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Appendix J Biological Technical Data

Appendix J.1 Biological Resources Technical Report

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Biological Resources Technical Report

January 2024

Perkins Renewable Energy Project

Prepared for:
IP Perkins, LLC and IP Perkins BAAH, LLC

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Acronyms

amsl	above mean sea level
ACEC	Area of Critical Environmental Concern
BRTR	Biological Resources Technical Report
BBCS	Bird and Bat Conservation Strategy
BLM	Bureau of Land Management
BOR	Bureau of Reclamation
CA-177	California Highway 177
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CDFA	California Department of Food and Agriculture
CESA	California Endangered Species Act
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CNPS	California Native Plant Society
CNDDB	California Natural Diversity Database
CRPR	California Rare Plant Rank
DFA	Development Focus Area
DRECP	Desert Renewable Energy Conservation Plan
FEIS	Final Environmental Impact Statement
FESA	Federal Endangered Species Act
GIS	Geographic Information Systems
GPS	Global Positioning System
I-10	Interstate 10
LUPA	Land Use Plan Amendment
NEPA	National Environmental Protection Act
NPS	National Park Service
NECO Plan	Northern and Eastern Colorado Desert Coordinated Management Plan
O&M	Operations and Maintenance
PV	Photovoltaic
ROW	Right of Way
SEZ	Solar Energy Zone
TCAs	Tortoise Conservation Areas
USFWS	US Fish and Wildlife Service

1 Introduction

1.1 Background

IP Perkins, LLC and IP Perkins BAAH, LLC(Proponents), subsidiaries of Intersect Power, LLC (Intersect) are proposing to develop the Perkins Renewable Energy Project (Project) east of El Centro, near Holtville, in Imperial County, California (Figure 1). The proposed Project site is located on a combination of Bureau of Land Management (BLM)-managed lands, Bureau of Reclamation (BOR)-managed lands, and private lands. The Project 500kV loop-in transmission lines will traverse Bureau of Reclamation (BOR) lands. The BLM-managed portion of the Project site is comprised of two land parcels totaling approximately 5,822 acres. The BOR-managed portion of the site is approximately 827.8 acres, and the private land is approximately 515.3 acres. These areas, along with a 1.7-kilometer (1.06-mile) transmission line corridor, will collectively be referred to as the Project site, unless otherwise described in their specific components Ironwood Consulting Inc. (Ironwood) has been contracted to assess potential habitat for sensitive and special-status species within the Project site.

1.2 Purpose

This Biological Resources Technical Report (BRTR) provides a description of methods and results of biological resource surveys and investigations conducted in spring and summer of 2023 for the BLM-managed lands portion of the Project site. The results of biological resource surveys for the BOR-managed and private lands will be included in a subsequent BRTR addendum to be prepared following Spring 2024 surveys. The primary purpose of the BRTR is to provide biological information that will be used as the foundation for impact assessments pursuant to the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). The discussion included herein may also be used to support consultation between Bureau of Land Management (BLM) and U.S. Fish and Wildlife Service (USFWS) under the Federal Endangered Species Act (FESA) and for any necessary incidental take authorization from the California Department of Fish and Wildlife (CDFW) with respect to the California Endangered Species Act (CESA).

1.3 Site Location

The Project site is located in Imperial County within the Sonoran Desert of Southern California. It is located east of an irrigated agricultural region, with the nearest towns of Date City and Holtville located west of the Project site. The Project site is approximately 36 miles southeast of the Salton Sea, 8 miles west of the Algodones sand dunes, and its southernmost boundary is just 1.3 miles north of the United States-Mexico border (Figure 1). The Project site is directly south of Interstate 8 and directly north of Highway 98. The transmission corridor is located on the larger western parcel and crosses the All-American Canal on its southern end. The Project occurs on two 7.5-minute USGS topographic quadrangles – Midway Well NW and Midway Well. Two 500 kV loop-in transmission lines would exit the BAAH switchyard and traverse the preserved utility corridor on BLM lands prior to crossing BOR lands where they would interconnect with the existing SDG&E Southwest Power Line, 500 kV Transmission Line

The Project site occurs on a combination of BLM-managed lands, BOR-managed lands, and private lands. Public lands managed by the BLM are within the DRECP Development Focus Area (DFA). Areas of Critical Environmental

Concern (ACEC) are outside of but adjacent to the Project site (Figures 1, 2) – East Mesa ACEC is to the north and Lake Cahuilla ACEC is to the west. There is a small area of the larger western parcel that overlaps with an Important Bird Area (Audubon, California, 2011) on its westernmost border.

1.4 Project Summary

IP Perkins, LLC, proposes to construct, operate, maintain, and decommission an approximately 500 to 1,150 megawatt (MW) solar PV and battery energy storage facility on a combination of BLM-administered public lands, BOR-administered public lands, and private lands in Imperial County east of El Centro, California. The Project would deliver clean power to ratepayers in California, minimize environmental impacts and land disturbance associated with solar development, and bring living-wage jobs to Imperial County.

The Project would generate and store 500 to 1,150 MW of renewable electricity via arrays of solar PV panels, a battery energy storage system (BESS), and appurtenant facilities. The final Project capacity will be based on optimization of buildable acreage and solar PV technology at the time of procurement. The Project would construct a new gen-tie line that would connect the project substation(s) to a new high-voltage breaker and a half (BAAH) switchyard. From the BAAH switchyard, two new 500 kV loop-in transmission lines would be constructed to interconnect to the existing SDG&E 500 kV transmission line that travels east-west just south of the Project site, crossing BOR lands and terminating in the Imperial Valley Substation (Substation), southwest of El Centro.

Depending upon the timeline of the interconnection agreement, the Project could be operational by as early as late 2027 and operate for up to 50 or more years. At the end of its useful life, the Project would be decommissioned. Revegetation would be conducted in accordance with a Decommissioning and Revegetation Plan.

2 Site Characteristics

2.1 Regional Setting

The Project site is located in Imperial County within the Sonoran Desert of Southern California. The topography of the Project site is fairly flat and generally slopes upward at a gradient of less than 1 percent toward the southeast. Ground elevations of the Project site ranges from approximately 85 feet (26 meters) in its northwest corner to 125 feet (38 meters) in its southeast corner.

Anthropogenic features and land uses near the Project site include agriculture, transmission lines, highways, and water distribution from the All-American Canal, summarized in Table 1 below.

Table 1. Adjacent and Nearby Land Uses.

Direction	Land Uses
North	Interstate 8 Freeway, Area of Critical Environmental Concern, transmission lines

Direction	Land Uses
South	Highway 98, All-American Canal, transmission lines, Tamarisk Long Term Visitor Area, US-Mexico border
East	Interstate 8 Freeway, transmission lines
West	Area of Critical Environmental Concern, active agriculture, transmission lines

2.2 Hydrology

The Project site is located within the Colorado River Hydrologic Region (HR). The Colorado River HR covers approximately 13 million acres (20,000 square miles) in southeastern California and is the most arid HR in California, with annual precipitation averaging less than 4 inches (WRCC 2022).

The Project site is in the Southern Mojave-Salton Sea subregion of Hydrologic Unit Code (HUC) 18 Hydrologic region, which is a closed desert basin. The Project site is located within the Deer Peak Watershed with East Highline Canal to the west, Coachella Canal to the east, and the All-American Canal bisecting the transmission corridor on the southern end of the Project site (Figure 3). According to data from the National Hydrography Dataset (NHD), two small, discontinuous, intermittent streams (one of which forks) occur on the western side of the Project site. These intermittent streams correspond to vegetated drainage swales, likely with moderately deep ground water but appeared to lack surface flow.

2.3 Soils and Sand Transport

The Project site is sandy overall. Both parcels are dominated specifically by Rositas loamy fine sand with 0 to 2 percent slopes. A small percentage of both parcels contain Rositas fine sand, Holtville loam, Rositas silt loam, Holtville-Imperial silty clay loams, and Superstition loamy find sand. A small section of the larger parcel contains mesic/riparian vegetation that is mapped as wet Rositas fine sand, wet, 0-2 percent slopes, which is typically found in basins and floodplains (Figure 4).

The Algodones Dunes are approximately 15 miles east of the Project site and have active aeolian sand migration and deposition (Muhs et.al. 2003). Active aeolian sand systems may provide habitat for sensitive wildlife and plant species but have some instability over time and space due to changing weather and climate conditions. Portions of the Project site are mapped as having sand dunes (Figure 5). The Project site has sand sheets stabilized by vegetation and may have sources or deposits of aeolian sand. Annual resultant drift direction for sand-moving winds begins far southwest of the Project site from the Pacific Ocean and heads northeast towards the Algdones Dunes (Muhs 2017). The Project site is unlikely to be a part of an active aeolian sand system due to Interstate 8 bisecting the southern portion of the dune system.

2.4 Rainfall

Measurements of precipitation during winter (October through March) and summer (April through September) periods are important in determining the efficacy of both wildlife and special status plant surveys. Data were

obtained from the Western Regional Climate Center (WRCC 2022) for the most proximate stations to the Project site: Calexico and Imperial sand dunes weather stations (approximately 15 miles and 40 miles from the Project site, respectively).

The subtropical climate of the Colorado Desert is characterized by dry, mild winters averaging 57 degrees Fahrenheit (°F) and dry, hot summers that average 93°F. Summer highs are known to reach 122°F. Recent annual rainfall data from 2012 to 2022 were averaged (Table 2). Over the period of analysis, the highest winter rainfall occurred between October 2019 and March 2020 and the highest summer rainfall occurred between April and September 2013.

Table 2. Seasonal Rainfall Summary.

Year	Winter – October to March (inches)*	Summer – April to September (inches)*
2012	0.11	0.23
2013	0.21	0.33
2014	0.2	0.13
2015	0.22	0.19
2016	0.12	0.11
2017	0.47	0.1
2018	0.02	0
2019	0.51	0.09
2020	0.83	0.11
2021	0.19	0.1
2022	0.08	0.16
Seasonal Average	**0.26**	**0.14**

2.5 Vegetation Communities

Vegetation communities in the Project site were field verified and classified by botanists, using Holland 1986 and cross-referencing with *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009) and the National Vegetation Classification System (NVCS) referenced in the DRECP (CDFW and AIS 2022).

Using the NVCS vegetation layers as reference, botanists verified that these vegetation communities were correct and made adjustments by creating vegetation polygons within ArcGIS Field Maps where needed. Most mapped vegetation boundaries are accurate to within approximately 10 feet (3 meters) and were refined to submeter data collection where it may be a jurisdictional wetland or water.

Field adjusted polygons were intergraded with confirmed NVCS vegetation communities and created new shapefiles that were used to calculate areas of each vegetation type. Any vegetation map is subject to imprecision for several reasons:

- 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.
- 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.
- Vegetation types tend 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.

Six vegetation communities were identified during field surveys which are further described below.

2.5.1 Sonoran Creosote Bush Scrub

Sonoran creosote bush scrub has a state rarity rank of S5 (CDFW 2023), being demonstrably secure, and is not designated as a sensitive plant community by BLM. It is synonymous with *Larrea tridentata-Ambrosia dumosa* alliance (Sawyer et al. 2009) and *Lower Bajada and Fan Mojavean – Sonoran Desert Scrub* (NVCS). Sonoran creosote bush scrub occurs on well-drained, secondary soils of slopes, fans, and valleys and is the basic creosote bush scrub habitat of the Colorado Desert (Holland 1986). On the Project site, creosote is dominant in the shrub canopy, or creosote bush scrub and white bursage are co-dominants in the shrub canopy with only a few shrubs sparsely distributed. Emory's indigo (*Psorothmanus emoryi*), white bursage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), and ephedra (*Ephedra spp*) occur in some areas with primarily an understory of annual plants. This vegetation community is the dominant vegetation community throughout most of the Project site and the transmission line.

2.5.2 Microphyll Woodland/Desert Dry Wash Woodland

Desert dry wash woodland is a sensitive vegetation community recognized with a rarity rank of S3 (CDFW 2023). Desert dry wash woodland is characteristic of desert washes and is likely to be regulated by CDFW as jurisdictional state waters. This vegetation community on the Project site is characterized by mesquite thickets that is synonymous to mesquite (*Prosopis glandulosa*) woodland alliance (Sawyer et al. 2009) and Sonoran - Coloradan Semi Desert Wash Woodland / Scrub (NVCS). Holland 1986 describes this community as an open to relatively densely covered, drought-deciduous, microphyll (small compound leaves) riparian scrub woodland, often supported by braided wash channels that change following every surface flow event. This vegetation community has mesquite trees that cover at least 2-3 percent of the absolute cover for trees and shrubs and was mapped as a patch within the western portion of the Project site. Other plants observed in this plant community included arrow weed (*Pluchea sericea)* and tamarisk (*Tamarix ramosisima).*

2.5.3 Alkali Goldenbush Desert Scrub

Alkali goldenbush desert scrub is a sensitive vegetation community recognized as a state rarity rank of S3 (CDFW 2023). It is synonymous with alkali goldenbush (*Isocoma acradenia*) shrubland alliance. Within the Project site, alkali goldenbush forms an open shrub layer (up to 35% cover). The tree layer, consisting of mesquite, is mostly sparse if present. Stands generally have low cover of vegetation and may be sparse (<10% total vegetation).

Sites are moist or seasonally dry flats, and margins of intermittently saturated vegetated swales. It is found primarily on low and mid-slopes at elevations ranging from approximately 25 to 300 m with northeast and southwest aspects. Soils are variable and derived from alluvium and dune sand; textures include sand and loamy sand but include sites with finer-textured soil.

2.5.4 Arrow Weed Thickets

Arrrow weed thickets are a sensitive vegetation community recognized with a state rarity rank of S3 (CDFW 2023). It is synonymous with *Pluchea sericea* shrubland alliance. This vegetation community is characterized by arrow weed that is more than or equal to 2% of absolute cover with a sparse herbaceous layer of seasonal annuals. This vegetation is usually found near seasonally flooded washes and stream borders. Within the Project site, this vegetation community occurs only within a small portion of the transmission corridor bordering the southern edge of the All-American Canal. No standing water was observed in the area during surveys.

2.5.5 Common Reed Marsh

Common reed marsh is synonymous to *Phragmites australis* herbaceous semi-natural alliance. This vegetation community is characterized by more than 2% absolute cover and more than 50% relative cover in the herbaceous layer. This vegetation community is sometimes considered invasive along waterways and wetlands (USDA 2023) and is only located within the edges of the All-American Canal of the transmission corridor.

3 Data Collection Methods

3.1 Literature Review

Prior to conducting field surveys, analysis was performed with Geographic Information Systems (GIS) using the following digital datasets, which include the most current information, data sources, and tools:

- 7.5' USGS topographic quadrangles
- National Agriculture Imagery Program (NAIP) aerial imagery
- National Wetlands Inventory Wetlands Mapper USFWS 2023)
- CNPS Online Inventory of Rare and Endangered Plants (CNPS 2023)
- The Consortium of California Herbaria Jepson Interchange (CCH 2023)
- California Natural Diversity Database (CDFW 2023b)
- Calflora (Calflora 2023)
- Manual of California Vegetation and DRECP mapping (Sawyer et al. 2009)
- Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA and NRCS 2023b)
- BLM sensitive species lists (BLM 2023)

3.2 Special Status Species Definition

Special status species are those that have been afforded special recognition by federal, state, or local resource agencies or organizations, are often of relatively limited distribution, and typically have unique habitat conditions, which also may be in decline. Special status criteria include:

- Officially listed or candidates for listing by California or the federal government as endangered, threatened, of special concern, or rare under CESA or FESA
- Plants or animals which meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the CEQA
- BLM Sensitive Species designated by the BLM California State Director
- Plants listed in the CNPS Inventory of Rare and Endangered Plants of California (CNPS 2023)
- Wildlife species identified by CDFW as Species of Special Concern (CDFW 2023, Figure 6)
- Plants or animals included in the CDFW lists of Special Plants or Special Animals (CDFW 2023, Figure 6)
- Considered special-status species in local or regional plans, polices, or regulations such as the Northern and Eastern Colorado Desert Coordinated Management Plan/EIS
- Protected under other statutes or regulations (e.g., Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, etc.)

All surveys were conducted per DRECP DFA Biological Conservation Management Action (CMA) requirements for each species within the recommended timing, including full-coverage burrowing owl and flat-tailed horned lizard surveys. Any modifications are further explained within each individual sensitive species section below.

3.3 Wildlife Surveys

Based upon review of the literature, a list of special-status wildlife species with potential to occur in or near the Project site was compiled (Appendix A). Full coverage wildlife surveys were conducted during the following periods (Figure 8)

- Spring surveys, full-coverage 20-meter transect surveys, wildlife surveys: March 20 – April 3, 2023
- Burrowing owl surveys (#2), Flat-tailed horned lizard: May 15 - May 18, 2023
- Burrowing owl surveys (#3), Flat-tailed horned lizard: June 12 -June 15, 2023
- Burrowing owl surveys (#4), Flat-tailed horned lizard: June 29 - July 4, 2023

Wildlife surveys were conducted at 20-meter belt transects, consistent with 2012 CDFW burrowing owl protocol surveys (CDFW 2012) and in conjunction with plant surveys with a 150-meter buffer. Survey crews in the spring seasons consisted of experienced desert wildlife biologists with at least one botanist and one avian biologist per crew. Surveys were conducted by walking linear transects and visually searching for live individuals signs of any sensitive species. All holes detected that may be inhabited by sensitive species such as burrows or burrow complexes were carefully inspected for potential occupancy or sign of recent use. Special emphasis was placed

on searching around the bases of shrubs and along the banks of shallow washes. Burrows were carefully examined and assigned to the wildlife species that may have inhabited them based on indicator signs within the burrow or near the mouth of the burrow.

During wildlife surveys, biologists recorded all wildlife species observed, regardless of conservation status. Common species were tallied at the end of each transect and recorded throughout each day by each crew. During the spring surveys, additional avian counts were completed in the mornings during surveys until 10 a.m. All locational information for special status species observations and sign detected were recorded on digital Zerion iForms for any new data collected. During each survey period, data collected from previous survey periods was uploaded to Fieldmaps as field reference to ensure that duplicate data was not taken.

3.3.1 Flat-tailed Horned Lizard

Survey recommendations for the flat-tailed horned lizard include surveys through the active season (April through September) covering a minimum of 10 hours of surveys per 260 hectares (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003). Flat-tailed horned lizard surveys on the Project site were conducted between May through July and were modified with 30-meter belt transects throughout the entirety of the Project site, conforming to and exceeding requirements with a total of 520 hours of surveys and a larger area of coverage. All flat-tailed horned lizard sign [e.g., live individuals, carcasses, scat, tracks, and ant hills the species depend on for forage] were recorded.

3.3.2 Avian Species

3.3.2.1 Western Burrowing Owl

Survey recommendations in both the 1993 California Burrowing Owl Consortium (CBOC 1993) Guidelines and 2012 CDFW Staff Report (CDFW 2012) include baseline data collection and an assessment of site use by burrowing owl. One full-coverage survey was conducted during spring surveys, during the breeding season, which were consistent with Phase II of the CBOC 1993 Guidelines and partially consistent with the 2012 CDFW Staff Report, with three additional modified surveys that have been previously approved on other projects. The modifications are further explained below. Occupancy of burrowing owl habitat is confirmed at a site when at least one burrowing owl, or its sign at or near a burrow entrance, is observed within the last three years (CDFW 2012; CBOC 1993).

The first burrowing owl survey was conducted at 20-meter spacing, which provided a greater level of coverage than the 30-meter spacing recommended in the 1993 CBOC Guidelines and was consistent with the 20-meter spacing recommended in the 2012 CDFW Staff Report. All burrows detected during wildlife surveys were assessed for wildlife occupancy, to ensure detection of any special status species, including burrowing owl that may have occupied a burrow. The 20-meter transect spacing also increases the likelihood of flushing live burrowing owls during the survey. All sign of burrowing owl, including individuals, feathers, tracks, whitewash, pellets, and suitable burrows were recorded if present. An additional 150-meters of buffer around the Project site was also surveyed in accordance with the 2012 protocol survey.

A modification of the protocol 2012 survey recommendations was completed for the subsequent three surveys during the active burrowing owl season. The subsequent three surveys were modified as burrow inspections for

all previously detected burrows, including mammal, potential tortoise, or burrowing owl burrows. All burrows were re-visited to check for any change in burrowing owl sign and were included as new burrowing owl sign if detected. Any new burrows observed during these burrow checks were added to the next check. These burrow checks were spaced at the same time intervals as the 2012 recommendations, with at least 3 weeks of time passing between each session of burrow surveys.

3.3.2.2 Avian Counts

Avian counts were conducted during spring 2023 surveys. Each survey team consisted of at least one avian biologist who was exclusively tasked with tallying all avian observations. The avian biologist walked with each survey team in the morning, from the start of the survey until about 10:00 am, or earlier if weather conditions were unfavorable for avian detection (i.e., high wind). After these avian counts, the avian biologist would continue to note any incidental wildlife species observed, while also continuing to help with any survey that was being performed.

3.3.3 Special Status Bat Species

Targeted surveys for bats were not conducted, given lack of suitable habitat for bats. Incidental observations of bats or bat roosts were documented during wildlife surveys if observed.

3.3.4 Other Special Status Wildlife Species

All sign of desert kit fox and American badger was recorded, including live or dead individuals, scat, tracks, burrows, and burrow complexes. Activity and likely species usage for each burrow or complex was determined by the burrow size (larger burrows are more likely coyote or badger) and types of sign found at the burrow site. If fresh tracks, scratches, or scat were found at a burrow or complex, it was categorized as active. The presence of old scat without tracks, and no presence of freshly dug dirt, or scratches would indicate that a burrow or complex was inactive. All burrows and burrow complexes were mapped and attributed, if possible, to species. If a burrow could not be attributed to a species, it was recorded as a “canid” burrow, which may include desert kit fox, coyote, or domestic dog.

3.4 Special Status Plants

Based upon review of the literature, a list of special-status plant species with potential to occur in or near the Project site was compiled (Appendix B). Focused special status plant surveys were conducted during the following periods (Figure 8):

- Spring surveys, full-coverage 20-meter transect surveys: March 21-25 and 27-31 and April 1 and 3.

Survey methodology was consistent with the following guiding documents:

- Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants (USFWS 2000)
- Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities (CDFG 2000)

- CNPS Botanical Survey Guidelines (CNPS 2001)
- Survey Protocols for Survey and Manage Strategy 2: Vascular Plants (Whiteaker et al. 1998)

Plant surveys performed in spring of 2023 included visual coverage across the entire Project site. Surveyors employed belt transects spaced approximately 20 meters apart. All surveyors were trained on diagnostic features and habitat notes of special status species that may occur, and each crew of surveyors included at least one highly experienced botanist.

Prior to beginning plant surveys in the spring, reference populations of special status plants were visited to ensure that timing for surveys was sufficient and that most special status plant species that have the potential to occur would be identifiable. On March 20, 2023, populations were observed for sand food (*Pholisma sonorae*) and giant spanish needle (*Palafoxia arida* var. *gigantea*) near Midway Campground in the Algodones Dunes. On March 26-27, 2023, populations were observed for ribbed cryptantha (*Johnstonella costata [=Cryptantha costata]*) east of the Algodones Dunes.

During plant surveys, botanists recorded all plant species, regardless of conservation status. All locational information for special status species observations was recorded on digital Zerion iForms for any new data collected. Data collected during previous site visits was uploaded to Fieldmaps as field reference to ensure that duplicate data was not collected.

Table 3. Special-status Wildlife and Plant Survey Personnel and Dates.

Date	Survey Type	Surveyors
2023-03-20 – 2023-04-03	Botany, Wildlife species, Avian Counts, BUOW #1	K. Gietzen, C. Primuth, J. White, L. Neff, M. Bueno, M. Lavender, M. Hughes, W. McBride, A. Walters, G. Chio, H. Oswald, L. Rouse, T. Ridlinghafer, M. Adams. A. Chasar, K. Bender, M. Pasanen, S. DeCurtis, M. Wegmann,
2023-05-15-2023-05-18	FTHL, BUOW #2	J. Goodyear, S. DeCurtis
2023-05-22-2023-05-25	FTHL	J. Goodyear, S. DeCurtis
2023-06-12-2023-06-15	FTHL, BUOW #3	J. Goodyear, M. Lavender; N. Labieniec
2023-06-16 – 2023-06-28	FTHL	J. Goodyear, M. Lavender, C. Primuth, R. Badia, M. Pasanen, J. Chikezie, N. Labieniec
2023-06-29 – 2023-07-04	FTHL, BUOW #4	J. Goodyear, J. Chikezie, M. Pasanen, N. Labieniec, E. Siffrin, K. Bender, R. Badia

4 Results

4.1 Special Status Wildlife

Special status wildlife species were reviewed for their potential to occur within the Project site and its vicinity using information gathered from regional plans and database records. Probability of occurrence for all wildlife species, along with a description of range, habitat, and conservation status, are identified in Appendix A.

The probability of occurrence is defined as follows:

- Present: Species was observed at the time of the survey
- High: Both a historical record exists of the species within the Project site or its immediate vicinity (approximately 5 miles) and the habitat requirements associated with the species occur within the Project site.
- Moderate: Either a historical record exists of the species within the immediate vicinity of the Project site (approximately 5 miles) or the habitat requirements associated with the species occur within the Project site.
- Low: No records exist of the species occurring within the Project site or its immediate vicinity and/or habitats needed to support the species are of poor quality.
- Minimal: Species was not observed during focused surveys conducted at an appropriate time for identification of the species, or species is restricted to habitats that do not occur within the Project site.

Several species were determined to have a low probability of occurrence due to the absence of suitable habitat and are not discussed further. Special status wildlife species observed within the Project site or with moderate to high potential to occur based on the presence of suitable habitat are discussed in detail in this section. The results of wildlife surveys are summarized in Appendix C. A comprehensive list of all wildlife species observed during surveys is included in Appendix D.

Conservation status for wildlife species is defined below:

Federal

FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
FT = Federally listed, threatened: species likely to become endangered within the foreseeable future
FCT = Proposed for federal listing as a threatened species
BCC = Fish and Wildlife Service: Birds of Conservation Concern
FSS = United States Forest Service Sensitive

State

SSC = State Species of Special Concern
CFP = California Fully Protected
SE = State listed as endangered

ST = State listed as threatened
WL = State watch list
CPF = California Protected Furbearing Mammal
CPGS = California Protected Game Species
CDF-S = California Department of Forestry & Fire Protection Sensitive

Bureau of Land Management
BLM-S = BLM Sensitive
FOC = DRECP Focus and Planning Species

Western Bat Working Group (WBWG)
H = imperiled or at high risk of imperilment
M = warrant closer evaluation, more research, and conservation actions
L = most of the existing data support stable populations

4.1.1 Flat tailed horned lizard: BLM-S, SSC

Suitable flat tailed horned lizard *(Phrynosoma mcallii)* habitat is sandy desert hardpan or gravel flats with scattered sparse vegetation of low species diversity. It is most common in areas with a high density of harvester ants and fine windblown sand, but rarely occurs on dunes. The historic range is located throughout most of the Colorado desert, from the Coachella Valley south through the Imperial Valley, west into the Anza-Borrego desert, and south to extreme NE Baja California, extreme SW Arizona, and NW Sonora, Mexico.

Both CDFW and the USFWS have at one time supported the listing of this species as threatened at state and federal levels; however, listing was not supported by the California Department of Fish and Game Commission and the Secretary of Interior. USFWS withdrew the proposed rule to list the species in 2003 after threats were reevaluated and determined to be less significant than previously believed (Flat-tailed Horned Lizard Interagency Coordinating Committee 2003).

Fine sand for cover is a critical habitat element. Lizards burrow into the sand to avoid temperature extremes and remain for hours buried just below the surface (Stebbins 1985). Shrubs and clumps of grass often serve as sources of shade during the hottest parts of the day, and lizards have been observed climbing into bushes and clumps of dried grass presumably to avoid contact with the hot substrate. Little is known about habitat requirements for reproduction, but other lizards generally require well-drained, sandy or friable soil for nest construction. The flat-tailed horned lizard feeds primarily on ants but will occasionally eat beetles and other insects.

One hundred live individuals were observed during surveys confirming occupancy on the Project site. Six carcasses, two hundred and seventy-seven tracks, and one hundred and ninety-six scat were observed. Eleven ant hills were recorded.

4.1.2 Colorado desert fringe toed lizard: BLM-S, SSC

The Colorado desert fringe toed lizard (*Uma notata*) inhabits sparsely vegetated arid areas with fine, loose wind-blown sand for burrowing. Suitable habitats include dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. It is found in extreme southeast California in the Colorado Desert, from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta, and

into extreme northeastern Baja California. It ranges west as far as the east base of Borrego Mountain. Fringe-toed lizards usually seek refuge from enemies by burrowing in the sand within 5-6 cm (2-2.4 in) of the surface. Rodent burrows and the bases of shrubs are also used for cover and thermoregulation (Stebbins 1944).

One live individual was observed during surveys.

4.1.3 **Western Burrowing Owl:** SSC, BCC, BLM-S, FOC

The Western burrowing owl *(Athene cunicularia hypugaea)* inhabits arid lands throughout much of the western United States and southern interior of western Canada (Haug et al. 1993). Suitable habitat for western burrowing owl includes open habitat with available burrowing opportunities, including agricultural fields (active and fallow), creosote scrub, desert saltbush, ephemeral washes, and ruderal areas.

Burrowing owls are unique among the North American owls in that they nest and roost in abandoned burrows, especially those created by ground squirrels, kit fox, desert tortoise, and other wildlife. Burrowing owls have a strong affinity for previously occupied nesting and wintering sites and will often return to previously used burrows, particularly if they had successful reproduction in previous years (Gervais et al. 2008). They generally depend on other species to dig suitable burrows for use but may also use anthropogenic surrogate burrows such as rubble piles or drainage pipes. If formerly occupied burrows are badly damaged or collapsed, burrowing owls cannot repair them and must seek alternate sites. The southern California breeding season (defined as the time from pair bonding of adults to fledging of the offspring) generally occurs from February to August, with peak breeding activity from April through July (Haug et al. 1993).

In the Colorado Desert, burrowing owls generally occur at low densities in scattered locations, but they can be found in much higher densities near agricultural lands where rodent and insect prey tend to be more abundant (Gervais et al. 2008). Burrowing owls tend to be opportunistic feeders, and a large portion of their diet consists of beetles, grasshoppers, and other large arthropods. The consumption of insects increases during the breeding season (Haug et al. 1993). Small mammals, especially mice and voles (*Microtus* and *Peromyscus* spp.) are important food items. Other prey animals include herpetofauna, young cottontail rabbits, bats, and birds such as sparrows and horned larks.

Five live individuals were observed during surveys. Nine active burrows were observed. Two carcasses were observed.

4.1.4 **Prairie Falcon:** WL (nesting)

The prairie falcon (*Falco mexicanus*) is on the CDFW watch list and is a USFWS Bird of Conservation Concern. It inhabits dry environments in the North American west from southern Canada to central Mexico. It is found in open habitat at all elevations up to 3,350 m, but is associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Prairie falcons require cliffs or bluffs for nesting though will sometimes nest in trees, on power line structures, on buildings, or inside caves or stone quarries. Ground squirrels and horned larks are the primary food source, but prairie falcons will also prey on lizards, other small birds, and small rodents (CDFW 2022a).

Prairie falcon was not observed during surveys. The entire Project site contains suitable foraging habitat for this species but does not have suitable nesting habitat.

4.1.5 Loggerhead Shrike: SSC (nesting)

Loggerhead shrikes (*Lanius ludovicianus*) are small predatory birds that are common year-round residents throughout most of the southern portion of their range, including southern California. In southern California, they are generally much more common in interior desert regions than along the coast (Humple 2008). They can be found within lowland, open habitat types, including creosote scrub and other desert habitats, sage scrub, non-native grasslands, chaparral, riparian, croplands, and areas characterized by open scattered trees and shrubs. Loss of habitat to agriculture, development, and invasive species is a major threat; this species has shown a significant decline in the Sonoran Desert (Humple 2008). Loggerhead shrikes initiate their breeding season in February and may raise a second brood as late as July; they often re-nest if their first nest fails or to raise a second brood (Yosef 1996). In general, loggerhead shrikes prey upon large insects, small birds, amphibians, reptiles, and small rodents over open ground within areas of short vegetation, usually impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding (Yosef 1996).

Suitable foraging and nesting habitat for loggerhead shrike is found throughout the Project site. Eleven observations of live individuals were documented during all surveys and avian counts.

4.1.6 Black-tailed Gnatcatcher: WL

Black-tailed gnatcatchers (*Polioptila melanura)* are permanent residents from southeastern California and Arizona to southern Texas and northern Mexico. They are found in arid scrublands, desert brush, and dry washes amongst creosote bush, ocotillo, mesquite, paloverdes, and cactus. They live in pairs all year-round, defend their territory, and forage for small insects amongst low shrubs and trees. Their nests are cup shaped and typically placed in shrubs 2-3ft above ground.

Eight live individuals were observed during surveys and avian counts. The Project site contains suitable foraging and potential nesting habitat for this species throughout the Project site.

4.1.7 Swainson's Hawk: BLM-S (nesting), FOC

Swainson's hawk (*Buteo swainsoni*) breeds in open habitats throughout much of the western United States and Canada, and in northern Mexico. In California, breeding populations of Swainson's hawks occur in desert, shrub and grassland, and agricultural habitats with tree rows; however, most of the state's breeding sites are in the Great Basin and Central Valley (Woodbridge 1998). The only desert breeding occurrences are in the Antelope Valley, over 200 miles northwest of the Project site. These birds favor open habitats for foraging, and are near-exclusive insectivores as adults, but may also forage on small mammals and reptiles.

Two live individuals were observed during surveys and avian counts. The Project site provides potential migratory foraging habitat but is outside the nesting range.

4.1.8 American Peregrine Falcon: CFP, CDF-S (nesting)

The American peregrine falcon (*Falco peregrinus anatum*) was formerly listed under CESA and ESA but has been delisted under both Acts. In California, its range is primarily central to northern California, with wintering habitat and (more recently) nesting occurrences located in southern California. Migrants occur along the coast and in the western Sierra Nevada in spring and fall. It breeds mostly in woodland, forest, and coastal habitats, and favors open landscapes with cliffs as nest sites. They are found irregularly in the southern desert region, generally during migratory and winter seasons, but also during breeding season in recent years. They nested historically in desert mountain ranges near the Colorado River (Rosenberg et al. 1991; Patten et al. 2003) and may be re-occupying this historical part of their nesting range as their populations recover. Their diet consists primarily of birds and bats (CDFW 2022a). Waterfowl and shorebirds make up a large proportion of their prey, and nest sites are often within foraging range of large water bodies.

