

ESTRELLA SOLAR PROJECT, LOS ANGELES COUNTY, CALIFORNIA

BIOLOGICAL TECHNICAL REPORT

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List of Acronyms and Abbreviations

BGEPA	Bald and Golden Eagle Protection Act
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDNPA	California Desert Native Plants Act
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
CNDDDB	California Natural Diversity Data Base
County Code	County Code of Ordinances
CRPR	California Rare Plant Rank
CWA	Clean Water Act
E&E	Ecology and Environment
FESA	Federal Endangered Species Act
gen-tie	generation-tie
GHG	greenhouse gas
GIS	geographic information system
GPS	global positioning system
kV	kilovolt
MBTA	Migratory Bird Treaty Act
MM	Mitigation Measures
MW	megawatts
NHD	national hydrography dataset
NWI	national wetlands inventory
OHWM	Ordinary High Water Mark
PRC	Public Resources Code
project	Estrella Solar Project
PV	photovoltaic
RPS	Renewable Energy Portfolio Standards
RWQCB	Regional Water Quality Control Board
SEA	Significant Ecological Area
SSC	Species of Special Concern
SWRCB	State Water Resources Control Board
U.S.C.	United States Code
USACE	U.S. Army Corp of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
WoUS	waters of the United States

1.1 Project Description

The Estrella Solar Project (project) is proposed by sPower on 148.8 acres of private land located in unincorporated Los Angeles County, California, approximately 12 miles northwest of the city of Lancaster. The project consists of two parcels, Assessor Parcel Numbers 3262-006-002 and 3262-006-003 (Appendix A, Figure 1, *Regional Vicinity*), and is located at the southwest corner of West Avenue A and 90th Street West. West Avenue A, on the north side of the site, forms a boundary between Los Angeles and Kern Counties.

The project involves the construction of a ground-mounted utility-scale solar energy facility (solar facility) and optional battery energy storage system (BESS) pursuant to Section 22.16.030.D of the County Code of Ordinances (County Code). The proposed project would employ photovoltaic (PV) modules that convert sunlight directly into electrical energy without use of heat transfer fluid or cooling water. The project would have a generating capacity of up to 21 megawatts (MW) of alternating current and up to 28 MW of energy storage capacity.

Solar electricity generated by the project would connect to the proposed generation-tie (gen-tie) line that extends south for approximately 9 miles along public rights-of-way and a few privately owned parcels and connects to the Big Sky North Substation, northeast of the intersection of 100th Street West and Avenue G-8, within the City of Lancaster. The project would interconnect via an approximately 9-mile 34 kilovolt (kV) and/or 230 kV gen-tie lines originating at a direct current (DC) collection system located at the project site.

The gen-tie route would be buried underground from south from the northeastern corner of the Estrella Solar Site at Avenue A, along 90th Street West to Avenue A-8, and then west to 95th Street, south to Avenue B, and then west 110th Street West. The route would then be strung on overhead lines on the east side of 110th Street West, paralleling existing overhead lines on the west side of 110th Street West. The gen-tie line head south along 110th Street West for approximately 6 miles, and then east along Avenue G-12 to 100th Street West, interconnecting to the Big Sky North Substation.

The solar facility would occupy approximately 145 acres of the 148.8-acre site. The facility would generate, charge, store, and discharge renewable, emission-free electricity during the highest electricity demand time periods. The project would offset approximately 48,241 metric tons of carbon dioxide equivalent (CO₂e) annually that would have resulted if an equivalent amount of electricity had been produced by fossil fuel-powered generators. The project would operate year-round, generating electric power during daylight hours and discharging stored electric power at night.

The major components of the project are as follows.

- A **solar field** of north-south rows of PV panels, mounted either on fixed-tilt or single-axis tracking systems on steel support structures

- An **electrical collection system**. PV modules would be electrically connected into strings, and each string would be funneled by underground electrical conduit to combiner boxes located throughout the solar field power blocks. Cables from the combiner boxes would again be consolidated to feed the DC electricity into inverters that convert the DC to alternate current (AC).
- **Battery storage technology** that uses telecommunication systems and real-time control software to charge and discharge the battery according to power-delivery needs.
- A **switchgear area** for the transformer equipment, control building foundation, and oil containment area.
- A **data collection system** to remotely monitor the facility operation and/or remotely control critical components.
- **Civil infrastructure**, such as paved driveways, internal 20-foot-wide access roads, security fencing, landscaping, and two 5,000-gallon water tanks.
- **Interconnection gen-tie lines** installed both underground and overhead to connect the project to the Big Sky North Substation.

The project would meet the increasing demand for electricity generated from clean, renewable technology. Recent legislation enacted in California recognizes the multiple benefits associated with the development of renewable energy resources. These benefits include diversification of energy portfolios, reductions in greenhouse gas (GHG) emissions, and the creation of “green” jobs within the State of California.

Additionally, the project would assist California in the effort to meet the newly established Renewable Energy Portfolio Standards (RPS) by enabling the California grid to sustain requisite power capacity levels and manage power intermittency from renewable-generated facilities. Senate Bill 14 establishes RPS targets for California that state, “All retail sellers of electricity shall serve 33 percent of their load with renewable energy by 2020.” Additionally, Senate Bill 350 requires the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by 2030. State government agencies have been directed to take all appropriate actions to implement this target in all regulatory proceedings, including siting, permitting, and procurement for renewable energy power plants and transmission lines. Solar generating facilities qualify as eligible renewable energy resources as defined by the California Public Resources Code (PRC) and would help the State meet the objective of increasing renewable energy generation. In addition, the Project would contribute much-needed competitive energy during peak power periods to the electrical grid in California.

The project planning objective is to minimize impacts on the environment and the local community by:

- Using disturbed land or land that has been previously degraded from prior use
- Using existing electrical distribution facilities, rights-of-way, roads, and other existing infrastructure, where possible, to minimize the need for new electrical support facilities
- Minimizing impacts on threatened or endangered species or their habitats, wetlands and waters of the United States (WoUS), cultural resources, and sensitive land use
- Minimizing water use

- Reducing GHG emissions

1.2 Project Location

The project is located in northern Los Angeles County, approximately 12 miles northwest of Lancaster, California (Appendix A, Figure 1, *Regional Vicinity*, and Figure 2, *Project Location*). The Estrella solar facility occurs north of State Route (SR) 138 and west of SR 14 and can be found on the U.S. Geological Survey (USGS) Little Buttes 7.5-minute topographic quadrangle (quad) map. The gen-tie routes occur south of the solar facility between Avenue A and Avenue G-12 on the USGS Little Buttes and Del Sur quad maps. The areas in and around the solar facility and gen-tie routes include approved, under construction, and operating renewable solar farms, fallow agriculture, and rural residential neighborhoods. Elevations of the project range from approximately 2,440 to 2,450 feet above mean sea level.

The following sections summarize the applicable federal, state, regional, and local regulations for protecting biological resources that potentially apply to the proposed project. Some of these regulations may not in fact be pertinent to the project because of lack of the applicable sensitive resources within the study area.

2.1 Regulatory Setting

2.1.1 Federal

2.1.1.1 Federal Endangered Species Act of 1973

The federal Endangered Species Act (FESA) protects plants and wildlife that are listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NOAA Fisheries). FESA prohibits take of endangered wildlife, with *take* defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct" (16 United States Code [U.S.C.] § 1532[19]; see also, 16 U.S.C. 1538). For plants, this statute governs removing, possessing, maliciously damaging, or destroying any listed plant on federal land and removing, cutting, digging up, damaging, or destroying any listed plant on non-federal land in knowing violation of any law (16 U.S.C. 1538[a][2][B]).

Under Section 7 of FESA, federal agencies are required to consult with USFWS if their actions, including permit approvals or funding, could adversely affect a listed species (including plants) or its critical habitat. Through consultation and the issuance of a biological opinion, the USFWS may issue an incidental take statement, allowing take of the species that is incidental to another authorized activity, provided that the action would not jeopardize the continued existence of the species.

2.1.1.2 Migratory Bird Treaty Act, as Amended (16 U.S.C. 703–711)

The federal Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703[a]), first enacted in 1916, prohibits any person, unless permitted by regulation, to:

pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to barter, barter, offer to purchase, purchase, deliver for shipment, ship, export, import, cause to be shipped, exported, or imported, deliver for transportation, transport, cause to be transported, carry, or cause to be carried or receive for shipment, transportation, carriage, or export any migratory bird, any part, nest, or egg of any such bird, or any product...composed in whole or part, of any such bird or any part, nest, or egg thereof...

The list of migratory birds includes nearly all migratory bird species native to the United States. The Migratory Bird Treaty Reform Act of 2004 further defines species protected under the act and excluded all nonnative species. The statute was extended in 1974 to include parts of birds, as well as eggs and nests.

2.1.1.3 Bald and Golden Eagle Protection Act, as Amended (16 U.S.C. 668-668c)

The Bald and Golden Eagle Protection Act (BGEPA) (16 U.S.C. 668) provides protection for both the bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) by prohibiting the take of either of these species, including their parts, nests, or eggs. The BGEPA defines *take* as to “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb” any bald or golden eagle. BGEPA is administered by USFWS, and limited take authorizations are granted for qualifying activities. Persons who “take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner any bald eagle... [or golden eagle], alive or dead, or any part, nest, or egg thereof” without prior approval are subject to criminal penalties.

2.1.1.4 Clean Water Act of 1977 (Public Law 95–217)

The purpose of the Clean Water Act (CWA) is to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters” (33 U.S.C. 1251[a]). Section 404 of the CWA prohibits the discharge of dredged or fill material into WoUS without a permit from the U.S. Army Corps of Engineers (USACE). The definition of *waters of the United States* includes rivers, streams, estuaries, the territorial seas, ponds, lakes, and wetlands (33 Code of Federal Regulations [CFR] 328.3[a]). *Wetlands* are defined as those areas “that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (33 CFR 328.3[b]). The U.S. Environmental Protection Agency has veto authority over the USACE’s administration of the Section 404 program and may override a USACE decision with respect to permitting.

When a project may create impacts on WoUS, the project requires a permit or a waiver. Substantial impacts on WoUS may require an individual permit. Projects that only minimally affect WoUS may meet the conditions of one of the existing nationwide permits, provided the permit’s other respective conditions are satisfied. A water quality certification or waiver pursuant to Section 401 of the CWA is required for Section 404 permit actions and any federal action affecting waters. For the proposed project, this certification or waiver would need to be issued by the Lahontan Regional Water Quality Control Board (RWQCB), Region 6.

2.1.2 State

2.1.2.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) was enacted in 1970 to provide for full disclosure of environmental impacts on the public before issuance of a discretionary permit by a public agency. The CEQA analysis includes review of species that are listed under FESA or the California Endangered Species Act (CESA) or are designated as sensitive. Sensitive species include, but are not limited to, wildlife Species of Special Concern (SSC) listed by the California Department of Fish and Wildlife (CDFW) and plant species in the California Rare Plant Rank (CRPR) List 1A (presumed extinct), List 1B (rare, threatened, or endangered in California and elsewhere; eligible for state listing), List 2 (rare, threatened, or endangered in California, but more common elsewhere; eligible for state listing), or List 3 (plants for which more information is needed; many are eligible for state listing).

Appendix G of the CEQA guidelines provides thresholds to evaluate environmental impacts that would normally be considered significant. As described in these guidelines, impacts on biological resources would normally be considered significant if the project:

- Has a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS
- Has a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the CDFW or USFWS
- Has a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interferes substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors or impedes the use of native wildlife nursery sites
- Conflicts with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflicts with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan

A determination of significant impacts on a biological resource must consider both the resource itself and how that resource fits into a regional or local context by evaluating direct, indirect, cumulative, and temporary and permanent impacts.

2.1.2.2 California Endangered Species Act

CESA prohibits take, possession, purchase, sale, and import or export of endangered, threatened, or candidate species, unless otherwise authorized by permit or in the regulations. *Take* is defined in the California Fish and Game Code (CFGF) Section 86 as “to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.” CESA allows for take incidental to otherwise lawful projects. CDFW administers CESA and authorizes take through permits issued under CFGF Section 2081 or through a consistency determination issued under Section 2080.1 for projects with federal take authorizations.

2.1.2.3 California Fully Protected Species

CFGF Sections 3511, 4700, 5050, and 5515 designate 37 species of wildlife as Fully Protected in California. Lists of fully protected species were initially developed to provide protection to species that were rare or facing possible extinction/extirpation. Most fully protected species have since been state-listed as threatened or endangered. Fully protected animals may not be taken or possessed at any time.

In September 2011, the Natural Community Conservation Planning Act (NCCP Act) was amended to permit the incidental take of 36 fully protected species, pursuant to the NCCP Act approved by CDFW (CFGF § 2835). The amendment gives fully protected species the same level of protection as endangered and threatened species under the NCCP Act, enacted in the 1990s, which authorizes the

incidental take of species “whose conservation and management” is provided for in a conservation plan approved by CDFW.

2.1.2.4 California Species of Special Concern

In addition to formal listing under FESA and CESA, certain species receive additional consideration by CDFW and lead agencies during the CEQA process. Species that may be considered for review are included on a list of SSCs developed by CDFW. The list tracks species in California whose numbers, reproductive success, or habitat may be in decline.

2.1.2.5 Lake and Streambed Alteration Program

Pursuant to CFGC Sections 1600–1616, CDFW regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake that supports fish or wildlife. The California Fish and Game Commission 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. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 California Code of Regulations [CCR] 1.72). The commission’s definition of *lake* includes “natural lakes or human-made reservoirs” (14 CCR 1.56). CDFW limits of jurisdiction include the maximum extents of the uppermost bank-to-bank distance or riparian vegetation dripline. CDFW jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

2.1.2.6 California Fish and Game Code

The State of California has incorporated the protection of birds in CFGC Sections 3503, 3503.5, 3513, and 3800. Section 3503 provides for protection of bird nests and eggs. Section 3513 provides prohibitions against taking of birds protected under the MBTA. Section 3800 makes it unlawful to take any nongame bird except as provided in this code or in accordance with regulations of the commission or, when relating to mining operations, a mitigation plan approved by the department.

2.1.2.7 Native Plant Protection Act

The California Native Plant Protection Act of 1977 (CFGC §§ 1900–1913) allows the Fish and Game Commission to designate plants as rare or endangered and includes provisions that prohibit take of endangered or rare native plants. Sixty-four species, subspecies, and varieties of plants are protected as rare under the NPPA, which prohibits take of endangered or rare native plants, but includes some exceptions for: agricultural and nursery operations; emergencies; after properly notifying CDFW for vegetation removal from canals, roads, and other sites; changes in land use; and in certain other situations.

Section 1913(b) allows for the incidental removal of endangered or rare plant species within a right-of-way to allow a public utility to fulfill its obligation to provide service to the public. CDFW must be given 10 days prior notice to salvage the plants.

2.1.2.8 California Desert Native Plants Act

The California Desert Native Plants Act (CDNPA), which is Division 23 of the California Food and Agriculture Code, was adopted in 1981 to protect California desert native plants from unlawful harvesting on both public and privately owned lands. CDNPA prohibits the harvest, transport, sale,

or possession of specific native desert plants unless a person has a valid permit or wood receipt and the required tags and seals. The appropriate permits, tags, and seals must be obtained from the sheriff or commissioner of the county where collecting will occur.

2.1.2.9 Porter-Cologne Water Quality Control Act

The Porter-Cologne Water Quality Control Act (Porter-Cologne) (California Water Code Section 13000 et seq.) mandates that activities that may affect waters of the state be regulated to attain the highest water quality. The State Water Resources Control Board (SWRCB) and the local RWQCB are the relevant permitting agencies. The RWQCB provides regulations for a “non-degradation policy” that are especially protective of waters with high quality. Porter-Cologne reserves the right for the State of California to regulate activities that could affect the quantity and/or quality of surface and/or ground waters, including isolated wetlands, within the state. Waters of the state include isolated waters that are no longer regulated by the USACE. If the project is proposed to discharge into waters of the state, a waste discharge report must be filed.

2.1.3 Local and Regional

2.1.3.1 Los Angeles County Significant Ecological Areas

Significant Ecological Areas (SEA) are officially designated areas within Los Angeles County with irreplaceable biological resources. The SEA Program objective is to conserve genetic and physical diversity within the county by designating biological resource areas that are capable of sustaining themselves into the future. The new SEA Ordinance went into effect on January 16, 2020, and establishes permitting requirements, development standards, and review processes for development within SEAs. SEAs are designated in the hills to the south of the study area, but would not be affected by the project.

2.1.3.2 Los Angeles County Oak Tree Ordinance

The stated objective of the Los Angeles County Oak Tree Permit is to preserve and maintain healthy oak trees in the development process (Ord. 88-0157 § 1, 1988; Ord. 82-0168 § 2 (part), 1982.). It generally prohibits the removal of or damage to mature oak trees, except as exempted or through the issuance of removal permits.

3.1 Report Terminology and Project Survey Area

The terms *project* and *project site* refer to the proposed activities within the Estrella Solar Facility and the associated gen-tie lines. For the purposes of this report, the studies conducted within the Estrella Solar facility and gen-tie route will be separated. The Estrella project site consists of parcels 3262-006-002 and 3262-006-003.

For this report, *region* is defined as areas depicted on the quad maps that include the study area (Little Buttes and Del Sur) and surrounding quads (Tylerhorse Canyon, Willow Springs, Soledad Mountain, Rosamond, Lancaster West, Lake Hughes, Fairmont Butte).

The study area consists of the Estrella project site (as defined above) and buffers between 100 feet and 0.5 mile, depending on the resource being evaluated. Buffers are used to provide context for the resources identified within the study area, address potential indirect effects, and allow minor revisions to the project while maintaining an adequate representation of potential impacts on the resources present. Buffers were applied to the study area around the project site as follows: a 0.5-mile buffer was used for nest searches for Swainson's hawk (*Buteo swainsonii*) and other raptors, as well as common raven (*Corvus corax*); a 500-foot buffer was used for soil, vegetation mapping, and habitat assessment/burrow searches for burrowing owl (*Athene cunicularia*), American badger (*Taxidea taxus*), and desert kit fox (*Vulpes macrotis arsipus*); and a 100-foot buffer for special-status plants.

3.2 Literature Review

Prior to conducting field surveys, a literature and records search was conducted for information on special-status species occurrences within the project site and associated study areas. The following databases/resources were reviewed for occurrences within the region.

- The CDFW Special Animals List (CDFW 2019a)
- California Natural Diversity Database (CNDDDB) (CDFW 2019b) element occurrences for the quad maps within or immediately adjacent to the study area
- CNPS Online Inventory of Rare and Endangered Plants, eighth edition (CNPS 2020a), for the quad maps within or immediately adjacent to the study area
- USFWS Critical Habitat for Threatened and Endangered Species online mapper (USFWS 2020a)
- National Wetlands Inventory database (USFWS 2020b)
- USGS quad maps of the study area and vicinity (USGS 2020)
- U.S. Department of Agriculture, Natural Resources Conservation Service Soil Survey maps (USDA-NRCS 2020)
- The Cornell Lab of Ornithology's eBird database (eBird 2020)

- Biological resource reports and environmental impact reports for nearby renewable energy projects in Los Angeles County:
 - American Solar Greenworks CUP9 (Chambers 2011a)
 - American Solar Greenworks CUP9 (Chambers 2011b)
 - Antelope Valley Solar Draft EIR (Renewable Resources Group 2011)
 - Antelope Expansion 3 Solar Project (SWCA 2019)
 - Del Sur Solar Lancaster (Aspen 2015)
 - Lancaster WAD CUP15 (Chambers 2011c)
 - North Lancaster Ranch Project Site CUP 6 (Chambers 2011a)
 - Raceway Solar (Ecology and Environment 2018))
 - Raceway Solar 2.0 Solar Project: Biological Resources and Wetland Update Technical Memorandum (2020)
 - Rosamond Solar (SunPower 2016)
 - Silver Sun Greenworks (Chambers 2012)
 - Western Antelope Blue Sky Ranch Solar Chambers 2011d)

For the purposes of this report, species are considered to have special status if they meet at least one of the following criteria.

- Species listed or proposed for listing as threatened or endangered under the FESA (50 CFR 17.12 [listed plants]; 50 CFR 17.11 [listed animals]) or in various notices of the *Federal Register* (proposed species) as well as those species that are candidates for possible future listing as threatened or endangered under the FESA (79 *Federal Register* 72450, December 5, 2014)
- Species listed or proposed for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5)
- Plant species listed as rare under the California Native Plant Protection Act (CFGC 1900, et seq.)
- Species that meet the definitions of rare or endangered under CEQA (§§ 15380 and 15125).
- Wildlife CDFW has designated SSC
- Wildlife species that are fully protected in California (CFGC §§ 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish])
- Species listed as having a CRPR of 1A (presumed extinct in California), 1B (rare, threatened, and endangered in California and elsewhere), 2 (rare, threatened, or endangered in California, but more common elsewhere), 3 (plants for which more information is needed [a review list]), or 4 (plants of limited distribution [watch list]) (CNPS 2020a). CRPR List 1A, 1B, 2, and 3 species are considered special-status plant species, as defined in the California Native Plant Protection Act, CFGC Section 1901, or CESA, CFGC Sections 2050 through 2098. Many CRPR 4 species do not meet the same definitions of special-status plants, but are strongly recommended for consideration under CEQA (CNPS 2020b).

Other sensitive species and conservation lands covered under the following were also considered in this report.

- Native desert plants that are protected under the CDNPA (California Food and Agriculture Code §§ 80001–80006, Division 23), including all species in the agave and cactus families

The results of the literature review were compiled into a list of potentially occurring special-status plant and wildlife species, and each species was analyzed for its potential to occur within the study area. Table 3-1 describes the criteria used for this evaluation; the results of the determinations are provided in Appendix B. The results were updated after focused surveys were conducted to reflect current conditions onsite (e.g. lowered species potential to occur if focused surveys could confirm absence).

Table 3-1. Criteria for Evaluating Special-status Species Potential to Occur

Potential	Criteria
Not Expected to Occur	Species is restricted to habitats or environmental conditions that do not occur within the study area, or a plant was not observed during focused rare plant surveys that would have been observed if present in the study area (i.e., a conspicuous perennial, shrub, or tree). This includes species that are considered by experts to have been extirpated in the region.
Low	Records for this species exist within 5 miles of the study area, but the habitats or environmental conditions needed to support the species do not exist or are very limited, isolated, or highly disturbed within the study area. Low potential to occur may also be used when species records are very old (pre-1980s), regardless of habitat conditions within the study area. For special-status plants, low potential may also be used when the plant was not observed during focused rare plant surveys, and its lack of detectability may be due to environmental limitations, such as drought or annual variability in germination (i.e., bulbiferous perennials, annuals).
Moderate	The study area is within the range of the species and contains potentially appropriate habitat. Records for this species exist within 5 miles of the study area; however, habitats or environmental conditions needed to support the species are limited within the study area. Species records indicate few previously documented occurrences within 1 mile of the study area.
High	The study area is known to be within the range of the species and contains potential habitat with a high likelihood of occupancy. This category includes locally common sensitive animal species known from the region, but not observed during surveys. Depending upon regulatory status, local rarity, extent of habitat on the study area, and the nature of potential project impacts, a substantial basis may exist for either conducting focused surveys for the species or for assuming current or future presence.
Present	Species was detected within or near the study area during project surveys. Although species may have been observed within the study area, highly mobile species such as birds may be observed within the study area, but may not necessarily utilize the study area for breeding and/or foraging.

3.3 Survey Methods

The following subsections describe the methodology for the general biological resource surveys, jurisdictional delineation, habitat assessments, and focused surveys for the project. Because three separate consultants performed surveys for the project, each of the following subsections may

separate the Estrella Solar Facility and the gen-tie route if the methods were different among the resources.

3.3.1 Survey Overview

3.3.1.1 Estrella Solar Facility

Based on the results from the literature review, habitat assessments were conducted for the following special-status species: burrowing owl, desert tortoise (*Gopherus agassizii*), American badger, desert kit fox, Swainson's hawk, and special-status plants (methods described below). In addition, a jurisdictional delineation was performed. Based on the results of the habitat assessments, focused nest surveys were performed for raptors and common raven (methods described below). No additional focused surveys were required. Survey dates and personnel are summarized in Table 3-2.

Table 3-2. Estrella Solar Facility Survey Personnel and Dates

Survey Type	Survey Dates	Survey Personnel
Vegetation Mapping	4/30/2020	Ben Smith
Burrowing Owl, Desert Tortoise, Desert Kit Fox, and American Badger Habitat Assessment	4/10/2020	Ben Smith, Gabriel Barsotti, Laura Magee, Kelsey Dix, and RJ Van Sant
Jurisdictional Delineation	4/10/2020	RJ Van Sant
Raptor and Common Raven Nest Surveys	4/30/2020 5/19/2020	Ben Smith Ben Smith

3.3.1.2 Gen-Tie Route

Based on the results from the literature review, habitat assessments were conducted for the following special-status species: burrowing owl, desert tortoise, Swainson's hawk, American badger, desert kit fox, and special-status plants (methods described below). Based on the results of the habitat assessments, focused burrowing owl and special-status plant surveys were performed (methods described below). No additional focused surveys were required. Survey dates and personnel are summarized in Table 3-3.

Table 3-3. Gen-Tie Route Survey Personnel and Dates

Survey Type	Survey Dates	Survey Personnel
Vegetation Mapping, Jurisdictional Delineation, and Habitat Assessments for Burrowing Owl, Desert Tortoise, Desert Kit Fox, and American Badger	11/9–11/2017	J. Carlo, D. Schultz
Burrowing Owl Survey #1 and Special-Status Plant Surveys	4/14–17/2020 4/22–24/2020	R. Myers, M. Antill, M. Borg, A.Xu R. Myers, M. Webb, S. Durzi
Burrowing Owl Survey #2 and Special-Status Plant Survey	5/19/2020	S. Durzi and M. Webb
Burrowing Owl Survey #3	6/9/2020	M. Webb and P. Singhaseni
Burrowing Owl Survey #4	6/30/2020	M. Webb and P. Singhaseni
Burrowing Owl Survey #5	7/1/2020	P. Singhaseni
Joshua Tree Habitat Assessment	6/7/2021	K. Martinusen

3.3.2 Vegetation Communities and Plant/Wildlife Inventories

General reconnaissance surveys were completed by biologists familiar with the flora and fauna of the region (as defined above in Section 3.1, *Report Terminology and Project Survey Area*, above) and the habitat requirements for special-status species identified in the literature review. This section does not separate the Estrella Solar Facility from the gen-tie route because the methodology was consistent for these particular subjects. The intent of the survey was to map the vegetation communities in the study areas and evaluate the potential for those communities to support special-status species identified in the literature review. Surveys were conducted on foot, along with the aid of high-resolution aerial maps (1:200 scale). The study area for reconnaissance work included the project site and a 500-foot buffer (Appendix A, Figure 4, *Vegetation Communities*). Special-status species found to have a *high* potential to occur (as defined in Table 3-1) or which are highly sensitive were considered for focused surveys.

Vegetation communities were determined via desktop using the *California Vegetation Map in Support of the Desert Renewable Energy Conservation Plan* (Menke et al. 2013) and then verified in the field in November 2017 (gen-tie route) and in April 2020 (Estrella Solar Facility) (Table 3-2 and Table 3-3).

Plants were identified to the lowest taxonomic level necessary to characterize vegetation communities and determine whether a species or community was invasive, nonnative, native, or special-status. Scientific and common names were recorded according to *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al. 2012), often through the use of taxonomic keys published in Baldwin et al. (2012). The botanical compendium was then used to characterize or verify the various vegetation communities in the project site, and then update according to recent aerial photographs of the study area.

Incidental wildlife observations were documented within the study area during the reconnaissance survey, habitat assessments, and focused surveys. The presence of a wildlife species was determined through direct observation or wildlife sign (e.g., tracks, burrows, nests, scat, vocalization). Field guides were used to assist with identification of species during surveys and included the *National Geographic Field Guide to the Birds of North America* (National Geographic 2011), *Western Reptiles and Amphibians* (Stebbins 2003), and *A Field Guide to the Mammals of North America* (Reid 2006). Representative photographs of the site were taken during all surveys (Appendix C). A comprehensive inventory was compiled during all site visits of all plant and wildlife species detected (Appendix D).

3.3.3 Special-Status Plant Habitat Assessment and Surveys

Based on the information obtained through the literature review (Section 3.2, above), suitable habitat for special-status plants was determined by analyzing the relationship between soil types, vegetation communities, hydrology, tolerance to disturbance, elevation range, current land uses, and/or history of disturbances onsite. These data were taken into consideration during the reconnaissance survey of the project site (Section 3.3.1, *Survey Overview*) and used to determine the need for focused plant surveys in the spring of 2020.

