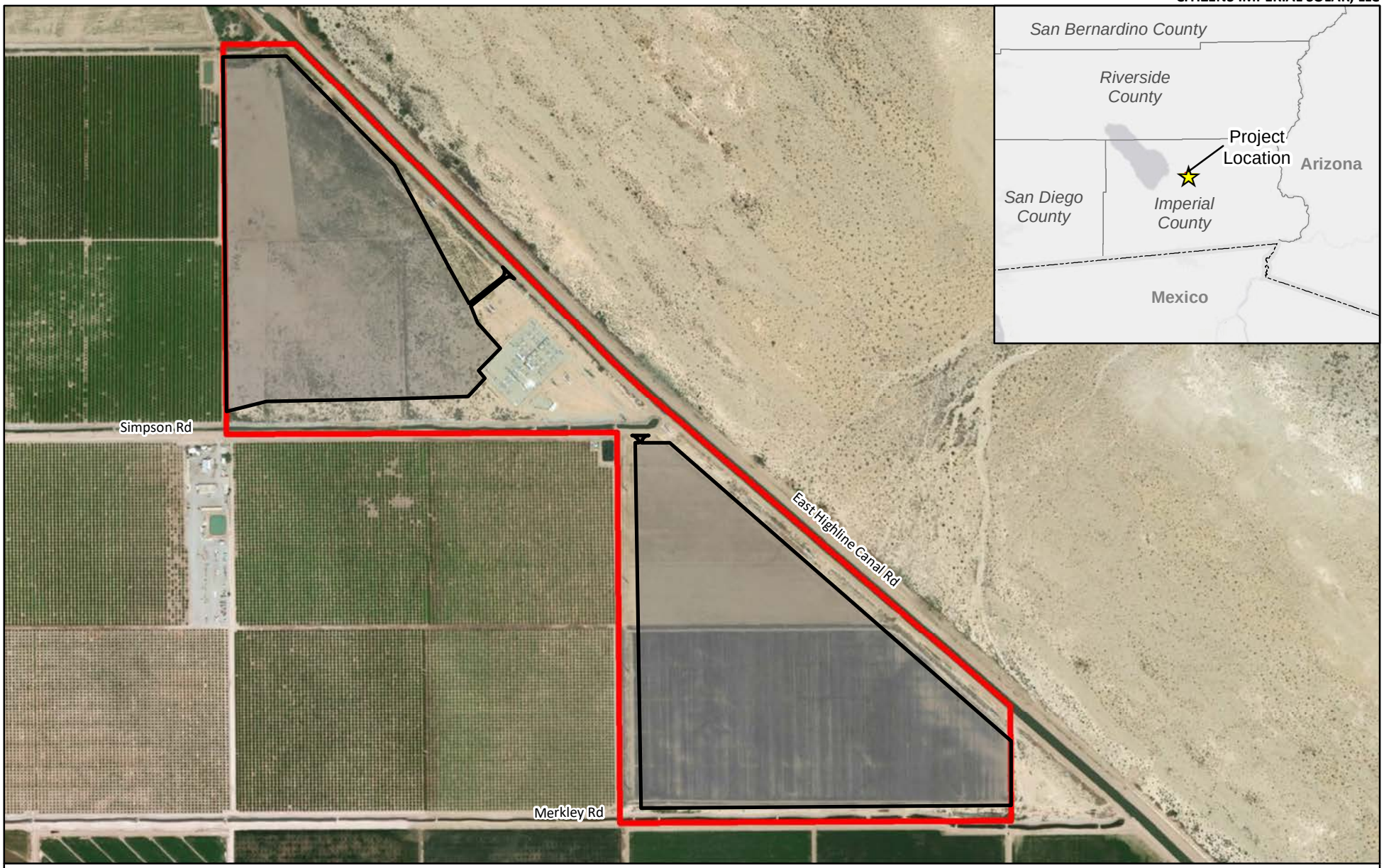