No American peregrine falcons were observed on the Project site during surveys or avian counts. Suitable migratory or foraging habitat is present throughout the Project site, but no suitable nesting habitat is present.

4.1.9 Northern Harrier: SSC, BCC (nesting)

Northern harrier (*Circus cyaneus)* inhabits most of California at various times of the year and is found at up to 3,000 meters elevation. Northern harriers frequent meadows, grasslands, open rangelands, desert sinks, and fresh and saltwater emergent wetlands. Nesting occurs on the ground at the edge of marshes, in wetlands or along lakes and rivers, or less commonly in grasslands and sagebrush flats. It is a widespread winter resident and migrant in suitable habitat. They primarily feed on small mammals, birds, frogs, small reptiles, crustaceans, and insects (CDFW 2022a).

No northern harriers were observed during surveys or avian counts on the Project site. There is suitable foraging throughout the Project site, but no suitable nesting habitat.

4.1.10 California black rail: BLM-S, CFP

California black rail (*Laterallus jamaicensis coturniculus*) inhabits the freshwater marshes of the Colorado River. This species occurs most commonly in tidal emergent wetlands dominated by pickleweed, or in brackish marshes supporting bulrushes in association with pickleweed (Manolis 1977). It typically occurs in the high wetland zones near the upper limit of tidal flooding, and not in low wetland areas with considerable annual and/or daily fluctuations in water levels. During extreme high tides, it may depend on the upper wetland zone and adjoining upland or freshwater wetland vegetation for cover (Repking and Ohmart 1977). Along the Colorado River, it occupies dense bulrush stands, shallow water, gently sloping shorelines, and wetlands without significant water level fluctuations.

No California black rails were observed during surveys or avian counts on the Project site in 2023. There is occupied habitat starting approximately 2,000 ft east of the proposed transmission corridor, in more densely vegetated seepage areas along the south side of the All-American Canal (Blackhawk Environmental 2020). On the Project site, wetlands occur only on the banks of the All-American Canal within the 500kV loop-in transmission line corridor. These wetland areas are not considered suitable habitat as they are lined with a mature stand of common reed (*Phragmites australis*), steeply sloped, and adjacent to water of depths too deep

for use by California black rails. These areas were likely excluded from prior survey efforts due to this lack of suitable habitat (Blackhawk Environmental 2020). There is no suitable foraging or nesting habitat for California black rails on the Project site, but individuals may be observed incidentally as flyovers.

4.1.11 Bank Swallow: BLM-S (nesting)

Bank swallow (*Riparia riparia*) is a neotropical migrant found primarily in riparian and other lowland habitats in California, occurring west of the deserts during the spring-fall period. In summer, it is restricted to riparian, lacustrine, and coastal areas. Bank swallows use vertical banks, bluffs, cliffs, and riverbanks with fine-textured or sandy soils to dig holes for cover and nesting. It will also roost on logs, shoreline vegetation, and telephone wires. In migration, it flocks with other swallows over many open habitats.

No bank swallows were observed during surveys or avian counts on the Project site. There is suitable foraging habitat throughout the Project site, but no suitable nesting habitat.

4.1.12 Yuma Ridgway's Rail: CFP, FE

Yuma Ridgway's rail *(Rallus obsoletus yumanensis),* formerly known as Yuma clapper rail *(Rallus longirostris yumanensis),* nests in freshwater marshes with less than one foot of water depth, low stem density, and lack of residual vegetation (Conway et al. 1993, Gould 1975). Its preferred habitat is emergent marsh dominated by southern cattail (*Typha domingensis*) or California bulrush (*Schoenoplectus acutus*). Other important habitat requirements include strips of high ground or islands that allow for movement through the marsh (Gould 1975) and younger marshes with lower stem density and low thatching, allowing for more movement through a marsh and greater foraging potential (Conway et al 1993, Hinojosa-Huerta et al 2008). Yuma Ridgway's rails are found along the lower Colorado River, southward to its terminus at the Sea of Cortez, along the Gila River drainage in Arizona, at Lake Mead (and the Overton Arm) and its local tributaries, along the Virgin River in Nevada and Utah, and at the Salton Sea/Imperial Valley areas of California (BLM and USFWS 2014). The diet of Yuma Ridgway's rail is predominantly crayfish; other food items include clams, isopods, fish, and water beetles (Ohmart 1977).

No Yuma Ridgway's rails were observed during surveys or avian counts on the Project site in 2023. In 2020, Yuma Ridgway's rails were detected twice in a wetland area south of the All-American Canal, starting approximately 2,000 ft east of the Project's 500kV loop-in transmission line corridor (Blackhawk Environmental 2020). Surveys north of the Canal were not warranted because of a lack of suitable habitat. On the Project site, wetlands occur only along the banks of the All-American Canal within the 500kV loop-in transmission line corridor. These areas are not considered suitable habitat since they are lined with mature stands of common reed (*Phragmites australis*), steeply sloped, and adjacent to water depths too deep for use by Yuma's Ridgway's rails (Blackhawk Environmental 2020). Conway et al. 1993 determined that Yuma Ridgway's rail prefers shallow water for nesting and water of a moderate depth for foraging. The steep banks of the All-American Canal are neither shallow nor provide moderate depths for foraging. There is no suitable nesting or foraging habitat for Yuma Ridgway's rail on or within close proximity of the Project site but individuals may be observed incidentally as flyovers.

4.1.13 Avian Counts

A total of thirty-seven avian species were observed when avian counts were conducted during spring surveys in the mornings. Appendix C-5 summarizes all species observed during avian counts.

4.1.14 American Badger: SSC

The American badger is associated with dry open forest, shrub, and grassland communities with an adequate burrowing rodent population and friable soils. Badgers generally are associated with treeless regions, prairies, parklands, and cold desert areas (CDFW 2022a). Badgers inhabit burrows and often prey on small mammals that inhabit burrows, as evidenced by claw marks along the edges of burrows. Suitable habitat exists for American badgers throughout the Project site.

No American badgers or active badger burrows were observed during surveys on the Project site.

4.1.15 Desert Kit Fox: FOC

Desert kit fox (*Vulpes macrotis arsipus*) is protected by the California Code of Regulations (Title 14, CCR: §460) and Fish and Game Commission Section 4000 as a fur-bearing mammal. Title 14 of the California Code of Regulations, Section 460, stipulates that desert kit fox may not be taken at any time. Desert kit fox is a fossorial mammal that occurs in arid open areas, shrub grassland, and desert ecosystems within the Mojave and Sonoran Deserts. Desert kit fox typically occurs in association with its prey base, which includes small rodents, primarily kangaroo rats, rabbits, lizards, insects, and in some cases, immature desert tortoises (CDFW 2022a). Burrow complexes that have multiple entrances provide shelter, escape, cover, and reproduction, but desert kit fox may utilize single burrows for temporary shelter. Litters of one to seven young are typically born in February through April (McGrew 1979). Many of desert kit fox burrows observed within the Project site are part of a complex with multiple entrances.

There is suitable habitat for desert kit fox on the Project site, but no desert kit foxes were observed during surveys on the Project site. One active desert kit fox burrow and thirty-nine inactive burrows were observed within the Project site. The number of burrows will likely change over time since kit fox distribution is dynamic and changes under natural conditions due to prey availability and other environmental factors such as the presence of coyotes that prey on kit fox pups.

4.1.16 Burro Deer: CPGS, FOC

Burro deer (*Odocoileus hemionus eremicus*) is a subspecies of mule deer (*Odocoileus hemionus*) that inhabits desert dry wash woodland communities in the Colorado region of the Sonoran Desert, near the Colorado River. Some burro deer are year-round residents along the Colorado River, while others are transient and move between mesic and arid desert areas in response to seasonal water and forage availability. During hot summers burro deer concentrate along the Colorado River or the Coachella Canal where water developments have been installed and where microphyll woodland is dense and provides good forage and cover. With late summer thundershowers and cooler temperatures, burro deer move away from the Colorado River and Coachella Canal into larger washes or wash complexes in the foothills and nearby mountains (BLM and CDFG 2002).

The Project site is within range of burro deer, but no burro deer individuals were observed during surveys on the Project site. Scat and tracks were observed throughout the Project site and one very old piece of carcass was observed. This species likely moves through the Project site to access the All-American Canal.

4.1.17 Yuma hispid cotton rat: SSC

Yuma hispid cotton rat (*Sigmodon hispidus eremicus*) occurs along the Colorado River and in the Imperial Valley. Establishment of cotton rats in the Imperial Valley was in response to agricultural irrigation practices (Dixon 1922). It is most common in grassland and cropland habitats near water (Fleharty and Mares 1973, Kaufman and Fleharty 1974), including grass-forb understories in early successional stages of other habitats (McClenaghan and Gaines 1978). It also occurs in overgrown clearings, and herbaceous borders of fields and brushy areas (Hall and Dalquest 1963).

It feeds mainly on grasses, eating insects seasonally, and sometimes feeds on sugar beets, citrus, and other crops. This species uses tall, dense grass as cover, making runways through dense herbaceous growth, similar in appearance to vole runways but much larger. Their nests of woven grass are constructed either in burrows or on the surface (Baar et al. 1974).

No Yuma hispid cotton rats were observed during surveys on the Project site.

4.1.18 Western Yellow Bat: SSC, H

The western yellow bat (*Lasiurus xanthinus*) is a CDFW Species of Special Concern. It is found in Arizona, New Mexico, Mexico, and year-round in California. It is found in arid regions, in riparian, desert riparian, desert wash and palm oasis habitat. The western yellow bat is insectivorous, and roosts and feeds in palm oases and riparian habitats (CDFW 2022a). This species feeds on flying insects and forages over water and among trees. Roost sites are primarily trees in riparian habitats.

No western yellow bats or roosts were observed during wildlife surveys on the Project site. Targeted surveys for bats were not conducted (see Section 3.3.3). Suitable foraging habitat and roosting habitat is found on the Project site within desert dry wash woodland.

4.1.19 Western Bumble Bee SSC

The Western bumble bee (*Bombus occidentalis*) is a CDFW species of special concern and a candidate endangered species under CESA. They are generalist foragers and have been associated with plants in the Fabaceae, Asteraceae, Rhamnaceae, and Rosaceae families. They are found in grasslands, shrublands, and urban grassy areas. They are distributed throughout the Western United States and Canada but have undergone dramatic declines in recent decades (Hatfield et al. 2015). One observation of this species approximately 22 miles from the Project boundary in the Algodones Dunes was recorded in 1993 (CNDDB, 2023).

Suitable habitat on the Project site does occur, but the active agriculture and developments adjacent to the Project site could lower habitat suitability with the potential use of pesticides. The western bumble bee was not observed during surveys.

4.1.20 Crotch's Bumble Bee SSC

Crotch's bumble bee (*Bombus crotchii*) is a CDFW species of special concern and a candidate endangered species under CESA. They inhabit grasslands and shrublands throughout southwestern California. They are generalist foragers and have been associated with plants in the Fabaceae, Apocynaceae, Lamiaceae, Hydophyllaceae, Asclepiadoideae, and Asteraceae families (Thorp et al 1983). They have also been observed using plants Asclepias, Chaenactis, Lupinus, Meicago, Phacelia, and Salvia, as food (Williams et al 2014). There is one record of the bee, approximately 29 miles from the Project site near the town of Brawley from 1948 (CNDDB 2023).

Suitable habitat occurs on the Project site since some of the plant families associated with the species also occur. However, the active agriculture and developments adjacent to the Project site could lower the habitat suitability with the potential use of pesticides. Crotch's bumble bee was not observed during surveys.

4.2 Special Status Plant Species

Ten special status plant species were reviewed for their potential to occur within the Project site and its vicinity based on regional plans and database records (Appendix B). Probability of occurrence for all plant species, along with a description of range, habitat, and conservation status, are identified in Appendix B, and use the same categories of potential for occurrence as wildlife (see section 4.1).

Special status plant species detected within the Project site or having moderate to high potential to occur based on the presence of suitable habitat are discussed in detail in this section. Noteworthy plant observations are summarized in Appendix C in Figure 12. A comprehensive list of all plant species observed during surveys is included in Appendix D.

Conservation status for plant species is defined below:

Federal

FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range

FT = Federally listed, threatened: species likely to become endangered within the foreseeable future

State

SE = State listed as endangered

ST = State listed as threatened

SR = State listed as rare

California rare plant ranks (CRPR) are defined below:

CRPR 1A = Presumed extirpated in California and either rare or extinct elsewhere

CRPR 1B = Rare, threatened, or endangered in California and elsewhere

CRPR 2A = Presumed extirpated in California but more common elsewhere

CRPR 2B = Rare, threatened, or endangered in California but more common elsewhere

CRPR 3 = Plants which need more information

CRPR 4 = Limited distribution – a watch list

CBR = Considered, But Rejected

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

4.2.1 Peirson's milk vetch: FT, SE, CRPR 1B.2

Peirson's milk vetch (*Astragalus magdalenae* var*. Peirsonii*) is a perennial herb in the Fabaceae (Legume) family that is listed as threatened under the FESA and endangered under the CESA. It occurs in sand dunes in creosote bush scrub communities in California, Arizona and Baja California, Mexico (Calflora 2023). It has silvery-canescent leaves and stems from 20-90 cm, with 5-20 pink-purple, often white tipped flowers and papery single chambered fruit (Jepson 2023). The nearest record is approximately 1.5 miles east of the Project site. There is suitable habitat on the Project site for Peirson's milkvetch, but it was not observed during surveys.

4.2.2 Wiggin's croton: SR, CRPR 2B.2

Wiggin's croton (*Croton wigginsii*) is a state listed rare species that is fairly threatened in California but more common elsewhere throughout its range in Baja California, Sonora, Mexico and Arizona. It is a subshrub to shrub in the Euphorbiaceae (Spurge) family that can be found in sand dunes within creosote bush scrub communities (Calflora 2023). The nearest database record is approximately six miles to the east of the Project site. There is suitable habitat on the Project site for Wiggin's croton, but it was not observed during surveys.

4.2.3 Abram's spurge: CRPR 2B.2

Abram's spurge (*Euphorbia abramsiana*) is an annual herb in the Euphorbiaceae (Spurge) family that is fairly threatened in California but more common elsewhere within its range in the western US and northwestern Mexico. It occurs in silty and gravelly soils and sandy flats in creosote bush scrub communities. Contact with the sap of this plant can cause skin irritation (Calflora 2023). It has prostrate, repeatedly forked stems and opposite 2-12 mm ovate to elliptic-oblong leaves (Jepson Flora Project 2023). The nearest database record of this species is approximately ten miles to the west of the Project site in what is now an agricultural area. There is marginal habitat on the Project site due to the fine sand on a majority of the Project site. Abram's spurge is expected to have a low potential for occurrence due to types of soils onsite and the nearest record being more than 10 miles away. Due to its low potential for occurrence, fall plant surveys were not conducted for this species on the Project site.

4.2.4 Algodones sunflower: SE, CRPR 1B.2

Algodones sunflower (*Helianthus niveus ssp. tephrodes*) is a perennial herb in the Asteraceae (Sunflower) family. It is fairly threatened throughout its range in California, Arizona and Sonora, Mexico. The stem and leaves are covered in soft white appressed hairs, and the leaves are oval or lanced shaped. The flower heads are fringed with 13-21 bright yellow ray florets up to 2.5 cm long surrounding a center of yellow to purple-red disc florets. Suitable habitat occurs in sand dunes in creosote bush scrub communities (Jepson Flora Project 2023). The nearest database record of this species is approximately seven miles to the east of the Project site. There is suitable habitat for Algodones sunflower on the Project site, but it was not observed during surveys.

4.2.5 Ribbed cryptantha: CRPR 4.3

Ribbed cryptantha (*Johnstonella costata [=Cryptantha costata]*) is an annual herb in the Boraginacae (Borage)

family. It has limited distribution but is not very threatened in California. It occurs in creosote bush scrub communities in California, Arizona, and Baja Mexico. It is found in fine sand deposits in coarser soils in the Sonoran and Mojave deserts. It is 10-20 cm tall with bristly stems and narrow leaves folded along the midvein (Jepson 2023). The nearest records are near the Interstate 8 Freeway. There is suitable habitat on the Project site for ribbed cryptantha, but it was not observed during surveys.

4.2.6 Slender cottonheads: CRPR 2B.2

Slender cottonheads (*Nemacaulis denudata* var*. gracilis*) is an annual herb in the Polygonaceae (Buckwheat) family that is fairly threatened in California but more common elsewhere in its range. It is found outside of California in Baja California, Sonora Mexico, and Arizona. It occurs in sand dunes in creosote bush scrub and coastal strand communities. It has a small basal rosette of linear to spatulate leaves; erect stems and flowers obscured by hairs (Jepson 2023). This species has a moderate chance of occurrence on the project site but was not observed during 2023 surveys. The nearest record of this species is within 15 miles from the Project site. There is suitable habitat for slender cottonheads on site, but it was not observed during surveys.

4.2.7 Giant Spanish needle: CRPR 1B.2

Giant Spanish needle (*Palafoxia arida* var*. gigantea*) is an annual or perennial herb in the Asteraceae (Sunflower) family. It is fairly threatened throughout its range in California and Sonora, Mexico. This species is found in sand dune habitat in creosote bush scrub and alkali sink communities (Calflora 2023). The nearest record of this species is near Highway 8. There is suitable habitat for giant Spanish needle on site, but it was not observed during surveys.

4.2.8 Sand food: CRPR 1B.2

Sand food (*Pholisma sonorae*) is a parasitic perennial herb in the Lennoaceae (Lennoa) family. It is fairly threatened in California and is native to western Arizona and northwestern Mexico. It is found in sand dunes habitat in creosote bush scrub communities. It has a mushroom-like inflorescence with small pink to purple flowers, and is a parasite of *Eriogonum, Tiquilla, Ambrosia* and *Pluchea* (Jepson 2023). The nearest database record of this species is approximately five miles northwest of the Project site. There is suitable habitat within the Project site for Abram's spurge, but it was not observed during surveys.

4.2.9 Cacti, Yucca, and Native Trees

Native cacti, succulents, and trees are generally not ranked as special status plant species, but the harvesting of these native plants is regulated under the California Native Plant Protection Act (Fish and Game Code §§ 1900-1913) and the California Desert Native Plant Act of 1981 (Food and Agricultural Code § 80001 et. seq.; Fish & Game Code §§ 1925-1926). Any vegetation to be salvaged and removed from the site (such as cactus or yucca) would be subject to sale at appraised value, according to CFR 43:5420.0-6. If the cacti or yucca is salvaged and/or transplanted offsite, as approved by BLM, then this resource is not subject to sale but remains in BLM ownership. No cactus or yucca were observed within the Project site.

The following native tree species were observed on the Project site:

- Honey mesquite (*Propsis glandulosa*)
- Honey mesquite (*Propsis glandulosa var torreyana*)
- Screw bean mesquite (*Prosopsis pubescens*)

4.3 Invasive Weeds

Invasive weeds are non-native (exotic) plants included on the weed lists of the California Invasive Plant Council (Cal-IPC), or those weeds of special concern identified by the BLM. There are also some weeds designated as "noxious" by California Department of Food and Agriculture (CDFA) or the U.S. Department of Agriculture. Invasive weeds are of concern in wildlands because of their potential to degrade habitat and disrupt the ecological functions (Cal-IPC 2023). The following invasive weeds were identified on the Project site during 2023 field surveys and are summarized in Figure 12.

4.3.1 Sahara Mustard *(Brassica tournefortii)*

Sahara mustard has a highly invasive rating on Cal-IPC (Cal-IPC 2022). It has severe ecological impacts on physical processes, plant and animal communities, and vegetation structure, as well as having reproductive biology and other attributes that are conducive to moderate to high rates of dispersal and establishment (Cal IPC 2023). Sahara mustard is native to the deserts of North Africa, the Middle East, and the Mediterranean regions of southern Europe (Bossard et al. 2000). Initial establishment of this species in California occurred through the importation of date palms from the Middle East to the Coachella Valley during the early 1900s (Bossard et al. 2000). Sahara mustard currently occurs across Imperial County, as well as all neighboring counties (Cal-IPC 2023). During the field surveys, Sahara mustard was found in multiple areas throughout the Project site.

4.3.2 Russian Thistle *(Salsola tragus)*

Russian thistle has a Limited-to-Moderate rating by the Cal-IPC, indicating a species that is invasive but has an ecological impact that is minor on a statewide level, or there was not enough information to justify a higher score. Its reproductive biology and other attributes result in low to moderate rates of invasiveness. Ecological amplitude and distribution are generally limited, but it may be locally persistent and problematic. Russian thistle is listed on the CDFA Noxious Weed List, making it subject to state laws and regulations regarding its spread and pollution of an area (CDFA 2021). Russian thistle is an annual herb that is found in open and disturbed areas in the Mojave Desert and throughout western North America (MacKay 2003). Otherwise known as tumbleweed, it becomes large and round with age, the dried plant breaking off and rolling with the wind to aid in seed dispersal. Native to Eurasia, this plant was likely introduced around the turn of the century. It typically occurs on sandy soils on disturbed sites, cultivated and abandoned fields, and disturbed natural and semi-natural plant communities (CDFA 2021).

4.3.3 Saltcedar *(Tamarix sp.)*

Saltcedar, also known as tamarisk, is a BLM weed species of concern. *Tamarix chinensis*, *T. ramosissima, T. gallica*, and *T. parviflora* are all rated as highly invasive by Cal-IPC, and *T. aphylla* is rated B by CDFA, meaning it is a pest of known economic or environmental detriment of limited distribution. Saltcedar can be found throughout California along lake shores streams and is detrimental to native plant and wildlife communities. These species can cause dramatic changes in soil chemistry, groundwater availability, geomorphology, and fire frequency (Cal-IPC 2023). Saltcedar was observed within the western edge of the Project site and in the transmission corridor.

4.3.4 Mediterranean grass *(Schismus barbatus)*

Mediterranean grass has a limited invasive potential (Cal-IPC 2023) and is not listed by CDFA. It is an annual grass found in both central and southern California, particularly in disturbed areas and deserts, probably introduced at the turn of the century (CDFA 2020). It contributes to increased fire ignition and spread due to accumulation of dry thatch during dry seasons. Wildfire, in turn, contributes to the type-conversion of desert shrubland into annual grassland. These species' reproductive biology and other attributes result in low to moderate rates of invasiveness. Spread may occur from seed dispersal associated with soil disturbance, vegetation cutting, and from vehicle tires and footwear. Increase of these species is most likely to occur in areas where it already exists. BLM and other agencies recognize that because of its widespread distribution, Mediterranean grass is not feasible to eradicate.

4.3.5 Bermuda grass *(Cynodon dactylon)*

Bermuda grass has a moderate invasive potential (Cal-IPC 2023) and is not listed by CDFA. Ecological amplitude and distribution may range from limited to widespread. These species have substantial and apparent, but generally not severe, ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. It is a warm season perennial grass that has become a cosmopolitan weed in warm regions worldwide, due in part to cultivation for turf. Plants reproduce via rhizomes and seeds and can out-compete native species in riparian areas (Cal-IPC 2023).

4.3.6 Common Reed *(Phragmites australis)*

Common reed is a perennial grasslike herb that is native to California and is found worldwide. It typically occurs in wetlands, but can also be found in creosote bush scrub and many other plant communities. It is widely distributed across California but can be considered invasive outside of its natural range. It is difficult to distinguish between native and non-native populations (Cal-IPC 2023). CDFA lists the non-native common reed, subspecies *Phragmites australis ssp. altissimus* as a Class C noxious weed of known economic and environmental detriment.

Other non-native plant species observed on the Project that are not considered invasive but have become naturalized include:

- Date palm (*Phoenix dactylifera*)
- Mexican fan palm (*Washingtonia robusta*)
- Prickly lettuce (*Lactuca serriola*)
- Spiny sowthistle (*Sonchus asper*)
- Sowthistle (*Sonchus oleraceus*)

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Figure 1. General Vicinity.

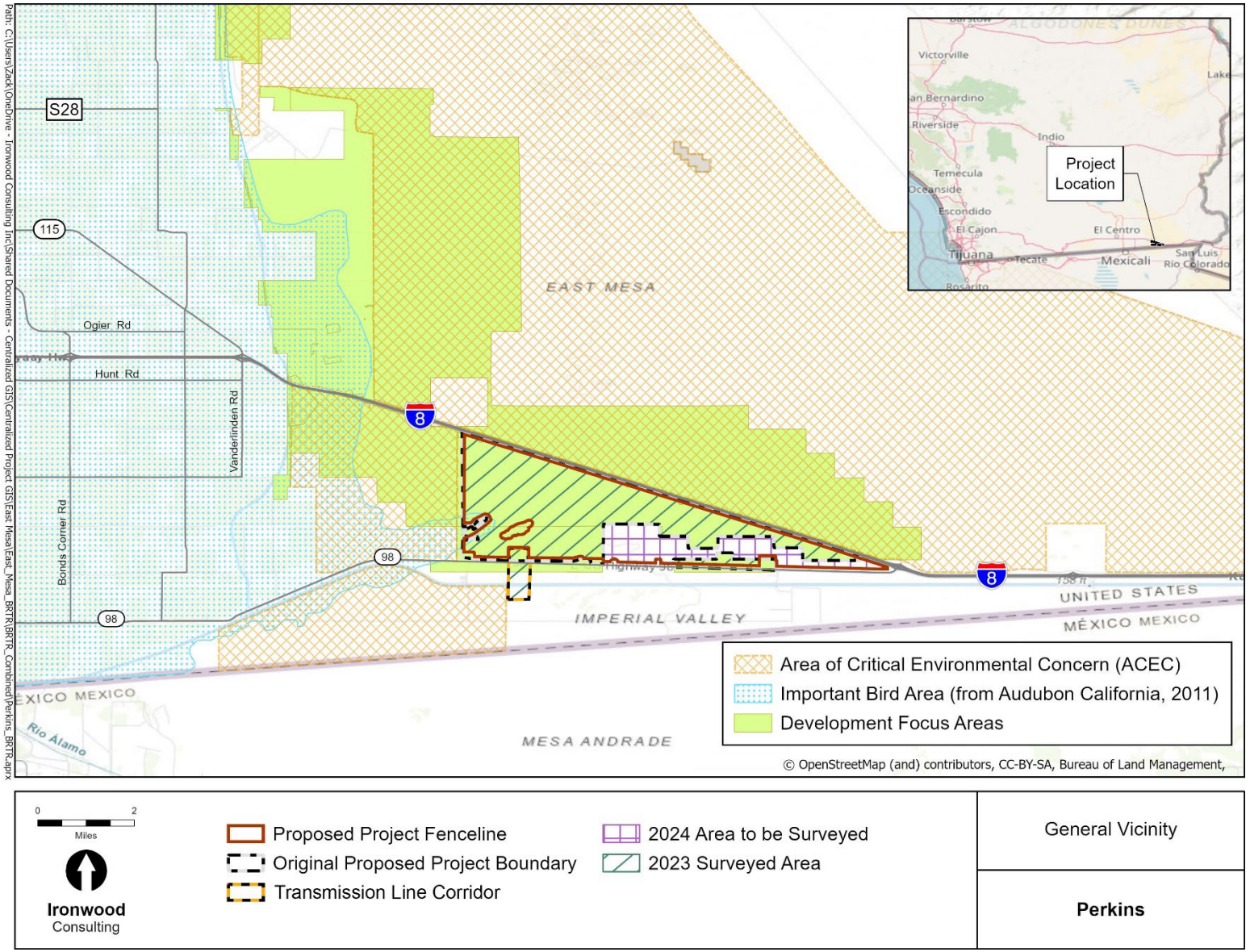


Figure 2. Land Ownership.

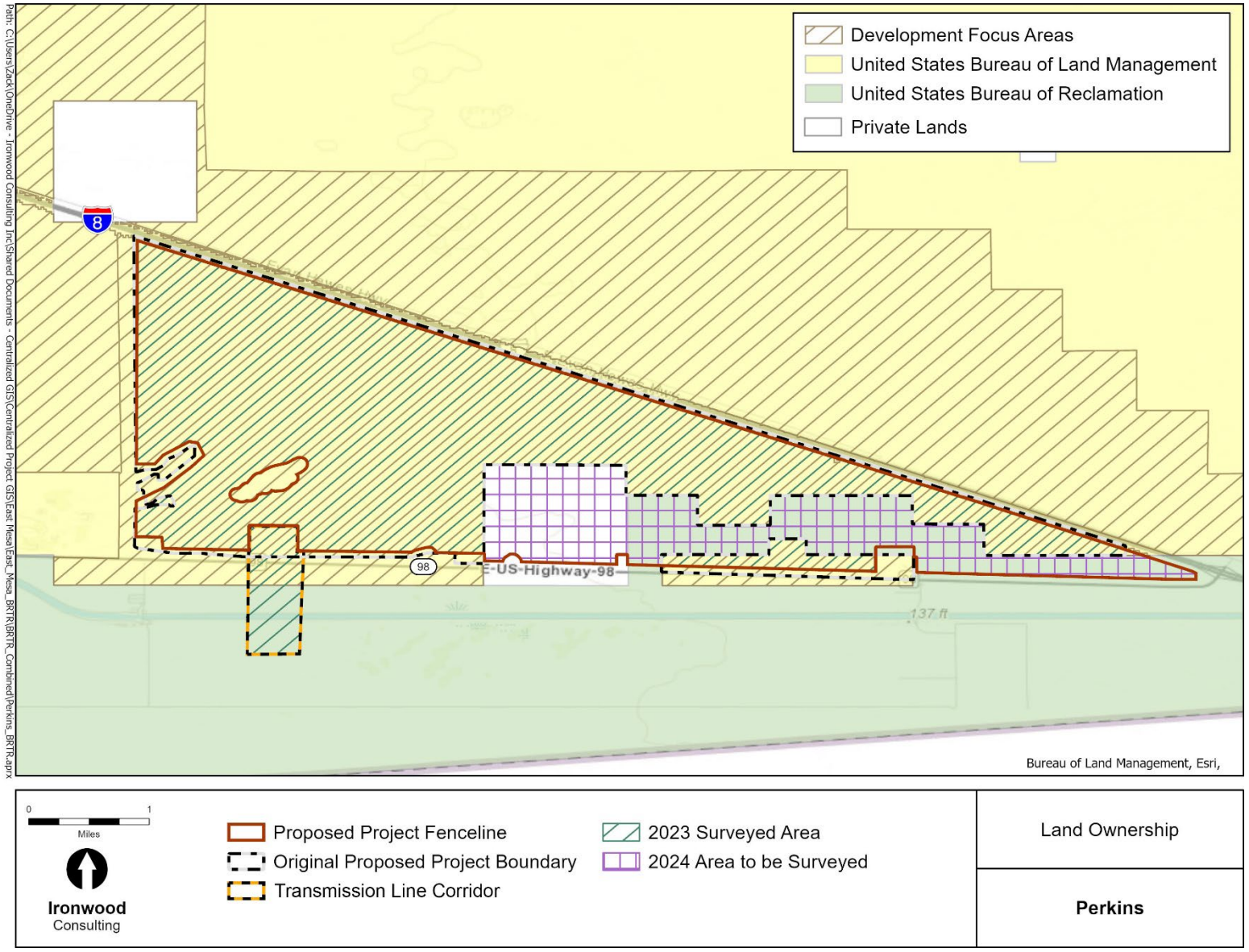


Figure 3. Hydrology and Watersheds.

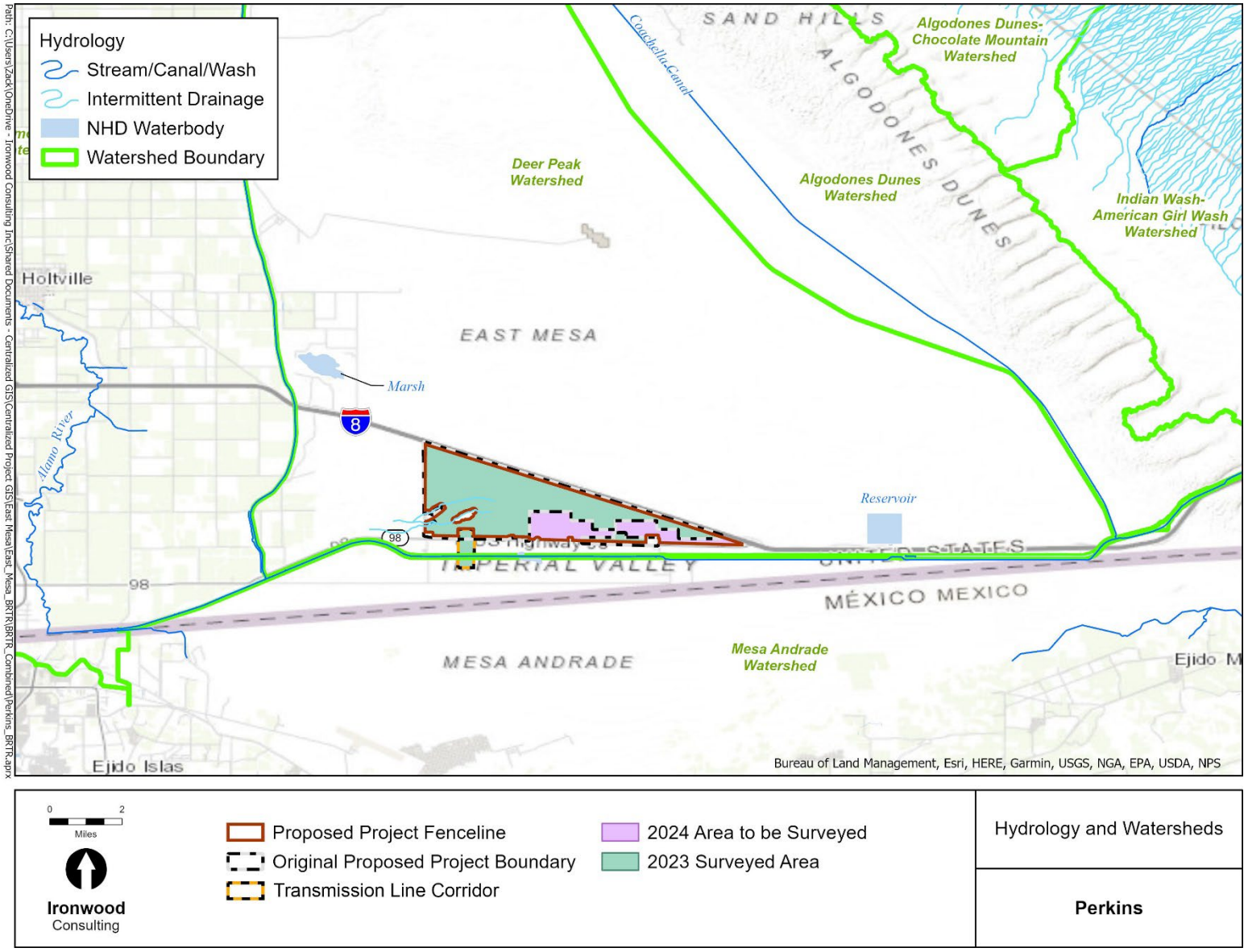


Figure 4. Soils.