Presence of suitable habitat for special-status plants within the study area would prompt focused surveys according to guidelines published by CDFW (2018) and CNPS (2001). No suitable habitat for rare plants was present in the Estrella solar project site, so no focused surveyed were determined to

be necessary within the solar project. Focused special-status plant surveys were conducted along the proposed gen-tie route in April and May 2020 (Table 3-3). Two biologists walked on either side of the gen-tie routes spaced 20 meters apart for 100 percent visual survey of the entire project area. Surveys were conducted at the appropriate time to detect rare species that may be present, and all plants encountered were identified to the taxonomic level necessary to determine their rarity status. Rare plants encountered would be documented by counting individuals or estimating size and extent for larger populations using a global positioning system (GPS) location. Any plants protected under the CDNPA would also be mapped during these surveys.

Biological surveys were performed for this project in spring and summer of 2020. These surveys occurred prior to the candidacy listing of Joshua tree (*Yucca brevifolia*) as a threatened species under the CESA. While Joshua tree would have been mapped as a CDNPA-protected plant during rare plant surveys, an additional focused habitat assessment was conducted along the gen-tie route for Joshua tree in 2021. The proposed gen-tie route surveyed by driving and visually surveying the proposed gen-tie alignment for potential habitat for Joshua trees and protected desert cacti within 65-feet of the gen-tie alignment.

3.3.4 Desert Tortoise Habitat Assessment

Based on the information obtained through the literature review (Section 3.2), suitable habitat for desert tortoise was determined by reviewing the habitat types within the project site study area, as well as current land uses, history of disturbances onsite, and species records in the region. These data were taken into consideration during the reconnaissance survey of the project site (Section 3.3.1) and used to determine the need for focused desert tortoise surveys. These methods were used for both the Estrella Solar Facility and gen-tie route.

Habitat characteristics include gentle slopes with sparse, woody vegetation and sandy to gravelly soils below 5,500 feet (Germano et al. 1994; USFWS 1994). Lower elevation habitat areas are dominated by creosote bush and white bursage, and higher elevation habitats are dominated by blackbrush and juniper woodlands (USFWS 2009). Presence of suitable habitat for desert tortoise within the study area would prompt focused surveys according to USFWS guidelines published in *Preparing for Any Action that May Occur Within the Range of the Mojave Desert Tortoise* (2019). The protocol states that surveys should be conducted during periods when tortoises are above ground (generally April through May and September through October in temperatures below 95°F). Also consistent with these guidelines, the survey would be conducted by qualified biologists walking parallel transects spaced 10 meters apart throughout the entire project area, plus the area that may be directly or indirectly affected by the project. Any desert tortoise individuals or their sign (e.g., scat, burrows, carcasses, tracks, etc.) of the species encountered would be documented using a GPS device.

3.3.5 American Badger and Desert Kit Fox Habitat Assessment

Based on the information obtained through the literature review (Section 3.2), suitable habitat for desert kit fox and American badger was determined by reviewing the habitat types within the project site study area as, well as current land uses, history of disturbances onsite, and species records in the region. These data were taken into consideration during the reconnaissance survey of

the project site (Section 3.3.1). These methods were used for both the Estrella Solar Facility and gen-tie route.

Focused protocol surveys for these species are not required should suitable habitat be present. Rather, live individuals or sign of these species (e.g., burrows, scat, tracks, etc.) detected during other focused site surveys, such as burrowing owl surveys, can be used to determine their presence or absence. The survey protocol for San Joaquin kit fox, a listed sub-species of desert kit fox that occurs in a different region from the project site, specifies pedestrian transects spaced at 30 to 100 feet (9 to 30 meters) for detecting potential dens (USFWS 1999). The transect distance used for burrowing owl surveys falls within this range. American badger has not been listed as threatened or endangered by federal or state agencies and therefore does not have a survey protocol. However, badger dens are the same size as or larger than burrows used by burrowing owls and desert kit foxes, and transect spacing used for burrowing owls is expected to be adequate for detecting badger dens. Any sign of these species detected during site surveys would be documented using a GPS device.

3.3.5.1 Burrowing Owl Habitat Assessment and Surveys

Because of the potential for suitable burrowing owl habitat within the Estrella Solar Facility and gen-tie route, a habitat assessment was conducted for burrowing owls, in accordance with the *CDFW Staff Report on Burrowing Owl Mitigation* (CDFW 2012), as described below. The project site and gen-tie routes were surveyed by walking 20-meter transects throughout the project study area to ensure 100 percent coverage, and to ensure that all potential burrows and sign were detected or observed. Areas within the 500-foot buffer were inspected by binoculars or surveyed where legally accessible. If burrows were encountered, they would be inspected for any burrowing owl sign (e.g., tracks, pellets, white-wash, feathers, prey parts) and the location would be documented using a GPS device. These methods were used for both the Estrella Solar Facility and gen-tie route.

The purpose of the first visit was to search for and record the location of all potentially suitable burrows throughout the entire project area. If suitable burrows were not identified anywhere in the study area, then further surveys would not be required. However, if suitable burrows were identified, three follow-up surveys would be conducted to determine burrow occupancy and spaced at least 3 weeks apart, as recommended by CDFW. After the surveys were completed, one additional visit was conducted to determine the outcome of burrowing owl nest sites.

Suitable burrows included burrows excavated by California ground squirrels (*Otospermophilus beecheyi*) (minimum entrance size of 4 inches in diameter), desert kit fox dens, and American badger dens. Any potentially suitable burrow encountered was examined. General size and shape were recorded, along with any signs of occupancy such as whitewash, pellets, prey remains, or decorations. Biologists also recorded incidental observations of other wildlife species during the surveys.

During the follow-up visits each burrow recorded during the initial survey was examined and monitored to determine occupancy status. Biologists surveyed each area with binoculars, and then approached each burrow when no burrowing owls were observed. If burrowing owls were present, the biologists would watch them from a distance of at least 500 feet to reduce the disturbance to the owls. Biologists then determined if chicks were present or if the owls were exhibiting nesting behaviors. Nesting behaviors include the males guarding the burrow entrance, foraging, and bringing food to the nest.

3.3.6 Swainson's Hawk, Raptor, and Common Raven Nest Surveys

CDFW typically recommends Swainson's hawk nest searches out to 5 miles from a proposed development site in Antelope Valley to determine if that site is being used for foraging by a nesting pair; however, an active nest (i.e., utilized in the last 5 years) was known from within 0.5 mile of the Estrella project site, so it is assumed the site could already be considered suitable foraging habitat. The 0.5-mile nest search was conducted to evaluate potential direct and indirect impacts on nearby nests (other than loss of foraging habitat).

To evaluate the use of the proposed project site by nesting raptors and common ravens, ICF biologists conducted nest surveys in April and May 2020 (Table 3-2 and Table 3-3). Biologists searched for and recorded all stick nests (i.e., diameter greater than 12 inches) as they were encountered within the project limits, plus a 0.5-mile buffer. Observers intensively checked suitable arboreal habitat, examining trees from all available angles for any visible nests. The majority of the study area was surveyed using a vehicle as a bird blind. However, areas that could not be adequately viewed from a vehicle were inspected on foot. GPS points were recorded at each nest that was identified as a possible raptor or common raven nest. Survey dates, times, and weather conditions during the nest surveys are provided in Table 3-4.

Table 3-4. Survey Dates, Times, and Conditions for the Estrella Solar Facility Raptor and Common Raven Nest Surveys

Date	Time	Weather Conditions
4/30/2020	0715–1330	66°F–84°F, winds 10–30 mph, 33%–0% cloud cover
5/19/2020	1510–1810	68°F–64°F, 5–10 mph winds, 0%–0% cloud cover

3.3.7 Jurisdictional Delineation

3.3.7.1 Estrella Solar Facility

ICF conducted a routine-level delineation of potentially jurisdictional aquatic resources within the Estrella Solar Facility and areas within 50 feet (study area). Prior to the field visit, potential aquatic resources were identified using high-resolution aerial imagery overlaid with geographic information system (GIS) data from the national wetlands inventory (NWI) (USFWS 2019) and national hydrography dataset (NHD) (USGS 2018). These were used to identify the locations of potential aquatic resources within the Estrella Solar Facility study area. In addition to the regionally available data (e.g., NWI and NHD) the approximate location and extent of aquatic resources were identified based on observed vegetation types, topographic changes, and visible drainage patterns.

On April 10, 2020, ICF Senior Habitat Restoration Specialist R. J. Van Sant conducted the aquatic resource delineation. The survey was conducted on foot, and aquatic resource limits were recorded using high-resolution aerial photographs (1 inch = 100 feet) and an Apple iPad with ESRI Collector Map software. Existing conditions were documented as field notes and site photographs.

Potential aquatic resources were evaluated for the presence of ordinary high water mark (OHWM) indicators, bed and bank, and/or wetland vegetation, soils, and hydrology. If present, lateral limits of non-wetland aquatic resources subject to regulation by USACE and/or RWQCB were delineated based on the presence of OHWM indicators using field indicators pursuant to *A Field Guide to the*

Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States: A Determination Manual (Lichvar and McColley 2008). Additionally, if present, CDFW jurisdiction was delineated by measuring outer width and length boundaries of potential aquatic resource areas (e.g., lakes or streambeds), consisting of the greater of either the top of bank (TOB) measurement or the extent of adjacent associated riparian or wetland vegetation. The project site was also analyzed for potential wetlands using the methodology set forth in the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008).

3.3.7.2 Gen-Tie Route

Ecology and Environment (E&E) biologists conducted a preliminary jurisdictional waters and wetlands delineation of the proposed Gen-Tie Route in 2017. Prior to performing the delineation, E&E reviewed background reference materials that included historic and current aerial photographs (National Agricultural Imagery Program 2016; Google Earth 2017); Little Buttes, Rosamond, and Del Sur USGS 7.5 topographic maps; the U.S. Department of Agriculture (USDA) NRCS web soil survey (NRCS 2017a); the NHD (USGS 2017); and the NWI (USFWS 2017).

On November 9–11, 2017, E&E biologists J. Carlo and D. Schultz conducted the jurisdictional waters and wetlands delineation of the gen-tie route delineation area. During the field investigation, E&E used a Bad Elf GPS Pro Receiver BE-GPS-2200 (sub-meter accuracy) and ArcGIS® Collector software on an iPad (iOS 11.0.3) to map aquatic community boundaries, as needed. All GPS coordinates were accurate to within 1 meter. Information was exported to a database format using ArcGIS software and edited before linking with a GIS.

Potential aquatic resources were evaluated using the same criteria and methods used for the Estrella Solar Facility delineation, described above. Wetland waters were analyzed using the methods set for the in the 1987 *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2008). In addition, lateral limits of non-wetland WoUS and waters of the state that are potentially under jurisdiction of the USACE and RWQCB were evaluated using field indicators pursuant to *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States: A Determination Manual* (Lichvar and McColley 2008). Potential CDFW waters were delineated by the width of the banks by the width of the stream bank or the extent of associated riparian habitat.

4.1 Biological Resource Setting

The project is located within the Mojave Desert, a region that occurs between the southern, low-elevation, hot Sonoran Desert and the northern, high-elevation, relatively cool Great Basin. The Mojave Desert covers more than 40,000 square miles in California, Arizona, Nevada, and Utah and is characterized by hot summer temperatures and low annual precipitation of less than five inches. Daily temperature swings of 40°F can occur, with lows in the winter below or near freezing temperatures. Precipitation extremes are also common, with variations of 80 percent in annual precipitation. Summer thunderstorms can drop more precipitation on a site in one event than the mean yearly precipitation for that location. This area is geographically defined by the intersection of the San Andreas and Garlock faults and situated east of where the Tehachapi Mountains meet the Transverse Range. Soils in the study area are all generally loamy sand, slightly to moderately alkaline, coarse, and well drained.

4.1.1 Estrella Solar Facility

Soil series identified in the Estrella Solar Facility study area are listed in Table 4-1 and illustrated in Figure 3, *Soils Map* (Appendix A) (USDA-NRCS 2020). Brief descriptions of each soil type are provided following the table.

Table 4-1. Soil Series Occurring within the Estrella Solar Facility Study Area

Soil Series Abbreviation	Soil Series
HkA	Hesperia fine sandy loam, 0–2% slopes
Ro	Rosamond fine sandy loam
Rm	Rosamond loamy fine sand
Rp	Rosamond loam

Hesperia fine sandy loam, 0 to 2 percent slopes (HkA). Hesperia fine sandy loam is derived from granite alluvium and found on alluvial fans. These soils are well drained, and runoff is classified as very low. The depth to the water table is greater than 80 inches. These soils are prime farmland, if irrigated. These soils are not hydric.

Rosamond fine sandy loam (Ro). Rosamond fine sandy loam is derived from granite alluvium and found on alluvial fans. These soils are well drained, and runoff is classified as low. The depth to the water is greater than 80 inches. These soils are prime farmland, if irrigated. These soils are not hydric.

Rosamond loamy fine sand (Rm). Rosamond fine sandy loam is derived from granite alluvium and found on alluvial fans. These soils are well drained, and runoff is classified as low

Rosamond loam (Rp). Rosamond loam is derived from granite alluvium and found on alluvial fans. These soils are well drained and runoff is classified as low. The depth to the water is greater than 80 inches. These soils are prime farmland, if irrigated. These soils are not hydric.

4.1.2 Gen-Tie Route

Soil series identified in the gen-tie route study area are listed in Table 4-2 and illustrated in Figure 3 (Appendix A) (USDA-NRCS 2020). Brief descriptions of each soil type are provided following the table, unless they were described previously.

Table 4-2. Soil Series Occurring within the Gen-Tie Route Study Area

Soil Series Abbreviation	Soil Series
AcA	Adelanto coarse sandy loam, 2–5% slopes
CaA	Cajon loamy sand, 0–2% slopes
CbA	Cajon loamy sand, loamy substratum, 0–2% slopes
DuD	Dune land
GsA	Greenfield sandy loam, 0–2% slopes
GsC	Greenfield sandy loam, 2–9% slopes
HbA	Hanford coarse sandy loam, 0–2% slopes
HgA	Hesperia loamy fine sand, 0–2% slopes
HkA	Hesperia fine sandy loam, 0–2% slopes
RcA	Ramona coarse sandy loam, 0–2% slopes
RcB	Ramona coarse sandy loam, 2–5% slopes
Rm	Rosamond loamy fine sand
Ro	Rosamond fine sandy loam
Rp	Rosamond loam
Rt	Rosamond silty clay loam

Cajon loamy sand, 0 to 2 percent slopes (CaA, CaB). Cajon loamy sands are derived from granite alluvium and found on alluvial fans. These soils are excessively drained, and runoff is classified as negligible. The depth to the water is greater than 72 inches. These soils are unsuitable for farming, even if irrigated. These soils are not hydric.

Dune land consists of poorly graded fine sand that the wind has driven to form rolling hills and ridges. The soil material is typically neutral throughout. About 70 percent of these soils are actively shifting, with the remainder stabilized by vegetation.

Greenfield sandy loam (GsA, GsC) is found on the long, smooth, broad alluvial fans near Fairmont, California. The typical profile includes sandy loam to at least 80 inches deep. Also included in this mapping is sandy alluvial land that occupies long, narrow areas in the channels of large, intermittent drainages. These soils are not hydric.

Hanford coarse sandy loam, 0 to 2 percent slopes (HbA). Hanford coarse sandy loam forms on long, smooth, convex granitic alluvium near Fairmont, California. The surface layer of a typical profile is a pale-brown coarse sandy loam, about 8 inches thick, with a gravelly, loamy coarse sand below to a depth of 70 inches or more.

Hesperia loamy fine sand (HgA). Hesperia loamy fine sands are well drained; they forms on granitic alluvium in alluvial fans. Natural vegetation is typically annual grasses and forbs, but rabbitbrush, big sagebrush, and Joshua trees grow in some areas. Elevations range from 2,400 to 2,900 feet above mean sea level. Typical soil profiles include a sandy loam that extends to a depth of 54 inches or more. These soils are not hydric. **Ramona coarse sandy loam (RcA, RcB).** Ramona soils are well-drained

soil on granitic alluvium with undulating terraces. The surface layer in a typical profile is brown coarse sandy loam to about 20 inches. The subsoil is a brown loam, sandy clay loam, and heavy loam about 44 inches thick.

Rosamond silty clay loam (Rt). Rosamond loam is derived from granite alluvium and found on alluvial fans. These soils are well drained and runoff is classified as low. The depth to the water is greater than 72 inches. These soils are unsuitable for farming without irrigation, but with irrigation, they have only slight crop restrictions. These soils are not hydric.

4.2 Vegetation Communities

4.2.1 Estrella Solar Facility

Three vegetation communities/land cover types were mapped within the Estrella Solar Facility study area, as described in the subsections below. The approximate acreages of each are summarized in Table 4-3 and illustrated in Figure 4 (Appendix A).

Table 4-3. Vegetation Communities Occurring within the Estrella Solar Facility Study Area

Vegetation Community	Solar Facility (acres)	Solar Facility Study Area (acres) ¹
Annual Grasses and Forbs	--	94.7
Pastures and Crop Agriculture	148.8	16.4
Urban or Developed	--	26.6
Total	148.8	137.7

¹ Study area includes the 500-foot buffer surrounding the project site.

4.2.1.1 Annual Grasses and Forbs

The annual grasses and forbs vegetation type is characterized by mostly annual grasses and forbs, particularly native herbs, though nonnative forbs and grasses may be dominant. Cover and composition vary year to year, but primary species include fiddleneck (*Amsinckia* spp.), California poppy (*Eschscholzia californica*), goldfields (*Lasthenia* spp.), daisy (*Monolopia* spp.), tidy tips (*Layia* spp.), tickseed (*Coreopsis* spp.), foothill plantain (*Plantago erecta*), and small fescue (*Vulpia microstachys*) (Menke 2013).

4.2.1.2 Pastures and Crop Agriculture

Croplands include cultivated, in-crop, harvested, fallow, and temporarily idle land. Most field and row crops in the Antelope Valley are irrigated. Fields lie fallow for at least one season within the year. Fallow fields that have remained inactive for over 2 years may contain a sparse shrub cover, including such species as allscale saltbush (*Atriplex polycarpa*) or rubber rabbitbrush (*Ericameria nauseosa*), both of which are rapid colonizers in recently cleared or farmed land (Menke 2013).

4.2.1.3 Urban/Developed

Urban/developed land cover is characterized by areas that have been built on or otherwise physically altered to the extent that native vegetation is no longer supported (Oberbauer 2008).

Developed land is characterized by permanent or semi-permanent structures, pavement or hardscape, and landscaped areas that often require irrigation. Areas where no natural land is evident because of a large amount of debris or other materials being placed on it may also be considered urban/developed (e.g., equipment staging area, quarry). Little to no vegetation occurs in these areas, other than ruderal, disturbance-loving species and a variety of ornamental (usually nonnative) plants. Areas such as urban/developed do not represent native or naturalized vegetation communities. Within the study area, urban/developed areas consisted of paved roads and residential lots (Appendix A, Figure 4).

4.2.2 Gen-Tie Route

Six vegetation communities/land cover types were mapped within the gen-tie route study area, as described in the subsections below. The approximate acreages of each are summarized in Table 4-4 and illustrated in Appendix A, Figure 4. Brief descriptions of each vegetation type are provided following the table, unless they were described previously.

Table 4-4. Vegetation Communities Occurring within the Gen-Tie Route Study Area

Vegetation Community	Gen-Tie Route Study Area (acres) ¹
Annual Grasses and Forbs	747.8
Alkaline Mixed Scrub	3.0
Rabbitbrush	278.2
Pastures and Crop Agriculture	62.6
Urban or Developed	111.8
Total	

¹ Many of the existing dirt or paved roads were not mapped separately from the surrounding vegetation communities so this represents an overestimate of native community within the study area.

4.2.2.1 Alkaline Mixed Scrub

The alkaline mixed scrub community is defined as having no single dominant genus and occurs within drainage basins where precipitation evaporates quickly, leaving saline or alkaline salt deposits that make this habitat ideal for more salt-tolerant scrub species (USDA 2009). This vegetation community is composed of allscale saltbush, iodinebush (*Allenrolfea occidentalis*), horse brush (*Tetramydia* spp.), bud sagebrush (*Artemisia spinescens*), and spiny hopsage (*Grayia spinosa*), and generally lacks cactus species (USDA 2009).

4.2.2.2 Rabbitbrush

In this vegetation type, Mojave rabbitbrush (*Ericameria paniculata*) is dominant or codominant in the shrub canopy. The rabbitbrush vegetation type is widespread throughout a broad elevation range in much of the mapping area on the edges and terraces of relatively large, recently active washes (Menke 2013).

4.3 Common Plants and Wildlife

Common plant and wildlife species observed during field surveys were typical of disturbed areas within the Antelope Valley. A total of 11 plant species were observed within the Estrella Solar Facility and gen-tie route study areas and consisted of both herbaceous annual and woody perennial species. A total of 40 species of wildlife were observed or detected in both study areas, the majority of which were birds, followed in species richness by mammals. Appendices D-1 and D-2 contain a complete list of the plant and wildlife species, respectively, detected during the field surveys for the Estrella Solar Facility and gen-tie route.

4.4 Special-status Plants

4.4.1 Estrella Solar Facility

Based on information obtained through the literature review and reconnaissance surveys, surveys for special-status plants were determined to be unnecessary. The Estrella Solar Facility consists of recently fallowed agricultural fields dominated by a few species of herbaceous nonnative weeds and does not provide suitable habitat for special-status plant species.

The solar facility study area did not support any Joshua trees. The study area did not support any cactus or other desert plants protected under the CDNPA.

The solar facility study area did not support any mature oaks trees, so no oak tree mapping to conform with the LA County Oak Tree Ordinance was conducted or necessary.

The solar facility study area did not support any protected desert trees or succulents, so no mapping to conform with the CDNPA was conducted or necessary.

4.4.2 Gen-Tie Route

No special-status plant species were detected within the gen-tie route study area during the focused survey. The gen-tie route consists of paved and unpaved roads leading to Big Sky North Substation, alongside rural residential plots and disturbed vacant fields. A list of plant species observed in the study area is included as Appendix D-1.

The gen-tie study area did not support any Joshua trees. The study area did not support any cactus or other desert plants protected under the CDNPA.

The gen-tie study area did not support any mature oaks trees, so no oak tree mapping to conform with the LA County Oak Tree Ordinance was conducted or necessary.

4.5 Special-status Wildlife

Special-status wildlife species include those species listed by the USFWS and CDFW as endangered, threatened, proposed, or candidate species and those listed by CDFW as an SSC or California fully protected species.

Based on the literature review and general knowledge of the Antelope Valley, 21 special-status species are known to occur in the “region” (as defined in Section 3.1 above) and were evaluated for potential to occur within the study area (Appendix B). Most special-status wildlife species identified in the literature review are not expected to occur because of a lack of suitable habitat or absent during protocol surveys. Five special-status wildlife species were detected or observed within the study area during the 2020 surveys: Swainson’s hawk, peregrine falcon (*Falco peregrinus anatum*), tricolored blackbird (*Agelaius tricolor*), yellow warbler (*Setophaga petechia*), and yellow-headed blackbird (*Xanthocephalus xanthocephalus*). Three species were determined to have a high potential to occur, based on suitable habitat and distribution in the vicinity: burrowing owl, loggerhead shrike (*Lanius ludovicianus*), and northern harrier (*Circus hudsonius*). Three other special-status species—golden eagle, American badger, and desert kit fox—are also discussed below because of their widespread distribution in the region.

Special-status wildlife species that were observed, determined to have a high potential to occur within the study area, or were the subject of focused surveys, are discussed in the subsections below. Species that are not expected to occur or were determined to have a moderate or low potential to occur are not discussed further in this report (see Appendix B for details). In addition, prairie falcon (*Falco mexicanus*) and California horned lark (*Eremophila alpestris*) were observed within the study area during 2020 field surveys. These species are listed by CDFW as Watch List species; these are not currently considered special-status species, and thus are not discussed further.

4.5.1 Listed Wildlife Species

4.5.1.1 Desert Tortoise

Estrella Solar Facility

The Estrella Solar Facility study area was assessed for the presence of suitable desert tortoise habitat on April 10, 2020. No suitable habitat was observed in the study area, so no focused surveyed were conducted for this species. In addition, as part of the burrowing owl habitat assessment, full pedestrian surveys of the study area were conducted by biologists who are trained in the identification of desert tortoise sign. No desert tortoise individuals or sign was observed. Because of the lack of suitable habitat, desert tortoise is not expected to occur in the project area.

Gen-Tie Route

The gen-tie route study area was assessed for the presence of suitable desert tortoise habitat from November 9 through 11, 2017. The literature search revealed that no desert tortoises were observed during desert tortoise surveys for the Solar Star 1 and 2 Projects, southeast of the Project area (AECOM 2010), the Willow Springs Project (Ironwood Consulting 2011a), or the Rosamond Solar Array Projects (Ironwood Consulting 2011b). The gen-tie route study area does not represent suitable habitat for desert tortoise, and no suitable desert tortoise burrows, tortoise sign, or tortoises were observed during other focused surveys (e.g., burrowing owl and rare plants). The most recent and closest CNDDDB occurrence for desert tortoise is a single 2006 observation of an adult tortoise crossing Tehachapi Willow Springs Road approximately 2.75 miles northeast of the project area. Because of the lack of suitable habitat, desert tortoise is not expected to occur in the project area.

4.5.1.2 Swainson's Hawk

Swainson's hawk was listed as a threatened species by CDFW in April 1983 (CDFW 2019a); it has no federal listing. Swainson's hawk is relatively common and breeds throughout the western United States (west of the Great Plains), but has a severely limited population in California and, particularly, in southern California. Although this species historically bred in small numbers in southern California, its known breeding population is currently isolated to the Antelope Valley in Los Angeles and Kern Counties. Swainson's hawk is a medium-sized migratory raptor that prefers open grasslands and agricultural fields for foraging, typically nesting nearby in isolated trees or rows of trees, particularly those near water sources.

Historically, Swainson's hawk was known to nest throughout the entire state of California, with the exception of the Sierra Nevada, northern Coast Ranges, Klamath mountains, and some of the interior portions of the Mojave and Colorado deserts, where suitable nest trees are uncommon. Historic nesting habitat typically encompassed open grasslands and large trees along riparian zones. However, the destruction and conversion of grasslands, denudation of riparian areas, use of pesticides, shooting, fire, and use of fire suppressants have all contributed to a loss of suitable habitat or a loss of hawks in general.

Swainson's hawk typically arrive in California between early March and early May. Site fidelity is high among adults, with many birds returning to the same territory each year (CDFW 2016). In the Antelope Valley region of southern California, nests are typically placed in Joshua trees, roadside trees, and windrow or perimeter trees along agricultural areas (CEC and CDFG 2010). Foraging habitat within the Antelope Valley includes pastures, alfalfa fields, fallow fields, row crops, new orchards, and grain crops. Courtship and nesting begin in April, although eggs may not be laid until May. After an approximately 35-day incubation period and an additional 38- to 46-day nestling period, the young fledge (Bechard et al. 2010); most birds in California have fledged by mid-August. Swainson's hawk begin migrating south in late August and early September and typically arrive at their wintering grounds by November.

Estrella Solar Facility

During the focused raptor nest surveys in April and May 2020, a single adult Swainson's hawk was observed foraging within the project site (Appendix A, Figure 5, *Burrowing Owl Observations*). This individual had a metal leg band. Gophers (*Thomomys bottae*), which were also observed on the project site, are a primary food source of breeding Swainson's hawk (CEC and CDFG 2010). Non-breeding Swainson's hawk feed primarily on large insects, such as crickets and grasshoppers, which can be plentiful in agricultural fields (Cornell 2020)

An active Swainson's hawk nest was observed in a Chinese elm tree (*Ulmus parvifolia*) approximately 0.4 mile northeast of the Estrella Solar Facility, east of 90th Street W and south of Elder Avenue, near an existing residence (Appendix A, Figure 7, *Large Nests in Vicinity*; Appendix C, Photo Number 9). Adults were tending this nest in April 2020, and ICF staff observed fledglings in July 2020. Based on the location of this nest relative to the project site, observed foraging behavior, and the presence of primary prey (gophers) onsite, it is assumed the proposed Estrella Solar Facility is providing the nest with ample foraging opportunity.