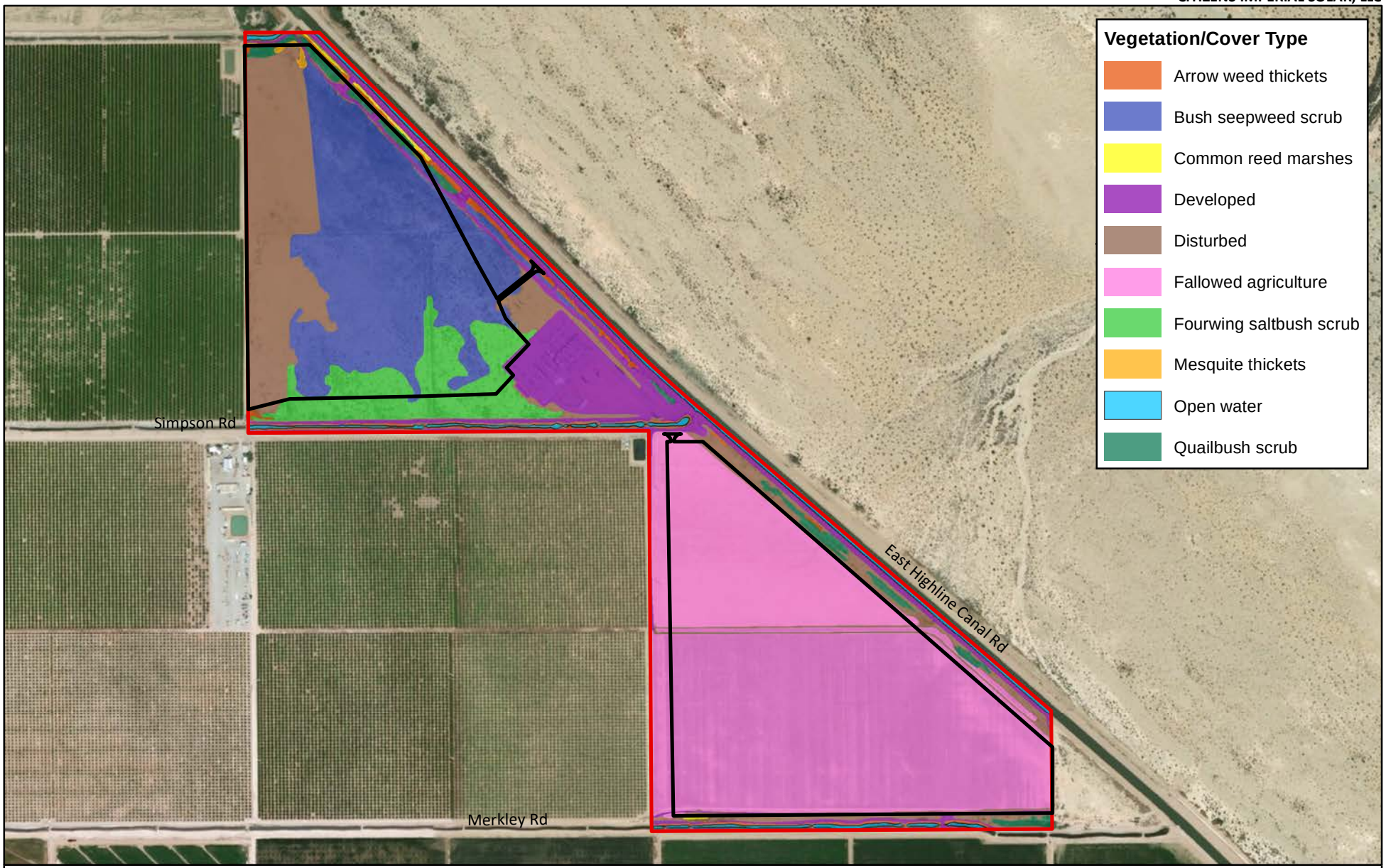