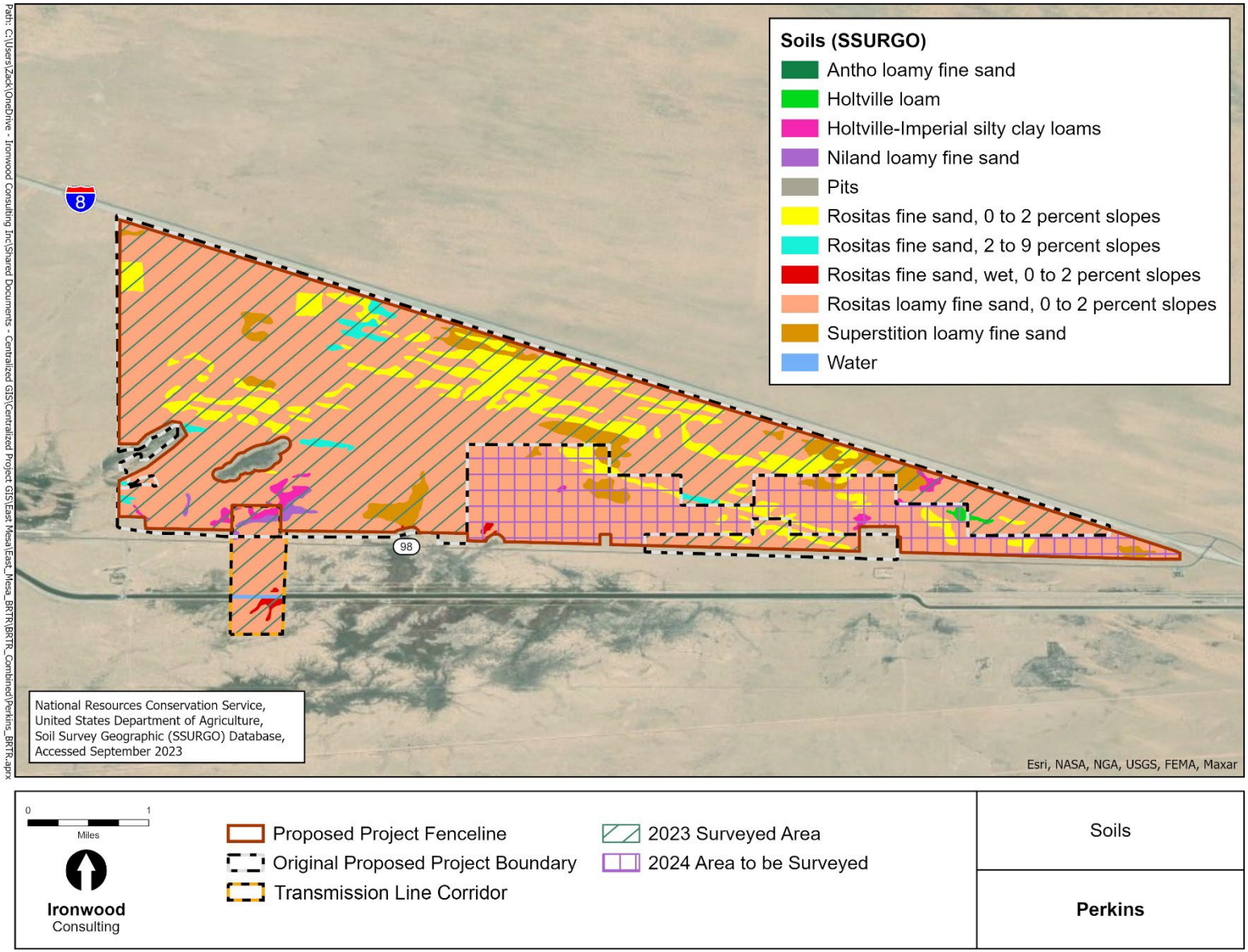


Figure 5. Sand Transport.

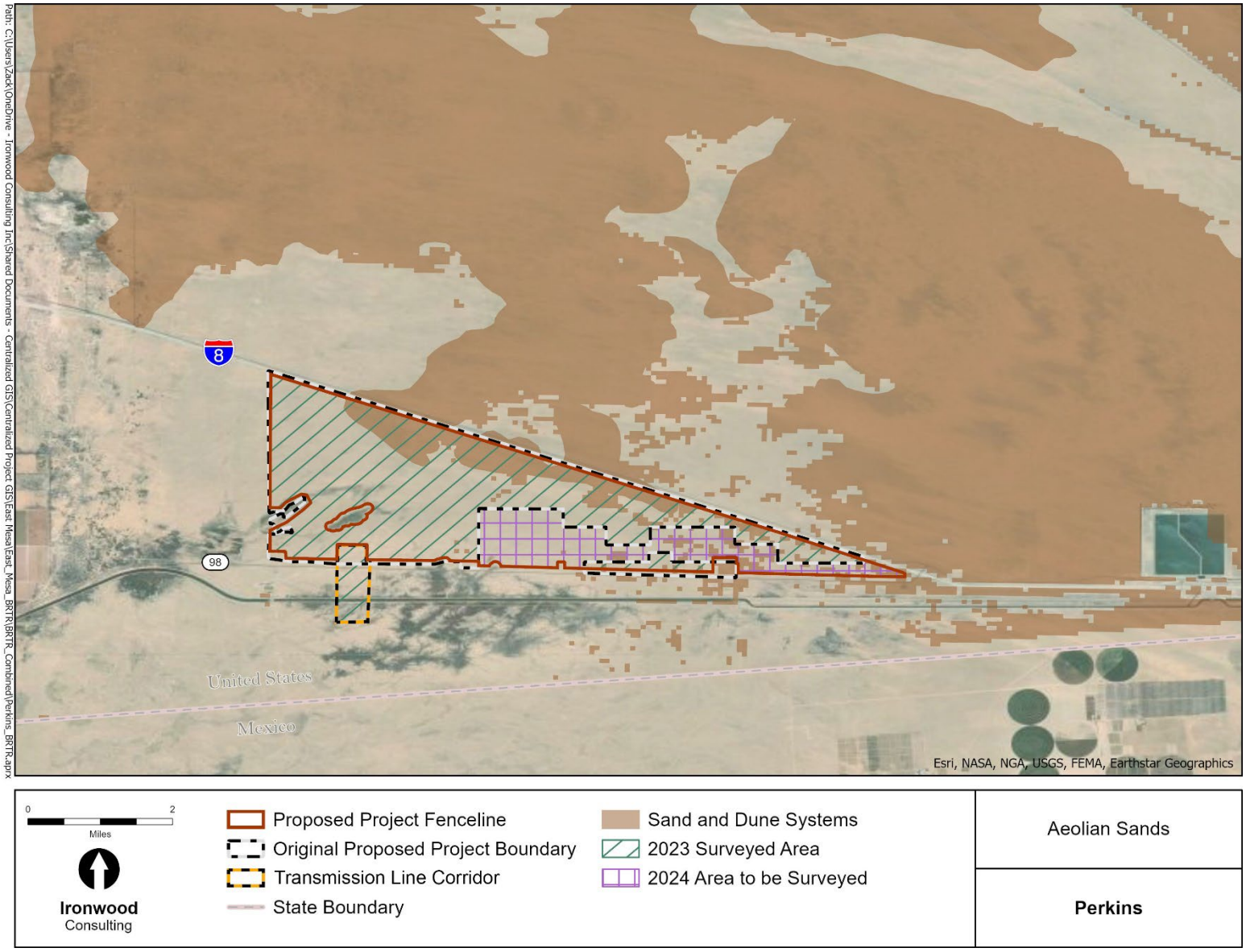


Figure 6. Vegtation Communities.

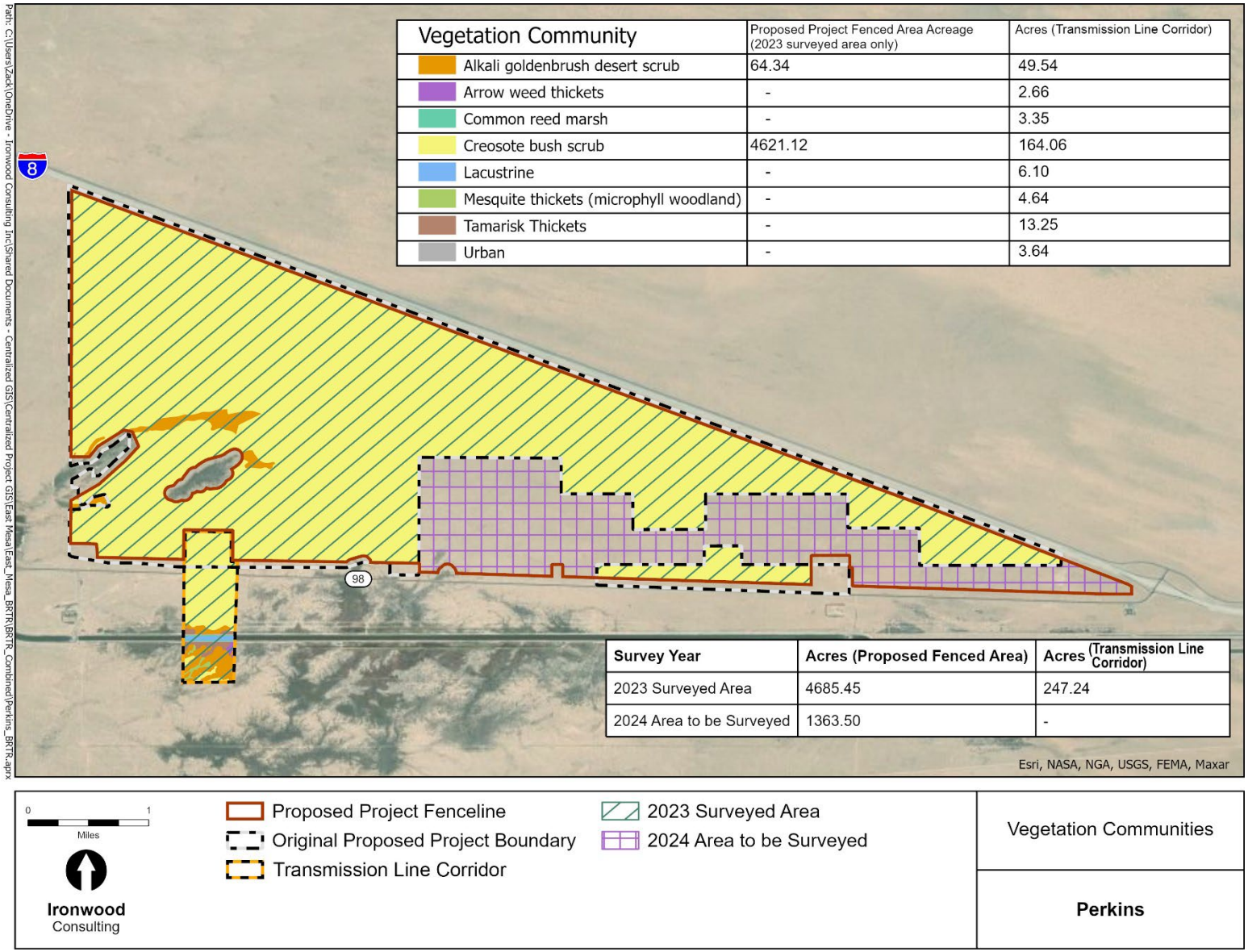


Figure 7. CNDDB Occurrences.

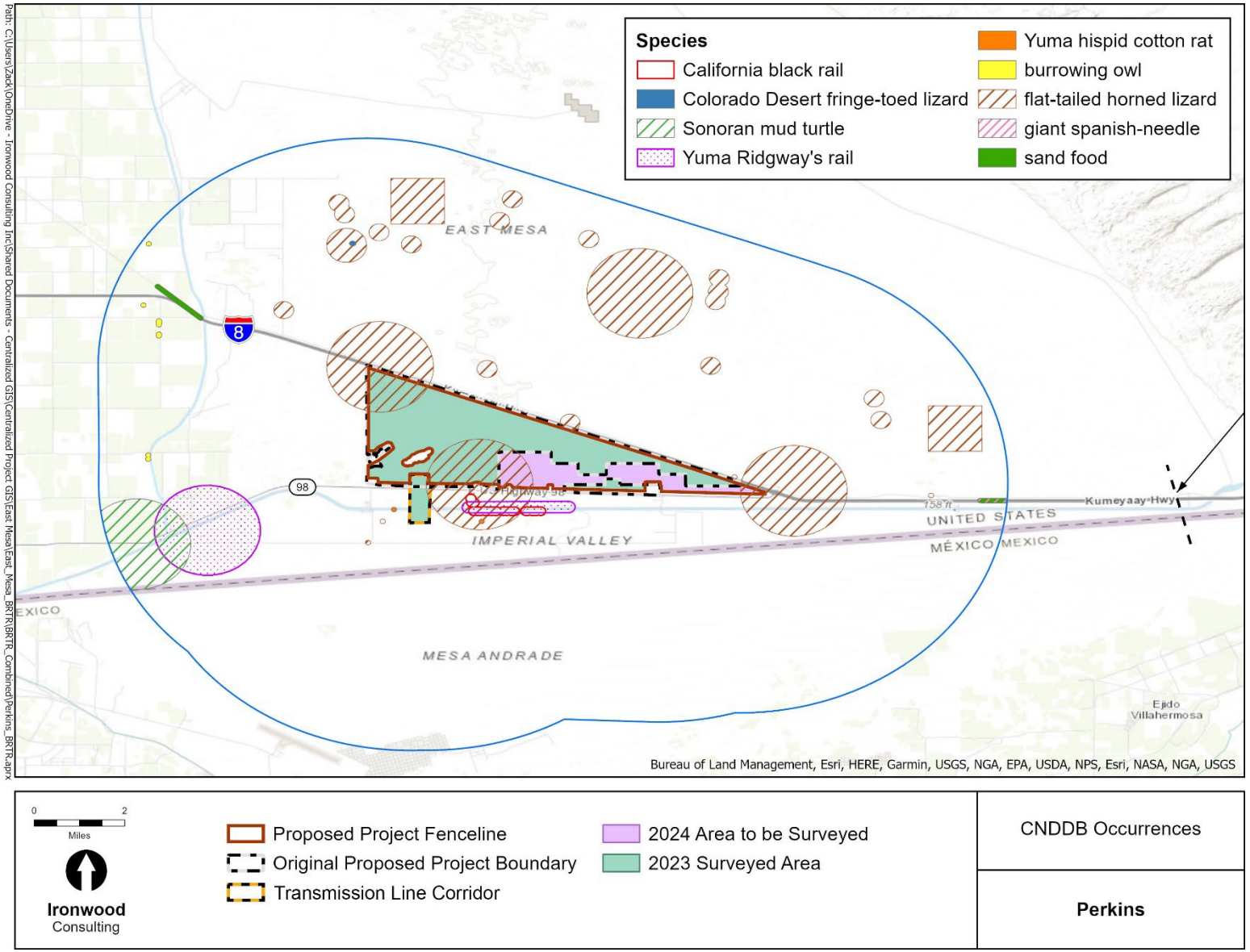


Figure 8. Study Areas.

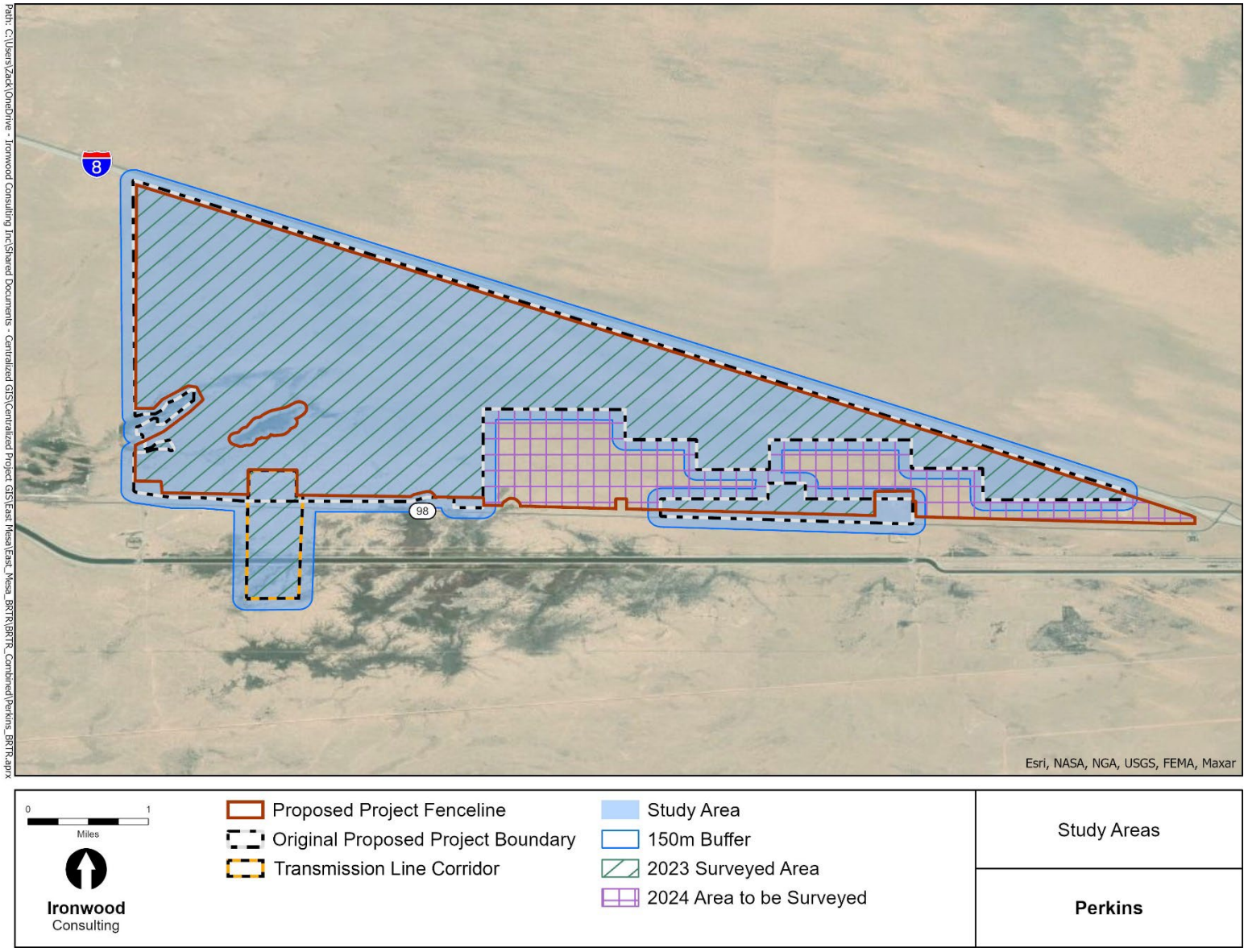


Figure 9.Noteworthy Reptile and Amphibian Observations

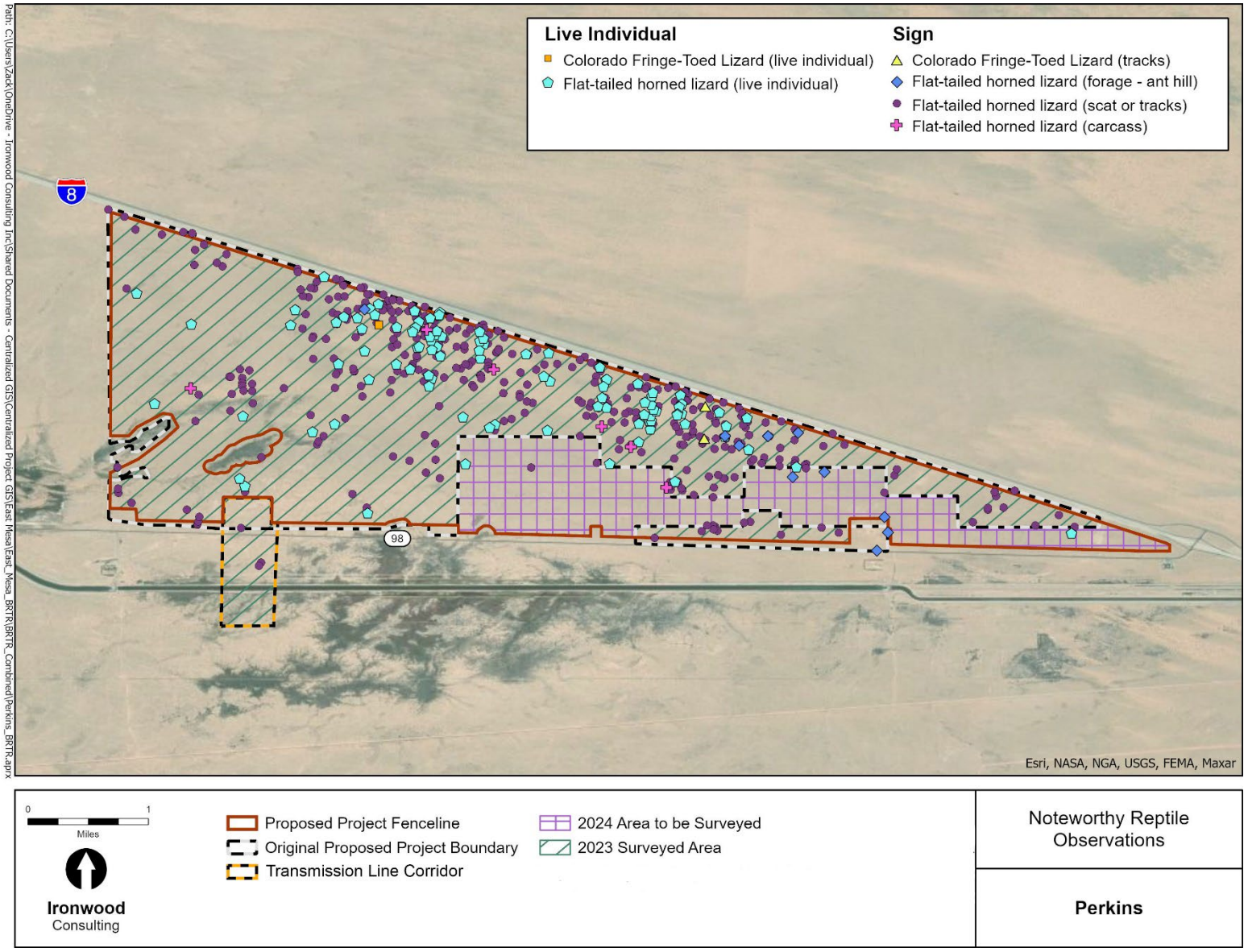


Figure 10. Noteworthy Avian Observations.

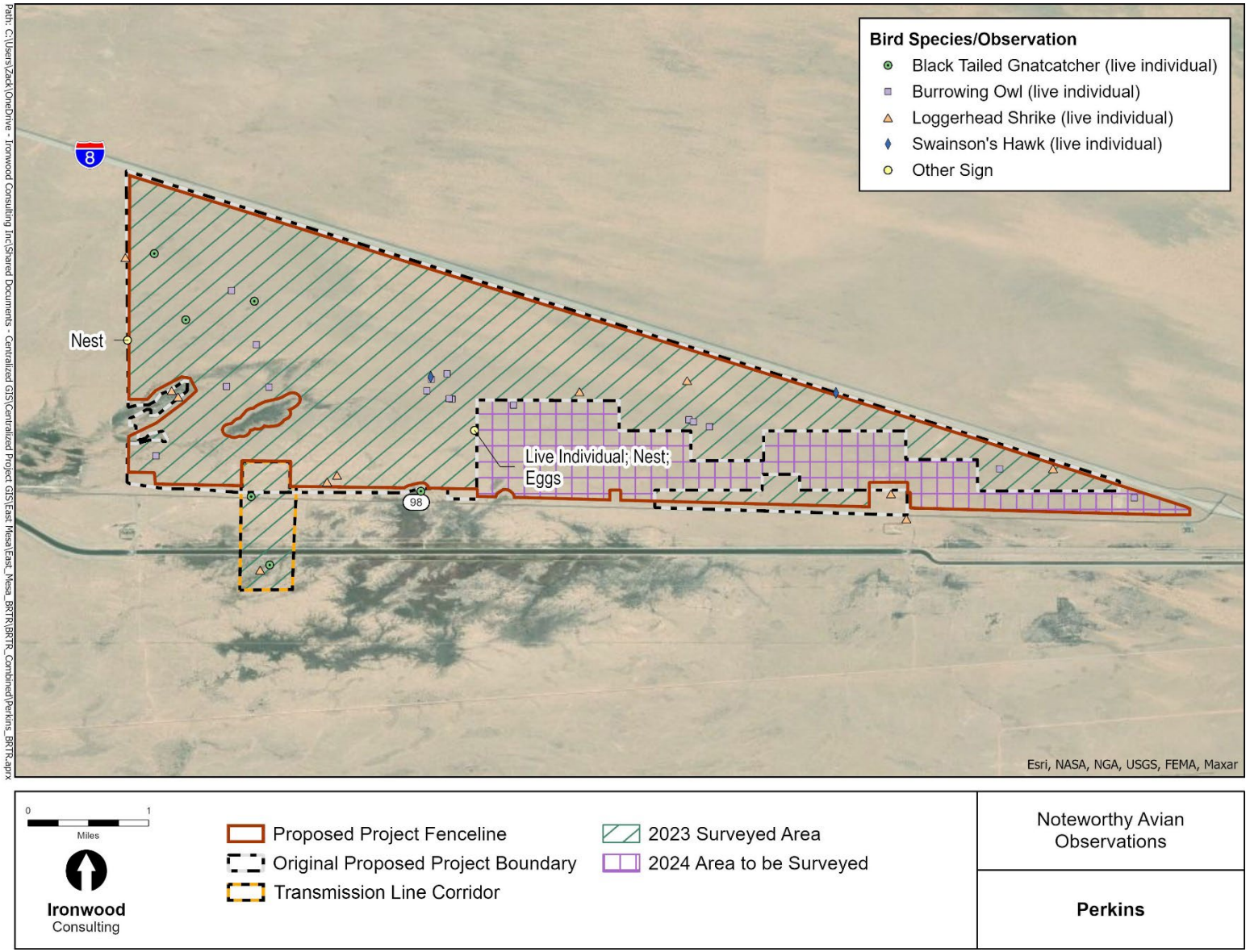


Figure 11. Noteworthy Mammal Observations.

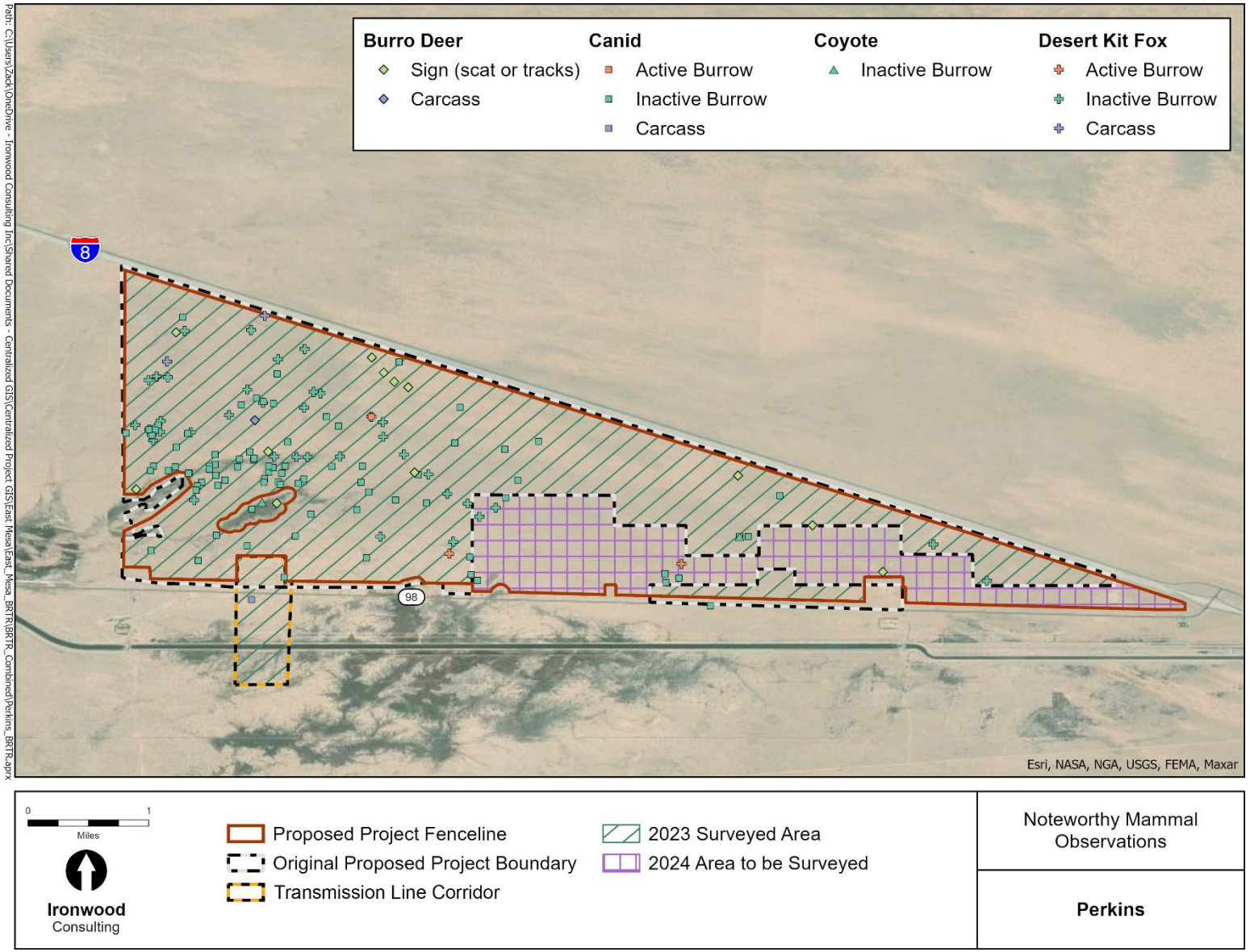
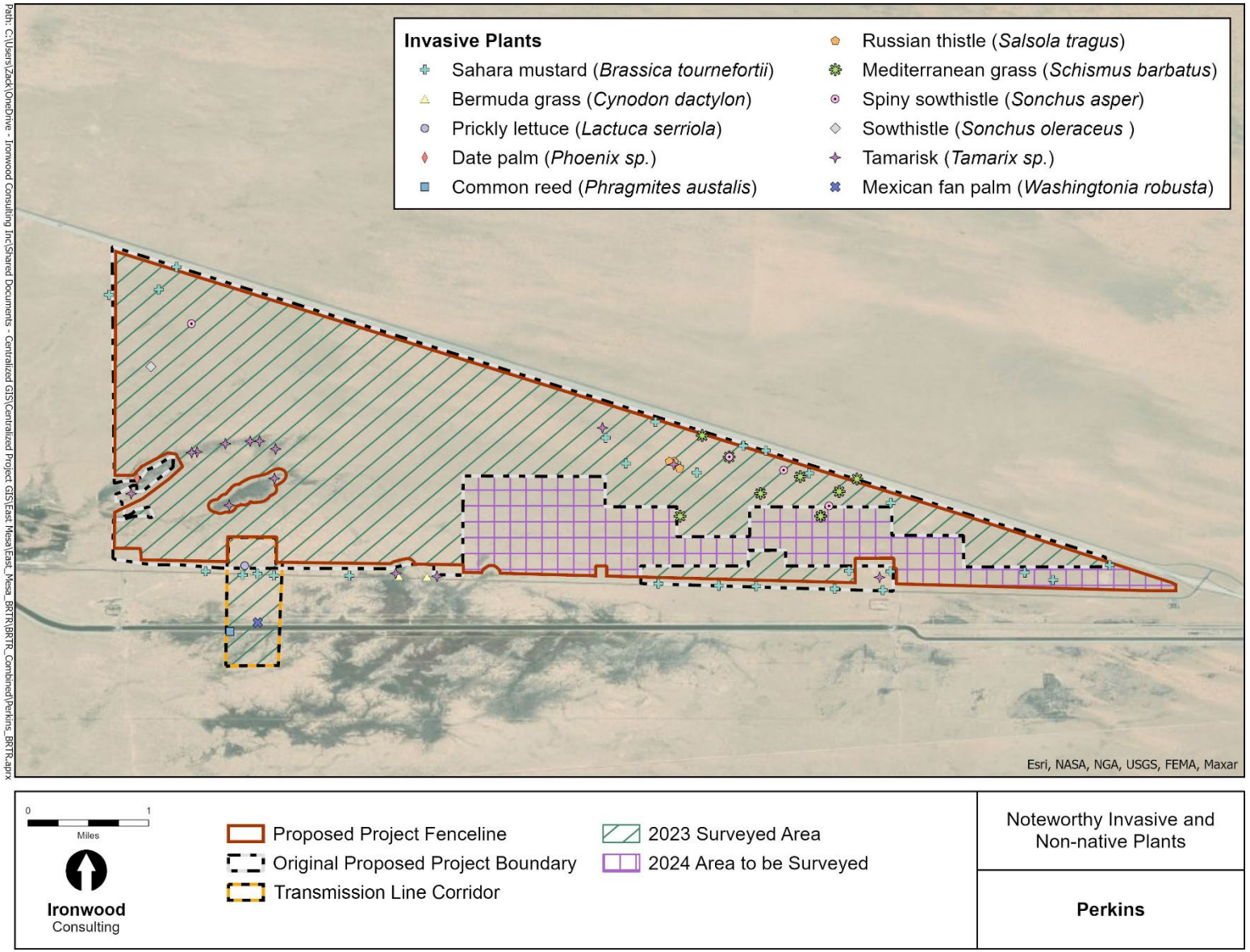


Figure 12. Noteworthy Invasive Plant Observations.