Gen-Tie Route

Swainson's hawk is known to nest near the gen-tie route study area: four historic Swainson's hawk nests were observed within 5 miles of the Project area during 2014 Swainson's hawk surveys for the Willow Springs Solar Project (Ironwood Consulting 2014). One includes a Swainson's hawk nest located along West Avenue A adjacent to the 110th Street interconnection option (Appendix A, Figure 6, *Incidental Special-Status Species Observations*). A more recent nest that was active in 2020 was the same nest that was reported under Estrella Solar Facility subsection, above. Suitable foraging habitat for Swainson's hawk is present throughout the gen-tie route study area, and nesting habitat is available primarily along the proposed interconnection and gen-tie lines, in roadside trees.

4.5.1.3 Tricolored Blackbird

The tricolored blackbird was listed in May 2020 as a threatened species under CESA. Tricolored blackbird nests in dense colonies and may travel several kilometers to secure food for nestlings. Tricolored blackbird forage in semi-natural grasslands, agricultural croplands, or alkali scrub habitats with a nearby source of freshwater. Breeding colonies have traditionally been in large wetlands dominated by cattails (*Typha* spp.) or bulrushes (*Schoenoplectus* spp.). Within the Central Valley, the species also frequently nests in large areas of thorny vegetation, including fields of Himalayan blackberry (*Rubus armeniacus*) and milk thistle (*Silybum marianum*) (Beedy et al. 2020).

Estrella Solar Facility

A flock of 80 tricolored blackbirds was incidentally observed flying over the study area in April 2020 (Appendix A, Figure 6). This species could utilize the study area for foraging. No suitable nesting habitat is present within the Estrella Solar Facility study area.

Gen-Tie Route

This species was not observed or detected during field surveys for the gen-tie route. However, because of the overlap in study areas and presence of the same habitat types as the Estrella Solar Facility (Pastures and Crop Agriculture), where the flock was observed, this species could utilize a portion of the gen-tie route for foraging. No suitable nesting habitat is present within the Gen-Tie Routes study area.

4.5.1.4 Mohave Ground Squirrel

The Mohave ground squirrel (*Xerospermophilus mohavensis*) is listed as threatened under CESA. Mohave ground squirrel occurs in the western Mojave Desert in portions of Inyo, Kern, Los Angeles, and San Bernardino counties (Gustafson 1993). This species prefers flat to moderately sloping desert scrub habitats with sandy and alluvial soils (Gustafson 1993; Wessman 1977; Laabs 1998). Mohave ground squirrel are generally active from mid-March through the late summer and fall. They hibernate or aestivate in their underground burrows for the remainder of the year (Leitner and Leitner 1998). The project area is outside of the currently accepted range for the Mohave ground squirrel (Leitner 2008), but this species was included in this analysis because it is of heightened conservation concern in the Antelope Valley. No Mohave ground squirrels were observed during 2010 trapping surveys for the Willow Springs (Ironwood Consulting 2011a) or Rosamond Solar Array Projects (Ironwood Consulting 2011b) immediately adjacent to the Project area. This species is not expected to occur in either the Estrella Solar Facility or Gen-Tie Routes study areas due to lack of suitable habitat.

4.5.1.5 Crotch Bumble Bee

The crotch bumble bee was listed as a candidate for listing under the CESA (along with three other bee species) on July 16, 2019 (CDFW 2019b). The CDFW has 12 months to review the petition and evaluate available information and report back to the Fish and Game Commission about whether the petitioned actions (i.e., listing the crotch bumble bee under the CESA) are warranted.

The crotch bumble bee is a generalist forager that has been reported occurring on a variety of flowering plant species in California. This species requires flowering plants in open grassland and scrub habitats, and it occurs primarily in California, specifically in the Mediterranean region, Pacific Coast, Western Desert, Great Valley, and adjacent foothills throughout most of southwestern California (Williams et al. 2014). Based on information from the CNDDDB, this species has no record of occurrence within the proposed project area, but does have recorded occurrence near the southeastern edge of the 5-mile project buffer. Habitat requirements for this species are broad and not well understood at this time; however, this species does require flowering plants and the proposed project area is within the known range of this species. Habitat along the nearest proposed project components, the gen-tie alternatives, and the proposed project area, include annual grasses and forbs and agriculture, which generally include flowering plants. Based on the single CNDDDB sighting of this species from 1971, as well as this species' broad and relatively poorly understood habitat requirements, it is difficult to determine the likelihood of occurrence within the proposed project area, but likely has moderate potential to occur. Based on the December 9, 2019, reconnaissance survey, flowering shrubs and forbs are present within all new parcels and gen-tie locations. Although flowering plants necessary for pollinators are present within the Estrella Solar Facility or gen-tie route study areas, these flowering plants are ubiquitous throughout the entire region.

4.5.1.6 Joshua Tree

The Joshua tree was designated as a candidate for listing as threatened under the CESA on September 24, 2020 (California Fish and Game Commission 2020).

Estrella Solar Facility

No individual Joshua trees were observed within the Estrella Solar Facility study area. No Joshua trees would be affected by the proposed project and therefore no avoidance or minimization measures are necessary.

Gen-Tie Route

No Joshua trees or Joshua tree woodland are present along the gen-tie route study area.

4.5.2 Non-listed Special-status Wildlife Species

4.5.2.1 Golden Eagle

The golden eagle is a California fully protected species; it is also protected under the BGEPA and MBTA. It is distributed throughout the western half of North America (less commonly in the eastern half) and a year-round resident of most of California (Kochert et al. 2002). California may receive an

influx of additional eagles in the winter from more northerly areas. Locally, golden eagle is a fairly common resident of the Tehachapi Mountains and the Antelope Valley (eBird 2020). It inhabits a wide variety of areas, typically nesting in open grasslands and oak savannas in California, with oak woodlands and shrublands less commonly utilized. Early successional stages of forests and shrublands may be used (Zeiner et al. 1990). Nests are typically built on cliffs, but may also be built in trees, on the ground, or in human-made structures, such as nesting platforms or transmission towers. In the Mojave Desert, breeding ranges vary from 24 to 1,556 square miles (Katzner et al. 2012). Foraging habitat typically consists of wide-open spaces with abundant mammals as prey; in California, this is often in grasslands.

Estrella Solar Facility

Within the Estrella Solar Facility study area, there is low potential for foraging because of an observed lack of moderate-sized prey species (e.g., ground squirrels and lagomorphs). Golden eagles could perch on the utility poles along 90th Street West and could occasionally fly over or land on the site. However, because of a lack of suitable prey species, golden eagle is not expected to functionally utilize the Estrella Solar Facility site for foraging. No suitable nesting substrates or structures are present within the Estrella Solar Facility study area.

Gen-Tie Route

Golden eagles may forage in the gen-tie route study area. However, no suitable nesting habitat for this species exists in the study area.

4.5.2.2 Burrowing Owl

CDFW lists burrowing owl as an SSC. Burrowing owl is a small owl that is active day and night, nests in underground burrows, and typically nests in small groups. Within the United States, this species winters primarily in the southern portion of the range, including southern California; populations in southern California may also be non-migratory. Habitat within their breeding range typically includes open, treeless areas within grasslands and desert areas. They are often associated with areas of high densities of burrowing mammals such as prairie dogs (*Cynomys* spp.). Burrowing owl also regularly occur in open human-made landscapes, including agricultural fields, golf courses, road and canal berms and shoulders, airports, and vacant urban lots. The presence of nest burrows is a critical requirement for burrowing owls in the western U.S. They require burrows from ground squirrels or other fossorial animals with a minimum entrance size of 11–15 centimeters. Western burrowing owl can excavate holes where burrowing mammals are absent, but rarely do so (Poulin et al. 2020). Burrowing owl are opportunistic feeders that primarily take insects and small mammals, but will pursue any potential prey they can physically handle. They will often stand on the mound outside of the burrow, but will also perch on elevated structures including signs and fences.

Estrella Solar Facility

Burrow surveys were conducted throughout the solar facility study area in April 2020, and no burrows suitable to support this species were observed within the study area. Because of the lack of suitable nesting habitat, this species was determined to be absent as a nesting species in spring 2020. This species could nest outside of the study area and utilize the Estrella Solar Facility study area for foraging.

Gen-Tie Route

Burrowing owl surveys were conducted along the gen-tie route in spring 2020. No burrowing owls or occupied burrows were observed within the gen-tie route study area. One unoccupied small mammal burrow was observed within the study area (Appendix A Figure 5).

Burrowing owl are known to be present in low densities in the region, outside of the study area. One active nest is located among the PV solar arrays in the Antelope Expansion 2 Solar Project, approximately 500 feet west of 100th Street West and north of West Avenue E (appendix A Figure 5). Two adults and three juveniles were confirmed to be present during a separate survey on July 6, 2020 (Appendix C, Photo Log; Photo Number 14). The juveniles at both nests were large and appeared to be nearly fledged.

If larger fossorial mammals, including California ground squirrel, American badger, or desert kit fox, moved into the Estrella Solar Facility or gen-tie project areas prior to construction, their burrows could be suitable nesting habitat for burrowing owl. Therefore, there is potential for burrowing owl to move into the proposed sites before construction occurs.

4.5.2.3 Loggerhead Shrike

CDFW lists loggerhead shrike as an SSC. Loggerhead shrike is a moderately large passerine that occurs in grasslands and other open habitats and feeds on a variety of invertebrate and vertebrate prey. Throughout most of the southern part of its range, the loggerhead shrike is resident. Breeders usually settle near isolated trees or large shrubs. This shrike is a small avian predator that hunts from perches and impales its prey on sharp objects, such as thorns and barbed-wire fences (Yosef 2020).

Estrella Solar Facility

Loggerhead shrike was not observed during 2020 surveys, but has a high potential to forage within this study area. Although there are few suitable trees or bushes, this species has potential to nest within the study area.

Gen-Tie Route

This species was observed foraging in the gen-tie route study area during reconnaissance surveys, and suitable nesting habitat occurs in the study area.

4.5.2.4 Northern Harrier

CDFW lists northern harrier as an SSC. Northern harrier is a slender, long-winged, low-flying raptor of grasslands, agricultural fields, and marshes. Northern harrier nests on the ground, usually in tall, dense clumps of vegetation. Northern harrier forages on the wing, capturing a large variety of small to medium sized mammals and birds (Smith et al. 2020).

Estrella Solar Facility

Northern harrier was not observed during 2020 surveys but is known from the vicinity and has a high potential to forage within the study area. The species nests on the ground and could nest within the project area prior to vegetation clearing.

Gen-Tie Route

This species is expected to forage in the gen-tie route study area and were observed during reconnaissance surveys. However, suitable nesting habitat does not occur in the study area.

4.5.2.5 Peregrine Falcon

Peregrine falcon is a California fully protected species. It is a large falcon with blue-gray upperparts on adults. Peregrine falcon eat a large variety of birds, some bats, and a few rodents; most prey is captured from the air. They have traditionally nested on cliffs, but may also utilize buildings, bridges, or other structures (White et al. 2020).

Estrella Solar Facility

A peregrine falcon was observed flying over the site in 2020 (Appendix A, Figure 6). This species could utilize the study area for foraging. No suitable nesting substrates or structures are present within the study area.

Gen-Tie Routes

This species was not observed or detected during field surveys for the Gen-Tie Routes. However, because of the overlap in study areas and presence of the same habitat types as the Estrella Solar Facility (i.e., Pastures and Crop Agriculture) where the individual was observed, this species could utilize a portion of the Gen-Tie Routes for foraging. No suitable nesting habitat is present within the Gen-Tie Routes study area.

4.5.2.6 Yellow-headed Blackbird

The yellow-headed blackbird is a CDFW SSC that has declined on the coastal slopes of southern California, but persists in the inland desert areas of the region (Shuford and Gardali 2008). This species was still reported as breeding in a number of locations in the Antelope Valley during breeding bird atlas surveys conducted from 1995 to 2000. The primary threat to yellow-headed blackbird is habitat loss, particularly the loss of thoroughly deep (ideally 2 to 4 feet) marshes and wetlands, because this species is highly dependent on water depth in its breeding sites, which provides protection from predators. Drawdowns of water at breeding locations may lead to nest abandonment or increased nest predation. If food is abundant inside breeding territories, then birds tend to stay local and feed on insects and seeds. If food is scarce, then birds may forage in surrounding cropland and grasslands and may venture out a couple of miles from breeding sites to find food (Twedt and Crawford 2020).

Estrella Solar Facility

Yellow-headed blackbirds were incidentally observed foraging in agricultural fields within the Estrella Solar Facility study area in April 2020 (Appendix A, Figure 6). No nesting habitat is present within the study area.

Gen-Tie Routes

This species was not observed or detected during field surveys for the Gen-Tie Routes. However, because of the overlap in study areas and presence of the same habitat types as the Estrella Solar

Facility (i.e., Pastures and Crop Agriculture) where the flock was observed, this species could utilize a portion of the Gen-Tie Routes for foraging. No suitable nesting habitat is present within the Gen-Tie Routes study area.

4.5.2.7 Yellow Warbler

The yellow warbler is listed as a CDFW SSC. It is a medium-sized, foliage-gleaning, neotropical migratory wood warbler. Plumage is broadly bright yellow with yellow-green to olive upperparts. It nests widely throughout the United States and Canada, primarily in wet deciduous tickets, especially willows. In California, it is typically found along watercourses with riparian growth (Lowther 2020).

Estrella Solar Facility

A yellow warbler was observed flying over the site in 2020 (Appendix A, Figure 6). No suitable riparian nesting habitat is present within the Estrella Solar Facility study area, and this species is not expected to forage in the study area.

Gen-Tie Routes

This species was not observed or detected during field surveys for the Gen-Tie Routes. However, because of the overlap in study areas and presence of the same habitat types as the Estrella Solar Facility (i.e., Pastures and Crop Agriculture) where the individual was observed, this species could also fly over the Gen-Tie Routes. No suitable riparian nesting habitat is present within the Gen-Tie Routes study area, and this species is not expected to forage in the Gen-Tie Routes study area.

4.5.2.8 American Badger

American badger is an uncommon CDFW SSC that ranges throughout the entire state, but is rarely encountered. It is typically found in dry, open areas, including grasslands, shrublands, forests, and herbaceous habitats, where it digs burrows for shelter (Zeiner et al. 1990). In summer, individual badgers may dig new dens each night, and they otherwise readily reuse old burrows. They typically breed in summer and fall and may undergo small periods of torpor during the winter.

Estrella Solar Facility

Burrow surveys were conducted throughout the study area on April 10, 2020, and no burrows or sign of this species were found. Consequently, American badger is not expected to currently utilize the Estrella Solar Facility study area. However, this species has been detected in the area (CNDDDB 2020), has potential to utilize fallow agricultural areas and grasslands, including the project site, and could move into the study area prior to or during construction.

Gen-Tie Routes

The Gen-Tie Routes study area was assessed for the presence of suitable American badger habitat and sign of the species in November 2017 and from April to July 2020 during focused surveys for other species. No potential American badger dens were observed in the study area during surveys. However, the project area contains suitable denning and foraging habitat in the Gen-Tie Routes study area.

4.5.2.9 Desert Kit Fox

Desert kit fox is an uncommon to rare resident of arid regions of California. The desert kit fox is separated from the federally endangered/California-threatened San Joaquin kit fox by the Tehachapi Mountains. The desert kit fox is protected as fur-bearing mammal under Title 14 of the CCR Section 460, which states that kit foxes may not be taken at any time. Desert kit fox are primarily carnivorous and feed on lagomorphs, rodents, insects, reptiles, and some birds. They occur in open, level areas with loose-textured soils supporting scattered, shrubby vegetation. Most pups are born in February to April, with one litter averaging four pups (but may range in size from one to seven) per year. Kit foxes utilize dens throughout the year. Potential predators include large hawks and owls, eagles, coyotes, and bobcats. Kit foxes are vulnerable to human disturbance, such as habitat conversion, off-road vehicles, hunting, trapping, and rodenticide poisoning (Zeiner et al. 1990).

Estrella Solar Facility

Burrow surveys were conducted throughout the study area on April 10, 2020, and burrows of this species were not found. Consequently, desert kit fox is not expected to currently utilize Estrella Solar Facility study area. However, this species is known from the region (CNDDDB 2020) and has some potential to utilize fallow agricultural areas and grasslands, including the project site, and could move into the Estrella Solar Facility study area prior to or during construction.

Gen-Tie Routes

The Gen-Tie Routes study area was assessed for the presence of suitable desert kit fox habitat and sign of the species in November 2017 and from April to July 2020 during focused surveys for other species. No potential desert kit fox dens were observed in the Gen-Tie Routes study area during surveys. However, this species has some potential to utilize fallow agricultural areas and grasslands and could move into the Gen-Tie Routes study area prior to or during construction.

4.6 Raptor and Common Raven Nests

4.6.1 Estrella Solar Facility

Eight stick nests, besides the Swainson's hawk nest, were identified within the Estrella Solar Facility study area during focused raptor nest surveys in April and May 2020 (Appendix A, Figure 7, *Large Nests in Vicinity*). Four of the stick nests were occupied by common ravens, and four did not have signs of activity. The single Chinese elm in the center of the Estrella Solar Facility had a stick nest occupied by a common raven in 2020. Additionally, two family groups of great horned owls with recent fledglings were observed within the 0.5-mile study area. Nesting substrates for common raven, as well as tree-nesting raptors, detected within the study area include utility poles and mature ornamental trees (e.g., pine, cypress) surrounding developed areas. These nests are not considered a sensitive resource, but are monitored as they are potential nesting habitat for certain sensitive raptor species.

4.6.2 Gen-Tie Routes

Inactive potential raven nests were detected in human-made structures and trees near the Gen-Tie Routes study area. Suitable nesting habitat exists along the extent of proposed interconnection and gen-tie locations.

4.7 Wildlife Migration Corridors

Wildlife migration corridors are areas that connect suitable habitat in a region otherwise fragmented by rugged terrain, changes in vegetation, or human disturbance. Natural features (e.g., canyon drainages, ridgelines, or areas with vegetation cover) provide corridors for wildlife travel. Wildlife corridors are important because they provide access to mates, food, and water, allow the dispersal of individuals away from high-population areas, and facilitate genetic diversity. The State CEQA Guidelines require that project proponents disclose impacts on wildlife corridors and mitigate for significant impacts.

Disturbance to wildlife corridors, particularly as a result of human disturbance and development, can cause harm to migrating species, cause species to exceed local population thresholds, and/or prevent healthy gene flow between populations. This section discusses the applicable wildlife corridors that are present or potentially present within the study area.

The habitat within the study area consists of fallow agriculture and nonnative grasslands dominated by small annual grasses and herbaceous vegetation. The study area also includes several rural residential properties, dirt and paved county roads, and a few scattered ornamental trees. These features do not pose a physical barrier to the movements of most wildlife species. As a result, wildlife can currently move through most of the proposed project area unimpeded, as is the case for the Antelope Valley generally. There are no washes or riparian areas to support concentrations of wildlife movement. All habitats within the study area are similar to those present in the surrounding areas. No known or identified wildlife corridors exist within the proposed project, nor has any part of the proposed project been identified as a wildlife connectivity area as mapped by the *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (Spencer et al. 2010).

In the larger regional context, the project lies near the center of the Antelope Valley, which is relatively flat and has few deep drainages or other well-defined corridor-like topographic features that would channel wildlife movement into specific corridors. Instead, movement of terrestrial animals is very likely diffuse and spread throughout the entire area. Although migratory birds do fly over or through the Antelope Valley, there are no stopover sites in the study area of the project because there are no riparian habitats or water bodies with abundant resources to attract concentrations of birds.

4.8 USFWS Critical Habitat Areas

The USFWS designates critical habitat for endangered and threatened species under FESA (16 U.S.C. 1533 (a)(3)). Critical habitat is designated for the survival and recovery of federally listed endangered and/or threatened species. Protected habitat includes areas for foraging, breeding, roosting, shelter, and movement or migration.

4.8.1 Estrella Solar Facility

The USFWS has not designated any critical habitat within the Estrella Solar Facility study area; therefore, critical habitat is not discussed further in this report.

4.8.2 Gen-Tie Routes

The USFWS has not designated any critical habitat within the Gen-Tie Routes study area.

4.9 Jurisdictional Delineation

4.9.1 Estrella Solar Facility

No aquatic resources were observed within the Estrella Solar Facility study area. Surveys were conducted concurrently with burrowing owl surveys and therefore the entire site was walked using 20-meter transects. The Estrella Solar Facility study area consists of land that has been previously used for agriculture and is flat in nature with minimal elevation change. Vegetation consisted of a mixture of native and nonnative species. No drainages, channels, or wetlands were observed. Minimal ponding was observed in an area that had been compacted from livestock use due to rainfall that occurred prior to and during the surveys. Photographs of the Estrella Solar Facility study area are included as Appendix C, as is a figure showing the locations of each photo.

No aquatic resources regulated under Sections 404 or 401 of the CWA, Section 13260 of the Porter-Cologne Act, or Section 1602 of the CFGC were identified within the Estrella Solar Site.

4.9.2 Gen-Tie Routes

The Gen-Tie Routes study area contains numerous roadside ditches, agricultural ditches, and retention ponds. The retention ponds are scattered throughout the Gen-Tie Routes study area; many were depicted in NWI datasets as “freshwater ponds” and “other.” Retention ponds were characterized as human-made retention ponds built for agricultural purposes. At the time of the site visit, the ponds were dry, were fully or partially bermed, and showed no hydric indicators. Based on the field survey, it was determined these retention ponds do not contain aquatic or riparian habitat and are non-jurisdictional.

The Estrella Solar Facility and Gen-Tie Routes study areas are located entirely within 10-digit Hydrologic Unit Code watersheds in which there are no WoUS as defined by 33 CFR 328 (USACE Los Angeles District, File Number SPL-2011-01084-SLP). In the Antelope Valley, all tributaries to Rosamond, Buckhorn, and Rogers lakes are considered non-jurisdictional WoUS. Portions of the Antelope Valley that drain into Lake Palmdale are potentially jurisdictional; however, the project area is downgradient of Lake Palmdale and therefore does not drain into Lake Palmdale.

No aquatic resources regulated under Sections 404 or 401 of the CWA, Section 13260 of the Porter-Cologne Act, or Section 1602 of the CFGC were identified within the Gen-Tie Routes Study area.

5.1 Guidelines for Determination of Significance

CEQA provides definitions of classes of potentially significant effects on biological resources in the Environmental Checklist Form. Los Angeles County Department of Regional Planning provides clarifications within a revised Environmental Checklist Form (Initial Study). The County's revised Environmental Checklist Form defines that a project would have a potentially significant effect on biological resources if the project would cause any of the following to occur.

- a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS
- b) Have a substantial adverse effect on any sensitive natural communities (e.g., riparian habitat, coastal sage scrub, oak woodlands, non-jurisdictional wetlands) identified in local or regional plans, policies, regulations or by CDFW or USFWS
- c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means
- d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridor, or impede the use of native wildlife nursery sites
- e) Convert oak woodlands (as defined by the state, *oak woodlands* are oak stands with greater than 10 percent canopy cover with oaks at least 5 inches in diameter measured at 4.5 feet above mean natural grade) or other unique native woodlands (e.g., juniper, Joshua tree, southern California black walnut)
- f) Conflict with any local policies or ordinances protecting biological resources, including Wildflower Reserve Areas (L.A. County Code, Title 12, Ch. 12.36), the Los Angeles County Oak Tree Ordinance (L.A. County Code, Title 22, Ch. 22.174), the Significant Ecological Areas (SEAs) (L.A. County Code, Title 22, Ch. 102), Specific Plans (L.A. County Code, Title 22, Ch. 22.46), Community Standards Districts (L.A. County Code, Title 22, Ch. 22.300 et seq.), and/or Coastal Resource Areas (L.A. County General Plan, Figure 9.3)
- g) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved state, regional, or local habitat conservation plan.

These significance criteria are discussed in the sections below.

5.2 Impact Summary

The following discussion describes the project's potential to affect special-status biological resources during construction, as well as during post-construction operation and maintenance. The potential impact areas associated with the Gen-Tie Routes have not been determined. Because of this, potential impacts related to the Gen-Tie Routes are not discussed in this section.

Estrella Solar would operate in compliance with all state and federal laws, regulations, and permit conditions. This includes compliance with the CWA, Porter-Cologne, FESA, MBTA, CESA, and CEQA, with requirements and protective measures from CDFW, and with USFWS-adopted guidelines and protocols. Impacts that would result in irreversible loss of habitat or individuals are considered permanent; impacts that would end with the cessation of construction are considered temporary. Direct and indirect impacts may be either permanent or temporary. These impact categories are defined below.

- **Direct:** Direct impacts are caused by the project and occur at the same time and place as the project. Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact (e.g., grading). Direct impacts would include direct losses to native habitats, potential jurisdictional waters, and special-status species and diversion of jurisdictional waters. Direct impacts could include injury, death, and/or harassment of listed and/or special-status species. Direct impacts could also include the destruction of habitats necessary for species breeding, feeding, or sheltering. Direct impacts on plants can include removal of adult plants, bulbs, or seeds.
- **Indirect:** As a result of project-related activities, biological resources may also be affected in a manner that is not direct. Indirect impacts may occur later in time or at a place that is farther removed in distance from the project than direct impacts, but indirect impacts are still reasonably foreseeable and attributable to project-related activities. Examples include habitat fragmentation; elevated noise, dust, and lighting levels; changes in the level of runoff or sedimentation; soil compaction; increased human activity; and the introduction of invasive wildlife (e.g., domestic cats and dogs) and plants.
- **Permanent:** All impacts that result in the irreversible removal of biological resources are considered permanent. For the purposes of this project, impacts are irreversible if filling activities result in an elevation (i.e., gradient) change, habitat conversion, and/or an impervious surface. Examples include constructing a solar facility or permanent road on an undeveloped area.
- **Temporary:** Any impacts considered to have reversible effects on biological resources can be viewed as temporary. For the purpose of this project, if preconstruction contours are generally maintained or if the area can be revegetated in place, then the impact is considered temporary. Examples include temporary construction access routes and laydown areas, underground electric and communication lines, and temporary construction areas associated with constructing overhead transmission lines (but not the pole or new permanent access road). Each of these types of temporary impacts could be restored with native vegetation within the impact area.

5.3 Construction Impacts

Construction of the project would require vegetation clearing and grading and would result in permanent impacts on biological resources, including foraging habitat for special-status raptor species (see Sections 5.4 through 5.8, below). Permanent impacts on biological resources would result from the installation of permanent structures, which include the solar panel arrays, storage installation, switchyard and/or substation area, electrical transformers, inverters, electrical and communication lines (underground and/or overhead), and permanent access/maintenance roads and appurtenances.

5.4 Vegetation Communities

No native vegetation communities were identified within the Estrella Solar Facility study area that could be directly or indirectly affected by project construction.

The Estrella Solar Facility would result in permanent direct impacts on pastures and crop agriculture (Table 5-1). Direct impacts may include the removal of existing vegetation and encroachment into the surrounding annual grasses and forbs community. Permanent impacts would occur from construction of the proposed Estrella Solar Facility.

Table 5-1. Project Impacts on Vegetation Communities in the Estrella Solar Facility

Community	Permanent Impact (acres)	Temporary Impact (acres)
Pastures and Crop Agriculture	145.0	0
Total	145.0	0

Because no native or sensitive vegetation communities would be affected by the project, no avoidance and minimization efforts are required.

The underground portion of the gen-tie route would impact 2.7 acres of developed land and 4.8 acres of disturbed habitat. The poles for the overhead gen-tie line would be situated in disturbed roadside areas and would not constitute a permanent or temporary impact to any native or naturalized vegetation communities.

5.5 Special-status Plant Species

The project site lacked suitable habitats for special-status plant species; therefore, no special-status plant species were determined to have a potential to occur in the project site. No special-status plant species were observed within the gen-tie route study area during focused surveys. Because sensitive plant species are considered absent from the study area and gen-tie route study area, no impacts are expected, and no avoidance and minimization efforts are required within the solar site.

The project site and gen-tie study area did not have any oak trees or other unique native tree species; therefore, the project would not convert any oak woodlands or other unique native woodlands.

The project site did not have any desert trees, cactus, or other species protected by the CDNPA; therefore, construction of the project site would not have an effect on any species protected by the CDNPA.

5.6 Special-Status Wildlife Species

5.6.1 Swainson's Hawk

5.6.1.1 Direct Impacts

No direct mortality or injury is expected on Swainson's hawk individuals or active nests. The nearest nest is approximately 0.4 mile from the northeast corner of the project site, and no active nests are currently present within the project site.

Potentially significant direct permanent impacts would result from the permanent loss of approximately 149 acres of Swainson's hawk foraging habitat within the project site. Project components are expected to eliminate most or all foraging potential within the project site (CDFW 2010). Loss of foraging habitat could directly affect Swainson's hawk by reducing the available prey base for the nest site, resulting in reduced nesting success through loss or reduced health or vigor of the adults, eggs or young (CDFW 2010). The project site is primarily composed of fallow agricultural land, which is prime foraging habitat for this species, and is one of the two closest fallow fields to the offsite nest; therefore, the project area has potential to be a prime foraging location for that nesting location.