Figure 1

Project Location



Aspen Environmental Group

Property Line
Development Areas

0 500 1,000 Feet

N

Figure 2

Vegetation/Land Cover

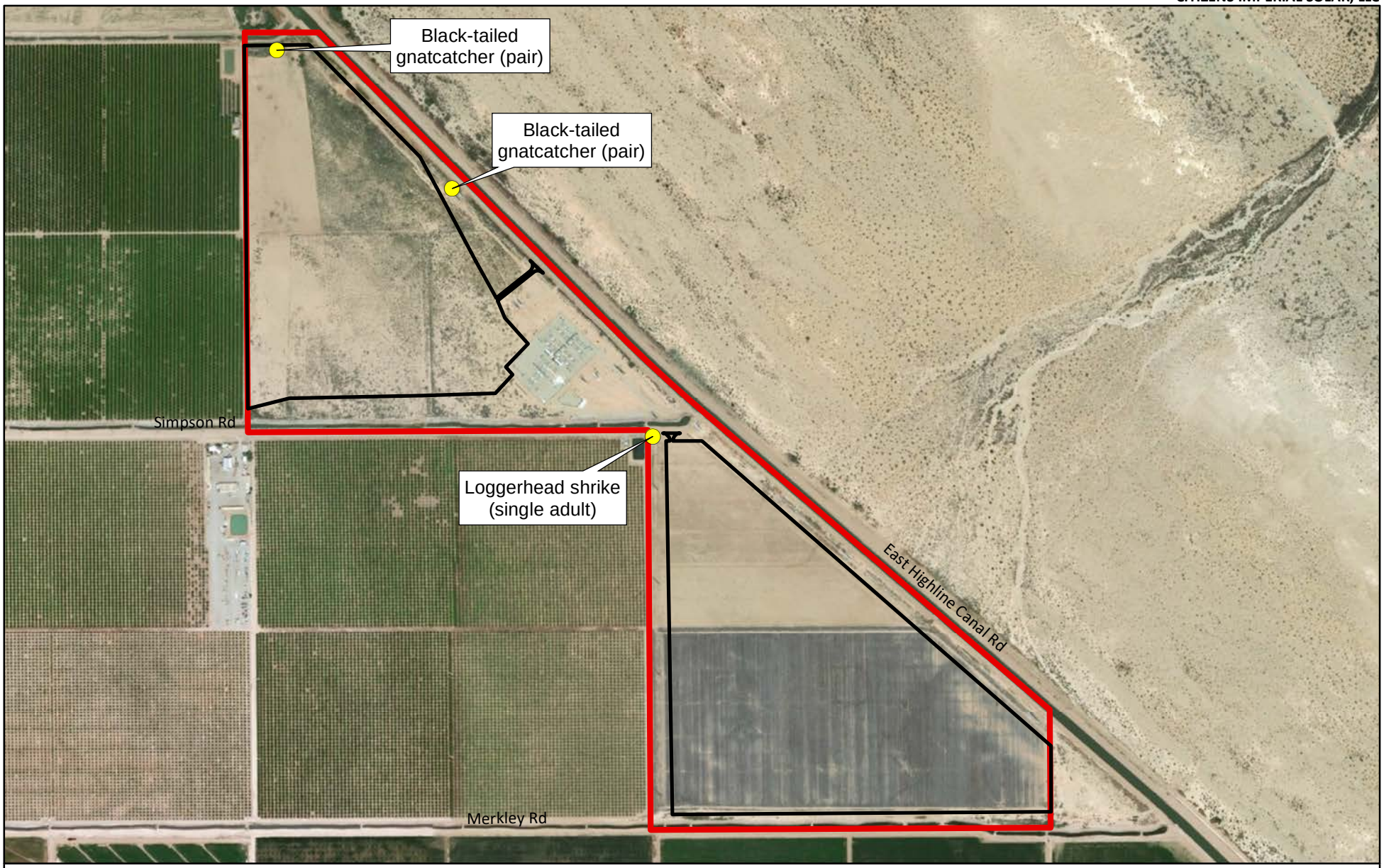


Figure 3

Biological Resources

Attachment 2

Project Photos

Photo 1: Southeast-facing view of the East Highline Canal along the east side of the project site.

Photo 2: East-facing view of arrow weed thickets and open water in Lateral Drain M.