Appendix A – Potential for Special Wildlife Species to Occur

Species	Status			Habitat Requirements and Geographic Range	Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other			
REPTILES						
Flat-tailed horned lizard *Phrynosoma mccalli*	SSC	BLM-S	-	Typical habitat is sandy desert hardpan or gravel flats with scattered sparse vegetation of low species diversity. Most common in areas with a high density of harvester ants and fine windblown sand, but rarely occurs on dunes. The historic range of this lizard is throughout most of the Colorado desert from the Coachella Valley south through the Imperial Valley and west into the Anza-Borrego desert, south to extreme NE Baja California, extreme SW Arizona and NW Sonora, Mexico.	**Present**	One hundred live individuals observed on the Project site during surveys.
Colorado desert fringe-toed lizard *Uma notata*	SSC	BLM-S	-	Sparsely-vegetated arid areas with fine wind-blown sand, including dunes, flats with sandy hummocks formed around the bases of vegetation, washes, and the banks of rivers. Needs fine, loose sand for burrowing. Found in extreme southeast California in the Colorado Desert from the Salton Sea and Imperial sand hills east to the Colorado River, south to the Colorado River delta and on into extreme northeastern Baja California. Ranges west as far as the east base of Borrego Mountain.	**Present**	One individual was observed on project. Habitat on site is suitable for Colorado Desert fringe-toed lizards.
MAMMALS						
Yuma hispid cotton rat *Sigmodon hispidus eremicus*	SSC	-	-	Along the Colorado River and in grass and agricultural areas near irrigation waters. Wetlands and uplands with dense grass and herbaceous plants.	Moderate	Occurrences are located near the freshwater marshes associated with the All-American Canal within the transmission corridor of the Project site

Species	Status			Habitat Requirements and Geographic Range	Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other			
Burro deer *Odocoileus hemionus eremicus*	CPGS	-	FOC	Occur in early to intermediate successional stages of most forest, woodland, and brush habitats. Prefer a mosaic of various-aged vegetation that provides woody cover, meadow and shrubby openings, and free water.	High	No live individuals detected. Scat, tracks, and carcass observed during surveys. Burro deer may use site to access All-American Canal.
American badger *Taxidea taxus*	SSC	-	-	Suitable habitat for badgers is characterized by herbaceous, shrub, and open stages of most habitats with dry, friable soils.	Moderate	No individuals or sign observed on site, suitable habitat is present.
Desert kit fox *Vulpes macrotis*	-	-	FOC	Lives in annual grasslands or grassy open stages of vegetation dominated by scattered brush, shrubs, and scrub. Cover provided by dens they dig in open, level areas with loose-textured, sandy, and loamy soils.	High	No live individuals detected. One active burrow and multiple inactive burrows were observed during surveys.
BATS						
Western yellow bat *Lasiurus xanthinus*	SSC	-	H	Recorded below 600 m (2000 ft) in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. This species occurs year-round in California.	Moderate	Not observed. One record of western yellow bat 20 miles from the Project site.
BIRDS						
Western burrowing owl *Athene cunicularia hypugaea*	SSC	BLM-S BCC	FOC	Typically found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation. Subterranean nesters that are dependent upon burrows made by other animals for nest shelters.	**Present**	Five live individuals and nine active burrows observed on Project site during surveys.

Species	Status			Habitat Requirements and Geographic Range	Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other			
Swainson's hawk *Buteo swainsoni*	ST	BLM-S (nesting)	FOC	Require large areas of open landscape for foraging, including grasslands and agricultural lands that provide low-growing vegetation for hunting and high rodent prey populations. Swainson's hawks typically nest in large native trees such as valley oak, cottonwood, walnut, and willow, and occasionally in nonnative trees, such as eucalyptus within riparian woodlands, roadside trees, trees along field borders, isolated trees, small groves, and on the edges of remnant oak woodlands.	**Present** Nesting - Low	Two observations of flyovers were documented during surveys. There are no CNDDB records in Imperial County, but historical observation from 1978 in area (Ebird 2023).
Northern harrier *Circus hudsonius*	SSC	BCC (nesting)	-	This species does not commonly breed in desert regions of California, where suitable habitat is limited, but winters broadly throughout California in areas with suitable habitat. Northern harriers forage in open habitats including deserts, pasturelands, grasslands, and old fields.	Nesting - Low Wintering or Migration - Moderate	Not observed. No CNDDB observations in Imperial County, but observations recorded recently in area (Ebird 2023).
Prairie falcon *Falco mexicanus*	WL (nesting)	-	-	Occurs in annual grasslands to alpine meadows, but associated primarily with perennial grasslands, savannahs, rangeland, some agricultural fields, and desert scrub areas. Typically nests cliffs and bluffs.	Nesting - Low Foraging - Moderate	Not observed. Nearest record approximately 30 miles east of Project site (CNDDB 2023) and observed in area 2021 (Ebird 2023).
American peregrine falcon *Falco peregrinus anatum*	CFP CDF-S (nesting)	-	-	Rare in the arid southeast, occur and are suspected to breed in the lower Colorado River Valley. Peregrine falcons require open habitat for foraging and prefer breeding sites near water. Nesting habitat includes cliffs, steep banks, dunes, mounds, and some human-made structures.	Nesting - Low Foraging - Moderate	Not observed. No CNDDB records in Imperial County but observed recently in 2011 within area (Ebird 2023)
Loggerhead shrike (Nesting) *Lanius ludovicianus*	SSC (nesting)	-	-	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Highest density occurs in open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats.	**Present**	Eleven observations on Project site during surveys.

Species	Status			Habitat Requirements and Geographic Range	Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other			
Black-tailed gnatcatcher *Polioptila melanura*	WL	-	-	A year-round resident in southwestern United States and central and northern Mexico, in California the black-tailed gnatcatcher is found in the southeast desert wash habitat from Palm Springs and Joshua Tree National Park south, and along the Colorado River. It is now rare in eastern Mojave Desert north to the Amargosa River, Inyo County. This species nests primarily in wooded desert wash habitat, but also occurs in creosote scrub habitat during the non-breeding season.	**Present** Nesting - Moderate	Eight observations were recorded in during surveys.
California black rail *Laterallus jamaicensis coturniculus*	CFP	BLM-S	-	Small populations occur in the freshwater marshes of the Colorado River.	Moderate Nesting- low	Not observed. Occupied habitat in freshwater marsh 2,000 east of transmission corridor. (CNDDB 2023). They may fly over the Project site; however,o suitable nesting habitat within transmission corridor where is crosses the All-American Canal, and foraging habitat is marginal.
Ridgeway's [Yuma Ridgway's] rail *Rallus obsoletus yumanensis*	ST, CFP	FE	-	In California, nests in freshwater marshes and wetlands along the lower Colorado River, the Coachella Canal, the Imperial Valley, and the upper end of the Salton Sea at the Whitewater River delta and Salt Creek.	Moderate Nesting - low	Not observed. Occupied habitat in freshwater marsh 2,100 southeast of southern transmssion corridor (CNDDB 2023). They may fly over the Project site; however, no suitable nesting habitat within transmission corridor where it crosses the All-American Canal, and foraging habitat is marginal.
Bank swallow *Riparia riparia*	ST	BLM-S (nesting)	-	A neotropical migrant found primarily in riparian and other lowland habitats in California west of the deserts during the spring-fall period. Uses holes dug in cliffs and riverbanks for cover. Will also roost on logs, shoreline vegetation, and telephone wires.	Nesting- Low Migration - Moderate	Not observed. No CNDDB records in Imperial County, but observed in the area in 2014 (Ebird 2023).No suitable nesting habitat.
INVERTEBRATES						

Species	Status			Habitat Requirements and Geographic Range	Potential to Occur on Project Site	Regional Occurrence Records and Comments
	State	Federal	Other			
Western bumble bee *Bombus occidentalis*	SSC	-	-	Inhabit grasslands, shrublands and urban grassy areas. Widely distributed throughout the western United States and Canada	Moderate	Not observed. Nearest record 22 miles from Project site (CNDDB 1993).
Crotch's bumble bee *Bombus crotchii*	SSC	-	-	Inhabit grasslands and shrublands. Primarily occurs in California but range extends into Baja Mexico and Nevada.	Moderate	Not observed. Nearest record of observation 29 miles from Project site near the town of Brawley from 1948 (CNDDB 2023).

Conservation Status

Federal
- FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range
- FT = Federally listed, threatened: species likely to become endangered within the foreseeable future
- FCT = Proposed for federal listing as a threatened species
- BCC = Fish and Wildlife Service: Birds of Conservation Concern
- FSS = United States Forest Service Sensitive

State
- SSC = State Species of Special Concern
- CFP = California Fully Protected
- SE = State listed as endangered
- ST = State listed as threatened
- WL = State watch list
- CPF = California Protected Furbearing Mammal
- CPGS = California Protected Game Species
- CDF-S = California Department of Forestry & Fire Protection Sensitive

Bureau of Land Management
- BLM-S = BLM Sensitive
- FOC = DRECP Focus and Planning Species

Western Bat Working Group (WBWG)
- H = imperiled or at high risk of imperilment
- M = warrant closer evaluation, more research, and conservation actions
- L = most of the existing data support stable populations

**Species not detected during surveys may have the potential to occur on the Project site in the future

Appendix B– Potential for Special Status Plant Species to Occur

Plant Species	Form; Habitat; Distribution (Counties)	Conservation Status	Elevation (Meters)	Blooming Period	Potential To Occur on the Project Site
Harwood's milkvetch *Astragalus insularis* var. *harwoodii*	Annual herb; sandy or gravelly, desert dunes, Mojavean Desert scrub; Riverside, San Bernardino, San Diego, Inyo.	Federal: none CRPR: 2B.2	0-710	Jan-May	Minimal-No suitable habitat, outside range. Not observed Nearest record 17 miles from Project site
Pierson's milkvetch *Astragalus magdalenae* var. *Peirsonii*	Perennial herb; sandy, desert dunes, Sonoran desert scrub; San Diego, Riverside, Imperial, Los Angeles.	Federal: FT CESA: SE CRPR: 1B.2	50-250	Dec-Apr	Moderate Not observed Nearest record1.5 miles from Project site
Wiggin's croton Croton wigginsii	Perennial shrub; sandy, desert dunes, Sonoran Desert scrub; Imperial.	Federal: none CESA: SR CRPR: 2B.2	<100	Mar-May	Moderate Not observed Nearest record6 miles from Project site
Abram's spurge *Euphorbia abramsiana*	Annual herb; silty and gravelly soils, sandy flats, Mojavean desert scrub, Sonoran Desert scrub; Imperial, San Bernardino, San Diego, Riverside.	Federal: none CRPR 2B.2	<200	Sept-Nov	Low Not observed Nearest record 10 miles from Project site
Utah vine milkweed *Funastrum utahense*	Perennial herb; sandy or gravelly, Mojavean desert scrub, Sonoran desert scrub; Imperial, Riverside, San Bernardino, San Diego.	Federal: none CRPR: 4.2	<1000	Apr-Jun	Minimal-no suitable habitat, outside range Not observed Nearest record. 51 miles from Project site
Ribbed cryptantha *Johnstonella costata*	Annual herb; sandy, desert dunes, Mojavean desert scrub, Sonoran desert scrub; Imperial, Inyo, Riverside, San Bernardino, San Diego.	Federal: none CRPR: 4.3	<600	Feb-May	Moderate Not observed Nearest record near Interstate-8 Freeway close Project site
Algodones sunflower *Helianthus niveus subsp. tephrodes*	Perennial herb; sandy-Desert dunes-Sonoran desert scrub Imperial, Riverside, San Diego.	Federal: none CESA: SE CRPR: 1B.2	<100	Sept-May	Moderate Not observed Nearest record 7 miles from Project site

Plant Species	Form; Habitat; Distribution (Counties)	Conservation Status	Elevation (Meters)	Blooming Period	Potential To Occur on the Project Site
Slender cottonheads *Nemacaulis denudata var. gracilis*	Annual herb; coastal dunes, desert dunes, Sonoran desert scrub; Imperial, Riverside, San Bernardino, San Diego.	Federal: none CRPR: 2B.2	10-500	Jan-May	Moderate Not observed Nearest record 15 miles from Project site.
Giant Spanish needle *Palfixia arida var. gigantea*	Annual or perennial herb; sandy, desert dunes and alkali sink, Sonoran desert scrub; Imperial, Riverside.	Federal: none CRPR: 1B.3	<610	Feb-May	Moderate Not observed Nearest record near Interstate 8 Freeway close to Project site.
Sand food *Pholisma sonorae*	Perennial shrub; Saline habitats, playa margins of Palen Dry Lake; Riverside	Federal: none CRPR: 1B.2	<200	Apr-May	Moderate Not observed Nearest record 5 miles from Project site.

Federal FE = Federally listed endangered: species in danger of extinction throughout a significant portion of its range

FT = Federally listed, threatened: species likely to become endangered within the foreseeable future

California Rare Plant Rank (CRPR)

CRPR 1A = Presumed extirpated in California and either rare or extinct elsewhere

CRPR 1B = Rare, threatened, or endangered in California and elsewhere

CRPR 2A = Presumed extirpated in California but more common elsewhere

CRPR 2B = Rare, threatened, or endangered in California but more common elsewhere

CRPR 3 = Plants which need more information

CRPR 4 = Limited distribution – a watch list

CBR = Considered, But Rejected

1 = Seriously endangered in California (high degree/immediacy of threat; over 80% of occurrences threatened)

2 = Fairly endangered in California (moderate degree/immediacy of threat; 20%-80% of occurrences threatened)

3 = Not very endangered in California (low degree/immediacy of threats or no current threats known; <20% of occurrences threatened, or no current threats known)

California Endangered Species Act (CESA)

SR = State listed-Rare

ST = State listed-Threatened

SE = State listed-Endangered

Appendix C – Survey Results Summary

Table C 1. Noteworthy Reptile Observations.

Species	Sign Types	Notes	Date
Colorado Desert fringe-toed lizard	Live Individual	-	2023-07-03
Flat-tailed horned lizard	Live Individual	-	2023-03-21
Flat-tailed horned lizard	Live Individual	-	2023-03-24
Flat-tailed horned lizard	Live Individual	With scat and tracks. Found buried in sand after following tracks.	2023-03-24
Flat-tailed horned lizard	Live Individual	_	2023-03-25
Flat-tailed horned lizard	Live Individual	-	2023-03-25
Flat-tailed horned lizard	Live Individual	-	2023-03-27
Flat-tailed horned lizard	Live Individual	-	2023-03-27
Flat-tailed horned lizard	Live Individual	-	2023-03-27
Flat-tailed horned lizard	Live Individual	-	2023-03-28
Flat-tailed horned lizard	Live Individual	-	2023-03-28
Flat-tailed horned lizard	Live Individual	-	2023-03-28
Flat-tailed horned lizard	Live Individual	-	2023-03-28
Flat-tailed horned lizard	Live Individual	Gravelly substrate.	2023-03-31
Flat-tailed horned lizard	Live Individual	-	2023-04-26
Flat-tailed horned lizard	Live Individual	FTHL was found sleeping in a small burrow near the base of a creosote.	2023-05-17
Flat-tailed horned lizard	Live Individual	Followed tracks to a creosote mound to a live individual resting near the base of creosote.	2023-05-18
Flat-tailed horned lizard	Live Individual	-	2023-05-22
Flat-tailed horned lizard	Live Individual	-	2023-05-22
Flat-tailed horned lizard	Live Individual	-	2023-05-22
Flat-tailed horned lizard	Live Individual	FTHL found basking outside of small burrow.	2023-05-24
Flat-tailed horned lizard	Live Individual	-	2023-06-12
Flat-tailed horned lizard	Live Individual	Resting in the shade of a creosote.	2023-06-12
Flat-tailed horned lizard	Live Individual	An adult and juvenile found resting in the shade together.	2023-06-12
Flat-tailed horned lizard	Live Individual	An adult and juvenile found resting in the shade together.	2023-06-12
Flat-tailed horned lizard	Live Individual	-	2023-06-14
Flat-tailed horned lizard	Live Individual	-	2023-06-14
Flat-tailed horned lizard	Live Individual	-	2023-06-26
Flat-tailed horned lizard	Live Individual	-	2023-06-27
Flat-tailed horned lizard	Live Individual	-	2023-06-28
Flat-tailed horned lizard	Live Individual	-	2023-06-29
Flat-tailed horned lizard	Live Individual; Scat; Tracks	Tracks found near any pile tracks lead away towards creosote mound; scar found and then lizard.	2023-05-18

Species	Sign Types	Notes	Date
Flat-tailed horned lizard	Live Individual; Scat; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Scat; Tracks	Tracks scat and live individual found.	2023-06-12
Flat-tailed horned lizard	Live Individual; Scat; Tracks	-	2023-06-21
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-03-25
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping in sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping in the sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL buried in the sand with only head exposed.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to horned lizard completely buried in the sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	FTHL tracks lead to creosote mound and lizard found sleeping in the sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks lead to lizard sleeping in the shade.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks lead up a creosote mound to a FTHL resting exposed on sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks found near any pile followed to juvenile FTHL buried in the sand.	2023-05-23
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping partially buried in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL on creosote.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL buried in sand less than 5m from previous individual.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Adult lizard found resting in sand on creosote mound.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to juvenile FTHL.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to juvenile FTHL sleeping in the sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping on top of sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to FTHL sleeping buried in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to sleeping FTHL; buried in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks followed to sleeping FTHL.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	Tracks lead to FTHL fully submerged in sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	FTHL found buried in the sand.	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-24
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25

Species	Sign Types	Notes	Date
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-05-25
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-12
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-12
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-12
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-13
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-13
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-14
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-14
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-14
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-14
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-15
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-16
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-19
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-20
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-20
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-20
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-21
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-21

Species	Sign Types	Notes	Date
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-21
Flat-tailed horned lizard	Live Individual; Tracks	-	2023-06-28

Table C 2. Noteworthy Avian Observations.

Species	Sign Types	Notes	Date
Black Tailed Gnatcatcher	Live Individual	-	2023-03-24
Black Tailed Gnatcatcher	Live Individual	-	2023-03-25
Black Tailed Gnatcatcher	Live Individual	-	2023-03-29
Black Tailed Gnatcatcher	Live Individual	-	2023-03-30
Black Tailed Gnatcatcher	Live Individual	-	2023-03-30
Black Tailed Gnatcatcher	Live Individual	-	2023-03-31
Black Tailed Gnatcatcher	Live Individual	2 Black tailed gnatcatchers	2023-04-01
Burrowing Owl	Burrow; Pellets; Whitewash; Feather(s)	-	2023-03-21
Burrowing Owl	Burrow; Pellets; Whitewash	-	2023-03-21
Burrowing Owl	Burrow; Pellets; Whitewash	5 openings.	2023-03-22
Burrowing Owl	Burrow; Pellets; Whitewash	-	2023-03-23
Burrowing Owl	Live Individual	Owl flew out while conducting survey.	2023-03-23
Burrowing Owl	Live Individual	-	2023-03-23
Burrowing Owl	Burrow; Pellets	Pellet seen near DKF complex.	2023-03-24
Burrowing Owl	Carcass	-	2023-03-25
Burrowing Owl	Live Individual	Uncertain of adult status.	2023-03-25
Burrowing Owl	Live Individual; Burrow; Pellets; Whitewash	Flushed owl.	2023-03-25
Burrowing Owl	Carcass	Wing is possibly from the same bird as carcass.	2023-03-25
Burrowing Owl	Burrow; Pellets	-	2023-03-29
Burrowing Owl	Live Individual	-	2023-03-29
Burrowing Owl	Burrow; Pellets	DKF scat near burrow.	2023-03-29
Burrowing Owl	Burrow; Whitewash	-	2023-03-29
Loggerhead Shrike	Live Individual	-	2023-03-20
Loggerhead Shrike	Live Individual	-	2023-03-21
Loggerhead Shrike	Live Individual	-	2023-03-22
Loggerhead Shrike	Live Individual	-	2023-03-23
Loggerhead Shrike	Live Individual	-	2023-03-23
Loggerhead Shrike	Live Individual	-	2023-03-24
Loggerhead Shrike	Live Individual	-	2023-03-27
Loggerhead Shrike	Live Individual	-	2023-03-27

Species	Sign Types	Notes	Date
Loggerhead Shrike	Live Individual	Perched in Prosopis.	2023-03-30
Loggerhead Shrike	Live Individual	-	2023-03-31
Loggerhead Shrike	Live Individual	-	2023-04-01
Swainson's Hawk	Live Individual	Migrating.	2023-03-21
Swainson's Hawk	Live Individual	-	2023-03-25

Table C 3. Noteworthy Mammal Observations.

Mammal Species	Sign Types	Notes	Date
Burro Deer	Scat	-	2023-03-20
Burro Deer	Scat	-	2023-03-21
Burro Deer	Scat	A few clusters of scat.	2023-03-22
Burro Deer	Scat	-	2023-03-27
Burro Deer	Scat	-	2023-03-27
Burro Deer	Scat	-	2023-03-27
Burro Deer	Scat	-	2023-03-27
Burro Deer	Scat	-	2023-03-28
Burro Deer	Scat	-	2023-03-29
Burro Deer	Carcass	Very old bone.	2023-03-29
Burro Deer	Scat	-	2023-03-30
Burro Deer	Tracks	300 m radius thru dry wash.	2023-03-31
Burro Deer	Scat	-	2023-03-31
Canid	Burrow	DKF scat at entrance.	2023-03-22
Canid	Burrow; Scat	Old scat.	2023-03-22
Canid	Burrow	-	2023-03-22
Canid	Burrow; Scat	Inactive, most entrances collapsed.	2023-03-22
Canid	Burrow	-	2023-03-22
Canid	Burrow	-	2023-03-22
Canid	Burrow	-	2023-03-22
Canid	Burrow; Scat	Collapsed burrow; old scat.	2023-03-23
Canid	Burrow; Scat	Old and recent scat.	2023-03-23
Canid	Burrow; Scat	-	2023-03-23
Canid	Burrow; Scat	3 entrances partially buried and 2 entrances obvious.	2023-03-23
Canid	Burrow	-	2023-03-24
Canid	Burrow	Burrow narrows 1m inward. Possibly utilized by rabbit.	2023-03-24
Canid	Burrow	-	2023-03-24
Canid	Burrow	Rabbit scat seen around burrow.	2023-03-24
Canid	Burrow	Burrow curves to left. No canid signs.	2023-03-24

Mammal Species	Sign Types	Notes	Date
Canid	Burrow; Scat	-	2023-03-25
Canid	Burrow	-	2023-03-25
Canid	Burrow	Potential for burrowing owl.	2023-03-27
Canid	Burrow	-	2023-03-27
Canid	Burrow	-	2023-03-27
Canid	Burrow	-	2023-03-27
Canid	Burrow	-	2023-03-27
Canid	Burrow; Dig Marks; Scat	Large; obscured by ephedra.	2023-03-28
Canid	Burrow; Scat	-	2023-03-28
Canid	Burrow	Possible owl pellet.	2023-03-28
Canid	Burrow; Scat	-	2023-03-28
Canid	Burrow	-	2023-03-28
Canid	Burrow; Scat	-	2023-03-28
Canid	Burrow	-	2023-03-28
Canid	Burrow	-	2023-03-28
Canid	Burrow; Scat	Collapsed; under *Ambrosia Dumosa*.	2023-03-28
Canid	Burrow	-	2023-03-29
Canid	Burrow	-	2023-03-29
Canid	Burrow	Large opening; under *Isocoma acradenia*.	2023-03-29
Canid	Burrow; Scat	-	2023-03-29
Canid	Burrow	Complex, snake skin in one burrow.	2023-03-29
Canid	Burrow	Potential canid burrow. Could be collapsed soil, opening large.	2023-03-29
Canid	Burrow; Scat	DFK scat; BUOW pellets seen at mouth of burrow.	2023-03-29
Canid	Burrow	Potentially a burrowing owl site.	2023-03-29
Canid	Burrow	North end of mound with dead vegetation.	2023-03-29
Canid	Burrow	Large collapsed burrow. *Isocoma* by entrance on north.	2023-03-29
Canid	Burrow	-	2023-03-29
Canid	Burrow	Old burrow. No scat sign.	2023-03-29
Canid	Burrow	-	2023-03-29
Canid	Burrow	-	2023-03-29
Canid	Burrow	Old burrow; partially eroded. No scat sign.	2023-03-29
Canid	Burrow	South end of mound. *Isocoma*.	2023-03-29
Canid	Burrow	Whitewash within 2 m	2023-03-29
Canid	Burrow	Turning tunnel, end not visible. SE end of ephedra mound.	2023-03-29
Canid	Burrow; Scat	-	2023-03-29
Canid	Burrow	Very shallow.	2023-03-29

Mammal Species	Sign Types	Notes	Date
Canid	Burrow	Small but possible for owl.	2023-03-29
Canid	Burrow; Scat	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow; Scat	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	Some old white wash.	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-30
Canid	Burrow	-	2023-03-31
Canid	Burrow	No scat; possibly rabbit.	2023-03-31
Canid	Burrow; Scat	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow; Scat	-	2023-03-31
Canid	Burrow	Inactive. maybe rabbit.	2023-03-31
Canid	Burrow; Scat	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	-	2023-03-31
Canid	Burrow	Probably rabbit.	2023-03-31
Canid	Carcass	Old skull of coyote or fox.	2023-04-01
Canid	Burrow	2 burrow entrances; likely being used by rabbits.	2023-04-03
Canid	Burrow	-	2023-04-03
Canid	Burrow	-	2023-04-03
Desert Kit Fox	Burrow; Scat	Very old.	2023-03-20
Desert Kit Fox	Scat	Very old scat. Multiple scat seen within a 10 m radius.	2023-03-20
Desert Kit Fox	Burrow	-	2023-03-20
Desert Kit Fox	Dig Marks; Scat	-	2023-03-22
Desert Kit Fox	Tracks	-	2023-03-22

Mammal Species	Sign Types	Notes	Date
Desert Kit Fox	Burrow	DKF burrow complex.	2023-03-24
Desert Kit Fox	Burrow; Scat	-	2023-03-24
Desert Kit Fox	Burrow	Burrow narrows at ~1m in.	2023-03-24
Desert Kit Fox	Burrow; Scat	2 entrances have collapsed, old complex.	2023-03-24
Desert Kit Fox	Burrow; Scat	-	2023-03-24
Desert Kit Fox	Burrow; Tracks; Scat	Tracks slightly visible seen in burrow - south entrance.	2023-03-24
Desert Kit Fox	Burrow; Scat	Large complex. Fresh scat seen outside of 1 burrow entrance.	2023-03-24
Desert Kit Fox	Burrow	-	2023-03-24
Desert Kit Fox	Burrow; Scat	-	2023-03-24
Desert Kit Fox	Burrow	-	2023-03-25
Desert Kit Fox	Burrow; Scat	Inactive.	2023-03-25
Desert Kit Fox	Burrow	-	2023-03-27
Desert Kit Fox	Burrow; Scat	-	2023-03-27
Desert Kit Fox	Burrow; Scat	Some scat seems relatively recent so potentially active; another burrow to the west.	2023-03-27
Desert Kit Fox	Burrow; Scat	Single large burrow. Old DKF scat.	2023-03-28
Desert Kit Fox	Burrow; Scat	Mostly filled in.	2023-03-28
Desert Kit Fox	Burrow; Scat	Burrow curves left.	2023-03-28
Desert Kit Fox	Burrow; Scat	-	2023-03-28
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Fresh and old scat all throughout complex. One Burrow ~10m east of complex.	2023-03-28
Desert Kit Fox	Burrow; Scat	Burrow opening partially closed. Very old DKF scat.	2023-03-28
Desert Kit Fox	Burrow	-	2023-03-28
Desert Kit Fox	Burrow	-	2023-03-28
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Abundant of old scat.	2023-03-29
Desert Kit Fox	Burrow; Scat	Scat is old.	2023-03-29
Desert Kit Fox	Burrow	North end of mound; both entrances.	2023-03-29
Desert Kit Fox	Carcass	Scattered bones including part of skull.	2023-03-29
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Old scat seen around burrows.	2023-03-29
Desert Kit Fox	Burrow; Scat	DKF complex. Scat old.	2023-03-29
Desert Kit Fox	Burrow	Coyote tracks and scat nearby.	2023-03-29
Desert Kit Fox	Burrow; Scat	-	2023-03-30
Desert Kit Fox	Carcass	Upper jaw bone found.	2023-03-30
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Old scat around burrows.	2023-03-30
Desert Kit Fox	Burrow	-	2023-03-30
Desert Kit Fox	Burrow; Scat	DKF burrow complex. Abundance of old scat.	2023-03-30
Desert Kit Fox	Burrow; Scat	DKF complex. Old scat.	2023-03-30
Desert Kit Fox	Burrow; Scat	-	2023-03-31

Mammal Species	Sign Types	Notes	Date
Desert Kit Fox	Burrow; Scat	-	2023-03-31
Desert Kit Fox	Burrow; Scat	-	2023-03-31
Desert Kit Fox	Burrow; Scat	-	2023-03-31
Desert Kit Fox	Burrow; Scat	-	2023-04-03

Table C 4. Noteworthy Invasive Plant Species Observations.

Plant Species	Phenology	Date
Brassica tournefortii (Sahara mustard)	Vegetative	2023-03-20
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-20
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-20
Brassica tournefortii (Sahara mustard)	Vegetative	2023-03-20
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-21
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-21
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-03-21
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-03-21
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-21
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-21
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-03-21
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-22
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-22
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-22
Brassica tournefortii (Sahara mustard)	Flower / Fruit; Fruit Only	2023-03-22
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-22
Brassica tournefortii (Sahara mustard)	Flower Only	2023-03-22
Brassica tournefortii (Sahara mustard)	Vegetative	2023-03-23
Brassica tournefortii (Sahara mustard)	Flower / Fruit; Plant dried up / Not chlorophytic; Vegetative	2023-03-23
Brassica tournefortii (Sahara mustard)	Vegetative	2023-03-23
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-24
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-27
Brassica tournefortii (Sahara mustard)	Flower / Fruit	2023-03-30
Brassica tournefortii (Sahara mustard)	Flower Only	2023-03-30
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-03-31
Brassica tournefortii (Sahara mustard)	Fruit Only	2023-04-01
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-04-03
Brassica tournefortii (Sahara mustard)	Plant dried up / Not chlorophytic	2023-04-03
Cynadon dactylon (Bermuda grass)	Flower / Fruit	2023-03-24
Cynadon dactylon (Bermuda grass)	Fruit Only	2023-03-25

Plant Species	Phenology	Date
Lactuca serriola (Prickly lettuce)	Vegetative	2023-03-31
Pheonix sp. (Date palm)	Vegetative	2023-04-03
Phragmites austalis (Common reed)	Vegetative	2023-04-01
Salsola tragus (Russian thistle)	Plant dried up / Not chlorophytic	2023-03-22
Salsola tragus (Russian thistle)	Plant dried up / Not chlorophytic	2023-03-22
Salsola tragus (Russian thistle)	Plant dried up / Not chlorophytic	2023-03-23
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-21
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-21
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-21
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-21
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-22
Schismus barbatus (Mediterranean grass)	Flower / Fruit	2023-03-22
Schismus barbatus (Mediterranean grass)	Vegetative	2023-03-23
Schismus barbatus (Mediterranean grass)	Vegetative	2023-03-23
Sonchus asper (Spiny sowthistle)	Flower / Fruit	2023-03-21
Sonchus asper (Spiny sowthistle)	Vegetative	2023-03-21
Sonchus asper (Spiny sowthistle)	Vegetative	2023-03-22
Sonchus asper (Spiny sowthistle)	Flower / Fruit	2023-03-30
Sonchus oleraceus (Sowthistle)	Vegetative	2023-03-30
Tamarix sp. (Tamarisk)	Vegetative	2023-03-20
Tamarix sp. (Tamarisk)	Flower / Fruit; Vegetative	2023-03-22
Tamarix sp. (Tamarisk)	Flower / Fruit	2023-03-24
Tamarix sp. (Tamarisk)	Flower Only; Vegetative	2023-03-25
Tamarix sp. (Tamarisk)	Flower Only	2023-03-29
Tamarix sp. (Tamarisk)	Flower Only	2023-03-29
Tamarix sp. (Tamarisk)	Vegetative	2023-03-29
Tamarix sp. (Tamarisk)	Flower Only	2023-03-29
Tamarix sp. (Tamarisk)	Vegetative	2023-03-30
Tamarix sp. (Tamarisk)	Flower Only	2023-03-30
Tamarix sp. (Tamarisk)	-	2023-03-31
Tamarix sp. (Tamarisk)	Flower / Fruit; Vegetative	2023-04-01
Tamarix sp. (Tamarisk)	Flower / Fruit	2023-04-01
Tamarix sp. (Tamarisk)	Flower / Fruit	2023-04-03
Washingtonia robusta (Mexican fan palm)	Vegetative	2023-04-03

Table C 5. Avian Count Summary.