5.6.1.2 Indirect Impacts

The project site is within 0.5 mile of an active Swainson's hawk nesting site and is considered suitable foraging habitat for Swainson's hawk. In the event that Swainson's hawk forage in the lands outside of, but near to, the site, temporary indirect impacts on foraging individuals could occur as a result of construction-related noise and dust. These disturbances may dissuade birds from foraging in the immediate vicinity of the project site.

Dust, noise, or other disturbances during project construction could reduce the suitability of foraging habitat in the area or could cause nest failure during the breeding season, which would be a substantial adverse effect on a CDFW-listed sensitive species.

5.6.1.3 Avoidance and Minimization Measures

Mitigation Measure (MM)-BIO-1, below, would reduce the level of direct permanent and temporary indirect impacts on Swainson's hawk to below a level of significance.

MM-BIO-1: Habitat-based Mitigation

In order to mitigate for the loss of foraging habitat for Swainson's hawk, tricolored blackbird, and other special-status migratory and resident birds, mitigation lands will be acquired.

Impacts due to development of the project will be mitigated by the acquisition of good-quality Swainson's hawk habitat targeted within the Antelope Valley. Land will be purchased and placed

in a conservation easement or other suitable deed restriction and managed to maintain suitable habitat in perpetuity.

The proposed development is not expected to result in the “take” of Swainson’s hawk, tricolored blackbird, or other species of special concern. Although the project is not expected to result in “take” of Swainson’s hawk, tricolored blackbird, or other species of special concern, mitigation will be required to alleviate the effects of direct and cumulative impacts on the habitat of raptors, tricolored blackbird, and other special-status bird species. In the unlikely event of take, the applicant will be required to consult, which may result in additional mitigation prescribed by CDFW.

Replacement land will be provided based on the quality of the mitigation land relative to the impacted habitat. The ratio of such replacement will be determined as follows:

- A ratio of 1 acre of replacement land for each 3 acres of development if the replacement land is superior foraging habitat contiguous to potential nesting and/or foraging habitat and is within a designated or proposed Significant Ecological Area
- A ratio of 1 acre of replacement land for each 2 acres of development if the replacement land is unoccupied irrigated land, contiguous to occupied habitat and provides superior quality foraging habitat.
- A ratio of 1 acre of replacement land for each 1 acre of development if the replacement land provides similar foraging habitat.

5.6.2 Tricolored Blackbird

No suitable breeding habitat for tricolored blackbird exists within the study area. Therefore, no direct impacts on tricolored blackbird nesting habitat are expected by the project.

The removal of suitable foraging habitat for tricolored blackbird would be a direct, permanent effect and cumulative effect on breeding populations within the Antelope Valley.

5.6.2.1 Avoidance and Minimization Measures

MM-BIO-4, above, would provide mitigation for loss of foraging habitat to ensure for the preservation of foraging habitat in perpetuity. This would reduce the level of direct permanent and cumulative effects on tricolored blackbird to below a level of significance.

5.6.3 Burrowing Owl

Although burrowing owls or potentially suitable burrows were not detected within the study area in 2020, they are a regionally widespread species, and there is potential for them to move into the site before or during construction.

No burrowing owls were observed within the gen-tie route study area. Given the size of the gen-tie route study area, very few potential burrows (i.e. squirrel burrows) were observed within the study area, making the potential for future occupancy of the gen-tie route also very low. There is a potential for burrows to be created prior to construction and for burrowing owl to occupy the site.

5.6.3.1 Avoidance and Minimization Measures

MM-BIO-1, above, through MM-BIO-5, below would reduce the likelihood of direct or indirect impacts on burrowing owl in the study area during construction and reduce the potential for adverse effects to below a level of significance.

MM-BIO-2: Pre-Construction Burrowing Owl Take Avoidance Survey

Qualified biologists will conduct a preconstruction burrowing owl survey throughout the study area no fewer than 14 days prior to the start of construction or ground-disturbing activities. Survey methodology will follow that described in the *2012 CDFW Staff Report on Burrowing Owl Mitigation* as appropriate for the season in which the preconstruction surveys commence. Owl surveys can be conducted concurrently with preconstruction desert kit fox and American badger surveys as described below in MM-BIO-11. If no owls are found within the study area, construction may proceed as planned.

If burrowing owls are detected on site, no ground-disturbing activities, such as vegetation clearance or grading, will be permitted within a buffer of no fewer than 330 feet (100 meters) from an occupied burrow during the breeding season (February 1–August 31). During the non-breeding (winter) season (September 1–January 31), ground-disturbing work may proceed near active burrows as long as the work occurs no closer than 165 feet (50 meters) from the burrow. Depending on the level of disturbance, if smaller buffers are set, they will be per established CDFW protocol.

If active burrows cannot be avoided, a Burrowing Owl Exclusion Plan will be prepared following established CDFW protocols. The plan shall describe all necessary measures to minimize impacts on burrowing owls during passive relocation, including details on how owls will be removed and excluded from burrows, the methodology to do so, where the owls will be moved to, and whether any follow-up monitoring will be required.

MM-BIO-3 through MM-BIO-5: Wildlife Protections

MM-BIO-3: Workers will be prohibited from bringing pets to the project site and from feeding, harassing, collecting, or otherwise harming wildlife.

MM-BIO-4: Burrowing owls, mammals, and nesting birds can use construction pipes, culverts, or similar structures for refuge or nesting. Therefore, all construction pipes, culverts, or similar structures with a diameter of 4 inches or more that are stored at a construction site for one or more overnight periods will be covered or capped while in storage, or will otherwise be thoroughly inspected for special-status wildlife or nesting birds before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If an animal is discovered inside a pipe, that section of pipe will not be moved until a biologist has been consulted and the animal has either moved from the structure on its own accord or until the animal has been captured and relocated by a biologist.

MM-BIO-5: To prevent inadvertent entrapment of wildlife during construction or decommissioning activities, all excavated, steep-walled holes or trenches more than 2 feet deep will be covered with plywood or similar materials at the close of each working day, or provided with one or more escape ramps constructed of earth fill or secured wooden planks measuring at least 12 inches wide. Larger excavations and trenches measuring 100 feet or greater will be

outfitted with at least two escape ramps and one every 100 feet. All holes and trenches, whether covered or not, will be inspected for trapped wildlife at the start and end of each workday. Immediately before such holes or trenches are filled, they will be thoroughly inspected by the biological monitor for trapped wildlife. If trapped animals are observed, escape ramps or structures will be installed immediately to allow escape. If a listed species is found trapped, all work will cease immediately in the vicinity of the trapped animal. If the animal is apparently uninjured, then a biologist will directly supervise the provision of escape structures and/or trench modification to allow the trapped animal to escape safely. Work will not resume in the vicinity of the animal, and it will be allowed to leave the work area and project site on its own. If the listed animal is injured, then a biologist will immediately extricate the animal and bring it to a pre-identified veterinary/rehabilitation facility and notify the USFWS and/or CDFW of the incident.

5.6.4 Non-listed Special-status and Nesting Bird Species

Proposed construction activities may affect special-status avian species that have either been observed on the site or have a high potential to breed, forage, or winter within the study area. Three non-listed special-status avian species, including peregrine falcon, yellow-headed blackbird, and yellow warbler, were observed within the study area. Peregrine falcon and yellow-headed blackbird may utilize the study area for foraging. Yellow warbler is a transient migrant that would only pass through the area. Other species with high potential to utilize the site include loggerhead shrike, northern harrier, American badger, and desert kit fox.

Impacts on these special-status species and on other nesting birds protected by the MBTA and the CFGC may occur as a result of proposed project construction.

5.6.4.1 Direct Impacts

Proposed project activities that could permanently affect special-status avian species habitats include the permanent loss of habitat used for foraging, nesting, and wintering by avian species. Although the project site does not support native vegetation communities, ground-nesting birds, including killdeer and northern harrier, could nest within the project site. Ground-disturbing activities during the breeding season (approximately February 1 through September 15) have the potential to destroy nests and eggs of protected bird species. The act of removing vegetation also has the potential to result in vehicular strikes to birds attempting to flee the disturbance, which could result in injuries or mortality. Vehicular collisions would be expected to occur most frequently during the vegetation-clearing stage of construction and would be especially dangerous for eggs, nestlings, and recently fledged young that cannot safely avoid equipment.

5.6.4.2 Indirect Impacts

Potential indirect effects on avian species include impacts from decreased suitability of habitat outside of the project in the study area, resulting from various factors, such as increased noise from construction activities and vehicles, vehicle emissions, dust, and other human activity. Noise from construction activities can affect avian species in multiple ways, such as depressing breeding success by acoustical masking, interfering with intra-specific communication, and interfering with detection of predators. Construction activities could disrupt breeding and foraging activities, prevent birds from attending to nests, or cause birds to flush from their nests, endangering eggs and chicks. Dust could have an adverse effect on the health of chicks and adults, as well as on the viability and

presence of prey insects and the overall health of vegetation. Displaced birds may undergo increased stress, competition, and/or predation while attempting to establish new territories in unfamiliar areas. Night lighting associated with construction activities may also temporarily affect avian species' roosting and foraging behavior, especially for avian species that are active after dark. However, indirect impacts on these species would be minimal with the implementation of avoidance and minimization measures described below.

Post-construction studies at solar facilities in southern California have documented avian mortalities resulting from impact trauma (Kagan et al. 2014). Some have theorized that solar panels can attract species that mistake the panels for bodies of water, potentially leading to increased collision-related fatalities and other risks. For this reason, the phenomenon sometimes is referred to colloquially as the "fake lake effect." Some postulate that this phenomenon could be attracting birds to solar project sites, thereby exposing the birds to greater risk of impacts, such as potential collision with project infrastructure, the possibility of being stranded within site fencing once they land, or other forms of distress. A report commissioned by the U.S. Department of Energy analyzed available avian mortality data from utility-scale solar energy facilities (ANL-NREL 2015) and concluded that, although it is apparent that solar energy facilities may present a risk of fatality for birds, additional standardized and systematic fatality data would be needed to better understand and quantify the risks. It did, however, note that based on available data, there was no consistent pattern to support or refute the hypothesis that water-dependent species were more susceptible to mortality at solar facilities. The causes of avian injuries and fatalities at commercial-scale solar projects continue to be evaluated by the USFWS, CDFW, and others. However, as yet, no empirical studies have been conducted at commercial-scale solar projects that establish a clear causal link between such projects and the types of avian mortality and injury documented on existing solar project sites.

5.6.4.3 Avoidance and Minimization Measures

MM-BIO-6 through MM-BIO-10 would reduce the likelihood of direct or indirect impacts on special-status and nesting birds in the study area during construction and would reduce the potential for adverse effects to below a level of significance.

MM-BIO-6: Nesting Raptors and Migratory Birds

Initial ground disturbance and vegetation removal will be scheduled outside the nesting bird season (approximately February 1 to September 15), if feasible. If construction cannot be scheduled outside of the nesting bird season, a qualified wildlife biologist will conduct preconstruction surveys of all potential nesting habitat within the project site. Preconstruction surveys for nesting raptors will cover potential raptor nesting sites within 500 feet of the project site and within 100 feet of the project site for all other migratory birds, where accessible. Surveys will be conducted no more than 3 days prior to construction activities, and the surveying biologist must be qualified to determine the status and stage of nesting without causing intrusive disturbance.

If active nests are detected during the preconstruction surveys, a suitable buffer from construction activities (500 feet for raptors and up to 300-feet for other species, at the discretion of the qualified biologist) will be applied until a qualified biologist has determined that the nest is no longer active (e.g., the nestlings have fledged or the nest has failed). A qualified biologist will check the nest status at least once per week, using the least invasive method feasible (e.g., observation with binoculars from a distance). These buffers may be

reduced at the discretion of a qualified biologist with sufficient avian experience as long as the nesting birds continue to behave normally and do not show signs of stress caused by construction.

MM-BIO-7: Trash Management

During Construction, trash and food items will be contained in closed containers and removed daily to reduce the attractiveness to opportunistic predators, such as common ravens, coyotes, and feral dogs. Fruit peels, nut and seed shells, eggshells, chicken bones, and other food waste are not natural to the desert and will be placed in a trash receptacle.

5.6.5 Non-listed Special-status Mammal Species

No special-status mammal species were detected within the study area.

5.6.5.1 American Badger and Desert Kit Fox

Although American badger and desert kit fox were not detected within the study area, there is potential for them to move into the site before or during construction.

5.6.5.2 Avoidance and Minimization Measures

MM-BIO-3, MM-BIO-4, MM-BIO-5, MM-BIO-7, above, and MM-BIO-8, below, would reduce the likelihood of direct mortality of any American badger or desert kit fox occurring within the project footprint during construction.

MM-BIO-8: Burrow Surveys

Preconstruction burrow surveys will be conducted by a qualified biologist for the presence of American badger or desert kit fox dens no more than 14 days prior to commencement of construction activities. If dens are detected, each den will be classified as inactive, potentially active, active non-natal, or active natal. Active dens will be flagged and project activities within 200 feet (non-natal dens) or 500 feet (natal dens) should be avoided. Buffers may be modified by the qualified biologist, in coordination with CDFW and with notification to the County. Active natal dens (i.e., any den with cubs or pups) will not be excavated or passively relocated.

5.7 Wetlands

No aquatic resources regulated under Sections 404 or 401 of the CWA, Section 13260 of the Porter-Cologne Act, or Section 1602 of the CFGC were identified within the study area. Therefore, the project would not have a substantial adverse effect on state or federally protected wetlands.

5.8 Wildlife Migration Corridors

The study area does not include features, such as riparian areas, drainages, or ridgelines, that would focus wildlife movement. No regional wildlife linkages or corridors are mapped within the project site. Therefore, the project would not permanently affect existing wildlife movement. Although

fencing would be installed around the main solar facility, the access roads and gen-tie lines would not be fenced, and no major barriers would be created that would prevent or impede wildlife movement in the region. Because the area is open and wildlife can move throughout the region unimpeded (see Section 4.7, *Wildlife Migration Corridors*), the project would not pose a physical barrier to large-scale wildlife movement, and the project would not permanently reduce or eliminate any major wildlife passages.

The project would not affect regional wildlife movement or interfere substantially with the movement of any native resident in areas surrounding the project site, nor would it impede the use of native wildlife nursery sites. Impacts would be less than significant, and no mitigation is required.

5.9 Local Policies and Habitat Conservation Plans

The study area does not include a wildflower reserve area or an SEA, therefore would not affect any of the resources protected under these local policies. The project would not conflict with any local policies or ordinances.

The site does not include any oak trees or oak woodlands, or other sensitive tree species, and therefore would not impact any species covered by the Los Angeles County Oak Tree Ordinance.

The site is not within a Coastal Resource Area and would therefore not have an effect on a Coastal Resource Area.

There is no adopted habitat conservation plan, natural community conservation plan, or other approved state, regional, or local habitat conservation plan applicable to private lands within the study area; therefore, the project would not conflict with provisions of any plans.

5.10 Cumulative Impacts

The project has potential to cumulatively reduce the availability of foraging habitat for Swainson's hawk and tricolored blackbird within western Antelope Valley. The implementation of MM-BIO-4 would provide foraging habitat in perpetuity for Swainson's hawk and tricolored blackbird and reduce the cumulative impact to below a level of significance.

The project would have no effect on sensitive vegetation communities, rare plants, or oaks trees and would therefore have no cumulative effect on sensitive vegetation, rare plants, or oak trees. The project would have no effect on state or federally protected wetlands and, therefore, would have no cumulative effect on wetlands. The project would not affect wildlife corridors and, therefore, would not cumulatively effect wildlife corridors.

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Appendix A Figures

Figure 1, *Regional Vicinity*

Figure 2, *Project Location*

Figure 3, *Soils Map*

Figure 4, *Vegetation Communities* (Sheets 1–8)

Figure 5, *Burrowing Owl Observations*

Figure 6, *Incidental Special-status Species Observations*

Figure 7, *Large Nests in Vicinity*

Figure 8, *Jurisdictional Delineation* (Sheets 1–8)

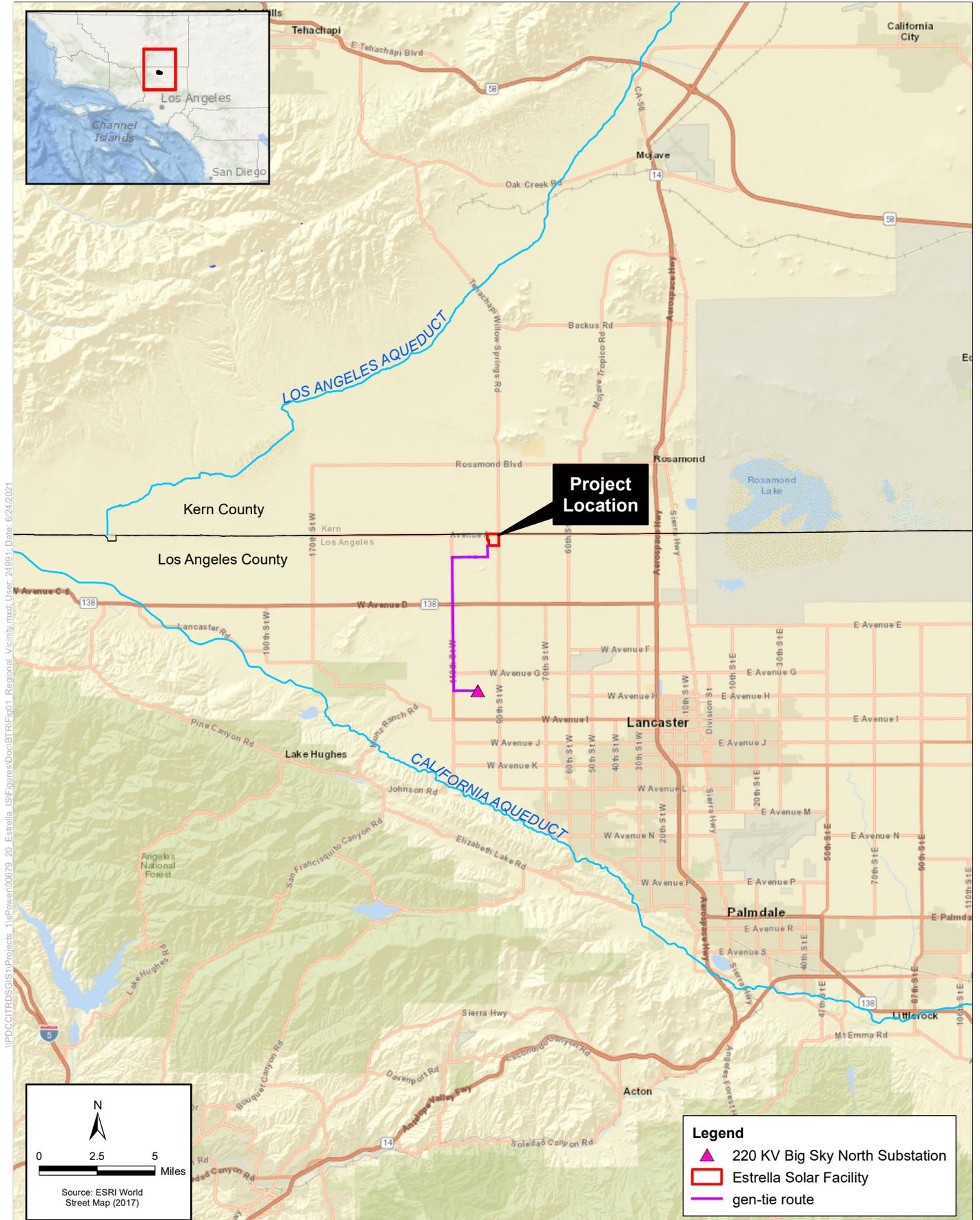
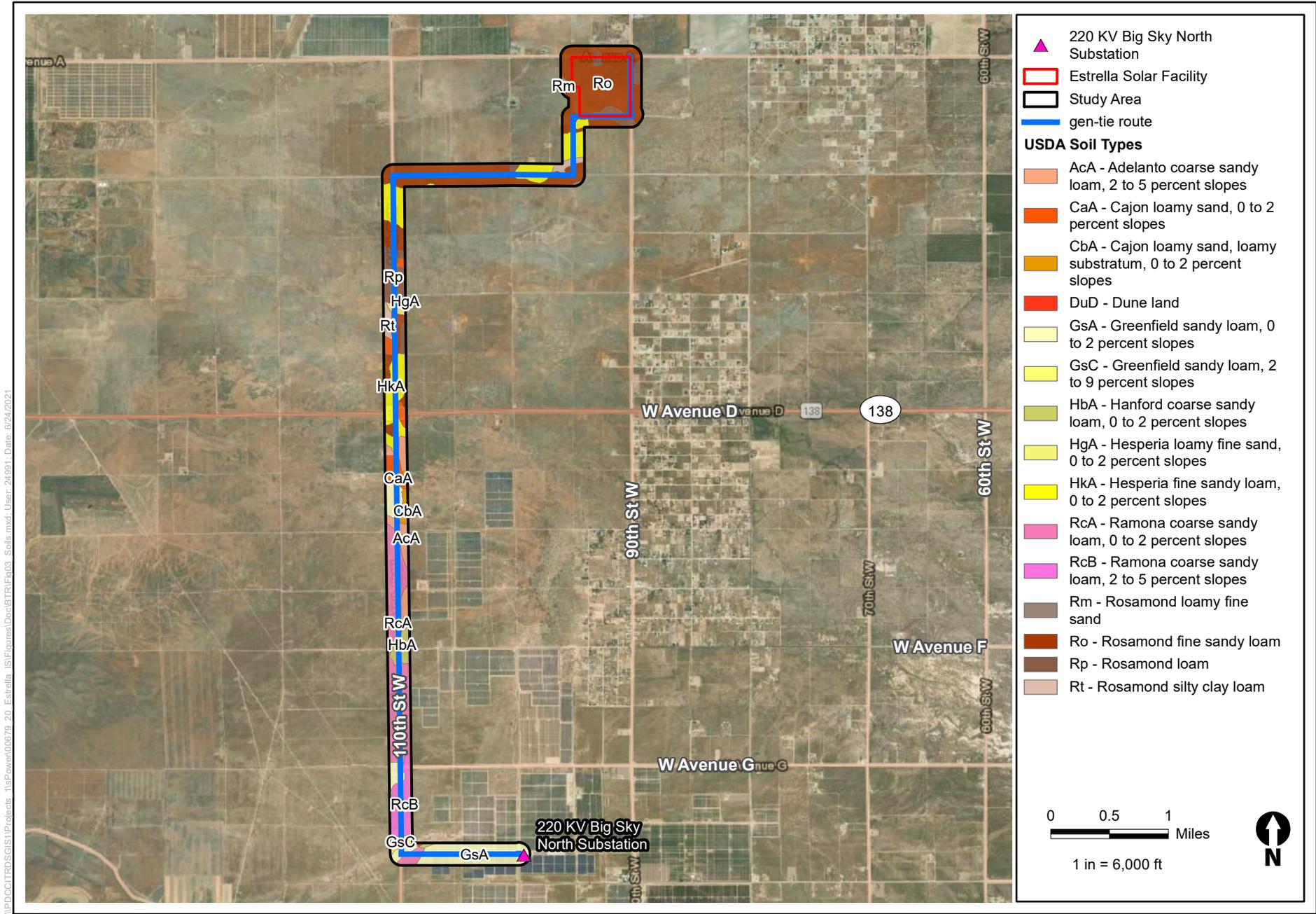


Figure 1
Regional Vicinity
Estrella Solar

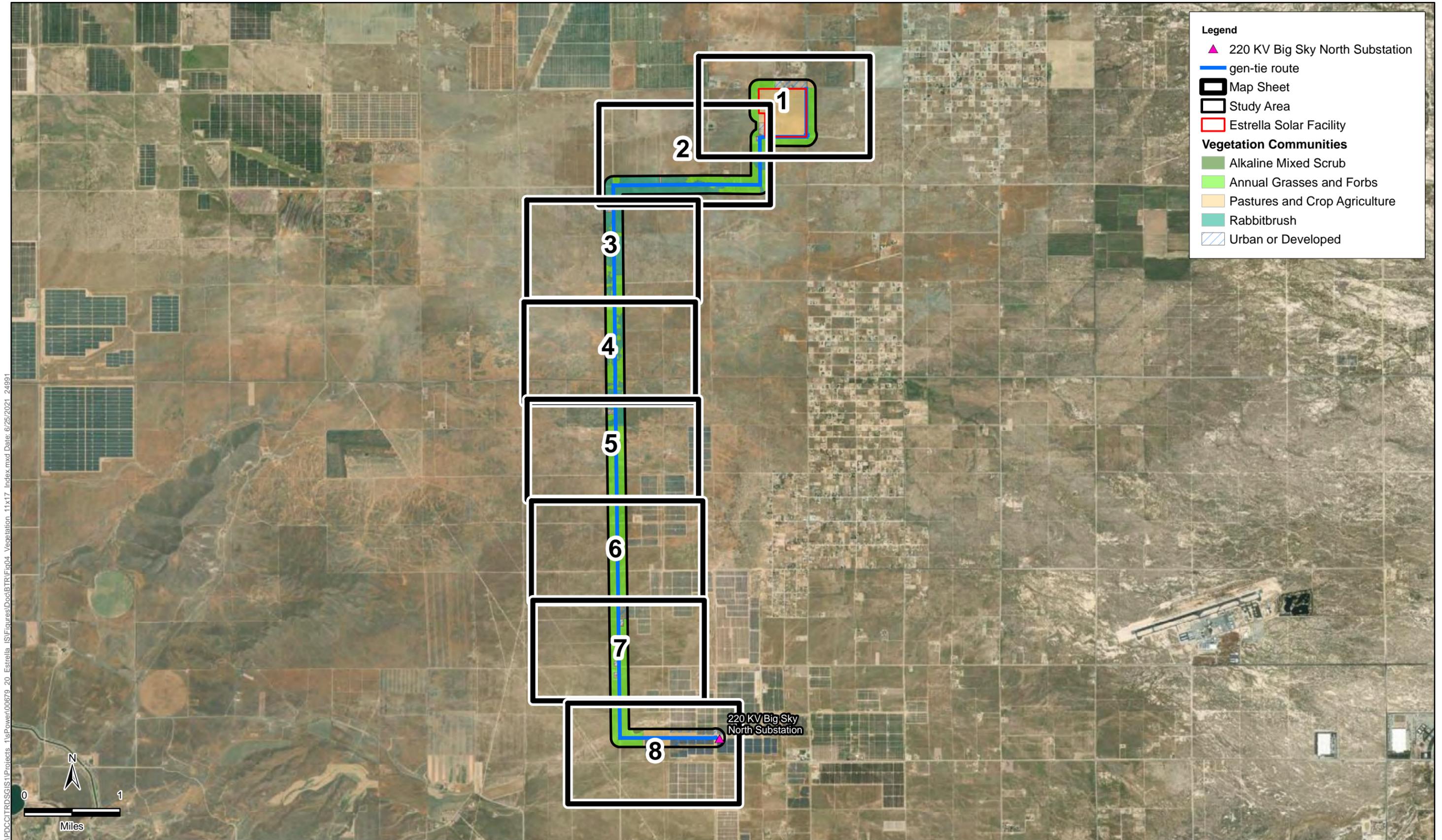


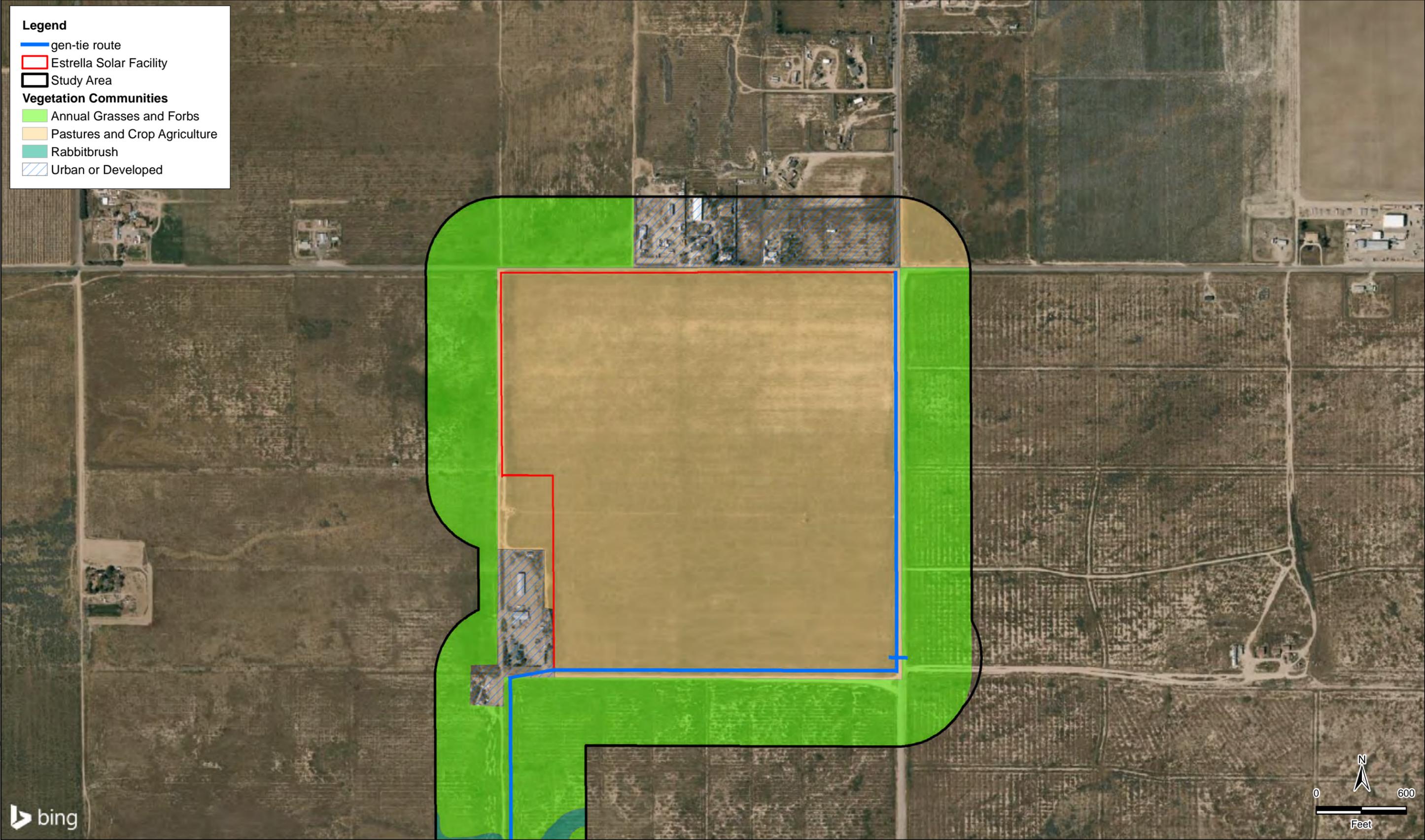


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Figure 3
Soils Map
Estrella Solar