Photo 3: Southeast -facing view of the bush seepweed scrub on the project site.

Photo 4: North-facing view of fourwing saltbush scrub on the project site.

Photo 5: Northeast-facing view of fallowed agricultural field of the project site.

Photo 6: Northeast-facing view of the disturbed area along the western edge of the project site.

Photo 7: West-facing view of the Midway Substation.

Photo 8: View of a debris pile on the Project site that provide suitable burrowing owl habitat.

Photo 9: Closeup-view of a loggerhead shrike observed on the Project site.

Photo 10: West-facing view of wetland vegetation along the margin of Lateral Drain M.

Attachment 3

Observed Species List

Latin Name	Common Name
VASCULAR PLANTS	
Dicotyledons	
ASTERACEAE	ASTER FAMILY
Ambrosia salsola (Hymenoclea s.)	Common burrobrush, cheesebush
Chloracantha spinosa	Spiny chloracantha
Eclipta prostrata	False daisy
Encelia farinosa	Brittlebush
Gerea canescens	Desert-sunflower
Helianthus annuus	Western sunflower
Isocoma acradenia	Alkali goldenbush
* *Lactuca serriola*	Prickly lettuce
Palafoxia arida var. *arida*	Spanish needles
Pluchea sericea	Arrow weed
* *Sonchus oleraceus*	Common sow thistle
Stephanomeria pauciflora	Wire-lettuce, desert straw
Symphyotrichum subulatum	Eastern annual saltmarsh aster
BORAGINACEAE	BORAGE FAMILY
Cryptantha maritima	Guadalupe cryptantha
Heliotropium curassavicum	Chinese parsley
Tiquilia plicata (Coldenia plicata)	Fan-leaved tiquilia
BRASSICACEAE	MUSTARD FAMILY
* *Brassica tournefortii*	Sahara mustard
CHENOPODIACEAE	GOOSEFOOT FAMILY
Atriplex canescens	Four-wing saltbush
Atriplex hymenelytra	Desert-holly
Atriplex lentiformis	Big saltbush
* *Chenopodium murale*	Nettleleaf goosefoot
* *Salsola tragus*	Russian thistle
Suaeda nigra (S. moquinii)	Bush seepweed
EUPHORBIACEAE	SPURGE FAMILY
Euphorbia polycarpa	Smallseed sandmat
FABACEAE	PEA FAMILY
* *Parkinsonia aculeata*	Mexican palo verde
* *Pithecellobium dulce*	Monkeypod
Prosopis pubescens	Screw bean mesquite
Psorothamnus emoryi	Emory indigo-bush, dye-weed
GENTIANACEAE	GENTIAN FAMILY
Eustoma exaltatum	Catchfly prairie gentian
POLYGONACEAE	BUCKWHEAT FAMILY
* *Rumex crispus*	Curly dock
SOLANACEAE	NIGHTSHADE FAMILY
Datura discolor	Jimsonweed, desert thorn-apple
Lycium brevipes var. *brevipes*	Desert thorn
TAMARICACEAE	TAMARISK FAMILY
* *Tamarix ramosissima*	Saltcedar
ZYGOPHYLLACEAE	CALTROP FAMILY
Larrea tridentata	Creosote bush
Monocotyledons	

ARECACEAE	PALM FAMILY
Phoenix sp.	Date palm
* *Washingtonia* sp.	Fan palm
CYPERACEAE	SEDGE FAMILY
Cyperus eragrostis	Tall umbrella sedge
Eleocharis geniculata	Bent spikerush
POACEAE	GRASS FAMILY
* *Cynodon dactylon*	Bermuda grass
Distichilis spicata	Salt grass
Leptochloa fusca ssp. uninervia	Mexican sprangletop
Phragmites australis	Common reed
POTAMOGETONACEAE	PONDWEED FAMILY
Potamogeton foliosus	Leafy pondweed
TYPHACEAE	CATTAIL FAMILY
Typha sp.	Unid. cattail