Avian Species	Spring 2023 Avian Count Dates												
	3/21	3/22	3/23	3/24	3/25	3/27	3/28	3/29	3/30	3/31	4/1	4/3	Species Totals
American coot *(Fulica americana)*											1		1
Ash-throated flycatcher (*Myiarchus cinerascens)*										1			1
Barn swallow (*Hirundo rustica)*		1		17	1				2	2	2		25
Black-tailed gnatcatcher *(Polioptila melanura)*					2						2		4
Black-throated sparrow (*Amphispiza bilineata*)										3			3
Brewer's blackbird *(Euphagus cyanocephalus)*				3									3
Brewer's sparrow *(Spizella breweri)*										2			2
Cactus wren (*Campylorhynchus brunneicapillus*)								1			1		2
Canada goose *(Branta canadensis)*											3		3
Cliff swallow (*Petrochelidon pyrrhonota)*		25	59	20						3	16		123
Common raven (*Corvus corax)*	1				1				6	2			10
Common yellowthroat *(Geothlypis trichas)*										2	6		8
Costa's hummingbird (*Calypte costae)*					1								1
Double-crested cormorant (*Phalacrocorax auritus)*		36											36
European starling *(Sturnus vulgaris)*											5		5

Avian Species	Spring 2023 Avian Count Dates												
	3/21	3/22	3/23	3/24	3/25	3/27	3/28	3/29	3/30	3/31	4/1	4/3	Species Totals
Great blue heron (Ardea herodias)		1									1		2
House finch (*Haemorhous mexicanus)*	4	1	3								2		10
Lesser nighthawk (*Chordeiles acutipennis)*	1	2					3	2	2	5		3	18
Loggerhead shrike (*Lanius ludovicianus)*	2	1	1	1						1	1		7
Mallard (*Anas platyrhynchos)*											3		3
Mourning dove (*Zenaida macroura)*	1		3	7	2	1	1	4	3	7	10	8	47
Northern flicker (*Colaptes auratus*)											1		1
Northern rough-winged swallow *(Stelgidopteryx serripennis)*		6	20	11					1	3		13	54
Osprey (*Pandion haliaetus)*											1		1
Red-tailed hawk *(Buteo jamaicensis)*				2								2	4
Red-winged blackbird (*Agelaius phoeniceus)*											3	7	10
Ruby crowned kinglet *(Corthylio calendula)*			1							1	1		3
Sagebrush sparrow (*Artemisiospiza nevadensis*)											1		1
Sage Thrasher (*Oreoscoptes montanus*)	1												1
Savannah sparrow *(Passerculus sandwichensis)*	1												1

Avian Species	Spring 2023 Avian Count Dates												
	3/21	3/22	3/23	3/24	3/25	3/27	3/28	3/29	3/30	3/31	4/1	4/3	Species Totals
Song sparrow (*Melospiza melodia*)											1		1
Swainson's hawk (*Buteo swainsoni*)	5												5
Turkey vulture (*Cathartes aura)*	1	2	4	1									8
Verdin (*Auriparus flaviceps)*			1	1	1		1	2		6	3	1	16
Violet green swallow *(Tachycineta thalassina)*	10	10	10										30
Western kingbird (*Tyrannus verticalis)*			1					1			2		4
Whimbrel (*Numenius phaeopus*)			7	5					4				16
White-crowned sparrow (*Zonotrichia leucophrys)*			3		5	1		2					11
White-throated swift *(Aeronautes saxatalis)*	5										1		6
Wilson’s warbler *(Cardellina pusilla)*										2			2
Yellow-rumped warbler (*Setophaga coronata)*		3		4	2							1	10
Yellow-rumped (Audubon’s) warbler *(Setophaga auduboni)*			3										3
Total Observed	**32**	**88**	**116**	**72**	**15**	**2**	**5**	**12**	**18**	**40**	**67**	**35**	**502**

Appendix D— Wildlife and Plant Compendiums

Table D 1. Wildlife Incidental Species Observed.

Common Name	Scientific Name
Reptiles	
Desert iguana	*Dipsosaurus dorsalis*
Flat tailed horned lizard	***Phrynosoma mccallii***
Ornate tree lizard	*Urosaurus ornatus*
Side blotched lizard	*Uta stansburyana*
Sidewinder	*Crotalus cerastes*
Western diamond-backed rattlesnake	*Crotalus atrox*
Western whiptail lizard	*Aspidoscelis tigris*
Zebra-tailed lizard	*Callisaurus draconoides*
Birds	
Ash-throated flycatcher	*Myiarchus cinerascens*
Barn swallow	*Hirundo rustica*
Black-tailed gnatcatcher	***Polioptila melanura***
Black-throated sparrow	*Amphispiza bilineata*
Blue-gray gnatcatcher	*Polioptila caerulea*
Brewer's sparrow	*Spizella breweri*
Burrowing owl	***Athene cunicularia***
Cliff swallow	*Petrochelidon pyrrhonota*
Common poorwill	*Phalaenoptilus nuttallii*
Common raven	*Corvus corax*
Common yellowthroat	*Geothlypis trichas*
Double crested cormorant	*Phalacrocorax auritus*
House finch	*Carpodacus menicanus*
House wren	*Troglodytes aedon*
Killdeer	*Charadrius vociferus*
Lesser nighthawk	*Chordeiles acutipennis*
Loggerhead shrike	***Lanius ludovicianus***
Mourning dove	*Zenaida macroura*
Northern harrier	***Circus cyaneus***
Northern rough-winged swallow	*Stelgidopteryx serripennis*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ruby crowned kinglet	*Regulus calendula*
Sage thrasher	*Oreoscoptes montanus*
Savannah sparrow	*Passerculus sandwichensis*
Swainson's hawk	***Buteo swainsoni***

Common Name	Scientific Name
Turkey vulture	*Cathartes aura*
Verdin	*Auriparus flaviceps*
Violet green swallow	*Tacycineta thalassina*
Western kingbird	*Tyrannus verticalis*
Whimbrel	*Numenius phaeopus*
Wilson's warbler	*Wilsonia pusilla*
Yellow rumped warbler	*Setophaga coronata*
Mammals	
Black-tailed jackrabbit	*Lepus califonica*
Merriam's kangaroo rat	*Dipodomys merriami*
Round tailed ground squirrel	*Xerospermophilus tereticaudus*
Invertebrates	
Honey bee	*Apis mellifera*
Inflated beetle	*Cysteodemus armatus*

BOLD = special status

Table D 2. Incidental Plant Species Observed.

Family	Scientific Name	Common Name
Amaranthaceae	*Atriplex canescens*	four-winged saltbush
Amaranthaceae	*Atriplex lentiformis*	-
Apocynaceae	*Asclepias subulata*	skeleton milkweed
Areaceae	**Phoenix dactylifera*	date palm
Areaceae	**Washingtonia robusta*	Mexican fan palm
Asteraceae	**Lactuca serriola*	prickly lettuce
Asteraceae	**Sonchus asper*	spiny sowthistle
Asteraceae	*Ambrosia dumosa*	burbush
Asteraceae	*Ambrosia dumosa*	white bursage
Asteraceae	*Baileya pauciradiata*	lax flower
Asteraceae	*Baileya pleniradiata*	wooly marigold
Asteraceae	*Bebbia juncea var. aspera*	rush sweetbush
Asteraceae	*Encelia farinosa*	brittlebush
Asteraceae	*Geraea canescens*	hairy desert sunflower
Asteraceae	*Geraea canescens*	desert sunflower
Asteraceae	*Isocoma acradenia*	alkali goldenbush
Asteraceae	*Palafoxia arida var. arida*	Desert needle
Asteraceae	*Pectis papposa*	manybristle chinchweed
Asteraceae	*Pectis papposa var. papposa*	chinch weed
Asteraceae	*Pluchea sericea*	arrow weed

Family	Scientific Name	Common Name
Asteraceae	*Stephanomeria pauciflora*	brown-plume wire-lettuce
Asteraceae	*Stephanomeria pauciflora*	wire lettuce
Boraginaceae	*Johnstonella angustifolia*	marrow-leaved johnstonella
Boraginaceae	*Pectocarya heterocarpa*	-
Boraginaceae	*Cryptantha angustifolia*	narrow leaved cryptantha
Boraginaceae	*Pectocarya heterocarpa*	chuckwalla pectocarya
Boraginaceae	*Tiquilia plicata*	fanleaf crinklemat
Brassicaceae	**Brassica tournefortii*	Saharan mustard
Brassicaceae	*Dithyrea californica*	spectacle pod
Caryophyllaceae	*Achyronychia cooperi*	frost mat
Chenopodiaceae	*Suaeda nigra*	bush seepweed
Ehretiaceae (Boraginaceae)	*Tiquilia plicata*	fanleaf crinklemat
Ephedraceae	*Ephedra trifurca*	long leafed ephedra
Euphorbiaceae	*Euphorbia polycarpa*	smallseed sandmat
Fabaceae	*Dalea mollissima*	-
Fabaceae	*Prosopis glandulosa*	honey mesquite
Fabaceae	*Psorothamnus emoryi*	dye bush
Fabaceae	*Astragalus aridus*	annual desert milk vetch
Fabaceae	*Dalea mollissima*	silky dalea
Fabaceae	*Prosopis pubescens*	screwbean mesquite
Fabaceae	*Prosopis glandulosa var. torreyana*	honey mesquite
Fabaceae	*Psorothamnus emoryi*	indigo bush
Liliaceae	*Hesperocallis undulata*	desert lily
Loasaceae	*Mentzelia longiloba*	many flowered mentzelia
Nyctaginaceae	*Abronia villosa*	sand verbena
Nyctaginaceae	*Abronia villosa var. villosa*	hairy sand verbena
Nyctaginaceae	*Allionia incarnata*	windmills
Onagraceae	*Chylismia claviformis subsp. yumae*	Yuma clavate fruited primrose
Onagraceae	*Oenothera deltoides*	birdcage primrose
Onagraceae	*Chylismia brevipes subsp. brevipes*	Golden suncup
Orobanchaceae	*Aphyllon cooperi (= Orobanche cooperi)*	desert broomrape
Plantaginaceae	*Plantago spp.*	-
Plantaginaceae	*Plantago ovata*	wooly plantain
Poaceae	**Schismus arabicus*	Mediterranean grass
Poaceae	*Aristida adscensionis*	annual three-awn grass
Poaceae	*Bouteloua barbata*	sixweeks grama
Poaceae	*Bouteloua aristidoides*	needle gramma
Poaceae	*Bouteloua barbata var. barbata*	six-weeks gramma
Poaceae	*Cynodon dactylon*	bermuda grass

Family	Scientific Name	Common Name
Poaceae	*Schismus arabicus*	Mediterranean grass
Poaceae	*Schismus barbatus*	Mediterranean grass
Poaceae	*Aristida purpurea*	purple three-awn
Poaceae	*Phragmites australis*	-
Polygonaceae	*Chorizanthe rigida*	devil's spineflower
Polygonaceae	*Eriogonum deserticola*	Colorado desert buckwheat
Polygonaceae	*Eriogonum trichopes*	little desert buckwheat
Polygonaceae	*Chorizanthe rigida*	devil's spineflower
Resedaceae	*Oligomeris linifolia*	Leaved cambess
Rosaceae	*Prunus fasciculata*	desert almond
Solanaceae	*Lycium andersonii*	Anderson's desert thorn
Tamaricaceae	**Tamarix ramossisima*	tamarisk
Tamaricaceae	**Tamarix chinensis*	tamarisk
Zygophyllaceae	*Larrea tridentata*	creosote bush

* = invasive species

Appendix J Biological Technical Data

Appendix J.2 Jurisdictional Waters Report

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JURISDICTIONAL WATERS REPORT

January 2024

Perkins Renewable Energy Project

Prepared for:

IP Perkins, LLC and IP Perkins BAAH, LLC

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Acronyms

AJD	Approved Jurisdictional Determination
amsl	above mean sea level
ACEC	Area of Critical Environmental Concern
BLM	Bureau of Land Management
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CNPS	California Native Plant Society
CWA	Clean Water Act
EPA	Environmental Protection Agency
FEIS	Final Environmental Impact Statement
GIS	Geographic Information Systems
GPS	Global Positioning System
HR	Hydrologic Region
I-10	Interstate 10
LSAA	Lake and Streambed Alteration Agreement
NEPA	National Environmental Policy Act
NECO Plan	Northern and Eastern Colorado Desert Coordinated Management Plan
NRCS	Natural Resource Conservation Service
NVCS	National Vegetation Classification System
PV	Photovoltaic
ROW	Right of Way
SWRCB	State Water Resources Control Board
TNW	Traditionally Navigable Water
USACE	U.S. Army Corps of Engineers
USFWS	US Fish and Wildlife Service
WDR	Waste Discharge Requirements

1 Introduction

1.1 Background

IP Perkins, LLC and IP Perkins BAAH, LLC (Proponents), subsidiaries of Intersect Power, LLC are proposing to develop the Perkins Renewable Energy Project (Project) east of El Centro, near Holtville in Imperial County, California (Figure 1). The proposed Project site is located on a combination of Bureau of Land Management (BLM)-managed lands, Bureau of Reclamation (BOR)-managed lands, and private lands. The Project's two 500 kV loop-in transmission lines will be located within a transmission corridor that will traverse BOR lands. The BLM-managed portion of the Project site is comprised of two land parcels totaling approximately 5,822 acres. The BOR-managed portion of the site is approximately 827.8 acres, and the private land is approximately 515.3 acres. These areas, along with a 1.7-kilometer (1.06-mile) transmission line corridor, will collectively be referred to as the Project site, unless otherwise described in their specific components. Ironwood Consulting, Inc. (Ironwood) was contracted to delineate jurisdictional waters and other aquatic resources on the Project site.

The following report describes delineation methods and the results of investigations to determine the presence of aquatic resources that may be subject to federal jurisdiction under the Clean Water Act, Regional Water Quality Control Board (RWQCB) jurisdiction as waters of the state (WOTS), and/or California Department of Fish and Wildlife (CDFW) jurisdiction under § 1602 of the California Fish and Game Code (CFGC). The primary purpose of this report is to provide the location, extent, and estimated impacts to potentially jurisdictional waters in support of Project compliance requirements under the RWQCB Water Quality Certification and Wetlands Program and Lake and Streambed Alteration (LSA) Program implemented by CDFW. The delineation in this report only addresses the BLM-managed portion of the Project. The results of the delineation for the BOR-managed and private lands will be included in a subsequent Jurisdictional Waters Report addendum to be prepared following Spring 2024 surveys.

1.2 Site Location

The Project site is in Imperial County within the Sonoran Desert of Southern California. It is located east of an irrigated agricultural region, with the nearest towns of Date City and Holtville located just west of the Project site. The Project site is approximately 36 miles southeast of the Salton Sea, 8 miles west of the Algodones Dunes, and its southernmost boundary is approximately 1.3 miles north of the United States-Mexico border (Figure 1). The Project site is located directly south of Interstate 8 and directly north of Highway 98. The Project occurs on two 7.5-minute USGS topographic quadrangles – Midway Well NW and Midway Well. Two 500 kV loop-in transmission lines would exit the western BLM site prior to crossing BOR lands where they would interconnect with the existing SDG&E Southwest Powerlink 500 kV Transmission Line, after crossing the All-American Canal.

The entire Project site occurs on a combination of BLM-managed lands, BOR-managed lands, and private lands. Public lands managed by the BLM are within the Desert Renewable Energy Conservation Plan (DRECP) Development Focus Area (DFA). Areas of Critical Environmental Concern (ACEC) are outside of but adjacent to the Project site (Figures 1, 2); East Mesa ACEC is to the north and Lake Cahuilla ACEC is to the west. There is a small area of the larger western BLM parcel that overlaps with an Important Bird Area (Audubon, California, 2011) on its westernmost border.

1.3 Project Summary

IP Perkins, LLC and IP Perkins BAAH, LLC proposes to construct, operate, maintain, and decommission an approximately 500 to 1,150 megawatt (MW) solar PV and battery energy storage facility on a combination of BLM-administered public lands, BOR-administered lands, and private lands collectively referred to as the Project site. The Project would deliver clean power to ratepayers in California, minimize environmental impacts and land disturbance associated with solar development, and bring living-wage jobs to Imperial County.

The Project would generate and store 500 to 1,150 MW of renewable electricity via arrays of solar PV panels, a battery energy storage system (BESS), and appurtenant facilities. The final Project capacity will be based on optimization of buildable acreage and solar PV technology at the time of procurement. The Project would construct a new gen-tie line that would connect the Project substation(s) to a new high voltage breaker and a half (BAAH) switchyard. From the BAAH switchyard, two new 500 kV loop-in transmission lines would be constructed to and interconnected with the existing SDG&E Sunrise Powerlink 500 kV Transmission Line that travels east-west just south of the southern portion of the Project site, crossing BOR lands and terminating in the Imperial Valley Substation (Substation) southwest of El Centro.

Depending upon the timeline of the interconnection agreement, the Project could be operational by as early as late 2027 and operate for up to 50 or more years. At the end of its useful life, the Project would be decommissioned. Revegetation would be conducted in accordance with a Decommissioning and Revegetation Plan.

2 REGULATORY SETTING

2.1 Clean Water Act (§ 401 and § 404)

Section 404 of the Clean Water Act (CWA) is a federal law administered by the U.S. Army Corps of Engineers (USACE) and the U.S. Environmental Protection Agency (EPA) (collectively the “agencies”) to protect the physical, biological, and chemical integrity of waters of the United States (WOTUS). Under provisions of the CWA, USACE administers the activities required by § 404. These include the individual permit decisions, jurisdictional determinations, developing policy and guidance, and enforcing provisions of § 404. The CWA provides authority for USEPA and USACE to define WOTUS in regulations (33 CFR 328), which have been addressed in several Supreme Court decisions.

Navigable Waters of the U.S. are defined as “those Waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce” (33 CFR Part 329.4). Navigable Waters include the open ocean, tidal bays, salt marshes, and some large rivers and lakes. The upstream limit of a navigable river is the head of navigation as designated by USACE (33 CFR Part 329.4).

Further, as outlined in the 2008 guidance document, USACE generally will not assert jurisdiction over the following features: swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow) and ditches (including roadside ditches) excavated wholly in and draining

only uplands, as these features are generally not considered tributaries, or they do not have a significant nexus to downstream Navigable Waters. In applying the significant nexus standard, the agencies (USACE and EPA) may consider the flows and functions of a tributary together with the functions performed by adjacent wetlands adjacent to a tributary.

In 2015, the agencies issued a new Clean Water Rule (2015 Clean Water Rule), which did not establish any regulatory requirements and was focused on clarifying the scope of WOTUS consistent with the CWA, specifically relating to waters with ambiguous jurisdictional status following multiple Supreme Court rulings. The 2015 Clean Water Rule was replaced by the Navigable Waters Protection Rule (NWPR) in a two-step process which repealed the 2015 Rule in 2019 and re-codified the regulatory text that existed prior to the 2015 Rule in 2020.

On August 30, 2021, the USACE and USEPA were in receipt of the U.S. District Court for the District of Arizona's order vacating and remanding NWPR in the case of *Pascua Yaqui Tribe vs. U.S. Environmental Protection Agency.* In light of this order, the agencies halted implementation of NWPR and are interpreting WOTUS consistent with the pre-2015 regulatory regime. On November 18, 2021, the agencies announced the signing of a proposed rule to revise the definition of WOTUS, which would put back in place pre-2015 definition of WOTUS. The current regulatory definition of WOTUS is consistent with the pre-2015 regulatory regime while the agencies continued review of public comments on a proposed revised definition of "waters of the United States" (33 CFR Part 328).

On December 30, 2022, the agencies announced a new Clean Water final rule founded upon the pre-2015 regulatory regime and definitions of WOTUS, which became effective on March 20, 2023. In the "Revised Definition of waters of the U.S.", the agencies establish the definition of "waters of the U.S." to include the following categories of waterbodies:

- TNWs – large rivers and lakes that could be used in interstate commerce, as well as waterbodies affected by tides (a)(1).
- Territorial Seas – extending three miles out to sea from the coast (a)(1).
- Interstate Waters – streams, lakes, or wetlands that cross or form part of state boundaries (a)(1).
- Impoundments of WOTUS – impounded water bodies created in or from WOTUS (a)(2).
- Tributaries – branches of creeks, streams, rivers, lakes, ponds, ditches, and impoundments that ultimately flow into TNW, territorial seas, interstate waters, or impoundments of WOTUS (a)(3).
- Adjacent Wetlands – wetlands next to, abutting, or near other WOTUS or behind certain natural or constructed features (a)(4).
- Additional Waters – lakes, ponds, streams, or wetlands that do not fit into the above categories (a)(5).

Jurisdiction over tributaries, adjacent wetlands, and additional waters, is decided on a case-by-case basis by applying two standards:

- Relatively Permanent Standard – waterbodies must be relatively permanent, standing, or continuously flowing waters connected to paragraph (a)(1) waters or waters with a continuous surface connection to relatively permanent waters or to paragraph (a)(1) waters.
- Significant Nexus Standard – certain waterbodies, such as tributaries or wetlands, are jurisdictional based on their connection to and effect on larger downstream WOTUS. A significant nexus exists if the

> waterbody (alone or in combination) significantly affects the chemical, physical, or biological integrity of traditional navigable waters, the territorial seas, or interstate waters.

The Supreme Court most recently reviewed the definition of WOTUS in arguments held in October 2022, regarding *Sackett v. EPA*. A decision was issued on May 25, 2023, in which it was held that the CWA's use of "waters" refers only to "geographic features that are described in ordinary parlance as 'streams, oceans, rivers, and lakes'" and to adjacent wetlands that are "indistinguishable" from those bodies of water due to a continuous surface connection. Prior to *Sackett v. EPA,* the Supreme Court interpreted the term WOTUS in their consolidated decision in *Rapanos v. U.S.* and in *Carabell v. U.S.* (hereafter referred to as the *Rapanos* decision). A *Jurisdictional Determination Form Instructional Guidebook* (USACE 2007) was prepared to provide guidance on interpretation and implementation of the *Rapanos* decision, which states:

> *…the Rapanos decision provided two new analytical standards for determining whether water bodies that are not traditional navigable waters (TNWs), including wetlands adjacent to those non-TNWs, are subject to CWA jurisdiction: (1) if the water body is relatively permanent, or if the water body is a wetland that directly abuts (e.g., the wetland is not separated from the tributary by uplands, a berm, dike, or similar feature) a relatively permanent water body (RPW), or (2) if a water body, in combination with all wetlands adjacent to that water body, has a significant nexus with TNWs.*

As a result of *Rapanos*, EPA and USACE developed the *Memorandum Regarding CWA Jurisdiction Following Rapanos v. United States* ("2008 Guidance"). This guidance requires the application of the two new standards described above, as well as a greater level of documentation, to support an agency Jurisdictional Determination for a particular water body. Furthermore, this guidance required the USACE and EPA to develop a revised Jurisdictional Determination form to be used by field staff for documenting assertion or declination of CWA jurisdiction. Under these rulings, and as summarized in the 2008 Guidance document (USACE and EPA 2008), the agencies asserted jurisdiction over the following waters:

- Traditional Navigable Waters (TNW)
- Wetlands adjacent to Traditional Navigable Waters
- Non-navigable tributaries of Traditional Navigable Waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

Further, the agencies decide jurisdiction on a case-by-case basis to determine if the following resources have a significant nexus with a Traditional Navigable Water:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

Wetlands are defined as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include marshes, swamps, bogs, and similar areas" (Environmental Laboratory 1987). "Adjacent" in the rulings means bordering, contiguous, or neighboring.

Wetlands separated from other WOTUS by man-made dikes or barriers, natural river berms, or beach dunes are considered "adjacent wetlands."

The agencies are currently in receipt of the Supreme Court's May 25, 2023, decision in the case of Sackett v. EPA and the agencies will interpret the phrase "waters of the U.S." consistent with the Supreme Court's decision in Sackett. Notwithstanding the *Sackett* decision, current jurisdictional determinations are anticipated to be consistent with the 2023 Revised Definitions of WOTUS. Further, the analysis of potential CWA jurisdiction in this report draws upon the guidance issued to implement the pre-2015 regulatory regime (the 2008 guidance).

2.2 California Porter-Cologne Water Quality Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne), Division 7 of the California Water Code, establishes the responsibilities and authorities of the nine Regional Water Quality Control Boards (RWQCBs) and the State Water Resources Control Board (SWRCB). This act establishes that the waters of the State shall be protected for use and enjoyment by the people of the State; that the activities and factors which may affect the quality of the waters of the State shall be regulated to attain the highest water quality. Porter-Cologne also names the RWQCBs to formulate and adopt water quality control plans for all areas within the region. In the State of California, SWRCB and RWQCBs, in conjunction with USACE, administer Section 401 of the CWA (33 U.S.C. 1341) in relation to permitting fill of federally jurisdictional waters. Additionally, beyond federal jurisdiction the SWRCB and the RWQCBs may exert regulatory authority over waters of the state, which are defined in Section 13050(e) of the Porter-Cologne Water Quality Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." This definition may include isolated wetlands and other waters that may be outside of federal jurisdiction, which may be subject to Waste Discharge Requirements (WDRs).

Under Porter-Cologne, the RWQCB may regulate discharge of waste. All parties proposing to discharge waste that could affect waters of the State must file a report of waste discharge with the appropriate RWQCB (§ 13260 of the California Water Code). The RWQCB would then respond to the report of waste discharge by issuing WDRs, or by waiving WDRs for the proposed discharge. Both of the terms *Discharge of Waste* and *waters of the State* are broadly defined such that discharges of waste, including fill, any material resulting from human activity, or any other discharge that may directly or indirectly affect waters of the State. While all waters of the U.S. that are within the borders of California are also waters of the State pursuant to Porter-Cologne, the converse is not true. Waters of the U.S. are federally jurisdictional and legally distinct from waters of the State. While CWA Section 404 permits and Section 401 certifications are required when activity results in fill or discharge directly below ordinary high-water mark of waters of the U.S., any activity that results or may result in a discharge that directly or indirectly impacts waters of the State, or the beneficial uses of those waters may be subject to WDRs.

Effective on May 28, 2020, the SWRCB adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures include the following four primary components:

1) a wetland definition;

2) a framework for determining if a feature that meets the wetland definition is a water of the State;
3) wetland delineation procedures; and
4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities.

The Procedures define a wetland as an area, which under normal circumstances, supports:

- continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both;
- the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and
- the area's vegetation is dominated by hydrophytes or the area lacks vegetation.

The Procedures describe a jurisdictional framework for aquatic features that meet the current, or any historic definition, of a wetland. The Water Boards rely on wetland area determinations verified by USACE following the methods described in the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and regional supplements. The methods described are accepted for delineation of wetlands, but modified only to allow for the fact that the lack of vegetation does not preclude the determination of an area meeting the definition of a wetland. Aquatic features that do not meet the definition of a wetland may still be regulated as a non-wetland water of the state (e.g., lakes, streams, and ocean waters) but the Procedures do not include guidance for jurisdictional determinations for other waters of the State.

The following wetlands are considered "waters of the State":

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the State, and
3. Artificial wetlands that meet the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the State except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the State;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the landscape; or
    d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the State unless they also satisfy the criteria set forth in 2, 3a, or 3b):
        i. Industrial or wastewater treatment or disposal,
        ii. Settling of sediment,
        iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
        iv. Treatment of surface waters,
        v. Agricultural crop or stock watering,

vi. Fire suppression,
vii. Industrial processing or cooling,
viii. Active surface mining – even if the site is managed for interim wetlands functions and values.

The Procedures set forth that waters of the State include all waters that meet the current or any historic definition of waters of the U.S. In other words, if at any time in the past a feature would have met the definition of waters of the U.S. pursuant to any current or historical federal rule, the feature would meet the current definition of waters of the State.

If waters of the State are determined to potentially be temporarily or permanently affected by a proposed action, an application for dredge or fill is necessary. When considering project impacts and alternatives, it is recommended to avoid waters of the State to the greatest extent feasible, then minimize permanent impacts, and lastly compensate for impacts. The application should describe how the proposed action will not result in significant degradation of the water of the State. Applications should include all items listed in the Cal. Code Regs., title 23, § 3856, a delineation report, project start/end dates, maps, description of impacted waters, and alternatives analysis (unless exemption applies). Additional application requirements (e.g., supplemental field data, a draft compensatory mitigation plan, proposed water quality monitoring plan, or draft restoration plan for temporary impacts) may be necessary based on coordination with the appropriate RWQCB office.

2.3 California Fish and Game Code §§ 1600 to 1616

Pursuant to § 1602 of the California Fish and Game Code (CFGC), notification to the California Department of Fish and Wildlife (CDFW) is required for any proposed activity that may substantially divert or obstruct a river, stream, or lake. § 1602(a) specifically provides that:

> *An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake unless all of the following occur:*
>
> *(1) The department receives written notification regarding the activity in the manner prescribed by the department…*

The program developed by CDFW to implement this notification process is generally referred to as the LSAA (Lake and Streambed Alteration Agreement) Program. CDFW traditionally defines a stream (including creeks and rivers) as a “body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life.” A stream includes watercourses with surface or subsurface flow that supports or has supported riparian vegetation. CDFW's definition of lakes include natural lakes or man-made reservoirs. Areas within CDFW jurisdiction include riparian habitats associated with watercourses, where “riparian habitat” is not defined in the statute (Title 14, Section 1.72) but typically refers to vegetation associated with a stream channel. The limits of jurisdiction include ephemeral, intermittent, and perennial watercourses and include the outermost edge of riparian vegetation or the top of bank of streams or lakes, whichever is wider. Generally, CDFW jurisdiction is often extended to include areas that exhibit any one of the three wetland indicators – vegetation, soils, or hydrology.

CDFW may require an LSAA prior to any activity that would substantially divert or obstruct the natural flow, or substantially change the bed, channel, or bank of a river, stream, or lake, or use material from a streambed. CDFW's issuance of an LSAA is subject to California Environmental Quality Act certification.

3 Site Characteristics

3.1 Regional Setting

The Project site is located in Imperial Valley within the Sonoran Desert of Southern California, just north of the US-Mexico border. The topography of the Project site is fairly flat, but generally slopes upward at a gradient of less than 1 percent toward the southeast. Ground elevations of the Project site range from approximately 85 feet (26 meters) in its northwest corner to 125 feet (38 meters) in its southeast corner. Sand dunes occur on the northern part of the Project site. Anthropogenic features and land use in and near the Project site include interstate travel, agriculture, trash dumping, and recreational activities.

3.2 Hydrology

The Project site is within the Colorado River Hydrologic Region (HR). The Colorado River HR covers approximately 13 million acres (20,000 square miles) in southeastern California and is the most arid HR in California with annual precipitation averaging less than 4 inches (Western Regional Climate Center (WRCC) 2022). The Project site is in the Southern Mojave-Salton Sea subregion of Hydrologic Unit Code (HUC) 18 Hydrologic region, which is a closed desert basin. The Project site is located within the Deer Peak Watershed with East Highline Canal to the west, Coachella Canal to the east, and the All-American Canal bisecting the transmission line area on the southern end of the Project site (Figure 2). According to data from the National Hydrography Dataset (NHD), two small, discontinuous, intermittent streams (one of which forks) occur on the western side of the Project site. These intermittent streams correspond to vegetated drainage swales, likely with moderately deep ground water, but appeared to lack surface flow.

3.3 Soils and Sand Transport

The Project site is sandy overall. Both parcels are dominated specifically by Rositas loamy fine sand with 0 to 2 percent slopes. A small percentage of those parcels also contain Rositas fine sand, Holtville loam, Rositas silt loam, Holtville-Imperial silty clay loams and Superstition loamy fine sand. A small section of the larger parcel that contains mesic/riparian vegetation is mapped as wet Rositas fine sand, wet, 0 to 2 percent slopes, which is typically found in basins and floodplains (Figure 3).

The northern portion of the larger parcel and some small patches of the smaller parcel are mapped as having sand dunes (Figure 4). The Project site has sand sheets stabilized by vegetation and may have sources or deposits for aeolian sand since it is at the edge of the dune system north of Interstate 8 but may not be a part of an active aeolian sand system since it is bisected by Interstate 8. Active aeolian sand systems may be present with habitat for sensitive wildlife and plant species but are unstable over time and space due to changing weather and climate.

3.4 Rainfall

Measurements of precipitation during winter (October through March) and summer (April through September) periods are important in determining the efficacy of both wildlife and special status plant surveys. Data were obtained from the Western Regional Climate Center (WRCC 2023) for the most proximate stations to the Project site: Calexico and Imperial sand dunes weather stations (approximately 15 miles and 40 miles from the Project site, respectively).

The subtropical climate of the Colorado Desert is characterized by dry, mild winters averaging 57 degrees Fahrenheit (°F) and dry, hot summers that average 93°F. Summer highs are known to reach 122°F. Recent annual rainfall data from 2012 to 2022 were averaged, as outlined in Table 1 (WRCC 2023). Over the period of analysis, the highest winter rainfall occurred between October 2019 and March 2020 and the highest summer rainfall occurred between April and September 2013.

Table 1. Seasonal Rainfall Summary

Year	Winter – October to March (inches)	Summer – April to September (inches)
2012	0.11	0.23
2013	0.21	0.33
2014	0.20	0.13
2015	0.22	0.19
2016	0.12	0.11
2017	0.47	0.10
2018	0.02	0
2019	0.51	0.09
2020	0.83	0.11
2021	0.19	0.10
2022	0.08	0.16
Seasonal Average	**0.26**	**0.14**

3.5 Vegetation Communities

Vegetation communities in the Project site were field verified and classified by botanists, using Holland 1986 and cross-referencing with *A Manual of California Vegetation, 2nd edition* (Sawyer et al. 2009) and the National Vegetation Classification System (NVCS) referenced in the DRECP (CDFW and AIS 2022).

Using the NVCS vegetation layers as reference, botanists verified that these vegetation communities were correct and made adjustments by creating vegetation polygons within ArcGIS Field Maps where needed. Most mapped vegetation boundaries are accurate to within approximately 10 feet (3 meters) and were refined to submeter data collection where it may be a jurisdictional wetland or water.

Field adjusted polygons were intergraded with confirmed NVCS vegetation communities and created new shapefiles that were used to calculate areas of each vegetation type. Any vegetation map is subject to imprecision for several reasons:

- 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.
- 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.
- Vegetation types tend 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.

Six vegetation communities were identified during field surveys which are further described below.

3.5.1 Sonoran Creosote Bush Scrub

Sonoran creosote bush scrub has a state rarity rank of S5 (CDFW 2023), being demonstrably secure, and is not designated as a sensitive plant community by BLM. It is synonymous with *Larrea tridentata-Ambrosia dumosa* alliance (Sawyer et al. 2009) and *Lower Bajada and Fan Mojavean – Sonoran Desert Scrub* (NVCS). Sonoran creosote bush scrub occurs on well-drained, secondary soils of slopes, fans, and valleys and is the basic creosote bush scrub habitat of the Colorado Desert (Holland 1986). On the Project site, creosote is dominant in the shrub canopy, or creosote bush scrub and white bursage are co-dominants in the shrub canopy with only a few shrubs sparsely distributed. Emory's indigo (Psorothmanus emoryi), white bursage (Ambrosia dumosa), cheesebush (Ambrosia salsola), and ephedra (Ephedra spp) occur in some areas with primarily an understory of annual plants. This vegetation community is the dominant vegetation community throughout most of the Project site and the transmission line corridor.