Legend

- gen-tie route
- Estrella Solar Facility
- Study Area

Vegetation Communities

- Annual Grasses and Forbs
- Pastures and Crop Agriculture
- Rabbitbrush
- Urban or Developed

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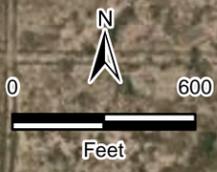
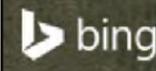
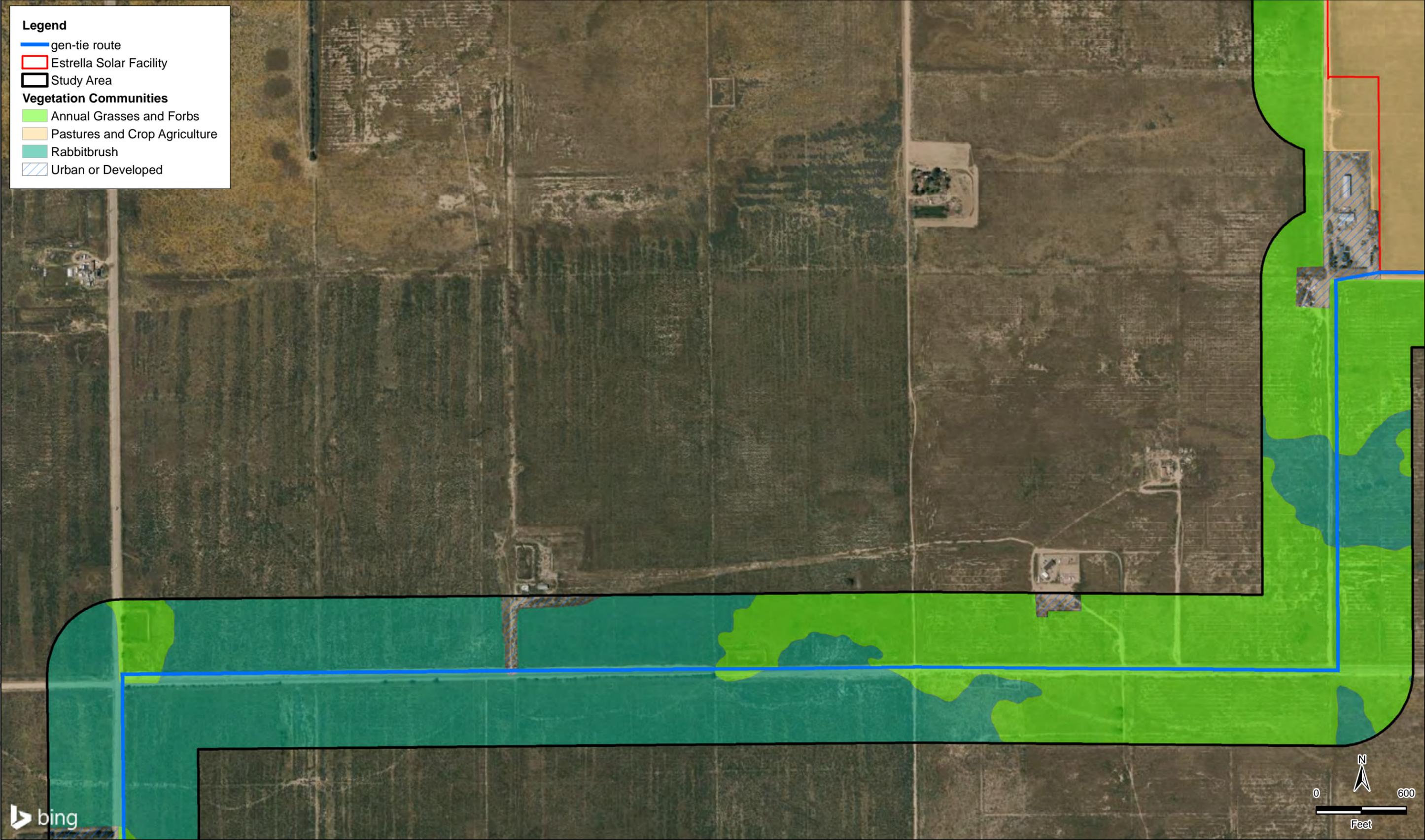


Figure 4 - Sheet 1
Vegetation Communities
Estrella Solar



Legend

- gen-tie route
- Estrella Solar Facility
- Study Area

Vegetation Communities

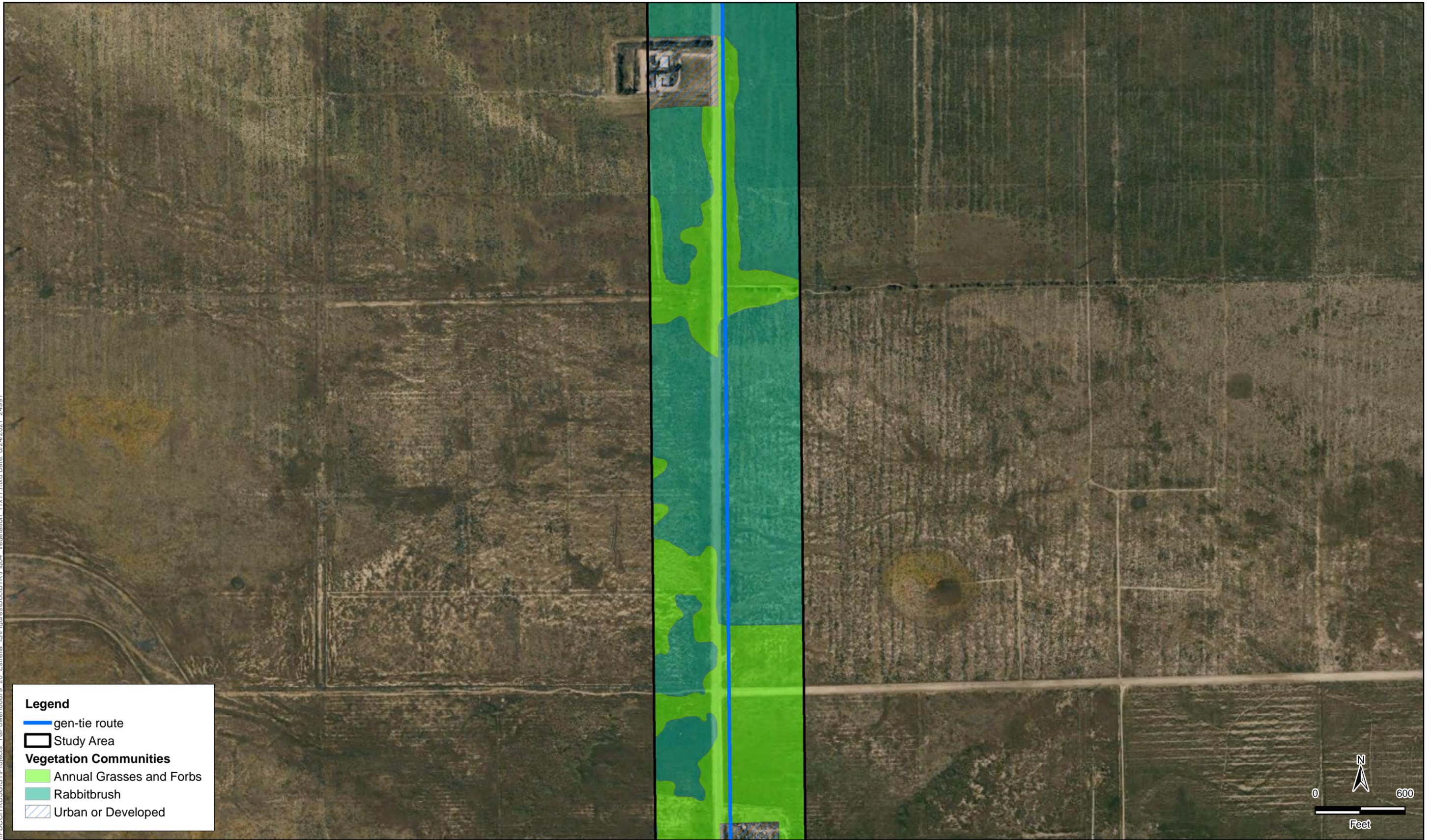
- Annual Grasses and Forbs
- Pastures and Crop Agriculture
- Rabbitbrush
- Urban or Developed

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Figure 4 - Sheet 2
Vegetation Communities
Estrella Solar

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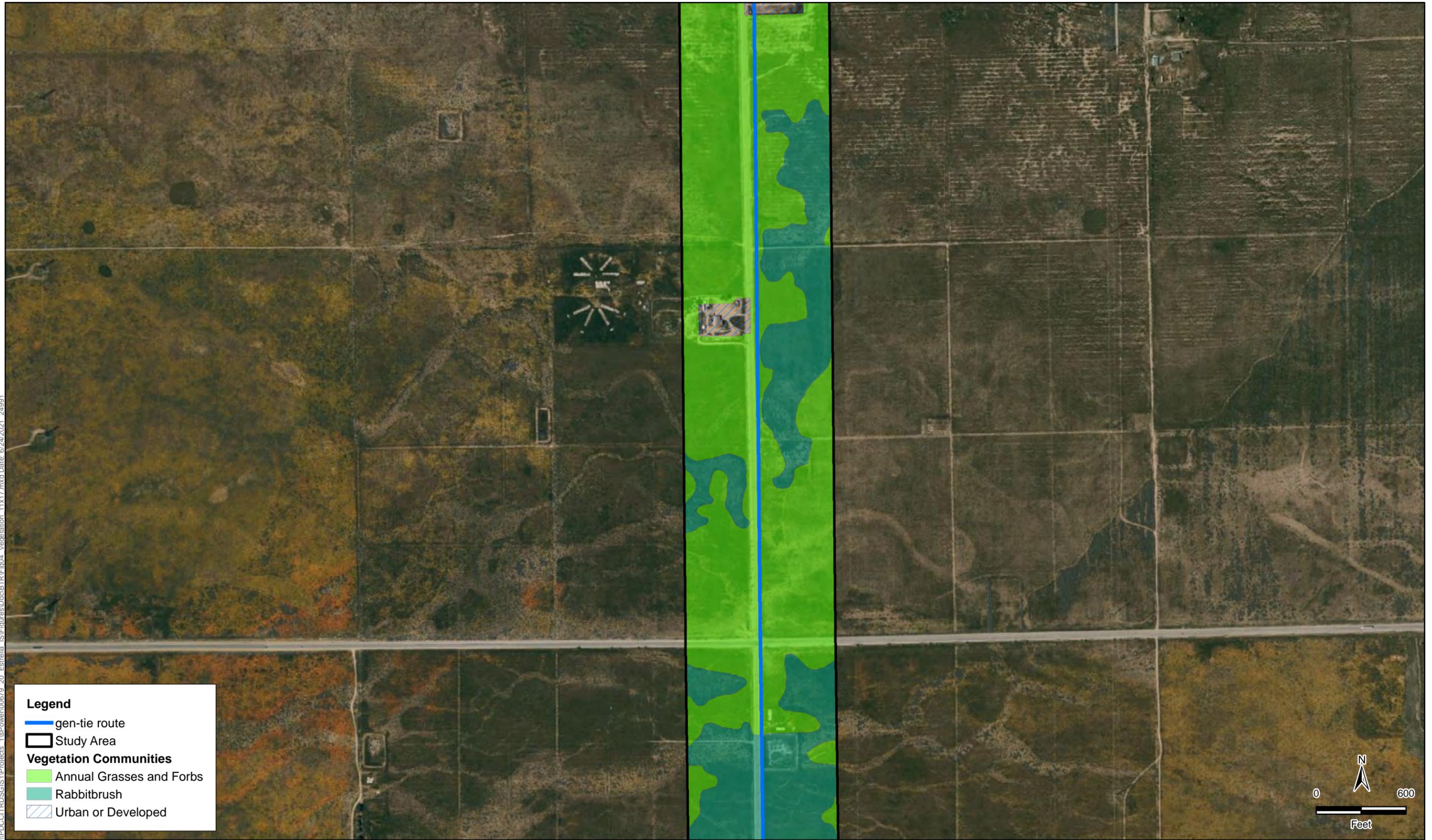


Legend

- gen-tie route
- Study Area
- Vegetation Communities**
- Annual Grasses and Forbs
- Rabbitbrush
- Urban or Developed

Figure 4 - Sheet 3
Vegetation Communities
Estrella Solar

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- Legend**
- gen-tie route
 - Study Area
 - Vegetation Communities**
 - Annual Grasses and Forbs
 - Rabbitbrush
 - Urban or Developed

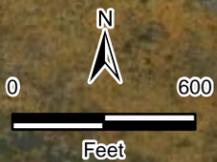
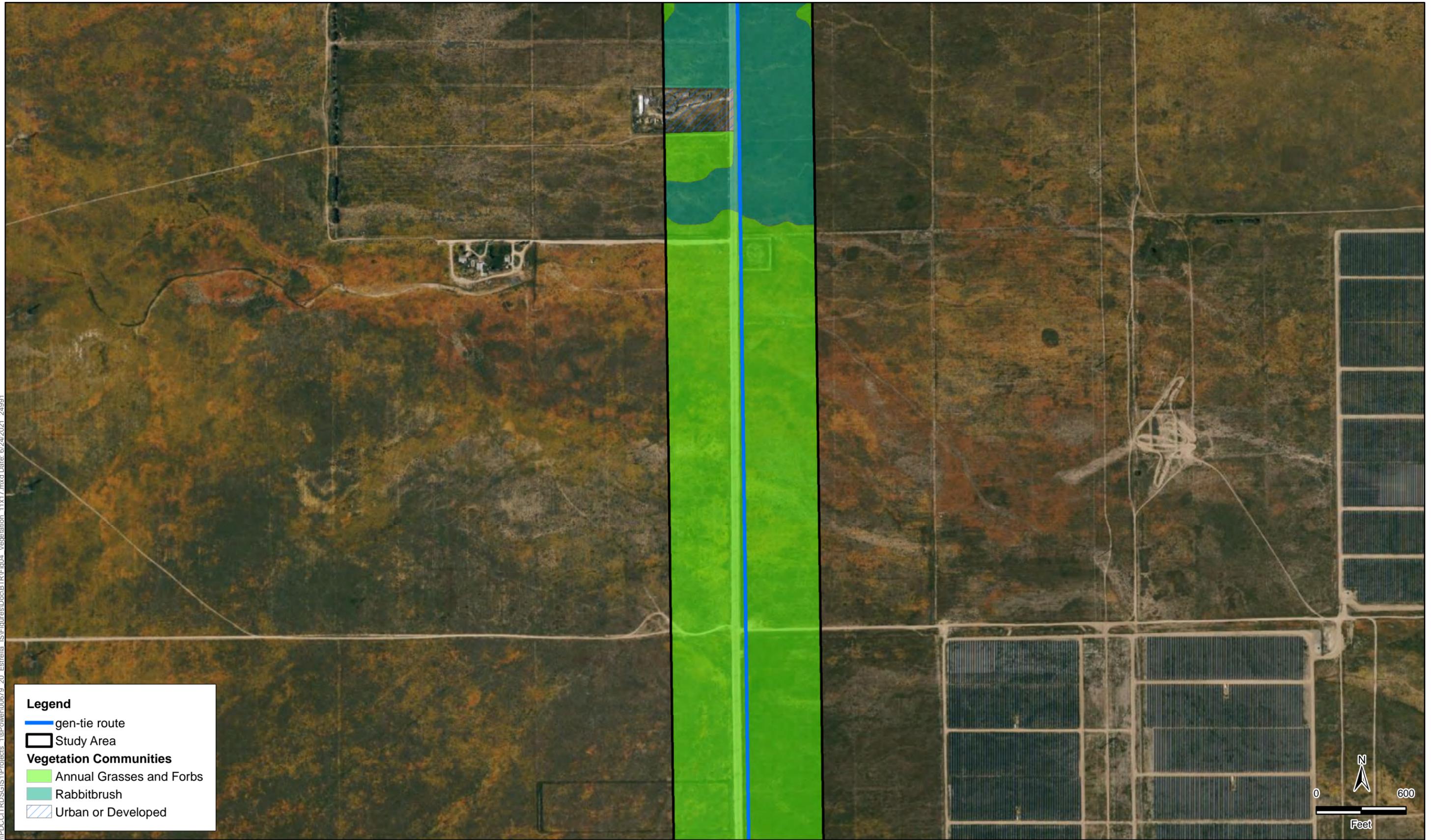


Figure 4 - Sheet 4
Vegetation Communities
Estrella Solar

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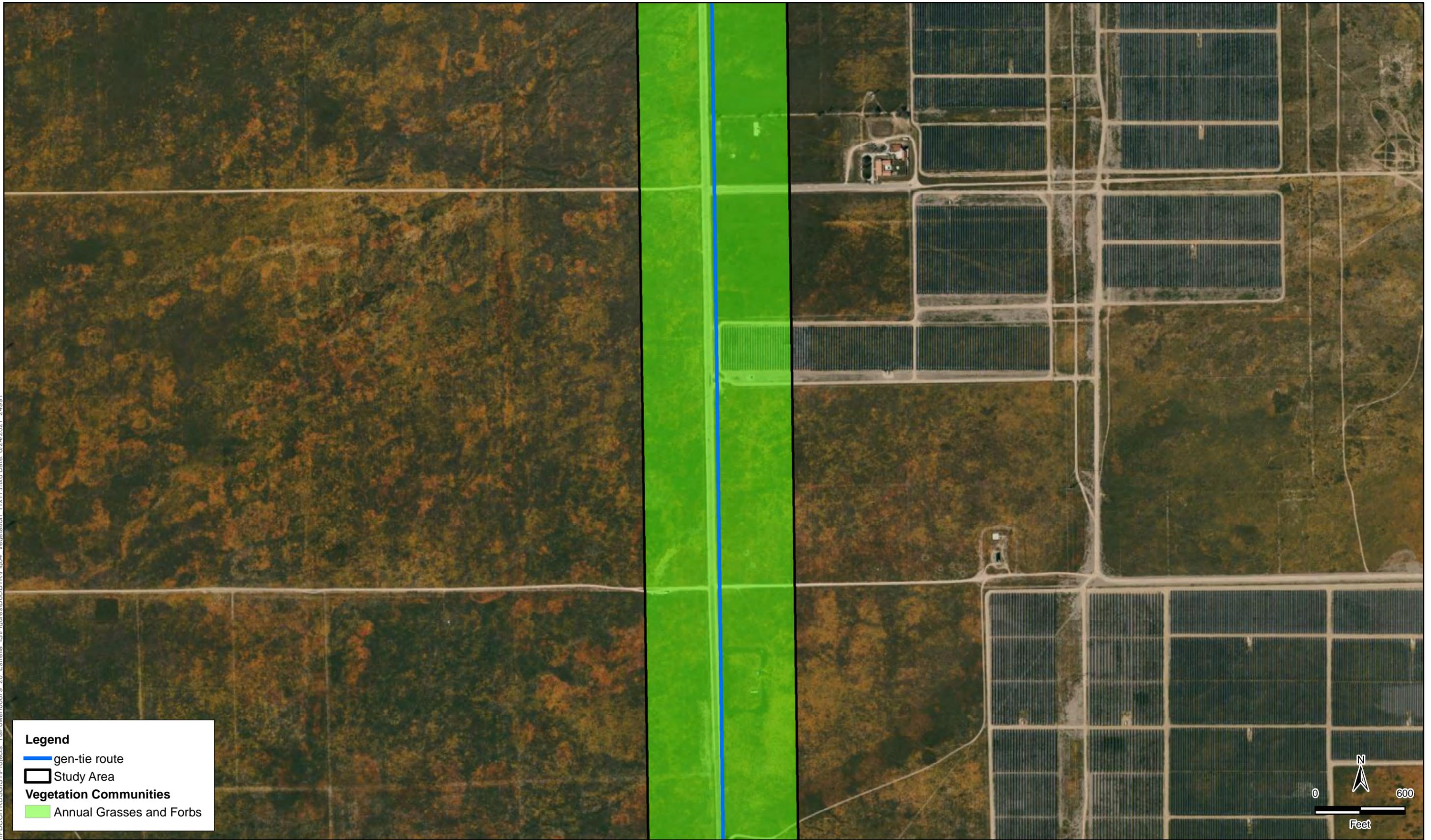


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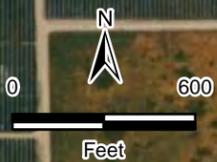
- gen-tie route
- Study Area
- Vegetation Communities**
- Annual Grasses and Forbs
- Rabbitbrush
- Urban or Developed

Figure 4 - Sheet 5
Vegetation Communities
Estrella Solar

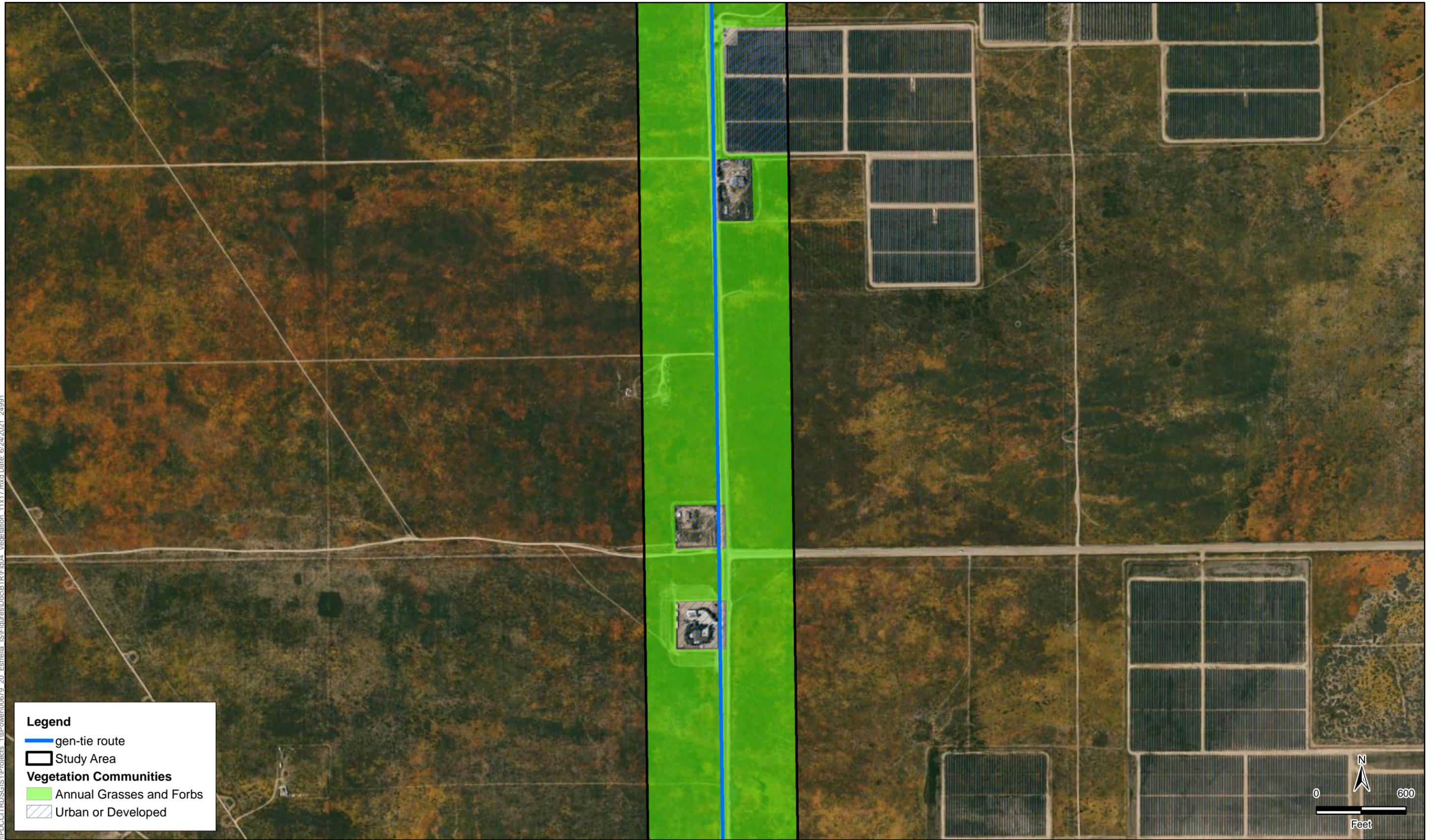
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Legend
— gen-tie route
□ Study Area
Vegetation Communities
■ Annual Grasses and Forbs



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Legend

- gen-tie route
- Study Area
- Vegetation Communities**
- Annual Grasses and Forbs
- Urban or Developed