VERTEBRATE ANIMALS	
ACTINOPTERYGII	RAY-FINNED FISHES
POECILIDAE	TOOTH CARPS
* *Gambusia affinis*	Western mosquitofish
CYPRINIDAE	MINNOWS
* *Cyprinus carpio*	Common carp
REPTILIA	REPTILES
IGUANIDAE	IGUANID LIZARDS
Uta stansburiana	Side-blotched lizard
AVES	BIRDS
PHALACROCORACIDAE	CORMORANTS
Phalacrocorax auritus	Double-crested cormorant
ARDEIDAE	HERONS
Ardea herodias	Great blue heron
Casmerodius albus	Great egret
ANATIDAE	DUCKS, GEESE AND SWANS
Anas cyanoptera	Cinnamon teal
RALLIDAE	RAILS, GALLINULES, COOTS
Fulica americana	American coot
ACCIPITRIDAE	HAWKS, EAGLES, HARRIERS
Buteo jamaicensis	Red-tailed hawk
FALCONIDAE	FALCONS
Falco sparverius	American kestrel
PHASIANIDAE	GROUSE AND QUAIL
Callipepla gambelii	Gambel's quail
CHARADRIIDAE	PLOVERS
Charadrius vociferus	Killdeer
COLUMBIDAE	PIGEONS AND DOVES
Zenaida asiatica	White-winged dove
Zenaida macroura	Mourning dove

APODIDAE	SWIFTS
Aeronautes saxatalis	White-throated swift
TROCHILIDAE	HUMMINGBIRDS
Calypte anna	Anna's hummingbird
TYRANNIDAE	TYRANT FLYCATCHERS
Sayornis nigricans	Black phoebe
Sayornis saya	Say's phoebe
HIRUNDINIDAE	SWALLOWS
Hirundo rustica	Barn swallow
CORVIDAE	CROWS AND JAYS
Corvus corax	Common raven
REMIZIDAE	VERDINS
Auriparus flavipes	Verdin
TROGLODYTIDAE	WRENS
Troglodytes aedon	House wren
MUSCICAPIDAE	THRUSHES AND ALLIES
** *Polioptila melanura*	Black-tailed gnatcatcher
MIMIDAE	MOCKINGBIRDS AND THRASHERS
Oreoscoptes montanus	Sage thrasher
LANIIDAE	SHRIKES
** *Lanius ludovicianus*	Loggerhead shrike
PASSERELLIDAE	SPARROWS
Amphispiza belli	Sage sparrow
Passerculus sandwichensis	Savannah sparrow
Zonotrichia leucophrys	White-crowned sparrow
Quiscalus mexicanus	Great-tailed grackle
MAMMALIA	MAMMALS
LEPORIDAE	HARES AND RABBITS
Lepus californicus	Black-tailed hare

Non-native species are indicated by an asterisk, special-status species indicated by two asterisks. This list includes only species observed on the site. Others may have been overlooked or unidentifiable due to season (amphibians are active during rains, reptiles during summer, some birds (and bats) migrate out of the area for summer or winter, some mammals hibernate, many plants are identifiable only in spring).