3.5.2 Microphyll Woodland/Desert Dry Wash Woodland

Desert dry wash woodland is a sensitive vegetation community recognized with a rarity rank of S3 (CDFW 2023). Desert dry wash woodland is characteristic of desert washes and is likely to be regulated by CDFW as jurisdictional State waters. This vegetation community on the Project site is characterized by mesquite thickets that is synonymous to mesquite (*Prosopis glandulosa*) woodland alliance (Sawyer et al. 2009) and Sonoran - Coloradan Semi Desert Wash Woodland / Scrub (NVCS). Holland 1986 describes this community as an open to relatively densely covered, drought-deciduous, microphyll (small compound leaves) riparian scrub woodland, often supported by braided wash channels that change following every surface flow event. This vegetation community has mesquite trees that cover at least 2-3 percent of the absolute cover for trees and shrubs and was mapped as a patch within the western BLM parcel. Other plants observed in this plant community included arrow weed (*Pluchea sericea*) and tamarisk (*Tamarix ramosisima*).

3.5.3 Alkali Goldenbush Desert Scrub

Alkali goldenbush desert scrub is a sensitive vegetation community with a state rarity rank of S3 (CDFW 2023). It is synonymous to alkali goldenbush (*Isocoma acradenia*) shrubland alliance. Within the Project site, alkali goldenbush forms an open shrub layer (up to 35% cover). The tree layer, consisting of mesquite, is mostly sparse if present. Stands generally have low cover of vegetation and may be sparse (<10% total vegetation). Sites are moist or seasonally dry flats, and margins of intermittently saturated vegetated swales. It is found primarily on low and mid-slopes at elevations ranging from approximately 25 to 300 m with northeast and southwest aspects. Soils are variable and derived from alluvium and dune sand; textures include sand and loamy sand but include sites with finer-textured soil.

3.5.4 Arrow Weed Thickets

Arrow weed thickets are a sensitive vegetation community with a state rarity rank of S3 (CDFW 2023). It is synonymous to *Pluchea sericea* shrubland alliance. This vegetation community is characterized by arrow weed that is more than or equal to 2% of absolute cover with a sparse herbaceous layer of seasonal annuals. This vegetation is usually found near seasonally flooded washes and stream borders. Within the Project site, this vegetation community occurs only within a small portion of the transmission line corridor bordering the southern edge of the All-American Canal. No standing water was observed in the area during surveys.

3.5.5 Common Reed Marsh

Common reed marsh is synonymous with *Phragmites australis* herbaceous semi-natural alliance. This vegetation community is characterized by more than 2% absolute cover and more than 50% relative cover in the herbaceous layer. This vegetation community is sometimes considered invasive along waterways and wetlands (USDA 2023) and is only located within the edges of the All-American Canal of the transmission line corridor.

4 Methods

4.1 Preliminary Data Review

Prior to conducting field surveys, analysis was performed with Geographic Information Systems (GIS) using the following digital datasets, which include the most current information, data sources, and tools:

- 7.5' US Geological Survey (USGS) topographic quadrangles
- National Agriculture Imagery Program (NAIP) aerial imagery
- National Wetlands Inventory Wetlands Mapper (USFWS 2023)
- USGS Watershed Boundary Dataset Hydrologic Unit Code (HUC) 18 mapping (USGS 2023)
- USGS NHD high-resolution mapping with flowlines (USGS 2023)
- The Consortium of California Herbaria Jepson Interchange (2023)
- Calflora (2023)
- Manual of California Vegetation and DRECP mapping (Sawyer, Keeler-Wolf, and Evens 2009)
- Natural Resource Conservation Service (NRCS) Web Soil Survey (USDA and NRCS 2023
- Western Regional Climate Center (WRCC 2023)

Landscape features were evaluated using GIS through review of high resolution orthorectified aerial imagery, and relevant digital layers listed above, to determine the potential presence of aquatic resources such as a wetland, stream, other type of watercourse, lake or manmade reservoir. Areas found with potential aquatic resource landform features were identified for further follow-up detailed field investigations as described below.

4.2 Field Investigations

An initial field investigation (survey) for aquatic resources, including wetlands and other waters, was conducted from July 23 to July 25, 2022 (2022 site visit). During the 2022 site visit, surveys were conducted by Leigh Rouse and Michele Cloud-Hughes, both of whom are qualified with 40-hour jurisdictional water training or other appropriate wetland delineation training and have previous experience with aquatic resources associated with arid lands of the California deserts. During the 2022 site visit, wetlands were delineated in areas that are now avoided by the Project.

Between March 20 to April 4, 2023 (2023 site visit), Ironwood biologists conducted surveys for wildlife, rare plants, and aquatic resources by walking 20 meter transects in a north/south direction throughout the Project site. Leigh Rouse and Hattie Oswald conducted delineations between April 1 and April 4, 2023 where aquatic resources were noted during the initial surveys. Point, line, or polygon data were collected at individual features that displayed characteristic sign of episodic flow or retention of water. In some cases, data were collected in upland areas to provide a record of areas that lacked watercourse features. All figures are provided in Appendix A. Representative photos were taken at aquatic resources and areas determined to be uplands. Photo points are shown on Figure 6 through Figure 8, and photos are provided in Appendix B. Data, including the width of the ordinary high water mark (OHWM) and bank to bank, were taken for each aquatic feature that occurred within the Project site, typically at the center of each feature.

4.2.1 Wetland Determination

Wetlands potentially subject to USACE jurisdiction were delineated based on the *Corps of Engineers Wetlands Delineation Manual* (1987 Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2010*)*. Potential wetlands as defined by the USACE 1987 manual were evaluated using a three-parameter approach: dominance of hydrophytic vegetation, hydric soils, and wetland hydrology. The indicator status for vegetation was determined by the most current National Wetland Plant List (USACE 2020) and using the nomenclature offered in the US Department of Agriculture (USDA) NRCS PLANTS Database (NRCS 2023). Hydric soil determinations followed the guidance provided by the *Regional Supplement* and indicators described in *Field Indicators of Hydric Soils in the United States* (NRCS 2018).

The boundaries of wetlands were delineated with ESRI ArcGIS Collector©. A sub-meter geographic positioning system (GPS) was used in the field to map aquatic resource feature boundaries. Data forms for each data point were completed in the field (Appendix C).

4.2.2 Waters Determination

The limits of non-wetland waters potentially subject to state or federal jurisdiction were determined following the methods outlined in *U.S. Army Corps of Engineers Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* ("OHWM Field Guide", Lichvar and McColley 2008), *Mapping Episodic Stream Activity* (*MESA*; (Brady and Vyverberg 2013)), *Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plan*ts (Brady and Vyverberg 2014), and CDFW's traditional definition of bed, channel, or bank as referenced in § 1602(a) of the California Fish and Game Code. The *MESA* protocol was developed to assist with delineation of streams in dryland environments, specifically within the arid and semi-arid Mojave, Sonoran, Great Basin, and eastern Sierra regions of California, to facilitate project permitting in compliance with California Fish and Game Code.

The OHWM, defined by USACE as the "line on the shore established by the fluctuation of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding area." Ironwood evaluated all linear water features for OHWM indicators to assist with delineation of the lateral extents of waters. Ironwood staff walked apparent stream features and recorded OHWM indicators associated with the primary low flow channel and floodplain at representative cross-sections. Where indicators were apparent, Ironwood recorded GPS points at the transition line between the low flow channel, active floodplain, and low terrace for all linear aquatic features in the Project site.

Field investigations conducted in spring 2023 did not necessarily coincide with antecedent precipitation events; therefore, Ironwood ecologists relied on fluvial transport and deposition indicators from recent or historic episodic flow, as described in the MESA Guide (Brady and Vyverberg 2013), to identify and delineate channel and watercourse ("waters") features.

Such indicators included:

- Flow lineation
- Cut banks
- Sediment sorting
- Vegetation channel alignment
- Sand/gravel bars
- Mud cracks/curls
- Wrinkle marks
- Drift/wrack lines
- Exposed roots
- Scour
- Sand filled channels

Water features and riparian communities were mapped at a minimum scale of 1:6000, often down to 1:3000, as suggested in the MESA guidance for utility solar projects (Brady and Vyverberg 2013). Where vegetation contained a mixture of upland and desert wash-dependent indicator species from two or more vegetation

communities, the indicator species that appeared with the greatest vegetation coverage (absolute dominance based on percent cover) was used to identify or verify the vegetation community.

Geomorphic indicator data were recorded at each data point location using a field data form specifically developed for this methodology based on the MESA Guide indicators (Brady and Vyverberg 2014). Documentation of physical indicators providing evidence of aquatic resource areas, as opposed to upland areas, provided a technical basis for: (1) determining the presence or absence of a stream, other types of watercourse, and lake/manmade reservoir and (2) if present, determining if the landform is active, dormant, abandoned, or relict as defined by the following criteria developed by Brady and Vyverberg (2013):

- **Active**: Hydrologically active watercourse. Active channels are subject to CDFW jurisdiction.
- **Dormant**: A watercourse isolated from its principal water source by natural causes or human-constructed features such as roads, but that retains its potential for hydrologic reactivation and stream / watercourse function.
- **Abandoned**: A watercourse in which water flow no longer occurs, such as a channel isolated from its water source by faulting or stream capture, or human-constructed features like levees, incised roadways, and surface flow diversions. The presence of physical indicators of fluvial inactivity is necessary to demonstrate abandonment, and the cause of the abandonment (such as a levee or road berm) should be identified. With time and the absence of flow, an abandoned channel will become a relict landform.
- **Relict**: Surface water flow no longer occurs, as demonstrated by the presence of physical indicators of antiquity, which demonstrate that the channel is a relict landform.

4.3 Post-field analysis

Post-field analysis was conducted by Ironwood ecologists and GIS specialists, in tandem, to code, define, designate, and edit all acquired field data representing jurisdictional waters. Acreages were calculated in ESRI ArcGIS. The linear path and extents of water features were digitized using polylines with an accompanying width measurement, which were used to convert polylines to polygons, or mapped with a GPS unit by walking flow path boundaries in the field. Wetland boundaries were digitized in the field by walking the lateral extents and recording location data with a GPS, which were converted to polygon data in ArcGIS. The resulting features were reviewed and further refined based on the interpretation of high-resolution aerial imagery.

5 Results

The Project site is situated on a low gradient alluvial plain with a sand dune field on the northern part of the site and two NHD-mapped intermittent drainages on the western end. Based on the field investigations, these intermittent drainages are vegetated swales with mesic/riparian woodlands but lack characteristics of a channel or watercourse as described in Section 5.1. Aquatic resources that meet the 2008 definition for Waters of the US and/or for Waters of the State under Porter Cologne identified by Ironwood ecologists are shown in Figure 6 through Figure 12.

5.1 Drainage Channels

On the western side of the Project site, Figure 6 and Figure 7 show vegetated drainage swales often dominated by either tamarisk, honey mesquite or alkali goldenbush. These swales are typically low gradient with ground water near enough to the surface to support a higher dominance of tamarisk and mesquite. Tamarisk and mesquite are deeply rooted species, the presence of which does not indicate shallow groundwater (within one foot of the ground surface) but rather 5 feet or greater below the ground surface. A portion of these swales, dominated by woodlands, are avoided by the Project.

Several small drainage channels occur on the slope above the vegetated swales. Characteristics of flow were present and small channels were formed where the gradient was steep enough to allow for surface runoff to become channelized. As the gradient decreased, the flow appeared to spread out through the vegetated swales. These active channels supported evidence of scour, cut banks, headcuts, vegetation channel alignment, and sand filled channels. These small drainage channels are shown on Figure 9, Figure 10, and Figure 11. Photos 2 and 4 are representative of the drainage channels that have episodic flow characteristics. About 0.41 acre of channel within the OHWM and 1.45 acres of channel from bank to bank occurs within the Project site. The total length of drainage channel within the Project site is 8,090 linear feet.

Photos 1, 3, and 5 show areas on the western side of the Project site determined to lack channel characteristics. Additional potential drainages were investigated for the presence of episodic flow characteristics. These areas are represented by Photos 6, 7, 8, 12, and 13 and are shown on Figure 7 and Figure 8. Most areas were determined to be vegetated swales that were characterized as low gradient slopes with no evidence of recent episodic flow. Although some of these features are visible on aerial imagery, the absence of watercourse indicators, presence of upland indicators (e.g., woody vegetation in place), and isolation from a larger floodplain disqualified these features as being mapped as ephemeral drainage channels.

5.2 The All-American Canal

The All-American Canal is part of the Yuma Project that conveys water from the Colorado River to the Imperial Valley for year-round irrigation. The All-American Canal flows through the 500kV transmission line corridor of the project site and has perennial flow. Approximately 5.96 acres and 1,969 linear feet of the All-American Canal bisect the transmission line corridor (Figure 12).

5.3 Man-made Depressions

Two areas that appear to be previously excavated and likely hold water during precipitation events occur within the Project site. These two man-made depressions, Depression 1 and Depression 2 on Figure 13, had some honey mesquite in the bottom where mud cracks indicated that water may have pooled in the recent past. The two depressions total about 0.09 acre.

5.4 Riparian Woodland - Desert Dry Wash Woodland and Non-native Riparian Vegetation

Desert dry wash woodland, dominated by honey mesquite, occurs on the western side of the Project site (Figure 6). Desert Dry Wash Woodland is a xeric riparian vegetation community (Holland 1986). Areas mapped as Desert

Dry Wash Woodland were flat or a low gradient slope. Holland (1986) describes this community as an open to relatively densely covered, drought-deciduous, microphyll (small compound leaves) riparian scrub woodland. Within the Project site, this vegetation community is dominated by an open tree layer of honey mesquite with alkali goldenbush or creosote bush in the understory. Approximately 25.48 acres of mesquite woodland occurs within the Project site, including the transmission line corridor.

Some areas along the All-American Canal are mapped as non-native tamarisk community. This community likely receives supplemental supportive soil moisture from the All-American Canal. Approximately 13.32 acres of tamarisk community occurs within the Project site.

5.5 Wetlands

Wetlands within the Project site occur along both banks of the All-American Canal (Figure 12). Data were collected at two paired wetland and upland points (Table 2) The two wetlands (EM Wetland 2 and EM Wetland 3) are dominated by common reed (*Phragmites australis*), a facultative wetland species. Arrow weed, also a facultative wetland species, was present with low cover. Hydric soil indicators were assumed because of the dominance of a facultative wetland species and an abrupt transition to uplands and the presence of saturated soils. The All-American Canal is a perennial water source that provides year-round supportive hydrology for the wetlands along its banks. The transition to upland is abrupt with the presence of a bermed road on each side of the canal. Photos 15 and 16 show the wetland and upland data points respectively for EM Wetland 2.

Wetlands within the Project site were classified according to the Cowardin classification (Cowardin et al. 1979) The Cowardin classification system is used in the USFWS' National Wetland Inventory (NWI) for describing and categorizing wetlands and deepwater habitats based on a variety of characteristics. Wetlands within the Project site have a Cowardin classification of palustrine emergent (PEM) and totaled 3.36 acres (Table 2).

Table 2. Summary of wetland resources.

Wetland ID	Size (acres)	Associated Data Point	Latitude/Longitude	Cowardin Type
EM Wetland 2	1.58	EMDP12W, EMDP13U	32.705023/-115.202362	PEM
EM Wetland 3	1.77	EMDP15W, EMDP16U	32.705624/-115.202198	PEM
Total	**3.36**	**NA**	**NA**	**NA**

Total may differ from rounding.

5.6 Non-wetland Data Points

Some areas within the Project site had wetland indicator species present including arrow weed (FACW) and tamarisk (FAC) where data were collected to determine if the area met wetland criteria. Data for a wetland determination form was collected for Data Point EMDP 14U (Figure 12, Photo 17, Appendix A). While this area had hydrophytic vegetation as a dominance of arrow weed, this area was determined to be a non-wetland area because it lacked hydric soil and wetland hydrology indicators. Alkali powder was present on the soil surface, which can be an indicator of evaporation of saline groundwater that may be derived from a deep-water table.

6 JURISDICTIONAL FINDINGS AND RECOMMENDATIONS

The following discussion represents the best effort at determining the jurisdictional boundaries of aquatic resources using the most current regulations and guidance from the USACE and CDFW. Table 3 summarizes the acreage of aquatic resources with potential jurisdictional status for the USACE, RWQCB, and CDFW. It is recommended that agencies provide the final jurisdictional determination.

Table 3. Summary of aquatic resources and potential jurisdictional status.

Aquatic Resource	Area (acres)	U.S. Army Corps of Engineers	RWQCB Waters of the State	CDFW 1602 Resources
Wetland	3.36	Possibly subject to USACE jurisdiction; recommend requesting an approved Jurisdictional Determination if these wetlands would be impacted.	Likely subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Other Waters – All American Canal	6.10	Possibly subject to USACE jurisdiction; recommend requesting an approved Jurisdictional Determination if the canal would be impacted.	Likely subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Other Waters – Man-made Depressions	0.09	Not subject to USACE jurisdiction	Subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Drainage channel (Bank to Bank)	1.33	Not subject to USACE jurisdiction	Subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Mesic/Riparian Woodland (Mesquite thickets)	4.64	Not subject to USACE jurisdiction	Subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction
Non-native Mesic/Riparian Woodland (Tamarisk thickets)	13.25	Not subject to USACE jurisdiction	Likely subject to RWQCB jurisdiction	Subject to CDFW 1602 jurisdiction

6.1 Clean Water Act (§ 401 and § 404)

The All-American Canal and its adjacent wetlands may be subject to USACE jurisdiction. If the Project would result in the discharge of fill material into the All-American Canal or its wetlands, Ironwood recommends requesting an Approved Jurisdictional Determination issued by the USACE to confirm status of federal jurisdiction. If the All-American Canal is determined to be non-jurisdictional, a Section 404 permit would not be required for the discharge of fill into these aquatic resources.

6.2 California Porter-Cologne Water Quality Act

The RWQCB regulates discharges to jurisdictional waters under the California Porter-Cologne Water Quality Control Act, which is implemented through issuance of National Pollutant Discharge Elimination System permits for point source discharges and WDRs for non-point source discharges.

The California WQCB regulations adopted in 2020 require project proponents to apply to the appropriate RWQCB to obtain authorization for dredge or fill in jurisdictional waters of the State. Based on the findings above, it is likely that the aquatic features within the Project site would likely fall under the jurisdiction of RWQCB. An application should be submitted to the Colorado River Basin RWQCB, along with the required supplemental material (including precise impact calculations) and fee. CEQA review will be required to describe the effects to jurisdictional waters of the State.

6.3 California Fish and Game Code §§ 1600–1616

California Fish and Game Code § 1602 requires project proponents to notify CDFW prior to any activity that may substantially modify CDFW-jurisdictional streambeds. Based on the findings above, a Notification of Lake or Streambed Alteration application should be submitted to CDFW, along with the required supplemental material (including precise impact calculations) and fee. CEQA review will be required to describe the effects to CDFW-jurisdictional streambeds and associated riparian habitat. The area estimated to meet the definition of CDFW-jurisdictional waters within the Project site are shown in Table 3.

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Appendix A — Figures

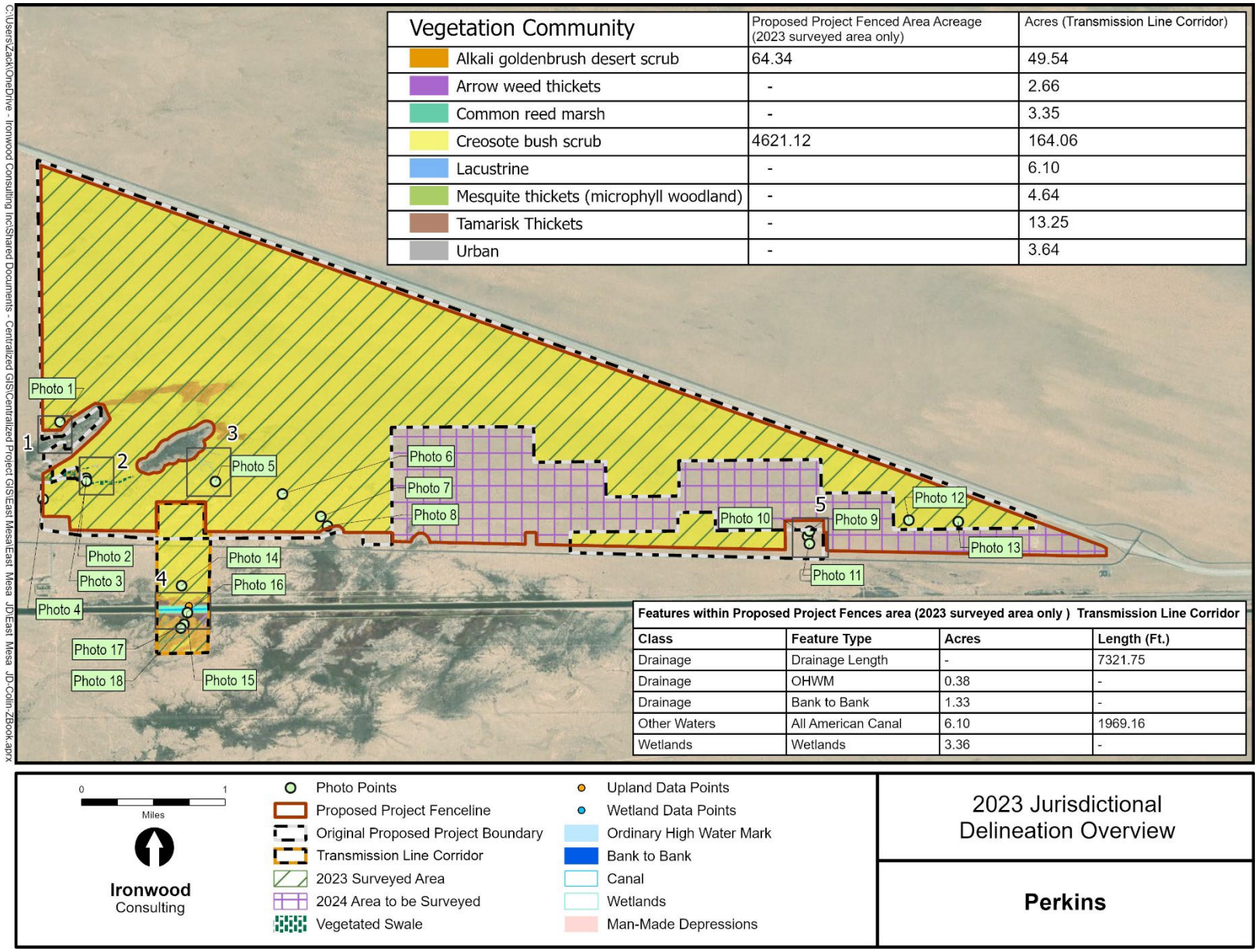

Figure 1. General Vicinity

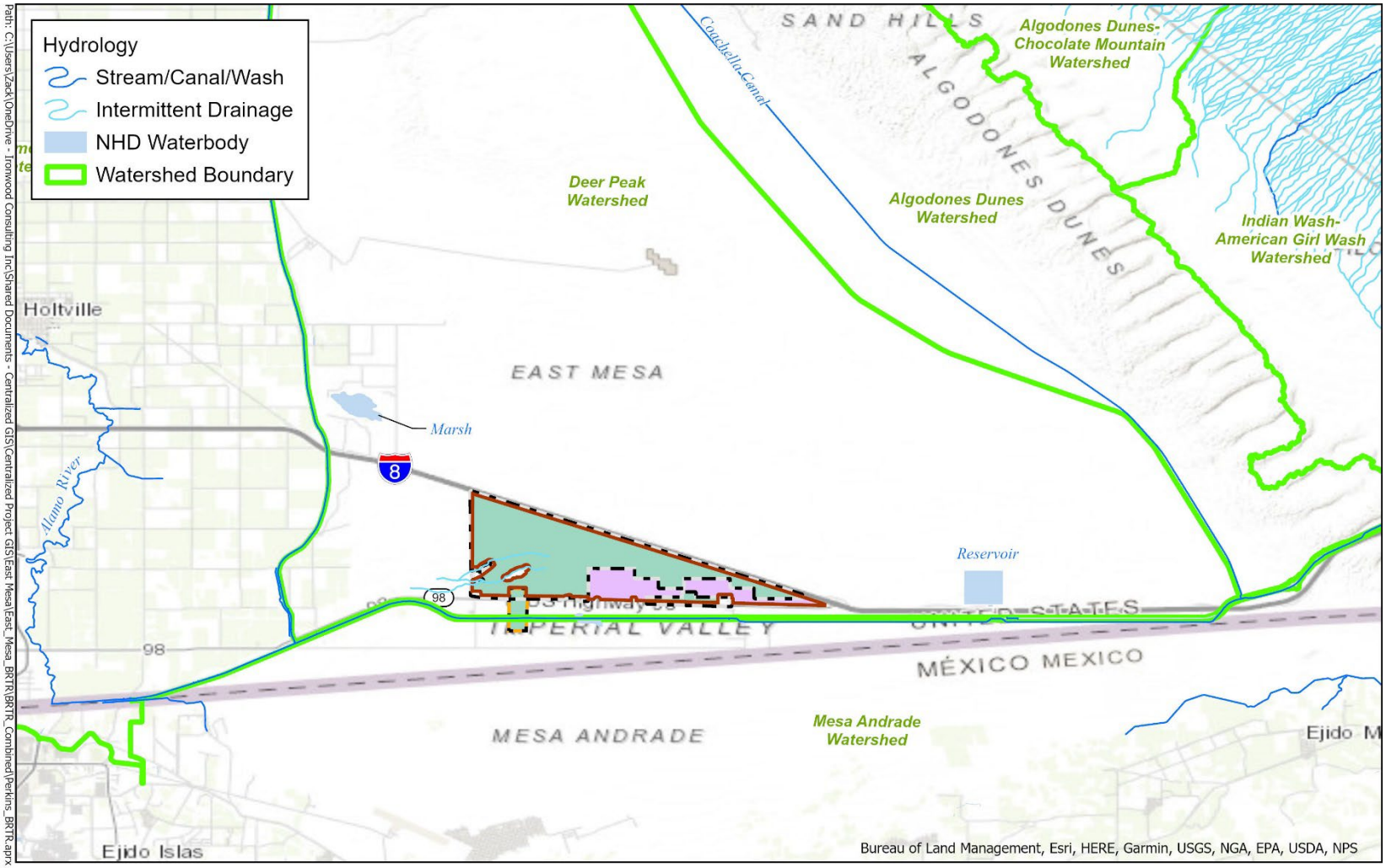

Figure 2. Hydrology and Watersheds

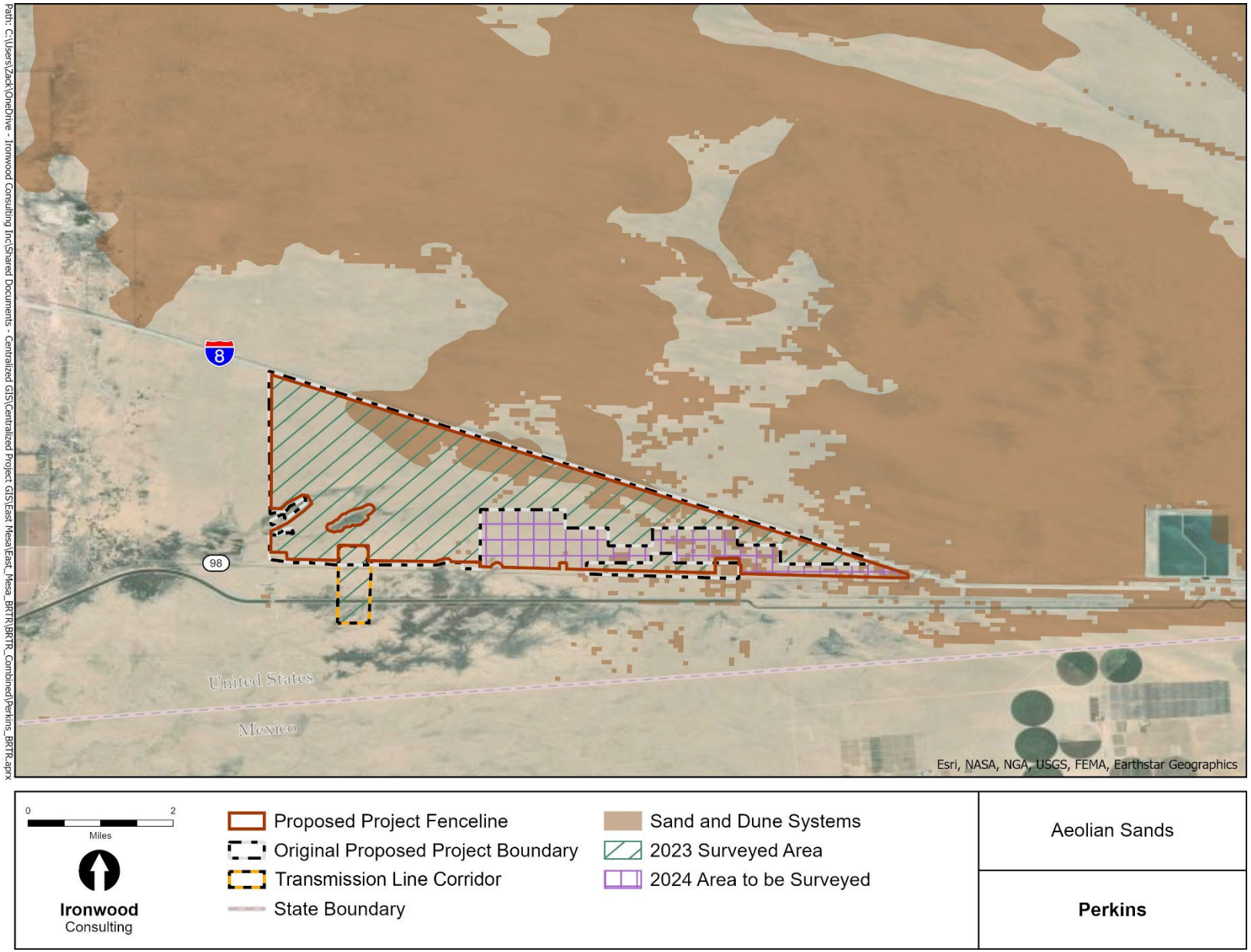

Figure 3. Aeolian Sand.

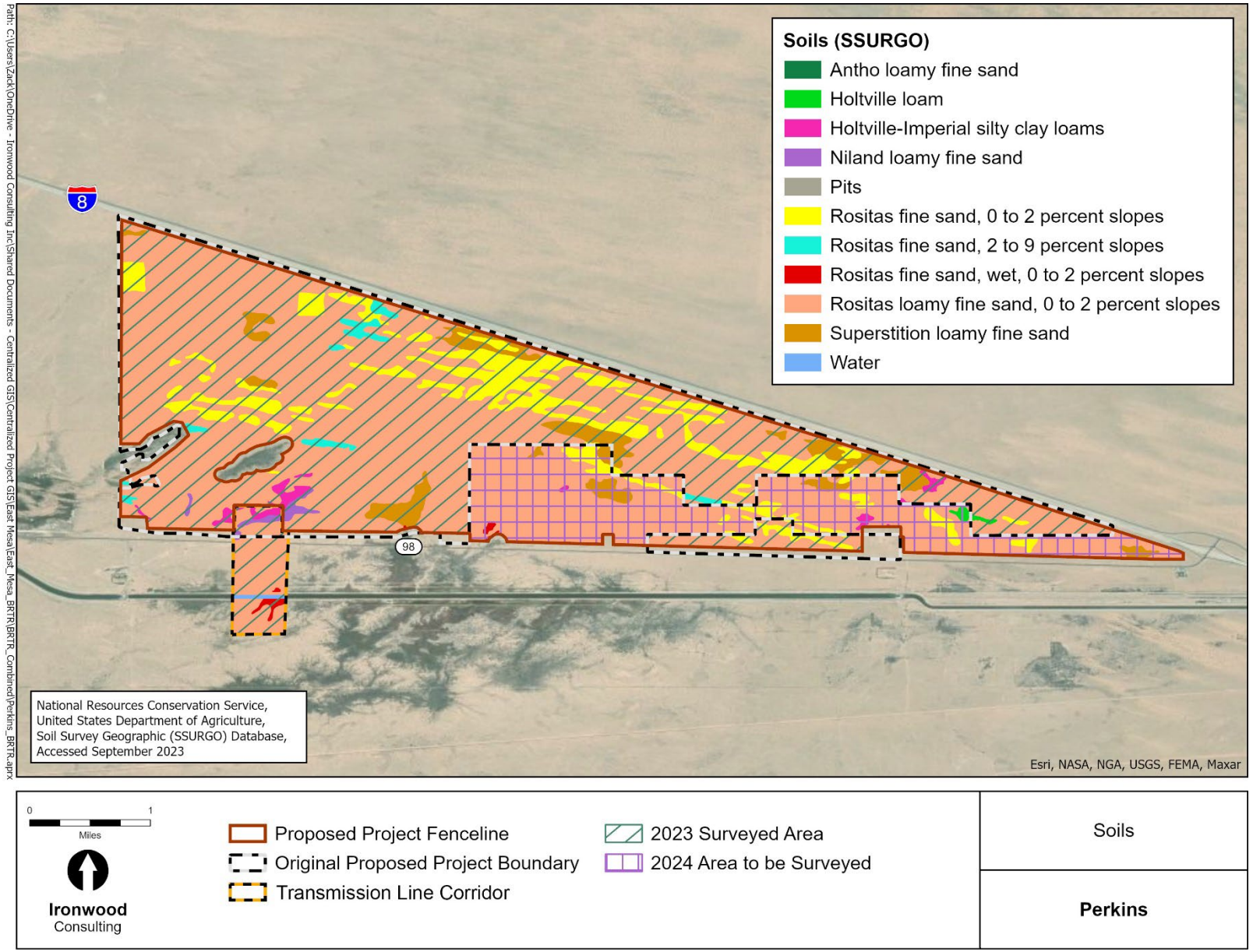

Figure 4. Soils.