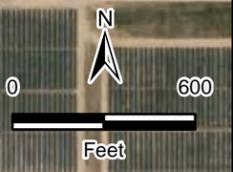
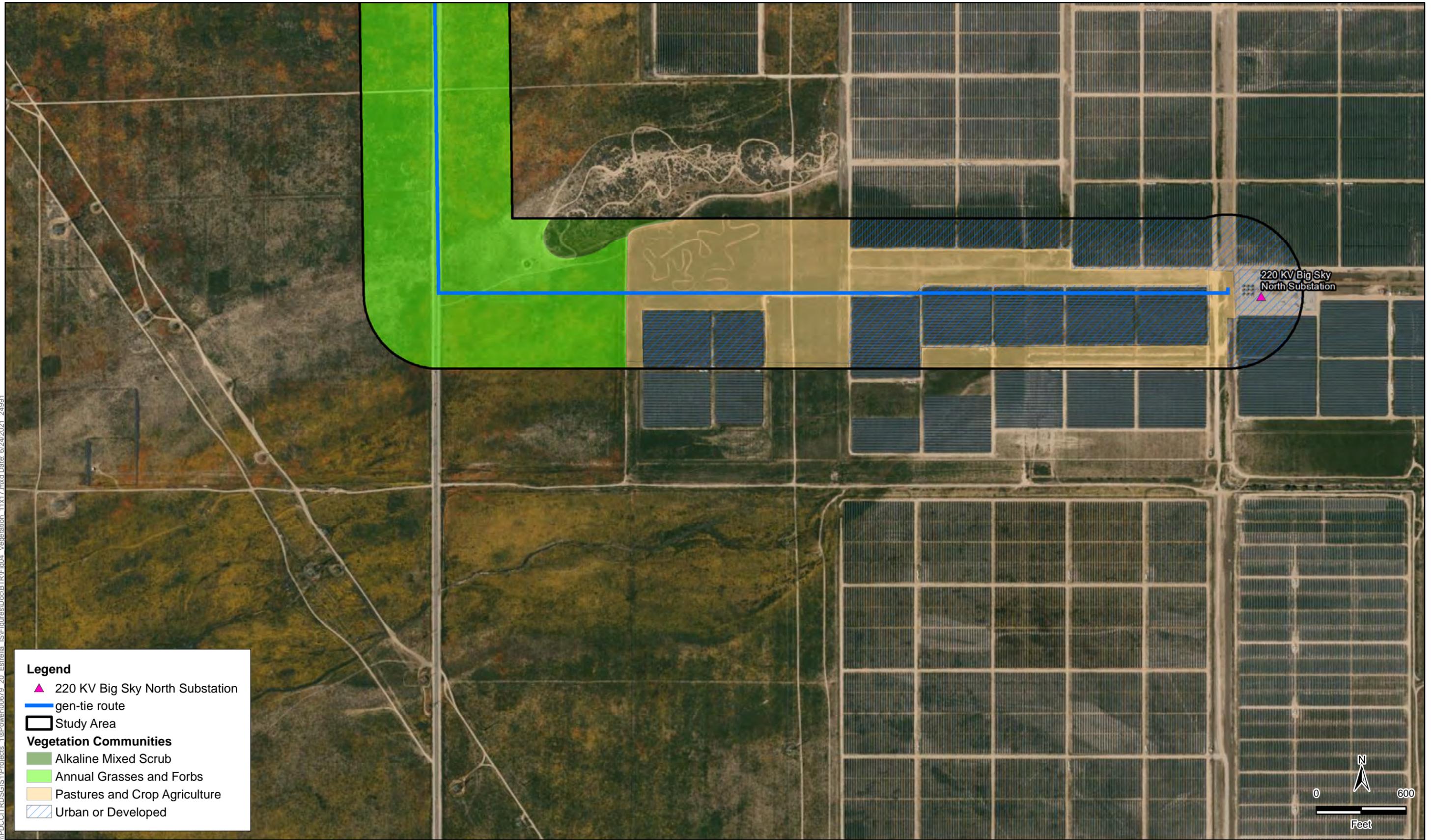


Figure 4 - Sheet 7
Vegetation Communities
Estrella Solar

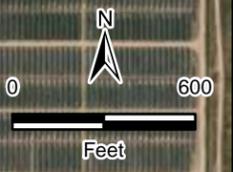
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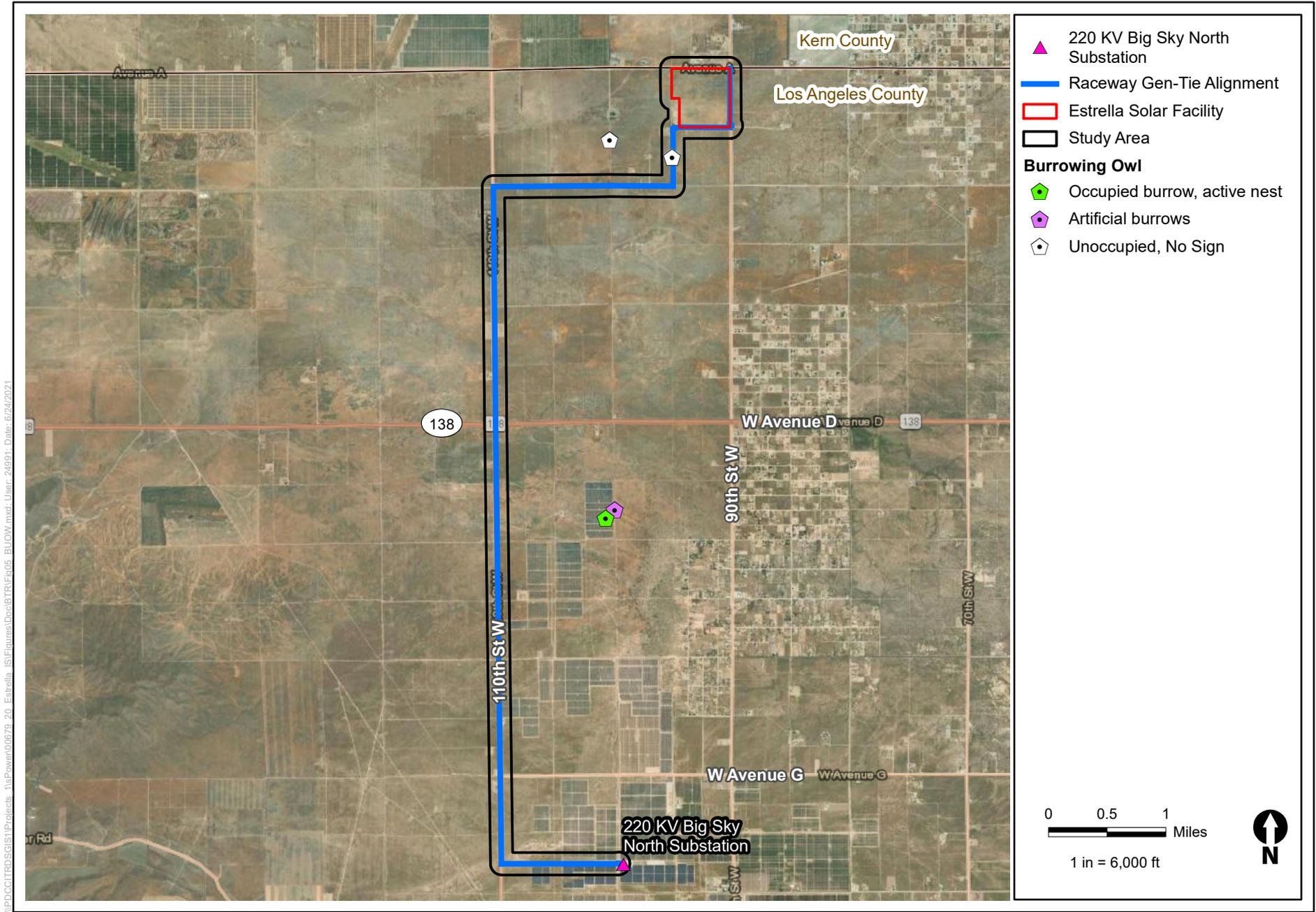


Legend

-  220 KV Big Sky North Substation
-  gen-tie route
-  Study Area
- Vegetation Communities**
-  Alkaline Mixed Scrub
-  Annual Grasses and Forbs
-  Pastures and Crop Agriculture
-  Urban or Developed

220 KV Big Sky
North Substation





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Figure 5
Burrowing Owl Observations
Estrella Solar

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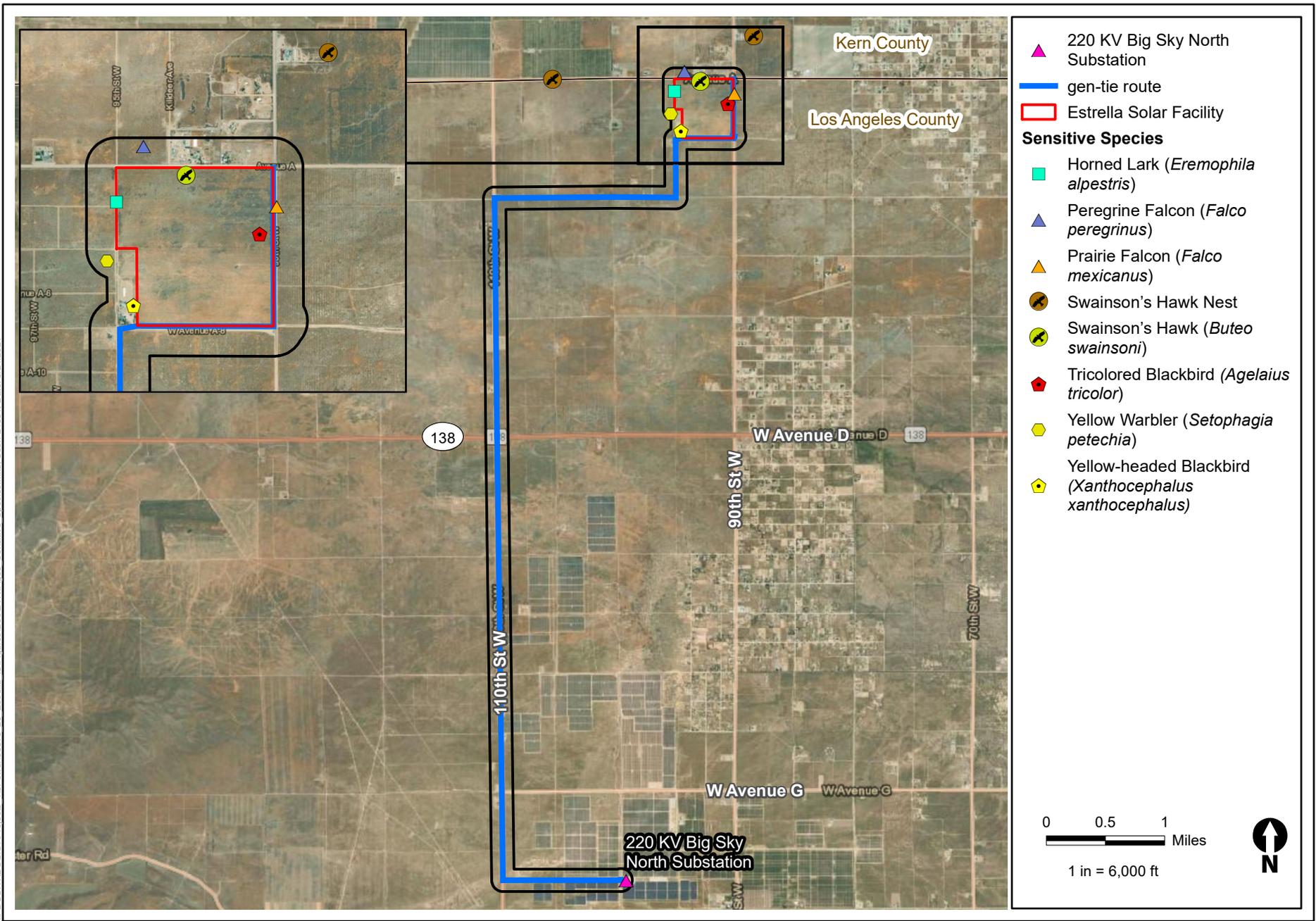


Figure 6
Incidental Special-Status Species Observations
Estrella Solar

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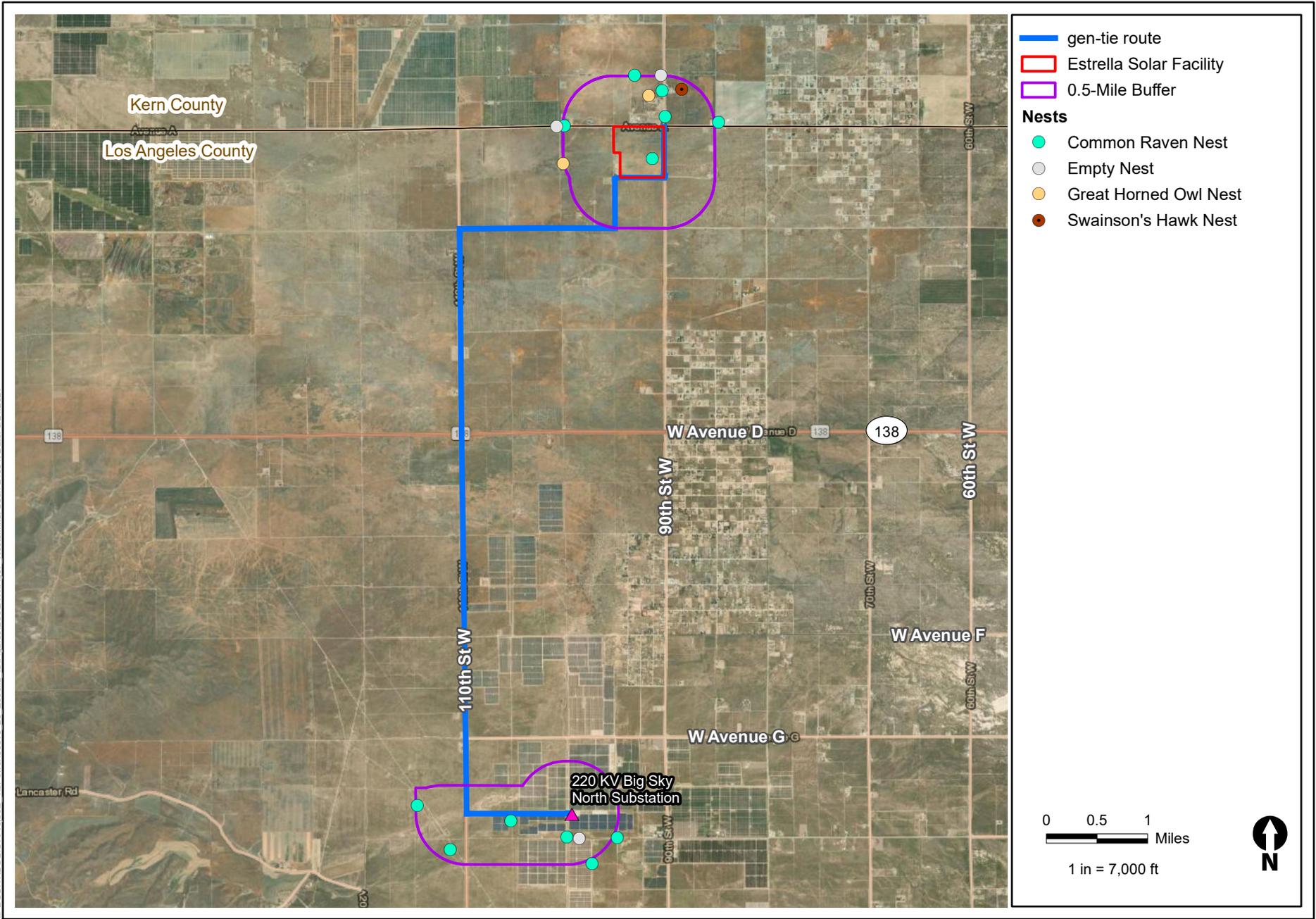
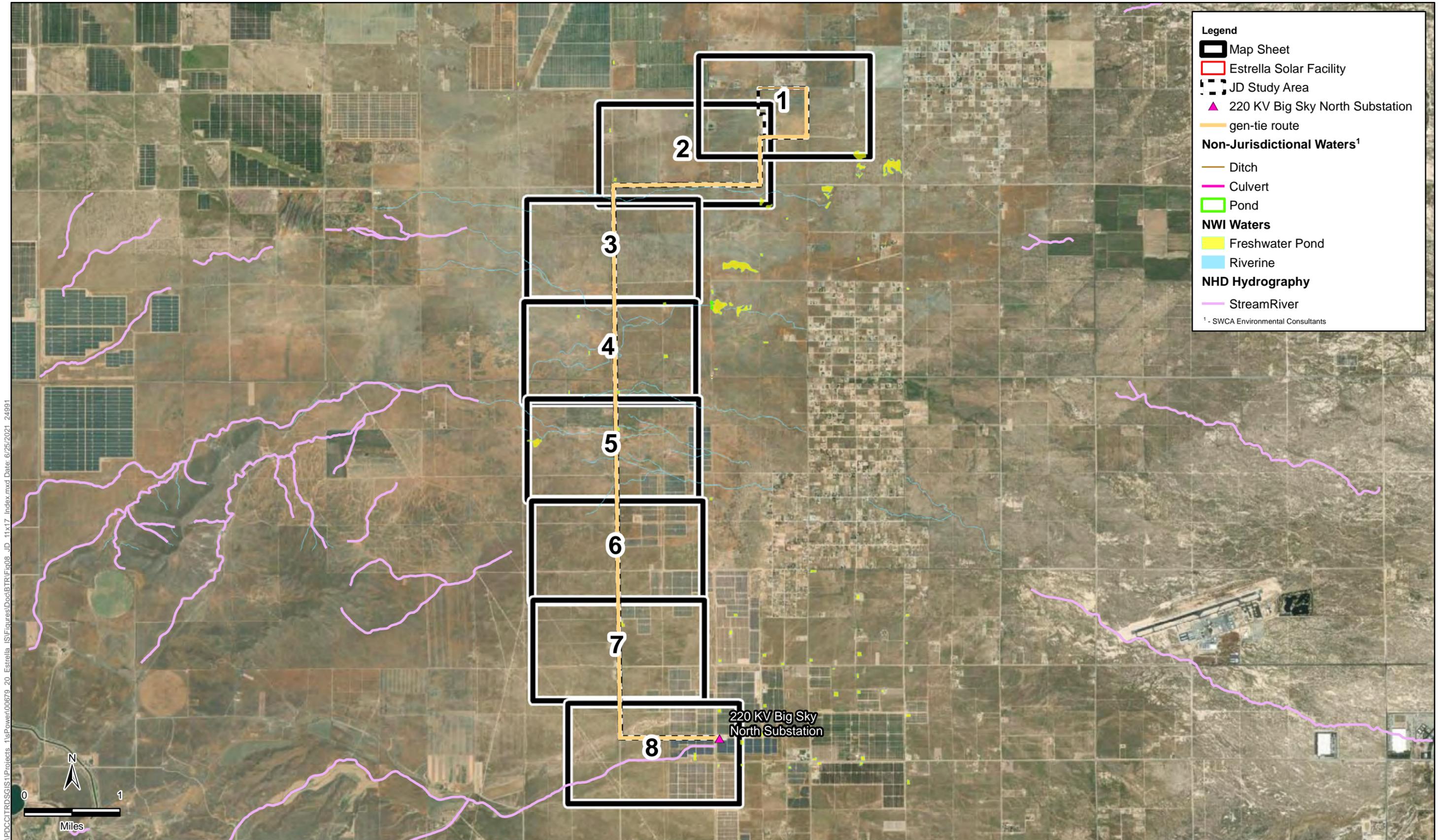


Figure 7
Large Nests in Vicinity
Estrella Solar



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Legend

- gen-tie route
- JD Study Area
- Estrella Solar Facility
- Non-Jurisdictional Waters¹**
- Ditch
- NWI Waters**
- Freshwater Pond

¹ - SWCA Environmental Consultants

Figure 8 - Sheet 1
Jurisdictional Delineation
Estrella Solar

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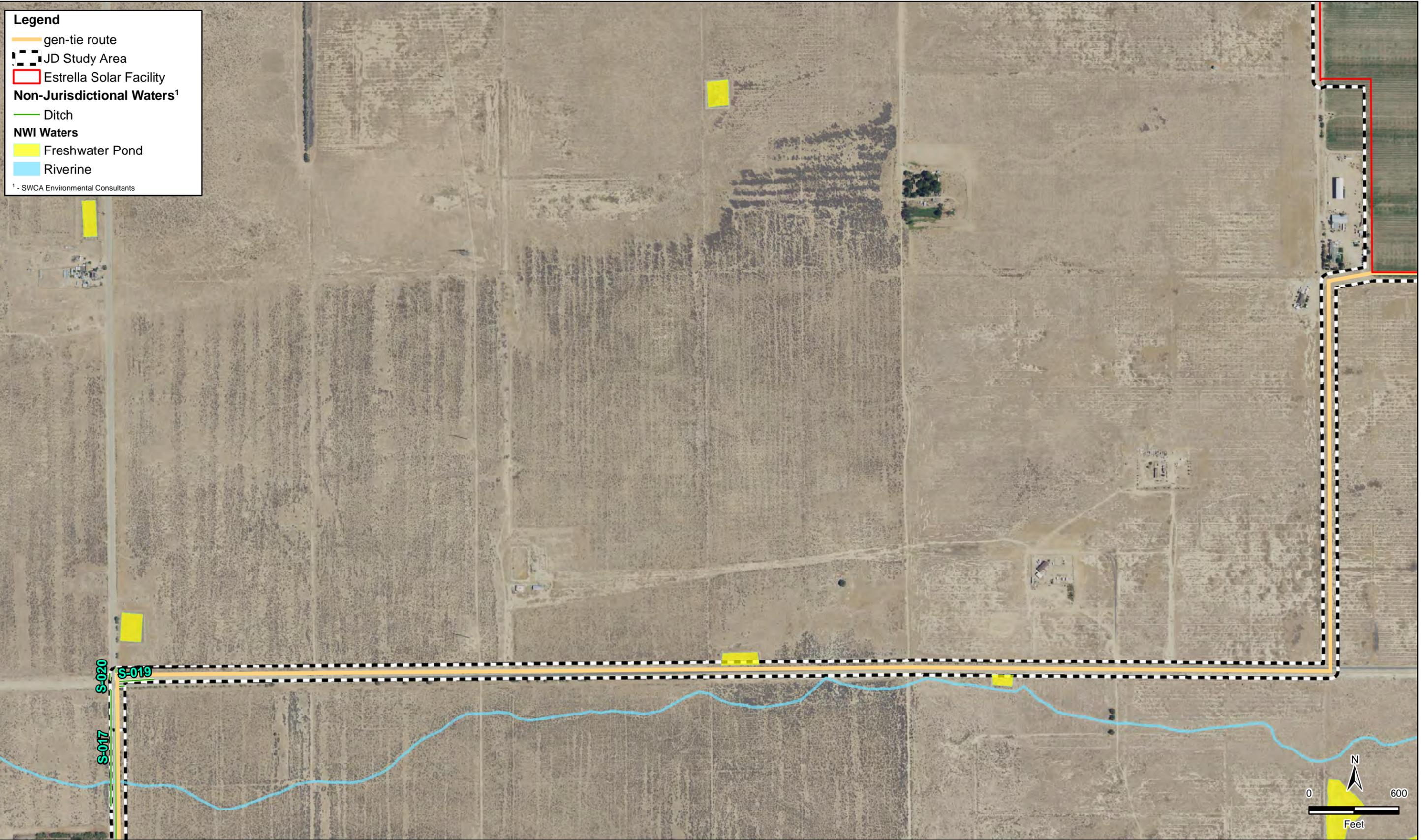
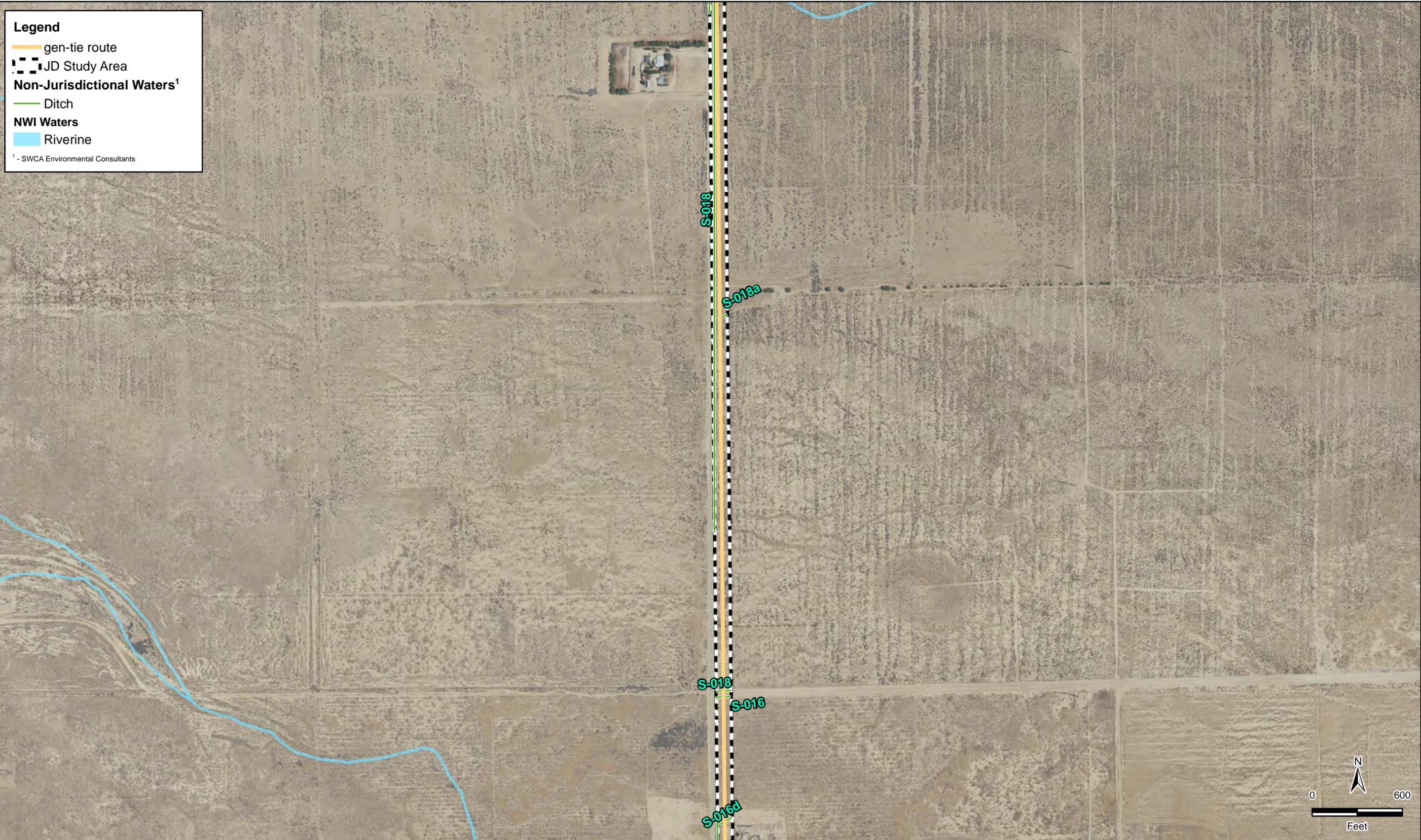


Figure 8 - Sheet 2
Jurisdictional Delineation
Estrella Solar

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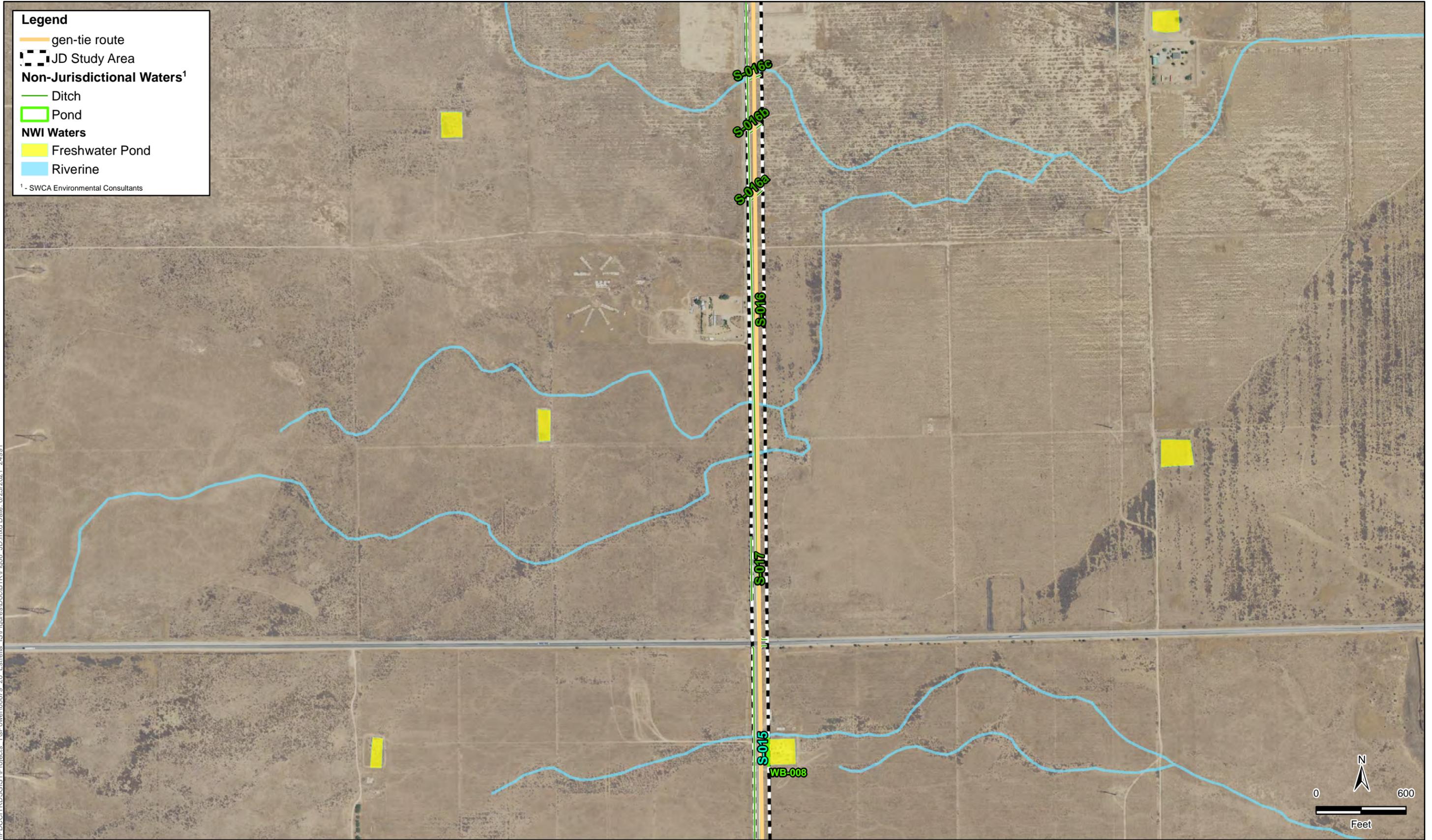