Attachment 4

CNDDB Query Results

Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Wister (3311535) OR Iris Wash (3311534) OR Iris (3311524) OR Lion Head Mtn. (3311533) OR Tortuga (3311523) OR Niland (3311525) OR Westmorland (3311515) OR Wiest (3311514) OR Amos (3311513))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Anomala carlsoni Carlson's dune beetle	IICOL30050	None	None	G1	S1	
Anomala hardyorum Hardy's dune beetle	IICOL30060	None	None	G1	S1	
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Asio flammeus short-eared owl	ABNSB13040	None	None	G5	S3	SSC
Astragalus insularis var. harwoodii Harwood's milk-vetch	PDFAB0F491	None	None	G5T4	S2	2B.2
Astragalus magdalenae var. peirsonii Peirson's milk-vetch	PDFAB0F532	Threatened	Endangered	G3G4T2	S1	1B.2
Astragalus sabulonum gravel milk-vetch	PDFAB0F7R0	None	None	G4G5	S2	2B.2
Athene cunicularia burrowing owl	ABNSB10010	None	None	G4	S3	SSC
Calliandra eriophylla pink fairy-duster	PDFAB0N040	None	None	G5	S3	2B.3
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Charadrius montanus mountain plover	ABNNB03100	None	None	G3	S2S3	SSC
Chylismia arenaria sand evening-primrose	PDONA03020	None	None	G4?	S2S3	2B.2
Croton wigginsii Wiggins' croton	PDEUP0H140	None	Rare	G2G3	S2	2B.2
Cylindropuntia munzii Munz's cholla	PDCAC0D0V0	None	None	G3	S1	1B.3
Cyprinodon macularius desert pupfish	AFCNB02060	Endangered	Endangered	G1	S1	
Ditaxis claryana glandular ditaxis	PDEUP080L0	None	None	G3G4	S2	2B.2
Empidonax traillii extimus southwestern willow flycatcher	ABPAE33043	Endangered	Endangered	G5T2	S1	
Eumops perotis californicus western mastiff bat	AMACD02011	None	None	G5T4	S3S4	SSC
Euphorbia abramsiana Abrams' spurge	PDEUP0D010	None	None	G4	S2	2B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Falco columbarius merlin	ABNKD06030	None	None	G5	S3S4	WL
Gelochelidon nilotica gull-billed tern	ABNNM08010	None	None	G5	S1	SSC
Gopherus agassizii desert tortoise	ARAAF01012	Threatened	Threatened	G3	S2S3	
Helianthus niveus ssp. tephrodes Algodones Dunes sunflower	PDAST4N0Z2	None	Endangered	G4T2T3	S1	1B.2
Hydroprogne caspia Caspian tern	ABNNM08020	None	None	G5	S4	
Icteria virens yellow-breasted chat	ABPBX24010	None	None	G5	S3	SSC
Incilius alvarius Sonoran desert toad	AAABB01010	None	None	G5	SH	SSC
Junco hyemalis caniceps gray-headed junco	ABPBXA5021	None	None	G5T5	S1	WL
Koeberlinia spinosa var. tenuispina slender-spined all thorn	PDCPP05012	None	None	G4T4?	S2	2B.2
Lanius ludovicianus loggerhead shrike	ABPBR01030	None	None	G4	S4	SSC
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasiurus xanthinus western yellow bat	AMACC05070	None	None	G5	S3	SSC
Laterallus jamaicensis coturniculus California black rail	ABNME03041	None	Threatened	G3G4T1	S1	FP
Lithobates yavapaiensis lowland leopard frog	AAABH01250	None	None	G4	SX	SSC
Macrotus californicus California leaf-nosed bat	AMACB01010	None	None	G4	S3	SSC
Melanerpes uropygialis Gila woodpecker	ABNYF04150	None	Endangered	G5	S1	
Melitta californica California mellitid bee	IIHYM74010	None	None	G4?	S2?	
Nemacaulis denudata var. gracilis slender cottonheads	PDPGN0G012	None	None	G3G4T3?	S2	2B.2
Nyctinomops femorosaccus pocketed free-tailed bat	AMACD04010	None	None	G4	S3	SSC
Ovis canadensis nelsoni desert bighorn sheep	AMALE04013	None	None	G4T4	S3	FP
Palafoxia arida var. gigantea giant spanish-needle	PDAST6T012	None	None	G5T3?	S2	1B.3