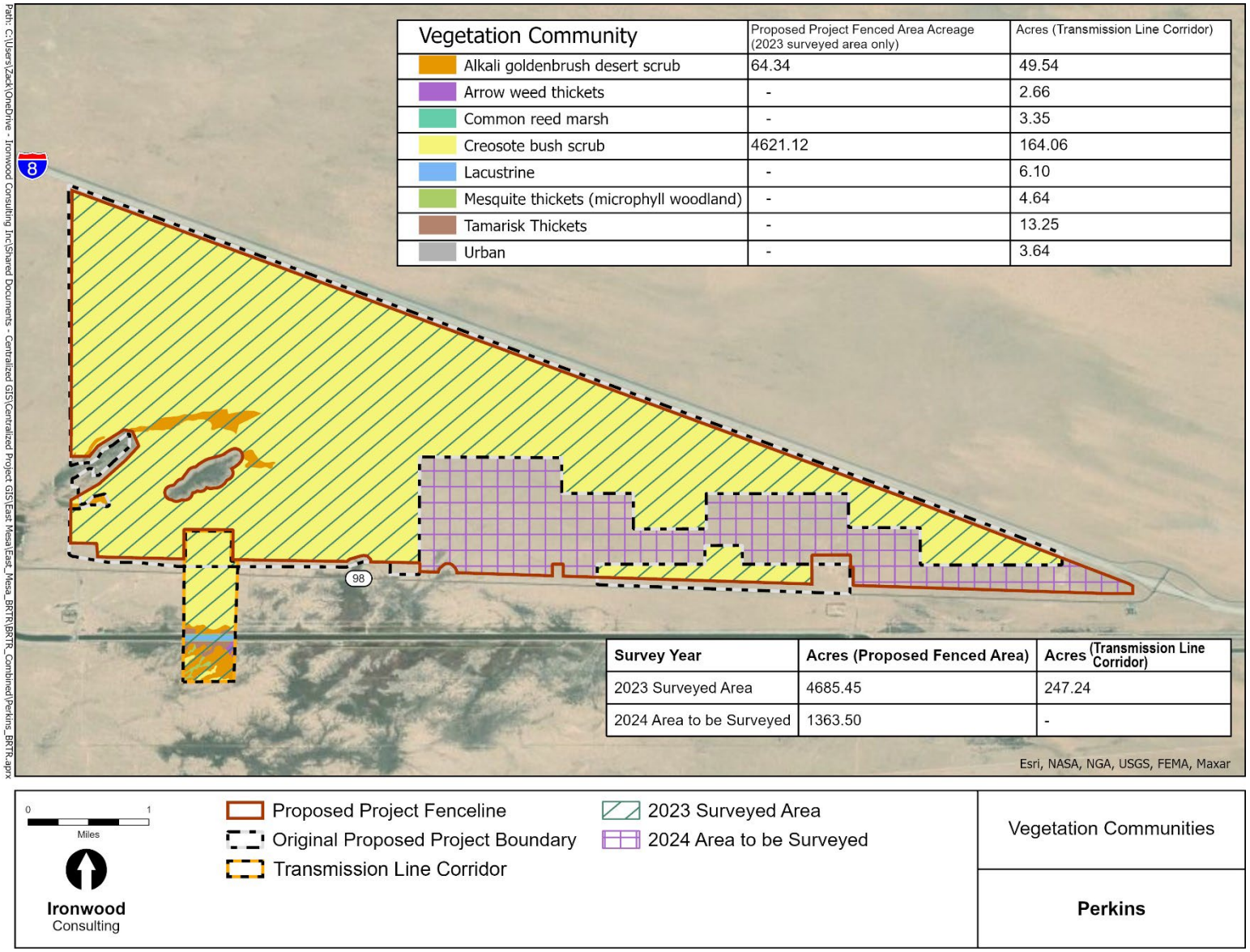

Figure 5. Vegetation Communities.

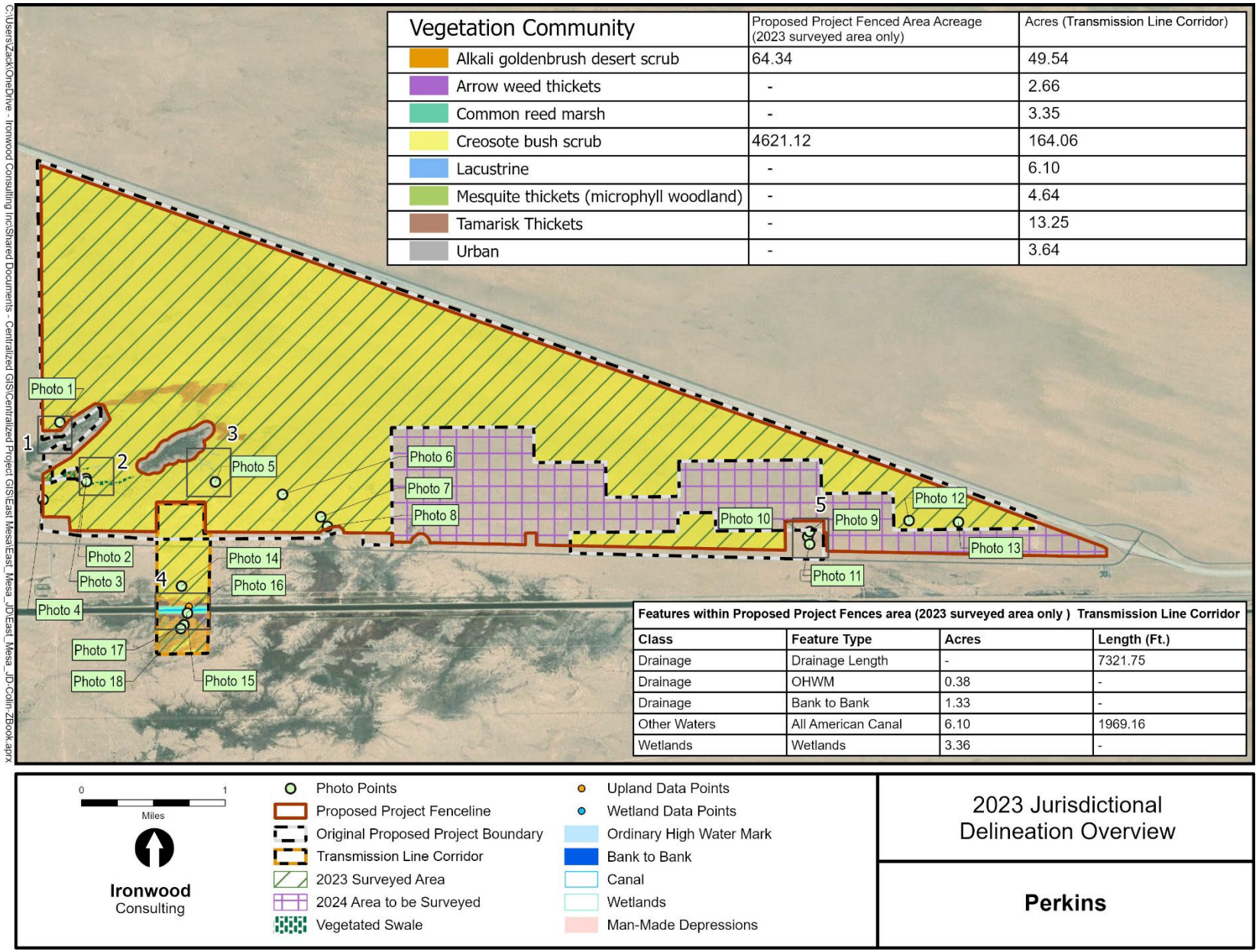

Figure 6. 2023 Jurisdictional Delineation Overview

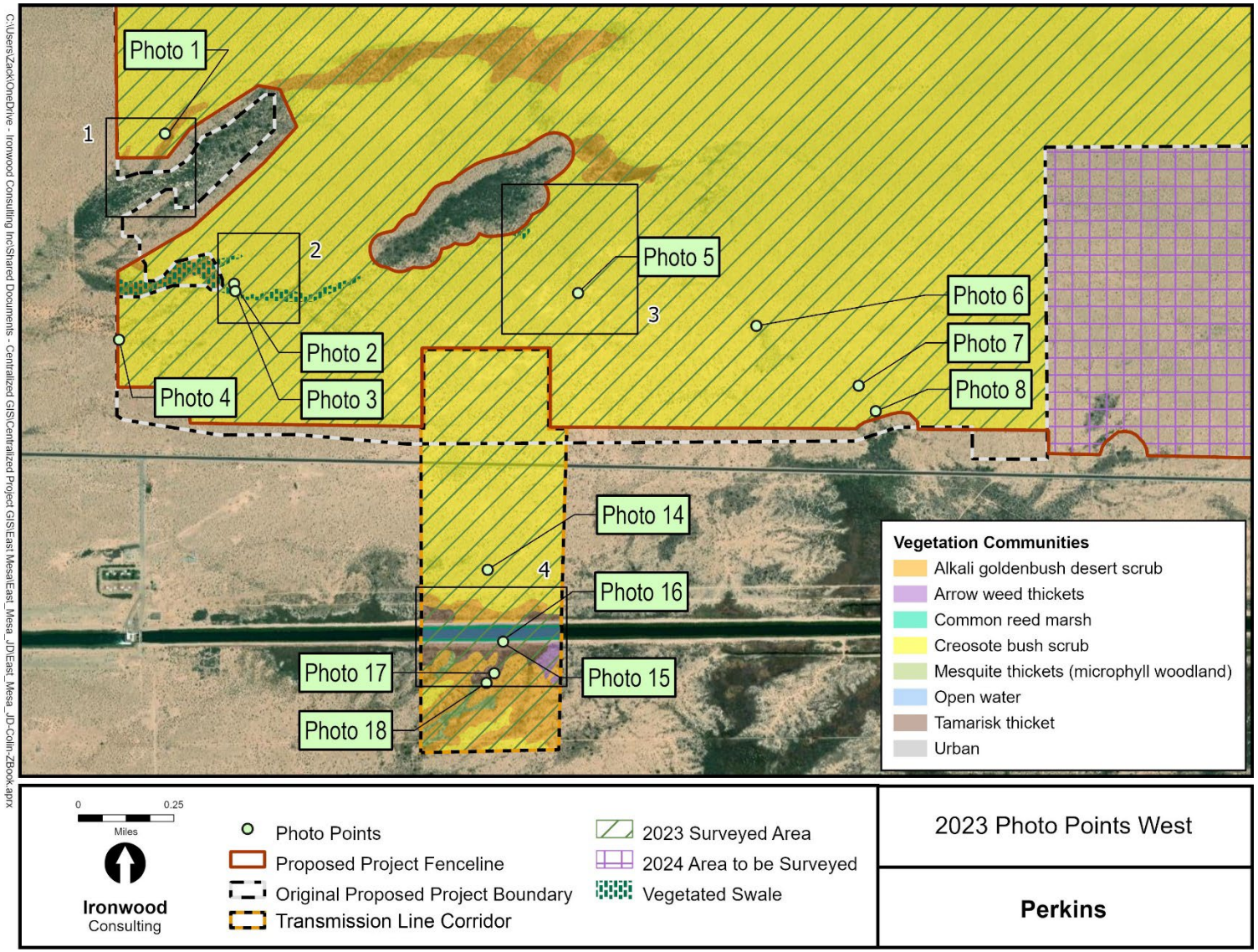

Figure 7. 2023 Photo Points West

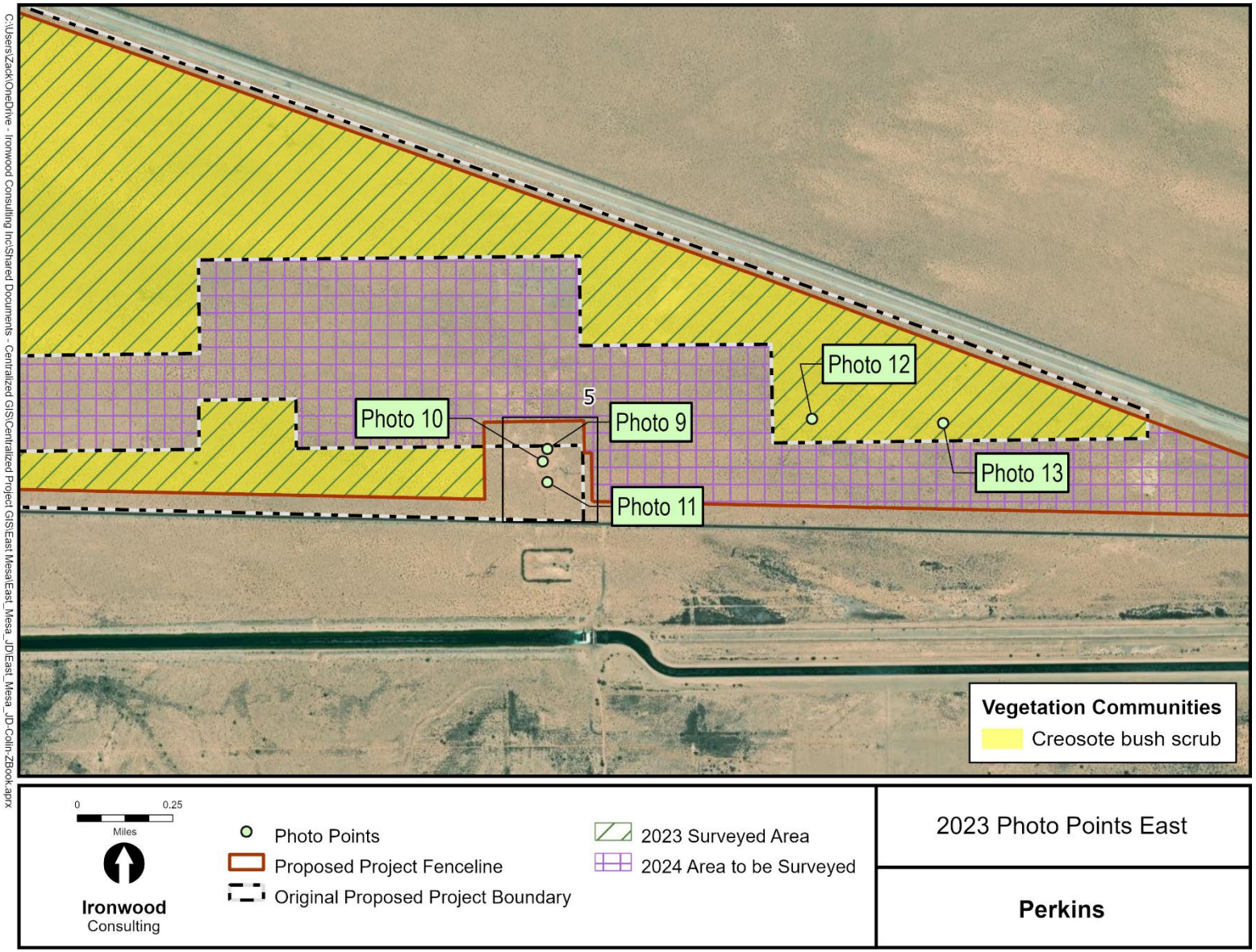

Figure 8. 2023 Photo Points East

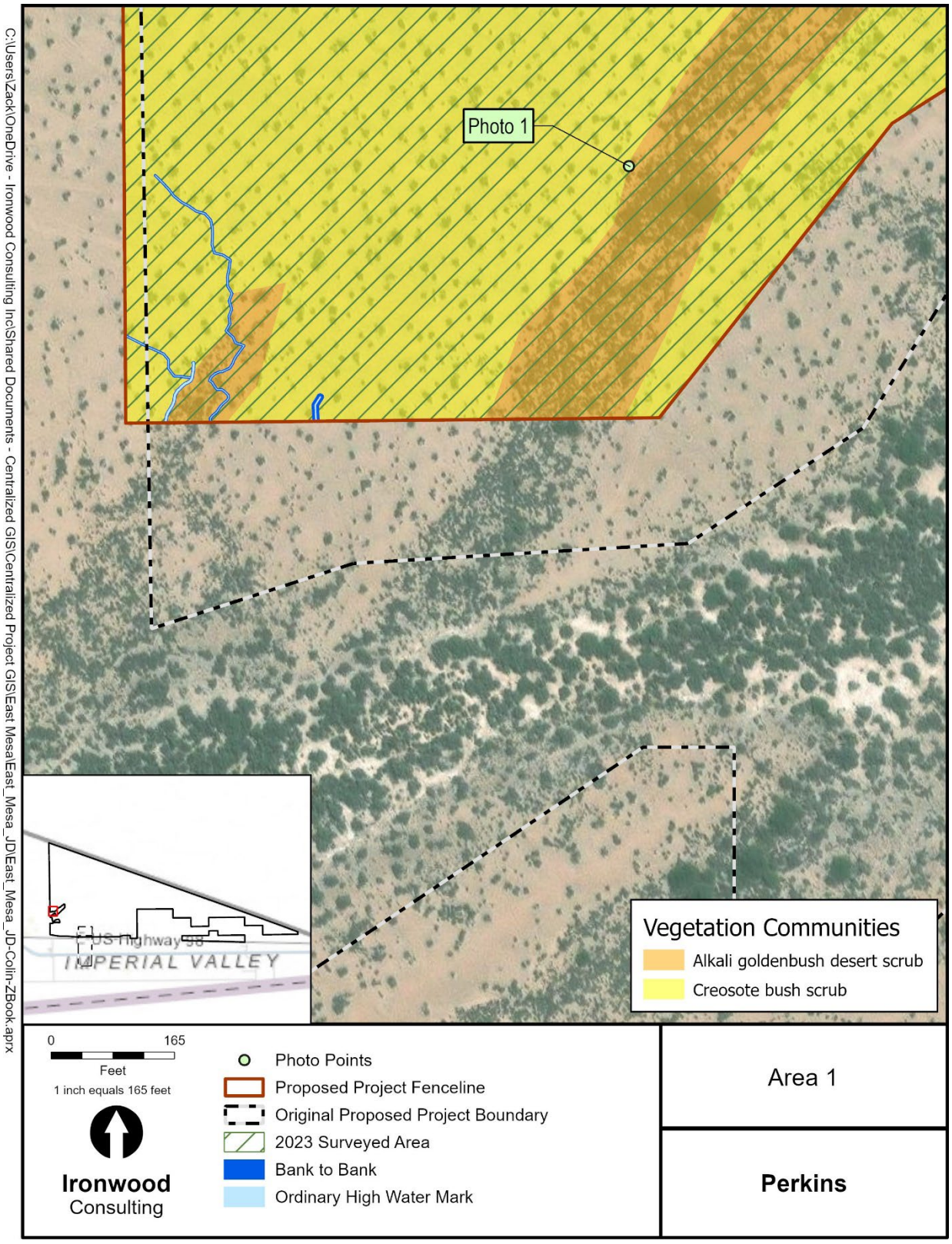

Figure 9. Jurisdictional Area 1

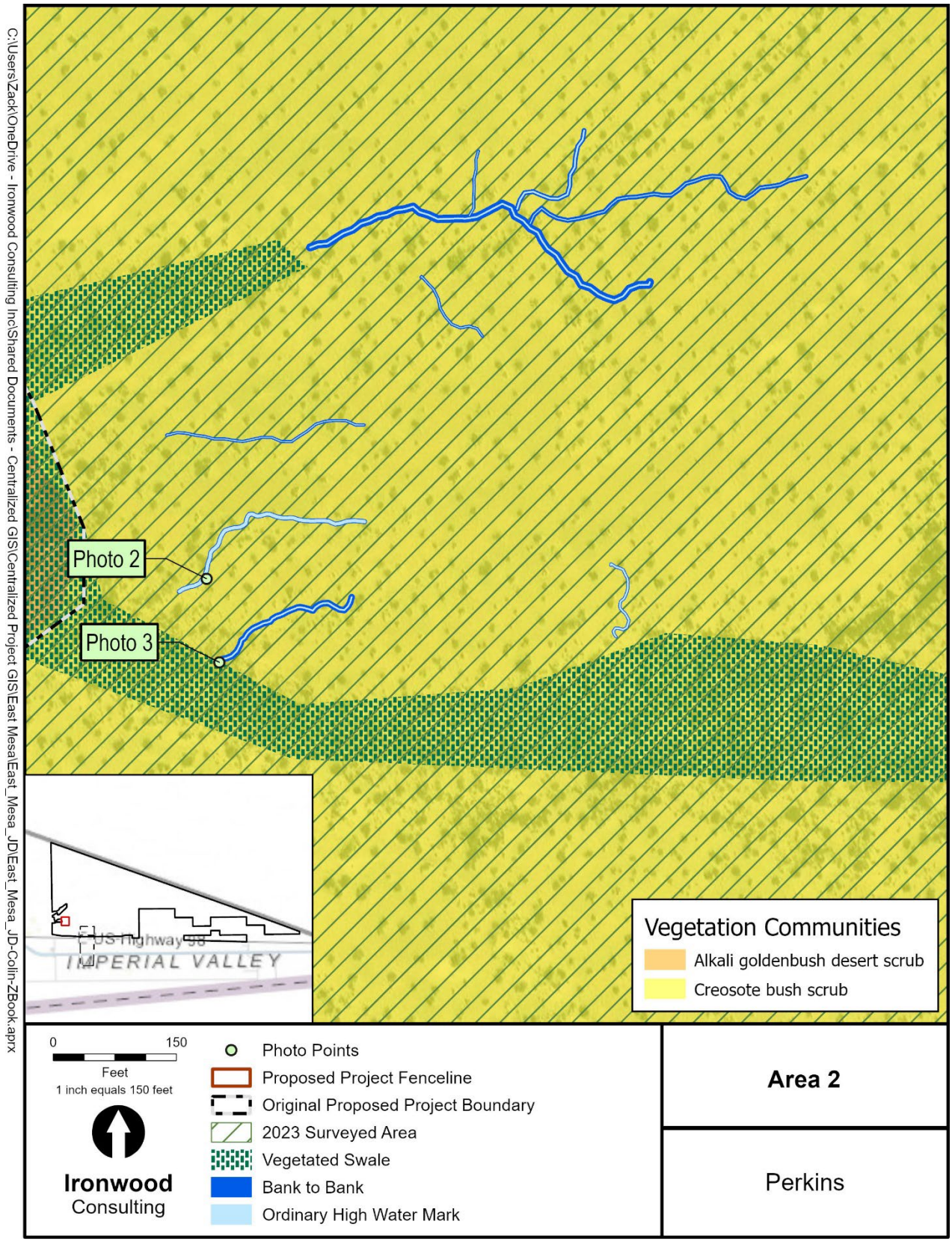

Figure 10. Jurisdictional Area 2

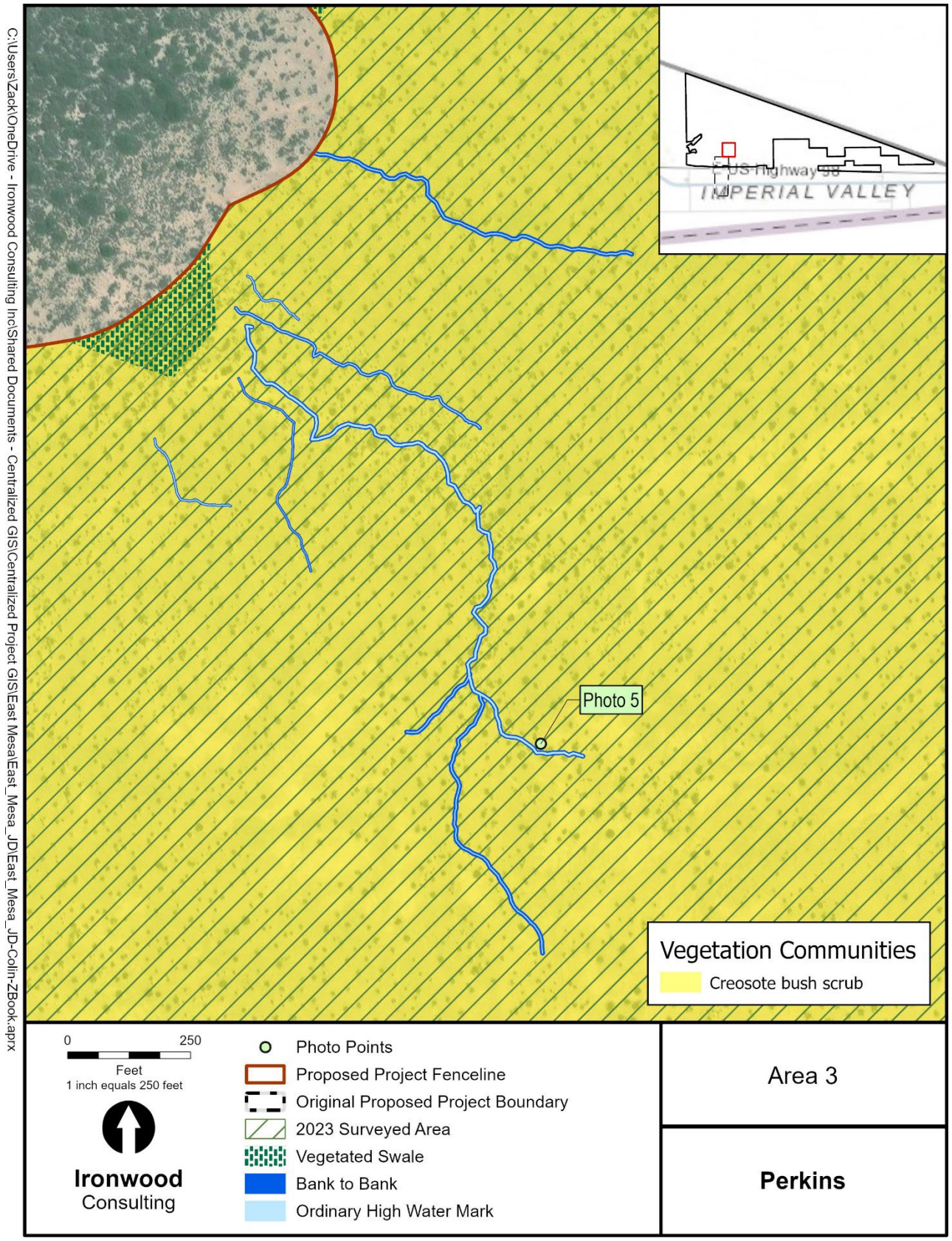

Figure 11. Jurisdictional Area 3.

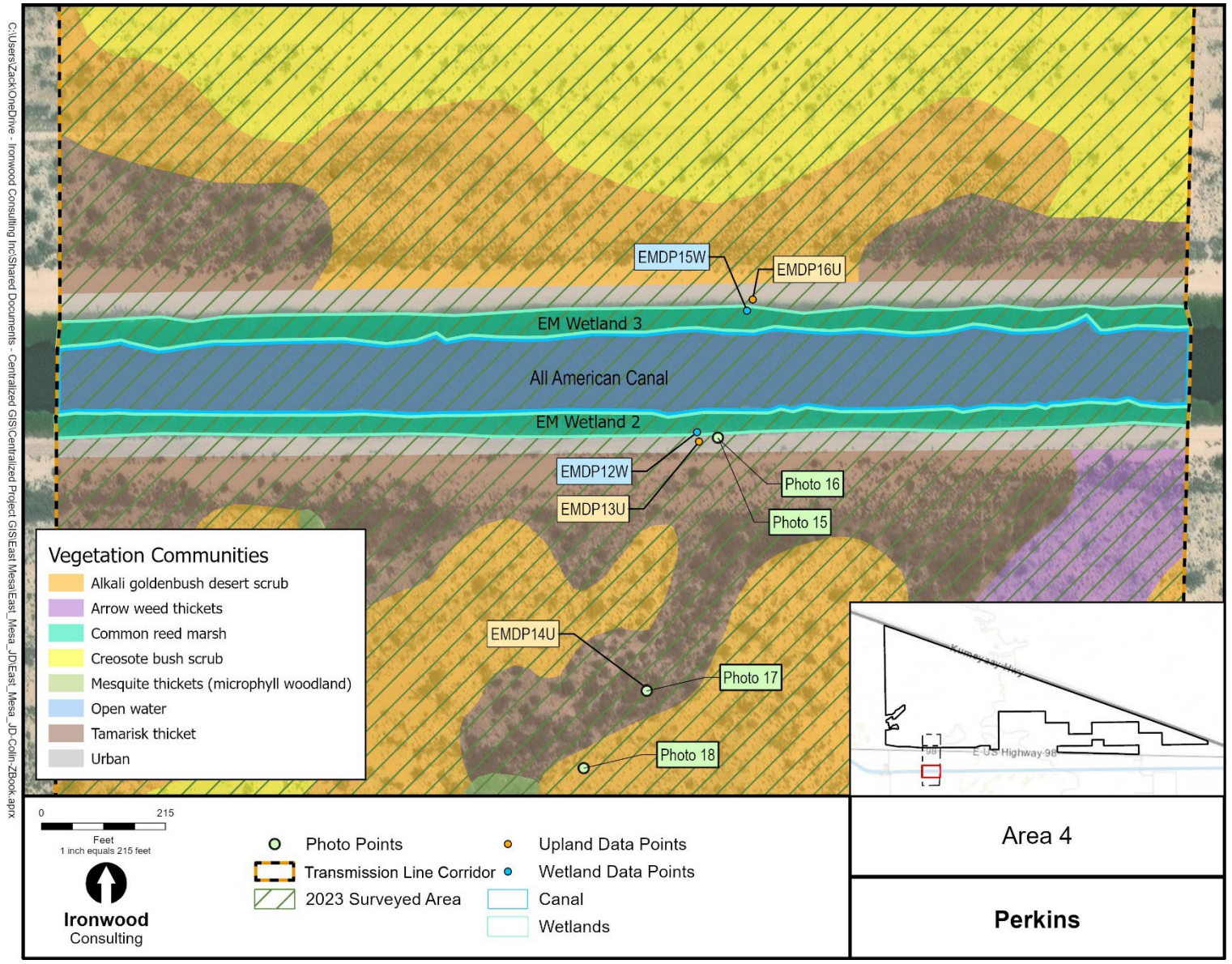

Figure 12. Jurisdictional Area 4

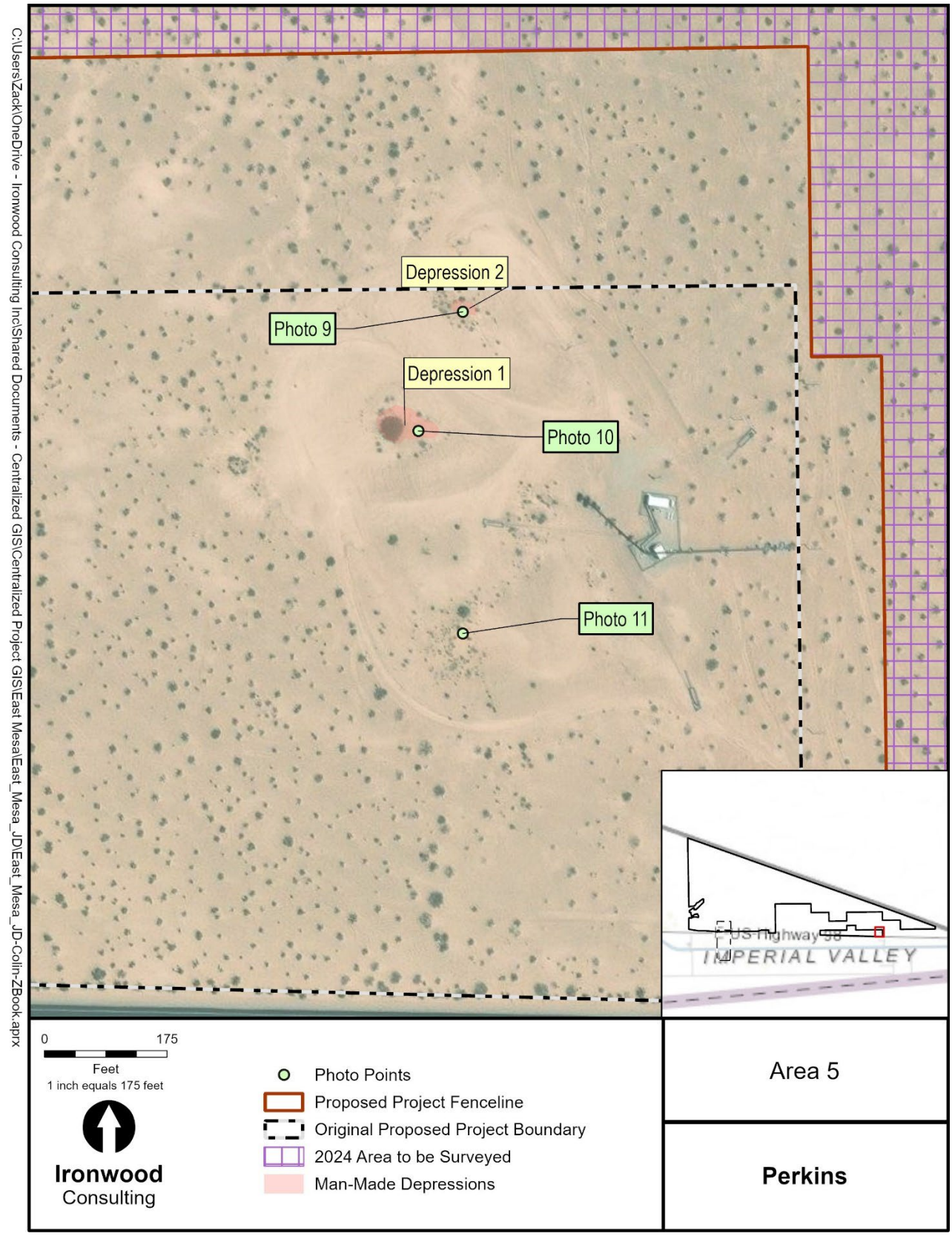

Figure 13. Jurisdictional Area 5.

Appendix B — Photo Log

Photo point 1. Upland vegetated swale dominated by alkali goldenbush. No indicators of episodic flow are present.

Photo Point 2. Ephemeral Dry Wash drainage channel.

Photo Point 3. Vegetated swale downslope of a dry drainage channel.

Photo Point 4. Vegetated swale that lacks a defined channel and episodic flow indicators.