Legend

- gen-tie route
- JD Study Area
- Non-Jurisdictional Waters¹**
- Ditch
- NWI Waters**
- Riverine

¹ - SWCA Environmental Consultants

Figure 8 - Sheet 3
Jurisdictional Delineation
Estrella Solar



Legend

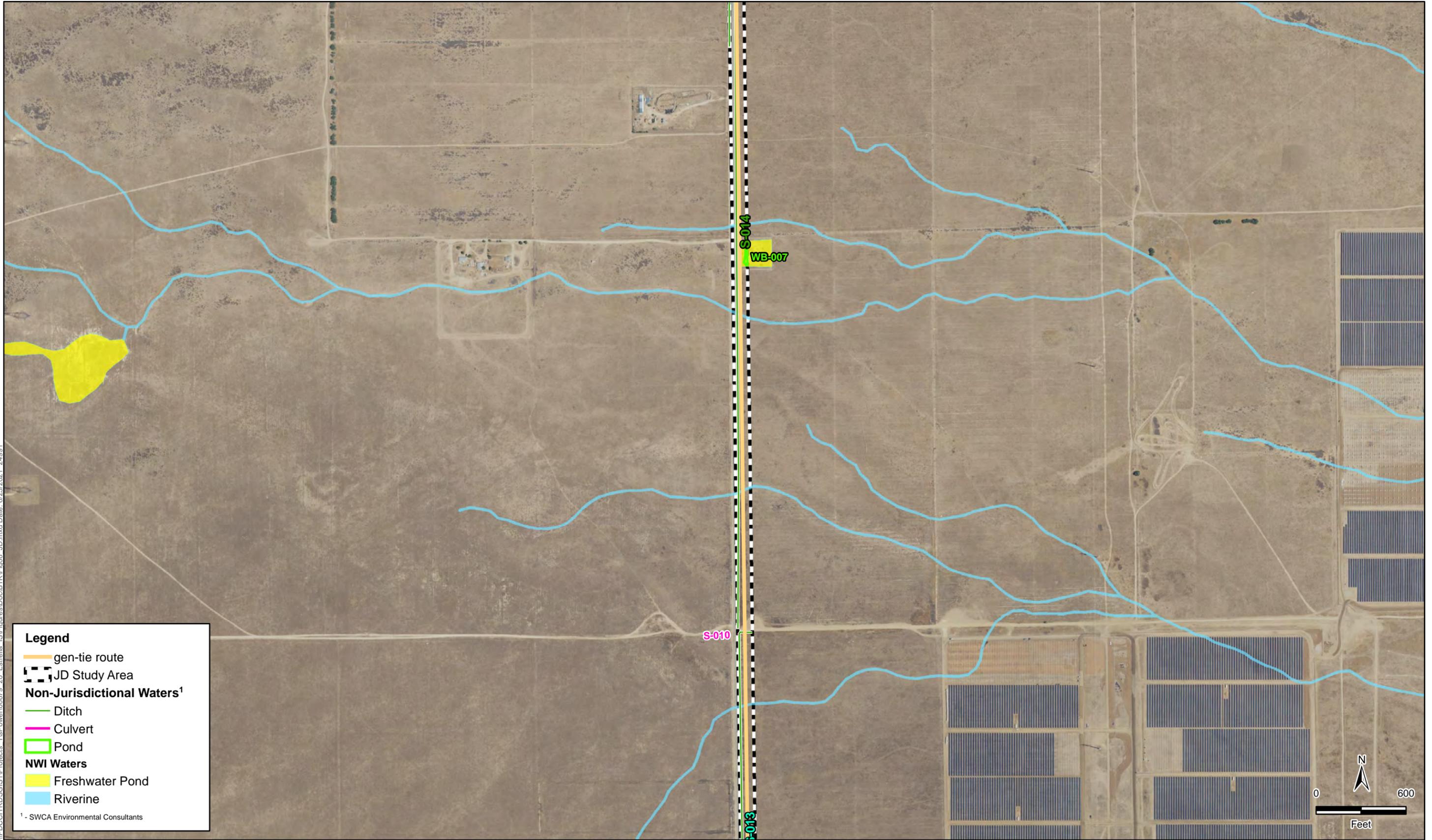
- gen-tie route
- JD Study Area
- Non-Jurisdictional Waters¹**
- Ditch
- Pond
- NWI Waters**
- Freshwater Pond
- Riverine

¹ - SWCA Environmental Consultants

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Figure 8 - Sheet 4
Jurisdictional Delineation
Estrella Solar

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Legend

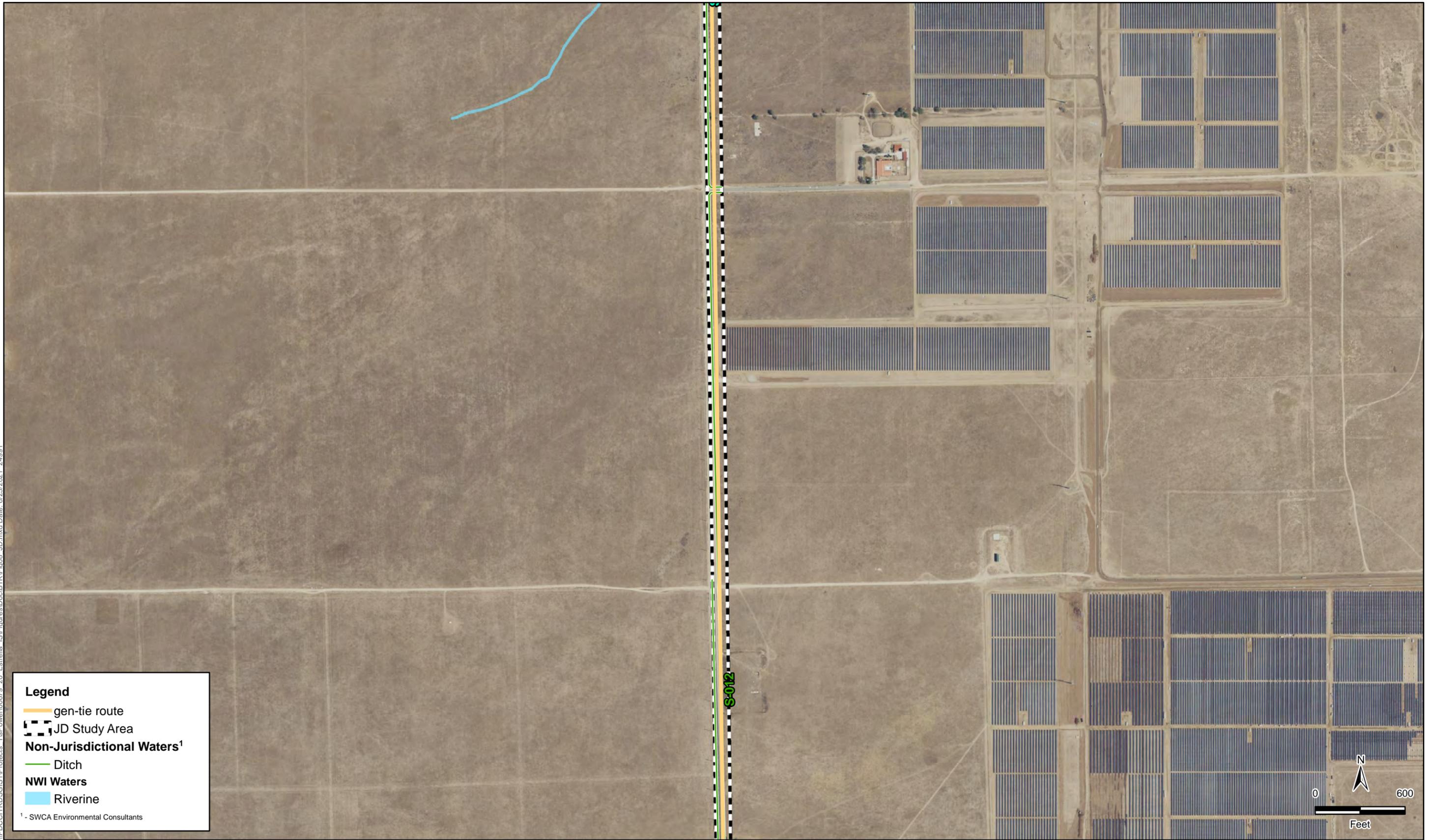
- gen-tie route
- JD Study Area
- Non-Jurisdictional Waters¹**
 - Ditch
 - Culvert
 - Pond
- NWI Waters**
 - Freshwater Pond
 - Riverine

¹ - SWCA Environmental Consultants



Figure 8 - Sheet 5
Jurisdictional Delineation
Estrella Solar

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Legend

-  gen-tie route
-  JD Study Area
- Non-Jurisdictional Waters¹**
-  Ditch
- NWI Waters**
-  Riverine

¹ - SWCA Environmental Consultants

Figure 8 - Sheet 6
Jurisdictional Delineation
Estrella Solar

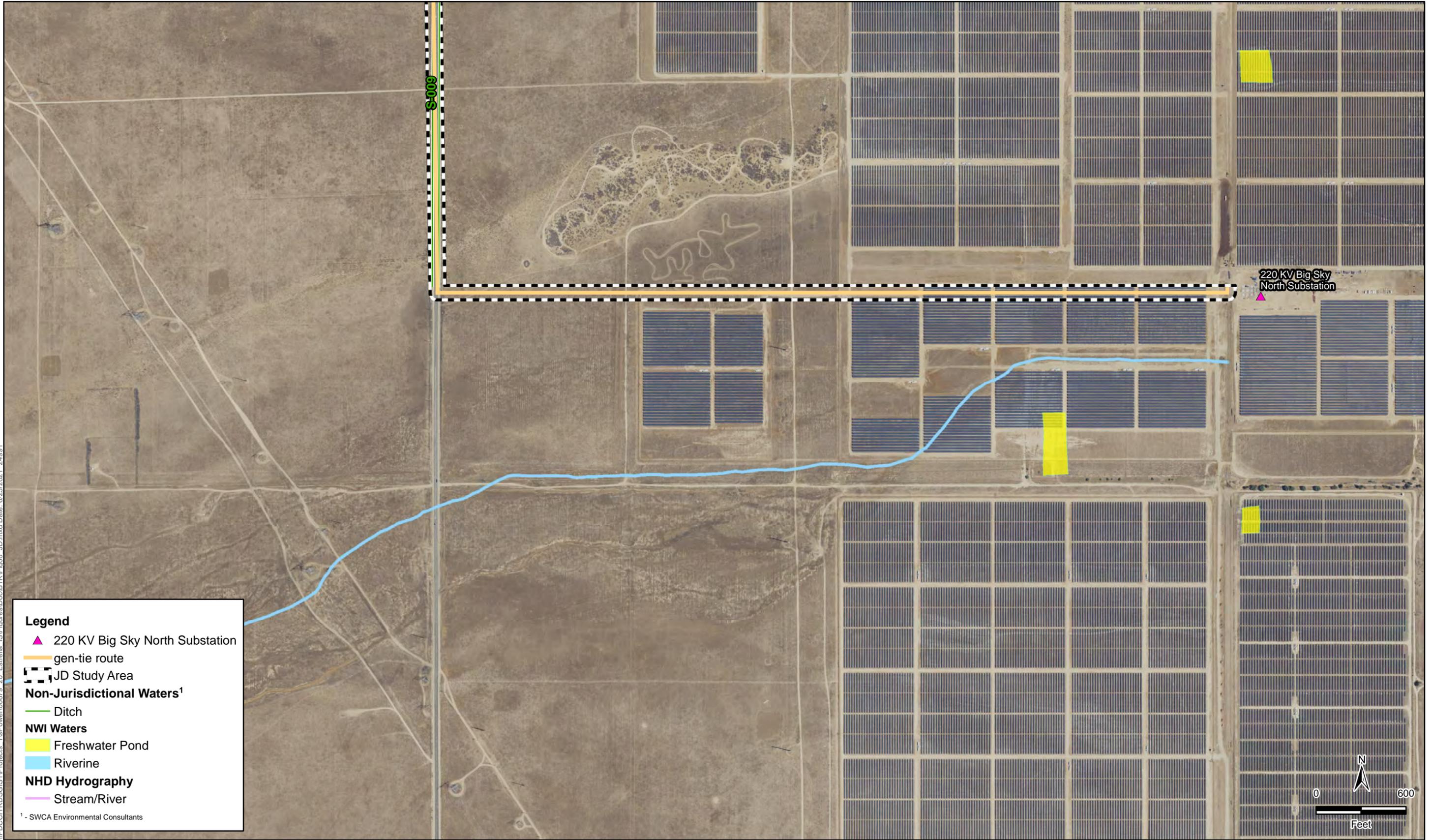
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- Legend**
-  gen-tie route
 -  JD Study Area
 - Non-Jurisdictional Waters¹**
 -  Ditch
 -  Culvert
 - NWI Waters**
 -  Freshwater Pond
- ¹ - SWCA Environmental Consultants

Figure 8 - Sheet 7
Jurisdictional Delineation
Estrella Solar

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Legend

- ▲ 220 KV Big Sky North Substation
- gen-tie route
- JD Study Area
- Non-Jurisdictional Waters¹**
- Ditch
- NWI Waters**
- Freshwater Pond
- Riverine
- NHD Hydrography**
- Stream/River

¹ - SWCA Environmental Consultants

Figure 8 - Sheet 8
Jurisdictional Delineation
Estrella Solar

Appendix B

Special-status Species Potential to Occur Table

COMMON NAME/ SCIENTIFIC NAME	STATUS FEDERAL/ STATE/ CRPR ^a	SPECIES REQUIREMENTS	RATIONALE:	
			Estrella Solar Facility	Gen-Tie Routes
Horn's milk-vetch (<i>Astragalus hornii</i> var. <i>hornii</i>)	-/-/1B.1	This annual herb is found in lake margins and alkaline areas of meadows and playas. Found in elevations 200-2,790 ft. Blooms from May to October.	Not expected. Suitable habitat is not present within the study area. Few records from the region.	Not expected. Suitable habitat is not present within the study area. Few records from the region.
Lancaster milk-vetch (<i>Astragalus preussii</i> var. <i>laxiflorus</i>)	-/-/1B.1	This perennial herb is found in chenopod scrub at elevations around 2,295 ft. amsl. Blooms from March through May.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Slender mariposa lily (<i>Calochortus calvatus</i> var. <i>gracilis</i>)	-/-/1B.2	This perennial bulbiferous herb is known to occur in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats at elevations ranging from 1,045 ft. to 3,280 ft asml. The blooming period is from March through November.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Alkali Mariposa Lily (<i>Calochortus striatus</i>)	-/-/1B.2	This perennial bulbiferous herb can be found chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps in alkaline and mesic areas between 230 ft. and 5,240 ft. amsl in elevation. The blooming period is from April through June.	Low potential. Known from the local vicinity but no suitable habitat present in the study areas.	Not expected. Known from the local vicinity but no suitable habitat present in the study areas.
Peirson's Morning-glory (<i>Calystegia peirsonii</i>)	-/-/4.2	This perennial rhizomatous herb can be found within chaparral, chenopod scrub, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland. Occurs at	Not expected. Suitable habitat is not present within the study area.	Low potential. Known from the local vicinity but no suitable habitat present in the study areas.

COMMON NAME/ SCIENTIFIC NAME	STATUS FEDERAL/ STATE/ CRPR ^a	SPECIES REQUIREMENTS	RATIONALE:	
			Estrella Solar Facility	Gen-Tie Routes
		an elevation of 95 ft. to 4,920 ft. amsl and blooms between April and June.		
White Pygmy-poppy (<i>Canbya candida</i>)	-/-/4.2	This annual herb is found in gravelly, sandy, and granitic soils within Joshua tree woodland, Mojavean desert scrub, and Pinyon and juniper woodland habitats between 1,968 ft. and 4,790 ft. amsl in elevation. Blooming period is from March through June.	Not expected. Suitable habitat is not present within the study area.	Low potential. Known from the local vicinity but no suitable habitat present in the study areas.
Mojave paintbrush (<i>Castilleja plagiotoma</i>)	-/-/4.3	This hemiparasitic perennial herb occurs in alluvial Great Basin scrub, Joshua tree woodland, lower montane coniferous forest, and pinyon and juniper woodland habitats between 980 ft. and 8,200 ft. amsl. It typically blooms from April through June.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
San Fernando Valley spineflower (<i>Chorizanthe parryi</i> var. <i>fernandina</i>)	FC/SE/1B.1	This annual herb can be found in sandy coastal scrub and valley and foothill grassland habitats at elevations ranging from 490 ft. to 4,005 ft. amsl. The blooming period is from April to July.	Not expected. Suitable habitat is not present within the study area.	Not expected. Marginally suitable habitat is present within the study area. Species primarily occurs in San Fernando Valley. Study area is outside of known range.
Parry's spineflower (<i>Chorizanthe parryi</i> var. <i>parryi</i>)	-/-/1B.1	This annual herb occurs on sandy or rocky soils in openings of chaparral, cismontane woodland, coastal scrub and valley and foothill grassland habitats. It is found at elevations ranging from 900	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.

COMMON NAME/ SCIENTIFIC NAME	STATUS FEDERAL/ STATE/ CRPR ^a	SPECIES REQUIREMENTS	RATIONALE:	
			Estrella Solar Facility	Gen-Tie Routes
		ft. and 4,005 ft. amsl. It blooms between April and June.		
Clokey's Cryptantha (<i>Cryptantha clokeyi</i>)	-/-/1B.2	This annual herb is found in Mojavean desert scrub on rocky to gravelly slopes, ridge crests, and desert woodland between 2,370 ft. and 4,480 ft. amsl in elevation. This species blooms in April.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Recurved larkspur (<i>Delphinium recurvatum</i>)	-/-/1B.2	This perennial herb is found in alkaline areas of chenopod scrub, cismontane woodland, and grasslands. Found in elevations from 10-2,600 ft amsl. Blooms from March to June.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Rosamond Eriastrum (<i>Eriastrum rosamondense</i>)	-/-/1B.1	This annual herb is found in the openings of chenopod scrub and along the edges of vernal pools in alkaline hummocks in areas that are often sandy. It occurs at elevations ranging from 2,295 ft. to 2,345 ft. amsl. This species typically blooms from April through May, and occasionally from June to July.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Sagebrush Loeflingia (<i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>)	-/-/2B.2	This annual herb is found in sandy areas within desert dune, Great Basin scrub, and Sonoran desert scrub habitats. It is known from elevations ranging from 2,295 ft. to 5,300 ft. amsl. Its blooming period ranges from April through May.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.

COMMON NAME/ SCIENTIFIC NAME	STATUS FEDERAL/ STATE/ CRPR ^a	SPECIES REQUIREMENTS	RATIONALE:	
			Estrella Solar Facility	Gen-Tie Routes
Tehachapi monardella (<i>Monardella linoidea</i> ssp. <i>oblonga</i>)	-/-/1B.3	This perennial rhizomatous herb is found in upper and lower montane coniferous forest, and pinyon and juniper woodland. It is known from 2,950 to 8,100 ft. This species blooms from June to August.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Spreading navarretia (<i>Naverretia fossalis</i>)	-/-/1B.1	This annual herb is found in chenopod scrub, assorted shallow freshwater habitats of marshes and swamps, playas, and vernal pools. It can be found at elevations ranging from 95 ft. to 2,150 ft. amsl. It blooms from April through June.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Short-joint beavertail (<i>Opuntia basilaris</i> var. <i>brachyolada</i>)	-/-/1B.2	This perennial stem succulent occurs in chaparral, Joshua tree woodland, Mojavean desert scrub, and pinyon and juniper woodland at elevations between 1,390 ft. and 5,905 ft. amsl. Blooming period is from April to June, occasionally through August.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Salt spring checkerbloom (<i>Sidalcea neomexicana</i>)	-/-/2B.2	This perennial herb can be found in alkaline, mesic soils in chaparral, coastal scrub, lower montane coniferous forest, Mojavean desert scrub, and playa habitats. It occurs at elevations ranging from 45 ft. to 5,020 ft. amsl and blooms from March to June.	Not expected. Suitable habitat is not present within the study area.	Not expected. Suitable habitat is not present within the study area.
Southern jewelflower (<i>Streptanthus campestris</i>)	-/-/1B.3	This perennial herb occurs on rocky soils in chaparral, lower montane coniferous forest, and pinyon and	Not expected. Suitable habitat is not	Not expected. Suitable habitat is not present within the study area.

COMMON NAME/ SCIENTIFIC NAME	STATUS FEDERAL/ STATE/ CRPR ^a	SPECIES REQUIREMENTS	RATIONALE:	
			Estrella Solar Facility	Gen-Tie Routes
		juniper woodland habitats at elevations ranging from 2,950 ft. to 7,545 ft. amsl. The blooming period is typically from May to July, occasionally blooming in April.	present within the study area.	

COMMON NAME/ SCIENTIFIC NAME	STATUS: FEDERAL/ STATE	SPECIES REQUIREMENTS	RATIONALE	
			Estrella Solar Facility	Gen-Tie Routes
Invertebrates				
Crotch bumble bee (<i>Bombus crotchii</i>)	-/CS	Generalist forager in open grassland and scrub habitats.	Not expected to occur. No suitable habitat present in the study area	Moderate potential. CNDDDB indicates this species has potential occurrence well outside of the study area. Habitats in the proposed project area include flowering plants within scrub habitats.
Reptiles				
Northern California Legless Lizard (<i>Anniella pulchra</i>)	-/SSC	Occurs in coastal dune, grasslands, chaparral, and coastal scrub habitat types within sandy or loose loamy soils with a high moisture content. Common in Coast Ranges from Antioch/Contra Costa County south to the Mexican border. Elevation from near sea level to about 6,000 ft. amsl. Spotty occurrence in San Joaquin Valley from San Joaquin County south, west slope of the southern Sierra, the Tehachapi Mountains west of the desert, and the mountains of southern California.	Not expected to occur. No suitable habitat present in the study area	Moderate potential. Potentially suitable habitat is present within the study area.
Desert Tortoise (<i>Gopherus agassizii</i>)	FT/ST	Terrestrial tortoise that inhabits burrows on sandy flats, rocky foothills, alluvial fans, canyons, washes and other open areas throughout the Mojave and Sonoran deserts below 3,500 feet in	Not expected to occur. Suitable habitat does not exist within the study area	Not expected to occur. Marginally suitable habitat present in the study area. Site is within the historical

		elevation. Species is most active from March through June and from September through October. Populations north and west of the Colorado River are listed as federally threatened. Known to be absent within the Coachella Valley west of the Salton Sea. Additionally, known to be present in the northern, eastern and western rims of the Coachella Valley within the foothills of the Little San Bernardino Mountains, the Painted and Whitewater Hills, and the San Jacinto and northern Santa Rosa Mountains.		range of this species, but desert tortoise is not known to be extant in this area.
Coast Horned Lizard (<i>Phrynosoma blainvillii</i>)	-/SSC	Found in arid and semi-arid climate conditions in chaparral and coastal sage scrub habitats, primarily below 2,000 ft. amsl in elevation. Critical factors are the presence of loose soils with a high sand fraction; an abundance of native ants or other insects, especially harvester ants (<i>Pogonomyrmex</i> spp.); and the availability of both sunny basking spots and dense cover for refuge.	Not expected to occur. Suitable habitat does not exist within the study area. This species occurs in foothills around the Antelope Valley; on the valley floor it is replaced by desert horned lizard (<i>Phrynosoma platyrhinos</i>).	Not expected to occur. Suitable habitat does not exist within the study area. This species occurs in foothills around the Antelope Valley; on the valley floor it is replaced by desert horned lizard (<i>Phrynosoma platyrhinos</i>).
Birds				
Tricolored Blackbird (<i>Agelaius tricolor</i>)	-/ST	Occurs in open country in western Oregon, California, and northwestern Baja California. Breeds near freshwater, preferably in emergent wetland with tall, dense cattails or tules, but also in thickets of willow (<i>Salix</i> spp.), blackberry (<i>Rubus</i> spp.), wild rose (<i>Rosa</i> spp.), tall herbs and forages in grassland and cropland habitats. Seeks cover for roosting in emergent wetland vegetation, especially cattails (<i>Typha</i> spp.) and tules	Present. This species was incidentally observed during biological surveys conducted in 2020. The study area contains suitable foraging habitat for this species. The study area does not support	High potential (foraging). The study area contains suitable foraging habitat for this species. The study area does not support suitable breeding habitat for this species. This species was observed during the

		(<i>Scirpus</i> spp.), and also in trees and shrubs.	suitable breeding habitat for this species.	biological surveys conducted in 2020.
Golden Eagle (<i>Aquila chrysaetos</i>)	-/CFP	Forages in grassland and open savannah of many types. It tolerates considerable variation in topography and elevation. It prefers to hunt moderate-sized prey, especially California Ground Squirrels (<i>Spermophilus beecheyi</i>) and rabbits, but will occasionally take larger prey, such as Mule Deer (<i>Odocoileus hemionus</i>) fawns. Nests on cliffs of all heights, and occasionally in large trees in open areas, in rugged, open habitats with canyons and escarpments. It is very sensitive to human disturbance, especially near nest sites.	Low potential. No suitable nesting habitat occurs within the study area. The study area is open habitat that could serve as foraging habitat for golden eagle, but no evidence of suitable prey species (ground squirrels or lagomorphs) was observed.	Moderate potential (foraging). No suitable nesting habitat occurs within the study area. The study area is open habitat that could serve as foraging habitat for golden eagle.
Burrowing Owl (<i>Athene cunicularia</i>)	-/SSC	Inhabits open, dry grasslands, prairie, desert floor, and open scrub habitats. Commonly found in areas altered by man, including flood control channels and basins, abandoned or open fields, agricultural and livestock areas, and road cuts. In California, commonly uses ground squirrels burrows. Also known to utilize piles of broken concrete, old pipes, and other abandoned structures for burrows.	High potential. Utilizes habitat such as the study area but no suitable burrows were observed during focused burrow mapping surveys in April 2020. No fossorial mammals besides gophers were observed.	Present. Suitable foraging habitat and nesting burrows present within the study area. This species was observed during the biological surveys conducted in 2020.