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Panicum hirticaule ssp. hirticaule roughstalk witch grass	PMPOA4K170	None	None	G5T5	S2	2B.1
Pelecanus occidentalis californicus California brown pelican	ABNFC01021	Delisted	Delisted	G4T3	S3	FP
Pholisma sonorae sand food	PDLNN02020	None	None	G2	S2	1B.2
Phrynosoma mcallii flat-tailed horned lizard	ARACF12040	None	None	G3	S2	SSC
Polioptila melanura black-tailed gnatcatcher	ABPBJ08030	None	None	G5	S3S4	WL
Pseudocotalpa andrewsi Andrew's dune scarab beetle	IICOL37020	None	None	G1	S1	
Rallus obsoletus yumanensis Yuma Ridgway's rail	ABNME0501A	Endangered	Threatened	G5T3	S1S2	FP
Rynchops niger black skimmer	ABNNM14010	None	None	G5	S2	SSC
Scaphiopus couchii Couch's spadefoot	AAABF01020	None	None	G5	S2	SSC
Senna covesii Cove's cassia	PDFAB491X0	None	None	G5	S3	2B.2
Setophaga petechia yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
Sigmodon hispidus eremicus Yuma hispid cotton rat	AMAFF07013	None	None	G5T2T3	S2	SSC
Taxidea taxus American badger	AMAJF04010	None	None	G5	S3	SSC
Toxostoma crissale Crissal thrasher	ABPBK06090	None	None	G5	S3	SSC
Toxostoma lecontei Le Conte's thrasher	ABPBK06100	None	None	G4	S3	SSC
Xyrauchen texanus razorback sucker	AFCJC11010	Endangered	Endangered	G1	S1S2	FP

Record Count: 56

Attachment 5

Special-Status Species Not Addressed

Scientific Name	Common Name	Reason for Exclusion
PLANTS		
Astragalus insularis var. *harwoodii*	Harwood's milk-vetch	No suitable wind-blown sand habitat.
Astragalus magdalenae var. *peirsonii*	Peirson's milk-vetch	No suitable wind-blown sand habitat.
Calliandra eriophylla	Pink fairy-duster	Large conspicuous shrub, not observed during survey.
Chylismia arenaria	Sand evening-primrose	No suitable rocky canyon habitat.
Cylindropuntia munzii	Munz's cholla	Large conspicuous cactus, not observed during survey.
Croton wigginsii	Wiggins' croton	No suitable wind-blown sand habitat.
Ditaxis claryana	Glandular ditaxis	Outside of species range, no suitable sandy wash habitat.
Euphorbia abramsiana	Abram's spurge	No suitable sand dunes or wash habitat.
Helianthus niveus ssp. *tephrodes*	Algodones Dunes sunflower	No suitable wind-blown sand habitat.
Koeberlinia spinosa var. *tenuispina*	Slender-spined all thorn	Large conspicuous shrub, not observed during survey.
Nemacaulis denudata var. *gracilis*	Slender cottonheads	No suitable wind-blown sand habitat.
Palafoxia arida var. *gigantean*	Giant spanish-needle	No suitable wind-blown sand habitat.
Panicum hirticaule ssp. *hirticaule*	Roughstalk witch grass	Well outside of geographic range.
Pholisma sonorae	Sand food	No suitable wind-blown sand habitat.
Senna covesii	Cove's cassia	Well outside of geographic range.
INVERTEBRATES		
Anomala carlsoni	Carlson's dune beetle	No suitable wind-blown sands or dune habitat.
Anomala hardyorum	Hardy's dune beetle	No suitable wind-blown sands or dune habitat.
Pseudocotalpa andrewsi	Andrew's dune scarab beetle	No suitable wind-blown sands or dune habitat.
FISHES		
Cyprinodon macularius	Desert pupfish	No suitable spring, pond, or creek habitat.
AMPHIBIANS		
Lithobates yavapaiensis	Lowland leopard frog	Extirpated from SE California and SW Arizona.
REPTILES		
Gopherus agassizii	Desert tortoise	Well outside of geographic range.
Phrynosoma mcallii	Flat-tailed horned lizard	No suitable wind-blown sands or dune habitat.
BIRDS		
Empidonax traillii extimus	Southwestern willow flycatcher	No suitable riparian habitat.
Icteria virens	Yellow-breasted chat	No suitable riparian habitat.
Junco hyemalis caniceps	Gray-headed junco	Well outside of geographic range.
Melanerpes uropygialis	Gila woodpecker	Well outside of geographic range.
Setophaga petechia	Yellow warbler	No suitable riparian habitat.
MAMMALS		
Ovis canadensis nelson	Desert bighorn sheep	Well outside of geographic range.