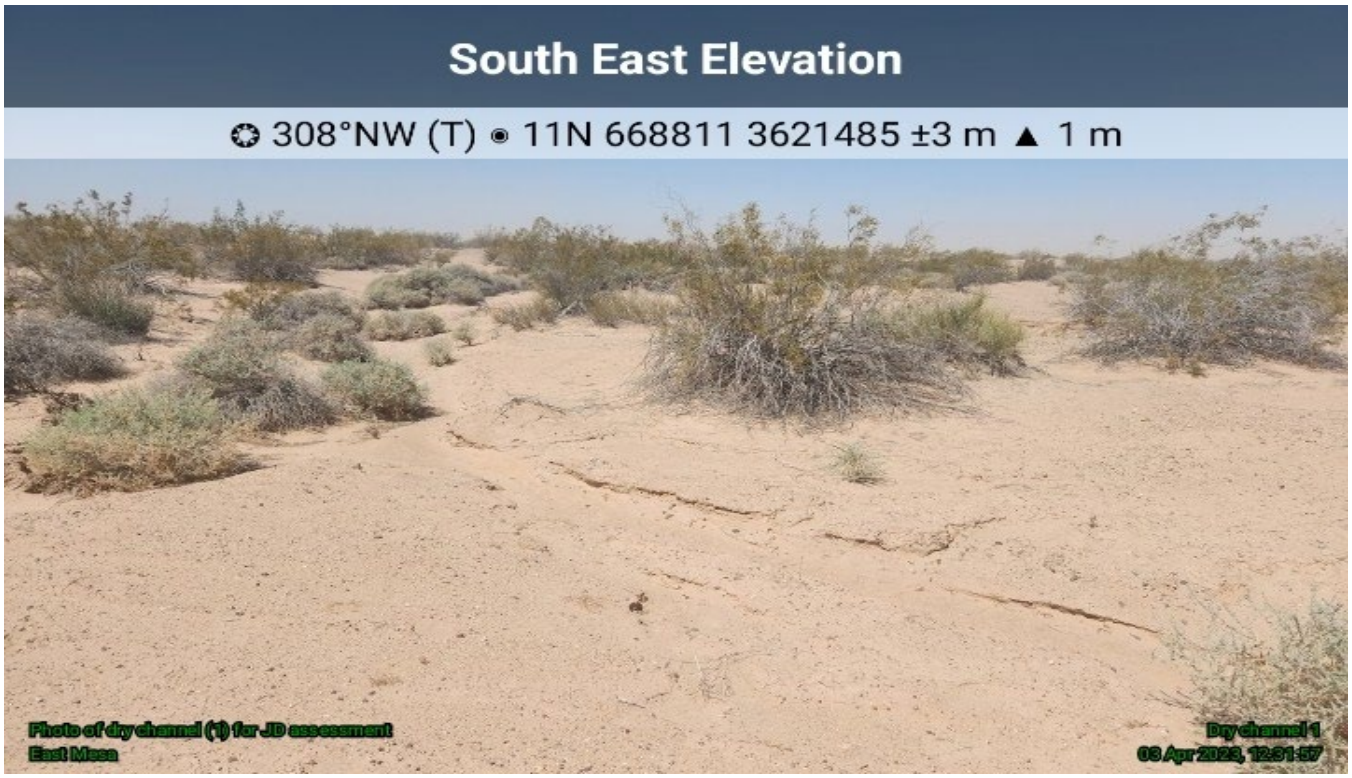

Photo Point 5. Ephemeral dry wash drainage channel showing cut banks.

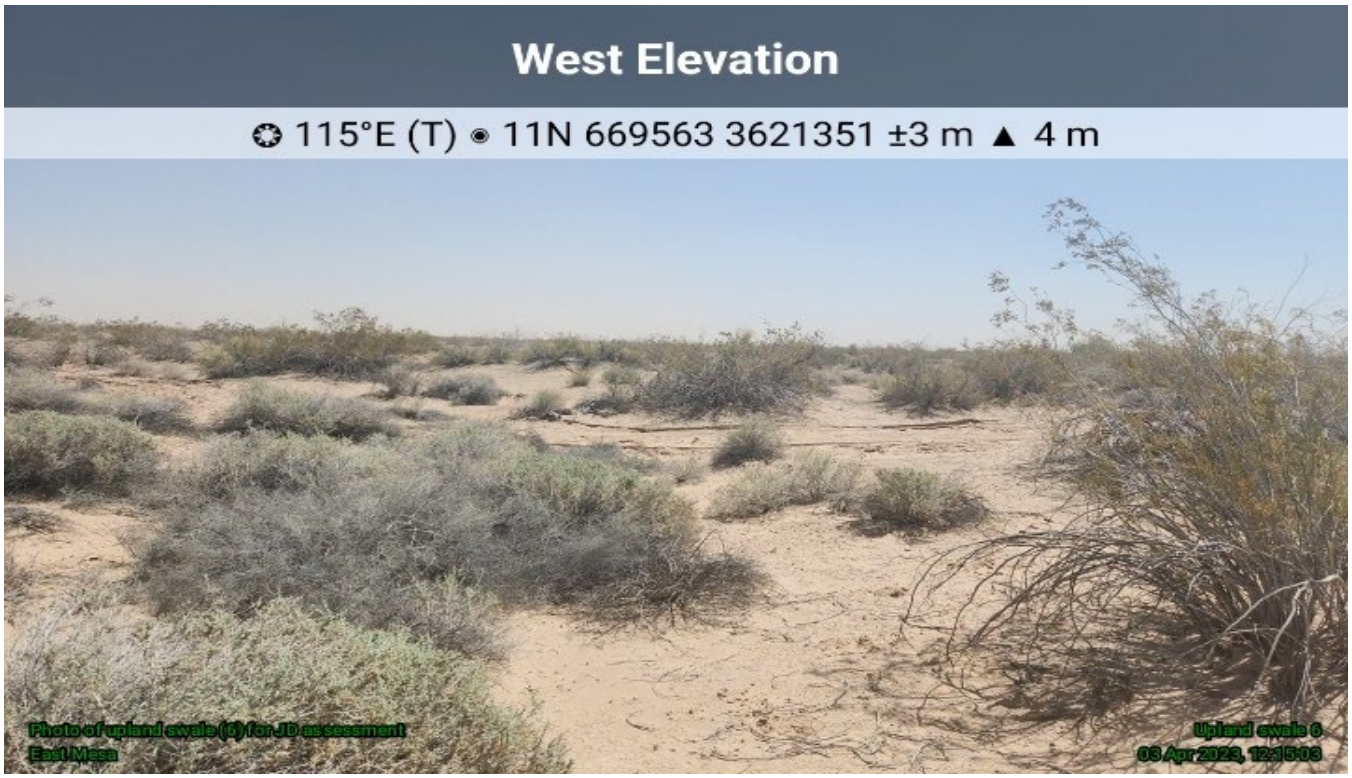

Photo 6. Upland vegetated swale that lacks indicators of episodic flow.

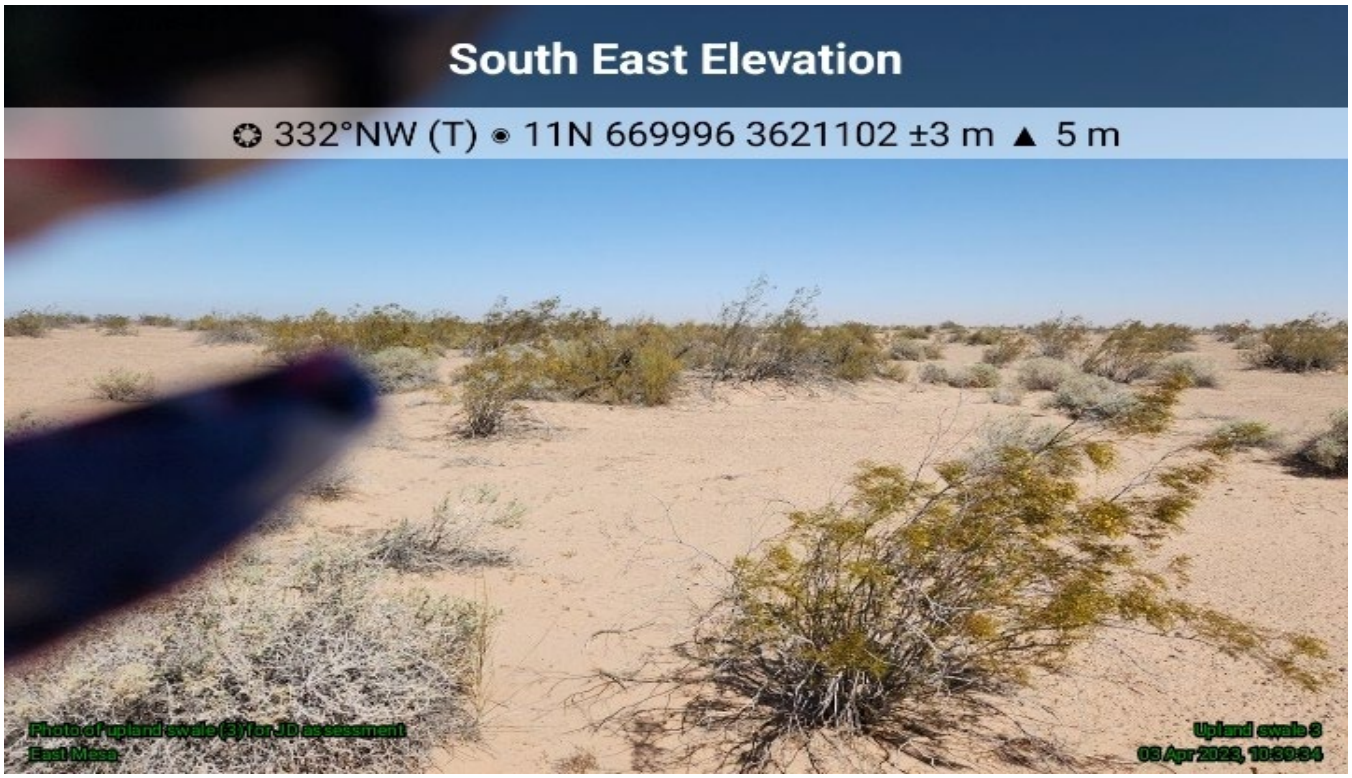

Photo Point 7. Upland vegetated swale dominated by creosote bush and that lacks indicators of episodic flow.

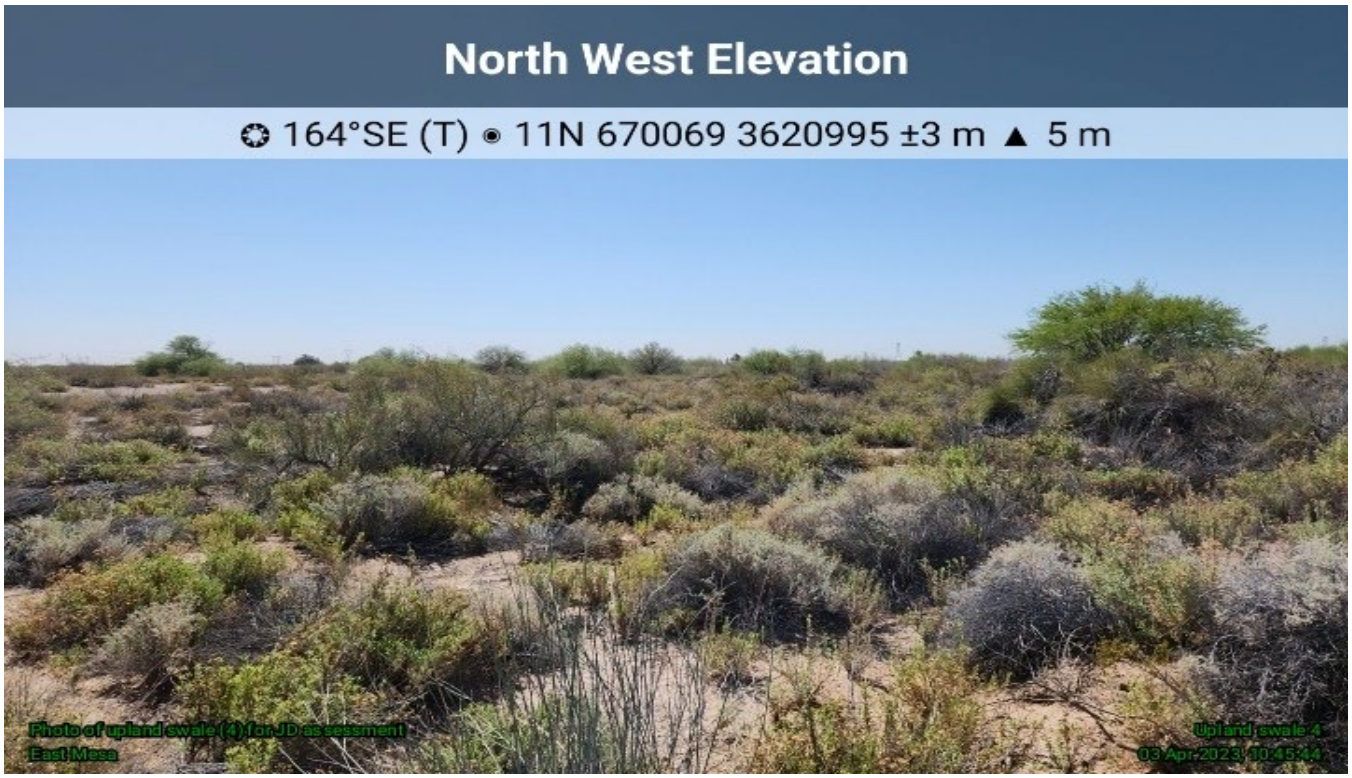

Photo Point 8. Upland vegetated swale dominated by alkali goldenbush and that lacks indicators of episodic flow.

Photo Point 9. Depression 2 with mud cracks indicating the likelihood of pooled water.

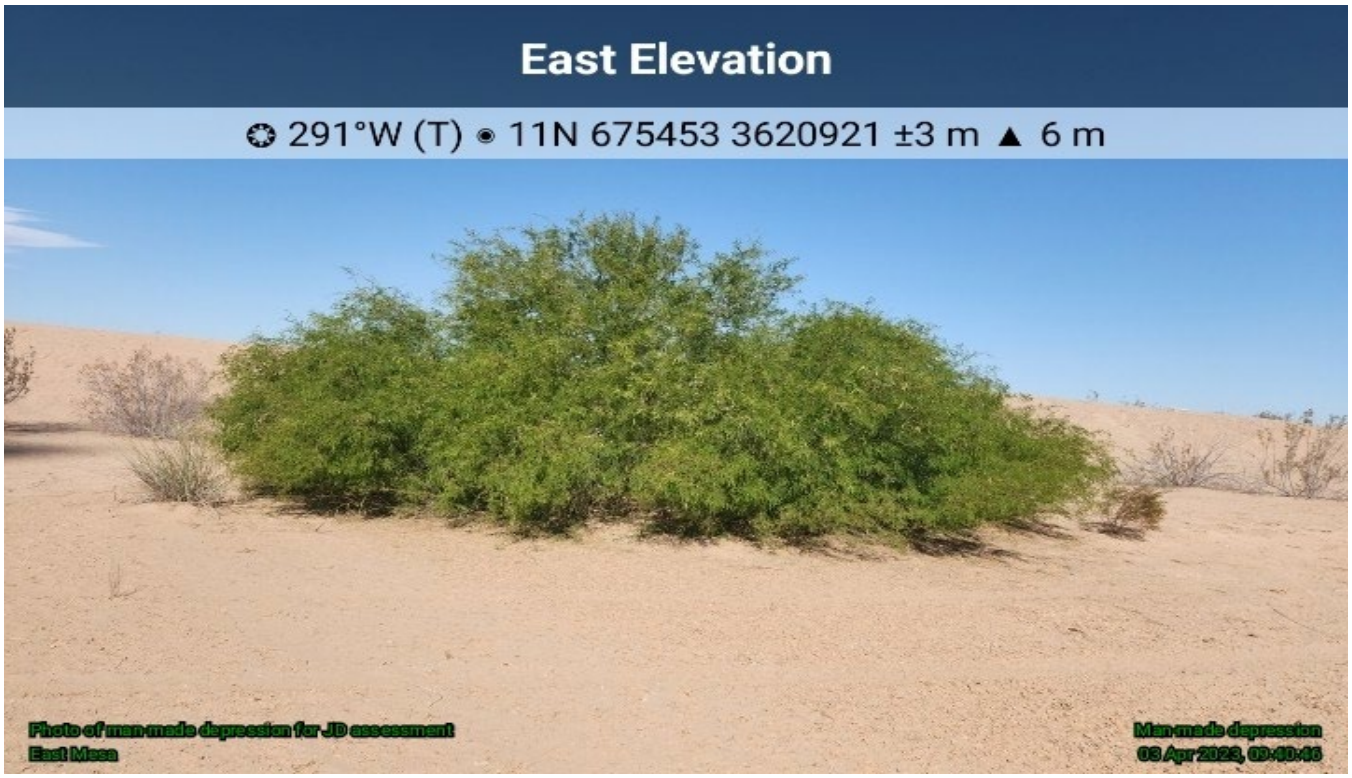

Photo 10. Depression 1 with mud cracks indicating the likelihood of pooled water.

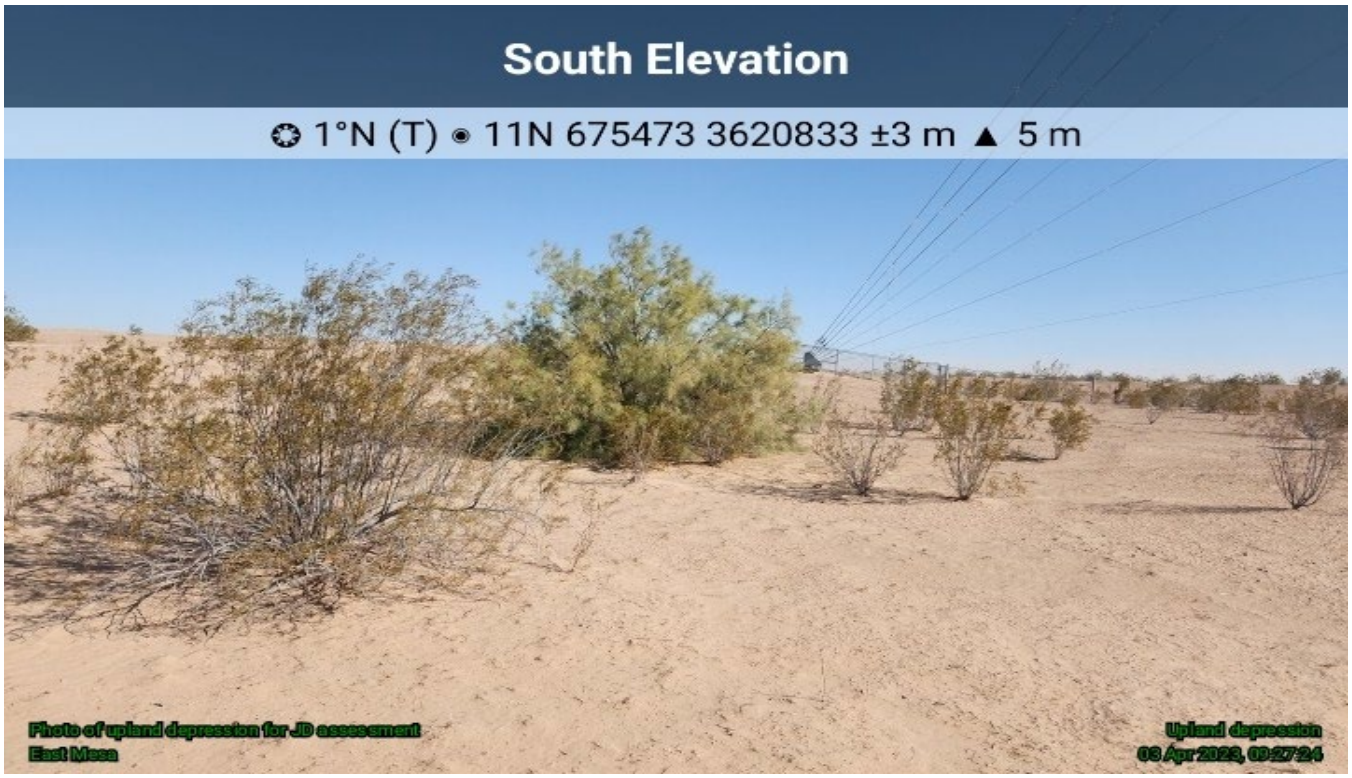

Photo 11. Upland vegetated swale that lacks indicators of episodic flow.

Photo 12. Upland vegetated swale that lacks indicators of episodic flow.

Photo Point 13. Upland vegetated swale that lacks indicators of episodic flow.

Photo 14. Upland vegetated swale that lacks indicators of episodic flow.

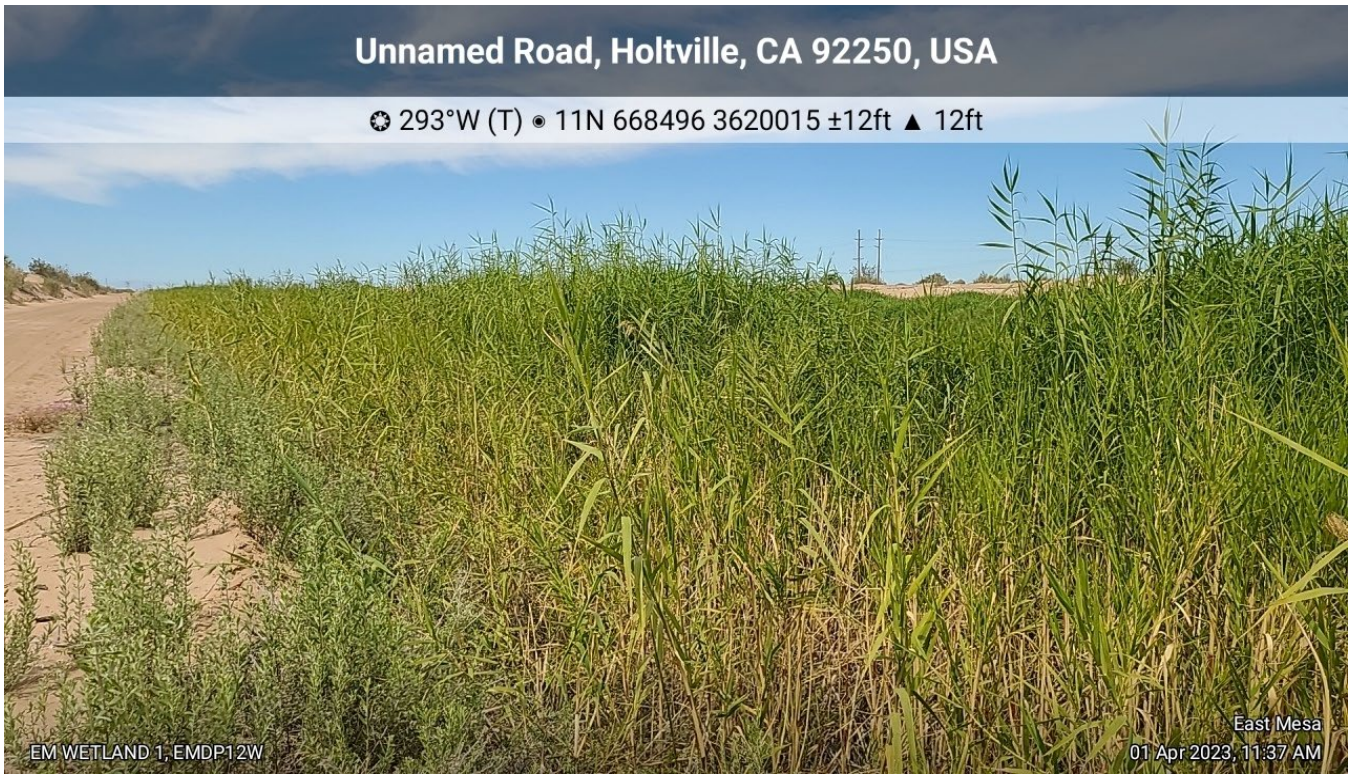

Photo 15. Data point EMDP14W at EM Wetland 2, along the All-American Canal.

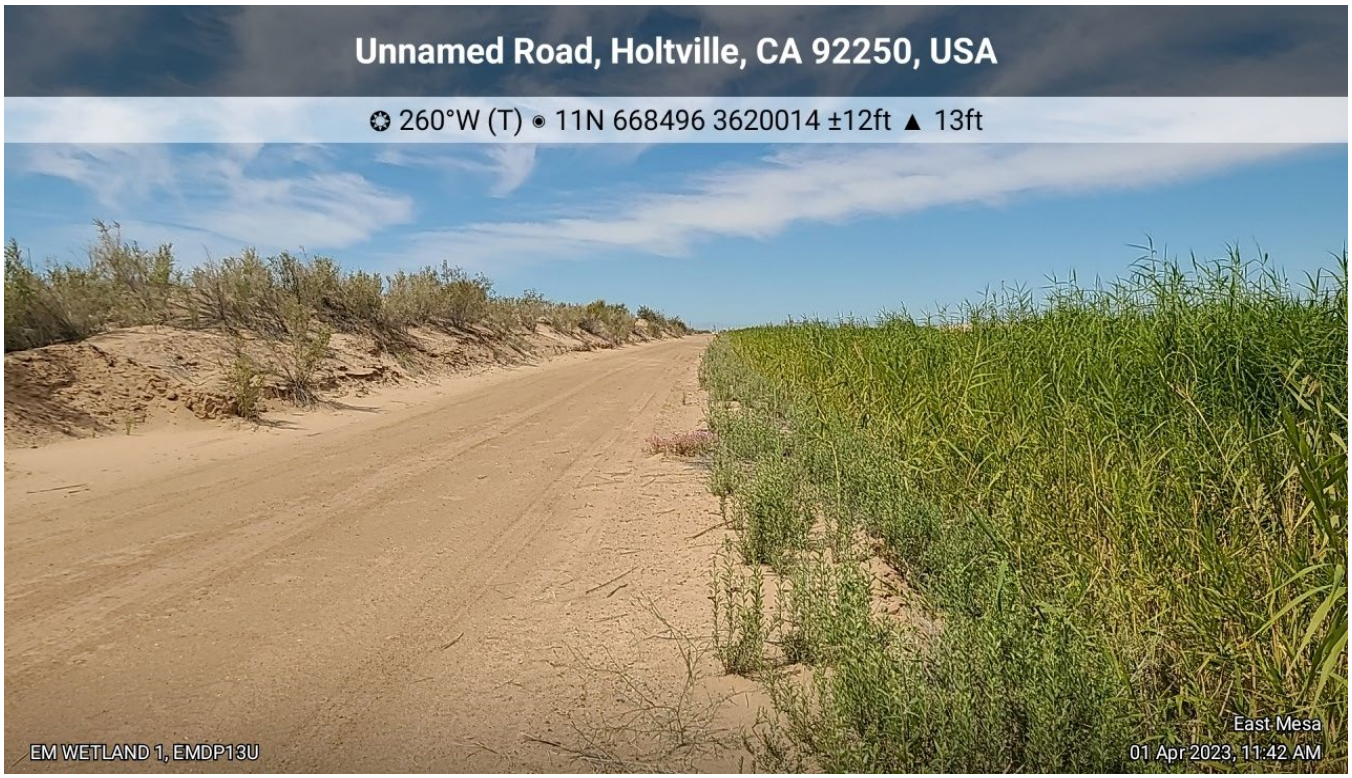

Photo Point 16. Upland Data point (EMDP15U) associated with EM Wetland 2, along the All-American Canal.

Photo Point 17. Location of Upland data point EMDP14U. Hydrophytic vegetation is present, but the area lacked hydric soil and wetland hydrology indicators.

Photo Point 18. Desert riparian (*Pluchea sericea* and *Tamarix* sp.) community that did not meet criteria of a wetland and lacked indicators of episodic flow.

Appendix C — Wetland Determination Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023
Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP12W
Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S35, T16S, R17E
Landform (hillside, terrace, etc.): canal fringe Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): LRR D Lat: 32.705048 Long: -115.202366 Datum: WSG84
Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ____
Are Vegetation n , Soil n , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes x No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Wetland data point for EM Wetland 2, a wetland along the southern bank of the Great American Canal.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1. none			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	2	No	FACW
2.			
3.			
4.			
5.			
	2 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phragmites australis*	75	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75 =Total Cover		
Woody Vine Stratum (Plot size:)			
1. None			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
Monoculture of Phragmites along the banks of the Great American Canal

SOIL

Sampling Point: EMDP12W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- x Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** x **No** ____

Remarks:
Because the vegetation was dominated by FACW species and there was an abrupt transistion to uplands, no soil data required to determine hydric soil is present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches): ____

Water Table Present? Yes ____ No x Depth (inches): ____

Saturation Present? Yes x No ____ Depth (inches): 12

(includes capillary fringe)

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Adjacent to the All American Canal that provides constant supportive hydrology.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023
Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP13U
Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): disturbed road Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.705003 Long: -115.202355 Datum: WSG84
Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ____
Are Vegetation n , Soil n , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No x	
Wetland Hydrology Present?	Yes ____	No x	

Remarks:
Paired upland data point for EM Wetland 2, adjacent to the Great American Canal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	5	Yes	FACW
2.			
3.			
4.			
5.			
	5 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Palafoxia arida*	3	No	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	3 =Total Cover		
Woody Vine Stratum (Plot size:)			
1. None			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 92 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Unvegetated canal road

SOIL

Sampling Point: EMDP13U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	5YR 5/6	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) **(LRR C)**
___ 1 cm Muck (A9) **(LRR D)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ____ No x

Remarks:
Disturbed road fill, no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) **(Nonriverine)**
___ Sediment Deposits (B2) **(Nonriverine)**
___ Drift Deposits (B3) **(Nonriverine)**
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Oxidized Rhizospheres on Living Roots (C3)
___ Presence of Reduced Iron (C4)
___ Recent Iron Reduction in Tilled Soils (C6)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Water Marks (B1) **(Riverine)**
___ Sediment Deposits (B2) **(Riverine)**
___ Drift Deposits (B3) **(Riverine)**
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
x FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches): ____
Water Table Present? Yes ____ No x Depth (inches): ____
Saturation Present? Yes ____ No x Depth (inches): ____
(includes capillary fringe)

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
On the road adjacent to the All American Canal, at least 10 feet above OHWM.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Renewable Energy Project | City/County: Imperial | Sampling Date: 4/1/2023
Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC | State: CA | Sampling Point: EMDP14U
Investigator(s): L, Rouse ; H. Oswald | Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): alkali flat | Local relief (concave, convex, none): none | Slope (%): <1
Subregion (LRR): LRR D | Lat: 32.703833 | Long: -115.202667 | Datum: WSG84
Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ____
Are Vegetation n , Soil n , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes x	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No x	
Wetland Hydrology Present?	Yes ____	No x	

Remarks:
Upland data point in mesic area with some wetland indicator species

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	30	Yes	FACW
2. *Isocoma acradenia*	25	Yes	FACU
3. *Tamarix ramomissima*	10	No	FAC
4.			
5.			
	65 =Total Cover		
Herb Stratum (Plot size: 5)			
1. None			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	=Total Cover		
Woody Vine Stratum (Plot size:)			
1. None			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 100 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	10	x 3 =	30
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	65 (A)		190 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes x No ____

Remarks:
Woody species not great hydrophytic vegetation indicator when herbeous species are lacking.

ENG FORM 6116-1-SG, JUL 2018 Arid West – Version 2.0

SOIL

Sampling Point: EMDP14U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	5YR 5/6	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** x

Remarks:
No hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ____	No x	Depth (inches): ____
Water Table Present?	Yes ____	No x	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No x	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** x

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Unlikely that soil is saturated to the surface for substantial periods. Alkali powder present indicating deep groundwater.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023
Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP15W
Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): canal fringe Local relief (concave, convex, none): concave Slope (%): <1
Subregion (LRR): LRR D Lat: 32.705624 Long: -115.202077 Datum: WSG84
Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ____
Are Vegetation n , Soil n , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No ____	**Is the Sampled Area within a Wetland?** Yes X No ____
Hydric Soil Present?	Yes x	No ____	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Wetland data point for EM Wetland 3, a wetland along the northern bank of the Great American Canal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	2	No	FACW
2.			
3.			
4.			
5.			
	2 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phragmites australis*	75	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	75 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
Monoculture of Phragmites along the banks of the Great American Canal

SOIL

Sampling Point: EMDP15W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- x Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** x **No** ____

Remarks:
Because the vegetation was dominated by FACW species and there was an abrupt transistion to uplands, no soil data required to determine hydric soil is present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- x Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches): ____

Water Table Present? Yes ____ No x Depth (inches): ____

Saturation Present? Yes x No ____ Depth (inches): 12

(includes capillary fringe)

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Adjacent to the All American Canal that provides constant supportive hydrology.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Arid West Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-xxxx, Exp: Pending
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Perkins Renewable Energy Project City/County: Imperial Sampling Date: 4/1/2023
Applicant/Owner: IP Perkins, LLC and IP Perkins BAAH, LLC State: CA Sampling Point: EMDP16U
Investigator(s): L, Rouse ; H. Oswald Section, Township, Range: S2, T17S, R17E
Landform (hillside, terrace, etc.): disturbed road Local relief (concave, convex, none): none Slope (%): <1
Subregion (LRR): LRR D Lat: 32.705678 Long: -115.202045 Datum: WSG84
Soil Map Unit Name: Rositas, fine sand, wet, 0 to 2 percent slopes NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No ____ (If no, explain in Remarks.)
Are Vegetation n , Soil n , or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes y No ____
Are Vegetation n , Soil n , or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No x	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No x	
Wetland Hydrology Present?	Yes ____	No x	

Remarks:
Paired upland data point for EM Wetland 3, adjacent to the Great American Canal.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. none			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Pluchea sericea*	5	Yes	FACW
2.			
3.			
4.			
5.			
	5 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Palafoxia arida*	5	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 =Total Cover		
Woody Vine Stratum (Plot size:)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 92 % Cover of Biotic Crust 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	10 (A)		35 (B)

Prevalence Index = B/A = 3.50

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Unvegetated canal road on north side of Great American Canal.

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SOIL

Sampling Point: EMDP16U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	5YR 5/6	100					Sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR C)**
- ___ 1 cm Muck (A9) **(LRR D)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No x

Remarks:
Disturbed road fill, no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) **(Nonriverine)**
- ___ Sediment Deposits (B2) **(Nonriverine)**
- ___ Drift Deposits (B3) **(Nonriverine)**
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Water Marks (B1) **(Riverine)**
- ___ Sediment Deposits (B2) **(Riverine)**
- ___ Drift Deposits (B3) **(Riverine)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No x Depth (inches): ____

Water Table Present? Yes ____ No x Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ____ No x Depth (inches): ____

Wetland Hydrology Present? Yes ____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
On the road adjacent to the All American Canal, at least 10 feet above OHWM.