<p>Swainson's Hawk (<i>Buteo swainsoni</i>)</p>	<p>-/ST</p>	<p>Suitable breeding habitat consists of areas containing Joshua trees, Fremont cottonwoods, or other large trees located adjacent to open fields, including agricultural fields. Forages in open desert, grasslands, agricultural fields, or livestock pastures.</p>	<p>Present. An active SWHA nest was observed in 2020 approximately 0.4-mile from the project area. The study area is high quality foraging habitat for Swainson's hawk, with an abundance of gophers, the preferred prey species during breeding.</p>	<p>High potential. Suitable nesting habitat occurs in the proposed project vicinity and suitable foraging habitat occurs on site. This species was observed during the biological surveys conducted in 2020.</p>
<p>Mountain Plover (<i>Charadrius montanus</i>)</p>	<p>-/SSC</p>	<p>Occurs in short grasslands, plowed fields with little vegetation, and open sagebrush areas. Nests in short-grass prairies in the western Great Plains and Rocky Mountain states, but winters along the Pacific and Gulf Coasts and in the Southwest. In California, generally winters in the Sacramento, San Joaquin, Panoche, Antelope, and Imperial valleys, with very small numbers occurring in the coastal region.</p>	<p>Moderate potential. This species does not nest in California. However, suitable wintering habitat occurs in the study area.</p>	<p>Moderate potential. This species does not nest in California. However, suitable wintering habitat occurs in the study area.</p>
<p>Northern Harrier (<i>Circus hudsonius</i>)</p>	<p>-/SSC</p>	<p>This is a medium-small, lightly built bird of prey which hunts low to the ground mostly in open country, nesting on the ground. Prey diversity is high, though small mammals are most commonly taken. This is the only North American hawk that locates much of its prey by hearing as it quarters low over the vegetation. It was formerly a fairly common breeder in much of coastal southern California, but now is nearly extirpated in this role due to loss of</p>	<p>High potential. The study area is suitable breeding and foraging habitat for this species, and this species is known from the vicinity. Nesting: HP Foraging: HP</p>	<p>High potential. The study area is suitable breeding and foraging habitat for this species, and this species is known from the vicinity. This species was observed during the biological surveys conducted in 2020.</p>

		native open habitats, especially marshes. It remains fairly common in open country with low human disturbance during migration and in winter.		
Willow Flycatcher (<i>Empidonax traillii</i>)	FE/SE	A broadly distributed species, breeding interruptedly across much of the United States and Canada. In California it is nearly restricted to the Sierra Nevada Mountains and a few populations scattered through southern California. Several subspecies are recognized. Southern California is within the range of the subspecies <i>E.t. extimus</i> (southwestern willow flycatcher). During migration, southern California is host to other subspecies of willow flycatcher passing between breeding areas farther north (Sierra Nevada north to Canada) and their winter range farther south (Central America). These migrants of other subspecies are found in a wide variety of habitats, and are uncommon to fairly common in spring and fall.	Low potential. No suitable nesting or foraging habitat is present in the study area, Very limited potential perching habitat even during migration.	Low potential. No suitable nesting or foraging habitat is present in the study area, Very limited potential perching habitat even during migration.
Peregrine Falcon (<i>Falco americanus</i>)	-/CFP	Nest on ledges on rocky cliffs or earthen bluffs, or some manmade structures. Prey on birds and bats over a variety of habitat types..	Present. An incidental flyover was observed during surveys in April 2020. No suitable nesting habitat within the study area. The species could forage over the site.	High potential (foraging). No suitable nesting habitat within the study area. The species could forage over the study area.
Loggerhead Shrike (<i>Lanius ludovicianus</i>)	-/SSC	Found as a common resident and winter visitor throughout California in lowland and foothill habitats, where it frequents open areas with sparse shrubs and trees.	High potential. Mildly suitable breeding and foraging habitat present in the study area. Known	High potential. Suitable breeding and foraging habitat present in the study area. This species was observed

			from vicinity. Could utilize utility poles along 90 th Street as perches. .	during the biological surveys conducted in 2020.
Yellow Warbler (<i>Setophagia petechia</i>)	-/SSC	Occupy riparian vegetation in close proximity to water along streams and in wet meadows, nests in trees. Generalist that is primarily insectivorous in California.	Present. A migrant was observed within the study area. No suitable habitat for foraging or nesting was present in the study area.	Present. A migrant was observed within the study area. No suitable habitat for foraging or nesting was present in the study area.
Le Conte's Thrasher (<i>Toxostoma lecontei</i>)	-/SSC	Year round resident. Inhabits sparsely vegetated flats, dunes, washes, alluvial fans or gently rolling hills with a high cover of <i>Atriplex</i> or <i>Opuntia</i> .	Not expected to occur. Suitable desert scrub habitat is absent from the study area.	Moderate potential. Marginally suitable foraging habitat is present in the study area.
Least Bell's Vireo (<i>Vireo bellii pusillus</i>)	FE/SE	Riparian thickets either near water or in dry portions of river bottoms; nests along margins of bushes and forages low to the ground; may also be found using mesquite and arrow weed in desert canyons.	Low potential. No suitable nesting or foraging habitat is present in the study area, Very limited potential perching habitat even during migration.	Low potential. No suitable nesting or foraging habitat is present in the study area, Very limited potential perching habitat even during migration.
Yellow-headed Blackbird (<i>Xanthocephalus xanthocephalus</i>)	-/SSC	Most numerous in prairie wetlands, is a conspicuous breeding bird in deep-water, emergent wetlands throughout non-forested regions of western North America. Highly social, these large-bodied blackbirds are polygynous, nesting on grouped territories. Postbreeding birds eat mostly grains,	Present. This species was incidentally observed during biological surveys conducted in 2020. The study area contains suitable foraging habitat for	High potential. This species is known to forage in the vicinity. The study area contains suitable foraging habitat for this species. The study area does not support suitable

		often forming large flocks that forage in uplands and roost in wetlands. Flocks migrate to the southern United States and Mexico for the winter.	this species. The study area does not support suitable breeding habitat for this species.	breeding habitat for this species.
Mammals				
Townsend's Big-eared Bat (<i>Corynorhinus townsendii</i>)	-/SSC	This species generally roost in caves, mines, and buildings. It forages in a variety of habitats including, mixed desert scrub, primarily in riparian corridors, closely following creeks or streams, and edge habitats eating insect prey.	Not expected to occur. Suitable roosting habitat and foraging habitat is not present within the study area, but does occur within the surrounding terrain. Suitable foraging habitat exists throughout the study area.	Not expected to occur. Suitable roosting habitat and foraging habitat is not present within the study area, but does occur within the surrounding terrain. Suitable foraging habitat exists throughout the study area.
Tulare Grasshopper Mouse (<i>Onychomys torridus tularensis</i>)	-/SSC	Low open scrub and desert scrub. Historic range extended along foothills and floor of southern San Joaquin Valley from western Merced and eastern San Benito counties, east to Madera County, and south to the foothills of the Tehachapi and San Emigdio mountains.	Not expected to occur. Suitable desert scrub habitat absent from the study area.	Not expected to occur. Suitable desert scrub habitat absent from the study area.
Tehachapi Pocket Mouse (<i>Perognathus alticolus inexpectatus</i>)	-/SSC	Habitat not well defined; generally found in grasslands, desert scrub, pine woodlands, and fallow fields. Burrows for cover and nesting. From Tehachapi Pass, west to Mount Pinos, and south to Elizabeth and Quail Lakes, at elevations from 3,379 ft. to 6,004 ft. amsl.	Not expected to occur. Suitable desert scrub habitat absent from the study area.	Not expected to occur. Suitable desert scrub habitat absent from the study area.

<p>American Badger (<i>Taxidea taxus</i>)</p>	<p>-/SSC</p>	<p>Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils.</p>	<p>Low potential. Suitable habitat occurs within the study area. However, no burrows large enough to support this species were found within the study area during 2020 field surveys and no ground squirrel prey were observed. Low potential for this species to move into the site before construction.</p>	<p>Moderate potential. Suitable habitat occurs within the study area. Not observed during focused surveys for burrowing owl but this species could move into the site before construction.</p>
<p>Desert Kit Fox (<i>Vulpes macrotis arsipus</i>)</p>	<p>-/FBM</p>	<p>Open desert on creosote bush flats, desert scrub, chaparral, and grasslands. Kit fox can also be found in urban and agricultural areas.</p>	<p>Low potential. Suitable habitat occurs within the study area. However, no burrows large enough to support this species were found within the study area during 2020 field surveys and no ground squirrel prey were observed. Low potential for this species to move into the site before construction.</p>	<p>Moderate potential. Suitable habitat occurs within the study area. Not observed during focused surveys for burrowing owl but this species could move into the site before construction.</p>
<p>Mohave Ground Squirrel (<i>Xerospermophilus mohavensis</i>)</p>	<p>-/ST</p>	<p>Land supporting desert shrub vegetation within the geographic range of the species. It is restricted to the Mojave Desert in San Bernardino, Los Angeles, Kern, and Inyo counties and is rare throughout its range. Populations in</p>	<p>Not expected to occur. No suitable habitat to support this species is present within the study area. The study area is outside of the</p>	<p>Not expected to occur. The study area is outside of the generally accepted current range of this species. In addition, there are no records of occurrence</p>

		southwestern San Bernardino County appear to be extirpated.	generally accepted current range of this species. In addition, there are no records of occurrence for this species west of State Route 14 between Palmdale and Mojave.	for this species west of State Route 14 between Palmdale and Mojave.
Valley Needlegrass Grassland	CNDDDB	n/a	This community does not occur within the study area.	This community does not occur within the study area.
Wildflower Field	CNDDDB	n/a	This community does not occur within the study area.	This community occurs within the study area.
<p>^a <u>Status Codes</u></p> <p>Federal FE = Federally listed; Endangered PE = Proposed Endangered FT = Federally listed; Threatened FC = Federal Candidate for Listing D = Delisted</p> <p>State SE = State listed; Endangered ST = State listed; Threatened SC = State Candidate for Listing SSC = Species of Special Concern CFP = California Fully Protected Species FBM = Fur-bearing mammal</p>		<p>^b <u>Habitat Presence/Absence Codes</u></p> <p>P = The species is present. HP =Habitat is or may be present. The species may be present. HA = No habitat present and no further work needed. A = This species is absent.</p>		

Appendix C
Photo Log

<p>Date & Time Fri, Apr 10, 2020, 09:55:43 PDT Position: +037.81222° N -118.29522° W 16.216 Altitude: 22619 ft (6.876 Datum: WGS 84 Azimuth Bearing: 349° N 1°W 3204mils True (+12°) Elevation Angle: -03.7° Horizon Angle: -00.8° Zoom: 1.0X</p> 	<p>Photo Number: 1</p> <p>Photo Date: April 10, 2020</p> <p>Description: View from south site of site looking north.</p>
<p>Date & Time Fri, Apr 10, 2020, 09:04:07 PDT Position: +037.816771° N -118.295823° W 32.816 Altitude: 22671 ft (6.9116 Datum: WGS 84 Azimuth Bearing: 093° S87E 1453mils True (+12°) Elevation Angle: -04.9° Horizon Angle: -00.5° Zoom: 1.0X</p> 	<p>Photo Number: 2</p> <p>Photo Date: April 10, 2020</p> <p>Description: View from center of site looking east.</p>
<p>Date & Time Fri, Apr 10, 2020, 09:04:22 PDT Position: +037.816866° N -118.295806° W 14.416 Altitude: 22671 ft (6.9116 Datum: WGS 84 Azimuth Bearing: 232° S52W 4122mils True (+12°) Elevation Angle: -02.0° Horizon Angle: +00.2° Zoom: 1.0X</p> 	<p>Photo Number: 3</p> <p>Photo Date: April 10, 2020</p> <p>Description: View from center of site looking southwest.</p>

<p>Date & Time: Mon, Dec 09, 2019, 13:39:53 PST Position: +034.812637° / -118.290953° (=16.4ft) Altitude: 2421ft (=9.8ft) Datum: WGS-84 Azimuth/Bearing: 278° N82W 4942mils True (=21°) Elevation Angle: -07.3° Horizon Angle: +00.8° Zoom: 1.0X P-15 gentle W</p> 	<p>Photo Number: 4</p> <p>Photo Date: December 9, 2019</p> <p>Description: Representative habitat along the southern gen-tie line; facing west.</p>
<p>Date & Time: Mon, Dec 09, 2019, 13:42:37 PST Position: +034.812137° / -118.290868° (=5045.6ft) Altitude: 2427ft (=56.7ft) Datum: WGS-84 Azimuth/Bearing: 359° N01W 6382mils True (=16°) Elevation Angle: -03.0° Horizon Angle: -01.0° Zoom: 1.0X P-15 gentle N</p> 	<p>Photo Number: 5</p> <p>Photo Date: December 9, 2019</p> <p>Description: Representative habitat along the southern gen-tie line; facing north.</p>
<p>Date & Time: Mon, Dec 09, 2019, 13:42:54 PST Position: +034.818419° / -118.290540° (=16.4ft) Altitude: 2429ft (=9.8ft) Datum: WGS-84 Azimuth/Bearing: 182° S02W 3236mils True (=15°) Elevation Angle: -07.2° Horizon Angle: +00.4° Zoom: 1.0X P-16 gentle S</p> 	<p>Photo Number: 6</p> <p>Photo Date: December 9, 2019</p> <p>Description: Representative habitat along the southern gen-tie line; facing south.</p>

<p>Date & Time: Mon, Dec 09, 2019, 13:45:24 PST Position: +034.818348° / -118.289804° (=8286.5ft) Altitude: 2426ft (=32.8ft) Datum: WGS-84 Azimuth/Bearing: 100° S80E 1778mils True (=49°) Elevation Angle: -05.3° Horizon Angle: +00.0° Zoom: 1.0X P-17 gentle E Ave. A & 90th</p> 	<p>Photo Number: 7</p> <p>Photo Date: December 9, 2019</p> <p>Description: Representative habitat along the southern gen-tie line; facing east.</p>
<p>Date & Time: Mon, Dec 09, 2019, 13:47:53 PST Position: +034.819941° / -118.290336° (=4832.0ft) Altitude: 2430ft (=54.1ft) Datum: WGS-84 Azimuth/Bearing: 008° N08E 0142mils True (=15°) Elevation Angle: -07.5° Horizon Angle: -30.6° Zoom: 1.0X P-18 gentle N over Ave. A</p> 	<p>Photo Number: 8</p> <p>Photo Date: December 9, 2019</p> <p>Description: Representative habitat along the southern gen-tie line; facing north.</p>
<p>Date & Time: Mon, Dec 09, 2019, 10:51:25 PST Position: +034.825226° / -118.290615° (=16.4ft) Altitude: 2437ft (=13.1ft) Datum: WGS-84 Azimuth/Bearing: 252° S72W 4480mils True (=13°) Elevation Angle: +11.3° Horizon Angle: -00.0° Zoom: 1.0X P-11 SWHA nest</p> 	<p>Photo Number: 9</p> <p>Photo Date: December 9, 2019</p> <p>Description: Swainson's hawk nest on the western side of 90th west; facing west.</p>

<p>Date & Time: Mon, Dec 09, 2019, 13:30:39 PST Position: +034.806339° / -118.299098° (±16.4ft) Altitude: 2452ft (±13.1ft) Datum: WGS-84 Azimuth/Bearing: 002° N02E 0036mils True (±20°) Elevation Angle: -06.0° Horizon Angle: -30.3° Zoom: 1.0X P=12 gentle N 95th st</p> 	<p>Photo Number: 10</p> <p>Photo Date: December 9, 2019</p> <p>Description: Representative habitat along the southern gen-tie line; facing north.</p>
<p>Date & Time: Mon, Dec 09, 2019, 13:25:49 PST Position: +034.805448° / -118.307693° (±32.8ft) Altitude: 2472ft (±13.1ft) Datum: WGS-84 Azimuth/Bearing: 082° N82E 1458mils True (±17°) Elevation Angle: -06.1° Horizon Angle: -30.5° Zoom: 1.0X P=12 gentle</p> 	<p>Photo Number: 11</p> <p>Photo Date: December 9, 2019</p> <p>Description: Representative habitat and lack of NHD-mapped stream feature along the southern gen-tie line; facing east.</p>
	<p>Photo Number: 12</p> <p>Photo Date: April 10, 2020</p> <p>Description: Representative habitat along north side of Avenue B and 110th Street West; facing east.</p>

	<p>Photo Number: 13</p> <p>Photo Date: April 10, 2020</p> <p>Description: Representative habitat along south side of SR-138 (Avenue D) and 100th Street West; facing west.</p>
	<p>Photo Number: 14</p> <p>Photo Date: July 6, 2020</p> <p>Description: Active burrowing owl nest located approximately 500 feet west of the 100th Street West gen-tie route. Two juvenile owls are standing at the entrance of the burrow. The nest is located in the Antelope Expansion 2 Solar Project.</p>
	<p>Photo Number: 15</p> <p>Photo Date: April 23, 2020</p> <p>Description: Photographed from 100th Street West. The intersection of West Avenue F and 100th Street West is approximately 0.25 mile south from this location; facing south.</p>

Appendix D Plant and Wildlife Species Observed

Appendix D-1, *Plant Species Observed*

Appendix D-2, *Wildlife Species Observed*

Appendix D-1
Plant Species Observed

Appendix D-1 Plant Species Observed

Scientific Name	Common Name	Special Status
GYMNOSPERMS		
Ephedraceae - Ephedra family		
¹ <i>Ephedra nevadensis</i>	Nevada ephedra	
Pinaceae - Pine family		
¹ <i>Pinus halepense</i>	Aleppo pine	
EUDICOTS		
Apiaceae - Carrot family		
¹ <i>Lomatium mohavense</i>	Mojave lomatium	
Asteraceae - Sunflower family		
¹ <i>Ambrosia acanthicarpa</i>	Annual bur-sage	
¹ <i>Ambrosia salsola</i>	Cheesebush	
¹ <i>Chaenactis xantiana</i>	Fleshy pincushion	
¹ <i>Ericameria cooperi var. cooperi</i>	Cooper's goldenbush	
¹ <i>Erigeron canadensis</i>	Horseweed	
¹ <i>Gutierrezia sp.</i>	Matchweed	
¹ <i>Helianthus annuus</i>	Annual sunflower	
* ¹ <i>Lactuca serriola</i>	Prickly lettuce	
¹ <i>Lasthenia gracilis</i>	Common goldfields	
¹ <i>Layia glandulosa</i>	White tidy-tips	
¹ <i>Layia platyglossa</i>	Broad ray tidy-tips	
¹ <i>Leptosyne calliopsidea</i>	Leafstem tickseed	
¹ <i>Logfia depressa</i>	Dented cottonrose	
¹ <i>Malacothrix californica</i>	California desert dandelion	
¹ <i>Malacothrix coulteri</i>	Coulter's desert dandelion	
¹ <i>Malacothrix glabrata</i>	Smooth desert dandelion	
* ¹ <i>Matricaria discoidea</i>	Pineapple weed	
¹ <i>Monolopia lanceolata</i>	Lance leaf woollythreads	
¹ <i>Stephanomeria pauciflora</i>	Few flower wire-lettuce	
¹ <i>Uropappus lindleyi</i>	Silver puffs	
Boraginaceae - Borage family		
<i>Amsinckia tessellata</i>	Bristly fiddleneck	
¹ <i>Heliotropium curassavicum</i>	Alkali heliotrope	
¹ <i>Pectocarya penicillata</i>	Northern pectocarya	

Scientific Name	Common Name	Special Status
¹ <i>Pectocarya recurvata</i>	Arched-nut pectocarya	
¹ <i>Phacelia crenulata</i> var. <i>ambigua</i>	Hidden cleft leaf phacelia	
¹ <i>Phacelia fremontii</i>	Fremont's phacelia	
¹ <i>Phacelia tanacetifolia</i>	Lacy phacelia	
¹ <i>Plagiobothrys canescens</i>	Valley popcornflower	
Brassicaceae - Mustard family		
* ¹ <i>Capsella bursa-pastoris</i>	Shepherd's purse	
¹ <i>Caulanthus lasiophyllus</i>	Woolly leaf jewelflower	
* ¹ <i>Descurainia sophia</i>	Wise tansymustard	
* <i>Hirschfeldia incana</i>	Shortpod mustard	
* ¹ <i>Lepidium appelianum</i>	Whitetop pepper-grass	
¹ <i>Lepidium nitidum</i>	Shining pepper-grass	
* ¹ <i>Sisymbrium altissimum</i>	Tumble mustard	
* <i>Sisymbrium irio</i>	London rocket	
¹ <i>Tropidocarpum gracile</i>	Slender dobie pod	
Chenopodiaceae - Goosefoot family		
¹ <i>Atriplex argentea</i> var. <i>expansa</i>	Silverscale saltbush	
¹ <i>Atriplex canescens</i>	Four-wing saltbush	
¹ <i>Atriplex polycarpa</i>	Allscale saltbush	
* ¹ <i>Atriplex semibaccata</i>	Australian saltbush	
¹ <i>Atriplex spinifera</i>	Spiny saltbush	
¹ <i>Krascheninnikovia lanata</i>	Winter fat	
* <i>Salsola tragus</i>	Prickly russian thistle	
Convolvulaceae - Morning-glory family		
* ¹ <i>Convolvulus arvensis</i>	Bindweed, orchard morning-glory	
Euphorbiaceae - Spurge family		
¹ <i>Croton setigerus</i>	Doveweed	
¹ <i>Euphorbia albomarginata</i>	White margin spurge	
Fabaceae - Legume family		
¹ <i>Astragalus didymocarpus</i> var. <i>didymocarpus</i>	Dwarf milkvetch	
¹ <i>Astragalus douglasii</i> var. <i>douglasii</i>	Douglas milkvetch	
¹ <i>Astragalus lentiginosus</i> var. <i>variabilis</i>	Variable freckled milkvetch	
¹ <i>Lupinus bicolor</i>	Miniature lupine	
¹ <i>Lupinus microcarpus</i>	Chick lupine	
* ¹ <i>Medicago sativa</i>	Alfalfa	

Scientific Name	Common Name	Special Status
* <i>Robinia pseudoacacia</i>	Black locust	
Geraniaceae - Geranium family		
* <i>Erodium cicutarium</i>	Redstem filaree	
Lamiaceae - Mint family		
* ¹ <i>Marrubium vulgare</i>	Horehound	
Loasaceae - Loasa family		
¹ <i>Mentzelia sp.</i>	Blazing star	
Malvaceae - Mallow family		
* ¹ <i>Malva parviflora</i>	Cheeseweed	
Onagraceae - Evening Primrose family		
¹ <i>Camissonia campestris ssp. campestris</i>	Mojave suncup	
¹ <i>Camissonia strigulosa</i>	Sandysoil suncup	
¹ <i>Camissoniopsis bistorta</i>	California sun cup	
¹ <i>Oenothera californica ssp. californica</i>	California evening primrose	
¹ <i>Tetrapteron palmeri</i>	Palmer's sun cup	
Orobanchaceae - Broom-rape family		
¹ <i>Castilleja exserta ssp. exserta</i>	Purple owl's clover	
Papaveraceae - Poppy family		
¹ <i>Eschscholzia californica</i>	California poppy	
¹ <i>Platystemon californicus</i>	Cream cups	
*Plantaginaceae - Plantain family		
* ¹ <i>Plantago lanceolata</i>	English plantain	
Polemoniaceae - Phlox family		
¹ <i>Gilia minor</i>	Little gilia	
¹ <i>Leptosiphon liniflorus</i>	Narrowflower leptosiphon	
Polygonaceae - Buckwheat family		
¹ <i>Eriogonum angulosum</i>	Angle-stem buckwheat	
¹ <i>Eriogonum fasciculatum</i>	California buckwheat	
¹ <i>Eriogonum sp.</i>	Buckwheat	
* ¹ <i>Polygonum aviculare</i>	Oval Leaf knotweed	
Solanaceae - Nightshade family		
¹ <i>Datura wrightii</i>	Wright's jimsonweed	
¹ <i>Lycium andersonii</i>	Anderson's box-thorn	
¹ <i>Lycium cooperi</i>	Cooper's box-thorn	
* ¹ <i>Solanum elaeagnifolium</i>	Silverleaf nightshade	

Scientific Name	Common Name	Special Status
Tamaricaceae - Tamarisk family		
* ¹ <i>Tamarix ramosissima</i>	Hairy tamarix	
Ulmaceae - Elm family		
* <i>Ulmus parvifolia</i>	Chinese elm	
* ¹ <i>Ulmus pumila</i>	Siberian elm	
Zygophyllaceae - Caltrop family		
¹ <i>Larrea tridentata</i>	Creosote bush	
MONOCOTS		
Alliaceae - Onion or Garlic family		
¹ <i>Allium fimbriatum</i>	Fringed onion	
Poaceae - Grass family		
* ¹ <i>Avena fatua</i>	Wild oat	
¹ <i>Bromus berteroi</i>	Chilean brome	
* ¹ <i>Bromus diandrus</i>	Ripgut brome	
* <i>Bromus hordeaceus</i>	Soft brome	
* <i>Bromus rubens</i>	Red brome	
* <i>Bromus tectorum</i>	Cheatgrass	
* ¹ <i>Cynodon dactylon</i>	Bermuda grass	
¹ <i>Festuca microstachys</i>	Pacific fescue	
* ¹ <i>Hordeum murinum</i>	Wall barley	
* ¹ <i>Schismus arabicus</i>	Arabian schismus	
* <i>Schismus barbatus</i>	Mediterranean schismus	
¹ <i>Stipa cernua</i>	Nodding needle grass	
* ¹ <i>Triticum aestivum</i>	Wheat	

Scientific Name	Common Name	Special Status
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Legend

*= Non-native or invasive species

¹= Species detected on Gen-tie only

Special Status:

Federal:

FE = Endangered

FT = Threatened

State:

SE = Endangered

ST =Threatened

SR = Rare

CRPR – California Rare Plant Rank

1A. Presumed extinct in California and elsewhere

1B. Rare or Endangered in California and elsewhere

2A. Presumed extinct in California, more common elsewhere

2B. Rare or Endangered in California, more common elsewhere

3. Plants for which we need more information - Review list

4. Plants of limited distribution - Watch list

Threat Ranks

.1 - Seriously endangered in California

.2 – Fairly endangered in California

.3 – Not very endangered in California

Appendix D-2
Wildlife Species Observed

Appendix D-2. Wildlife Species Observed

Scientific Name	Common Name	Special Status
VERTEBRATES		
Birds		
<i>Callipepla californica</i>	California Quail	
¹ <i>Circus cyaneus</i>	Northern Harrier	CSC
<i>Buteo swainsoni</i>	Swainson's Hawk	ST
<i>Buteo jamaicensis</i>	Red-tailed Hawk	
<i>Charadrius vociferus</i>	Killdeer	
<i>Numenius phaeopus</i>	Whimbrel	
* <i>Columba livia</i>	Rock Pigeon	
* <i>Streptopelia decaocto</i>	Eurasian Collared-Dove	
¹ <i>Zenaida macroura</i>	Mourning Dove	
<i>Bubo virginianus</i>	Great Horned Owl	
¹ <i>Colaptes auratus</i>	Northern Flicker	
¹ <i>Falco sparverius</i>	American Kestrel	
<i>Falco columbarius</i>	Merlin	
<i>Falco peregrinus anatum</i>	American Peregrine Falcon	CFP
<i>Falco mexicanus</i>	Prairie Falcon	
<i>Sayornis nigricans</i>	Black Phoebe	
<i>Sayornis saya</i>	Say's Phoebe	
<i>Tyrannus vociferans</i>	Cassin's Kingbird	
<i>Tyrannus verticalis</i>	Western Kingbird	
<i>Lanius ludovicianus</i>	Loggerhead Shrike	CSC
<i>Corvus corax</i>	Common Raven	
<i>Eremophila alpestris</i>	Horned Lark	
<i>Hirundo rustica</i>	Barn Swallow	
<i>Troglodytes aedon</i>	House Wren	
<i>Sialia currucoides</i>	Mountain Bluebird	
<i>Mimus polyglottos</i>	Northern Mockingbird	
* <i>Sturnus vulgaris</i>	European Starling	
<i>Oreothypis celata</i>	Orange-crowned Warbler	
<i>Setophaga petechia</i>	Yellow Warbler	SSC
<i>Setophaga coronata</i>	Yellow-rumped Warbler	

Scientific Name	Common Name	Special Status
<i>Cardellina pusilla</i>	Wilson's Warbler	
¹ <i>Spizella breweri</i>	Brewer's Sparrow	
<i>Artemisiospiza belli</i>	Bell's Sparrow	
<i>Passerculus sandwichensis</i>	Savannah Sparrow	
<i>Zonotrichia leucophrys</i>	White-crowned Sparrow	
<i>Zonotrichia atricapilla</i>	Golden-crowned Sparrow	
<i>Piranga ludoviciana</i>	Western Tanager	
<i>Passerina amoena</i>	Lazuli Bunting	
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	
<i>Agelaius tricolor</i>	Tricolored Blackbird	ST
<i>Sturnella neglecta</i>	Western Meadowlark	
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird	SSC
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	
<i>Haemorhous mexicanus</i>	House Finch	
* <i>Passer domesticus</i>	House Sparrow	
Mammals		
¹ <i>Ammospermophilus leucurus</i>	White-tailed Antelope Squirrel	
¹ <i>Sylvilagus audubonii</i>	Desert Cottontail	
¹ <i>Lepus californicus</i>	Black-tailed Jackrabbit	
¹ <i>Ostospermophilus beecheyi</i>	California Ground Squirrel	
<i>Thomomys bottae</i>	Botta's Pocket Gopher	
<i>Canis latrans</i>	Coyote	

Legend

*= Non-native or invasive species

¹ = Species detected on Gen-tie only

Special Status:

Federal:

FE = Endangered

FT = Threatened

State:

SE = Endangered

ST =Threatened

SSC = California Species of Special Concern

CFP = California Fully Protected Species
